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Abstract

This paper uses the unique social structure of Arab communities to examine the effect of social identity on voter turnout. We first show that voters are more likely to vote for a candidate who shares their social group (signified by last name) as compared to other candidates. Using last name as a measure of group affiliation, we find an inverted U-shaped relationship between group size and voter turnout which is consistent with theoretical models that reconcile the paradox of voting by incorporating groups behavior.

Key words: Voter turnout, paradox of voting, social identity, local elections
JEL classifications: H0, D70, D72

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Introduction

Introducing the role of group membership in determining the decision to vote seems to be one of the more promising routes to reconcile the voting paradox. The pure self-interest approach fails to account for actual political participation because the probability that a single vote would affect elections results is very small in large populations. In contrast, acting as part of a particular group, as suggested by social identity theory, may fundamentally change the probability of affecting an election outcome or the benefits from the act of voting and therefore the incentive to vote.

Attempts to explain the relatively high political participation in the real world by taking into consideration the importance of groups have been made by both economists and political scientists.[2] Yet, to date there is scarce empirical evidence on the importance of groups for voter turnout.

Based on three congressional elections, Uhlaner (1989) presented indicative evidence that is in line with the group hypothesis by showing that union households tend to vote (self-reported) more than non-union households. In a more systematic empirical examination, Filer *et al* (1993) found that turnout first declines and then increases along with increases in relative income and conclude that this finding is consistent with a rational model of voting that incorporates group behavior. Coate and Conlin (2004) share the same conclusion based on a structural estimation of a group-utilitarian model using voter turnout in liquor referenda in Texas. While these last two empirical works are suggestive, the notion of group behavior has not yet been tested directly.[3]

The goal of this paper is to examine directly the effect of social identity on voter turnout in local elections in Israel. The unique social grouping of Arab communities, unlike the Western structure of Jewish society, offers an almost ideal "experiment" to directly test the effect of group membership on voter turnout.

[2] In Economics, two recent papers, inspired by Harsani (1980), explore the effect of groups on individuals' decisions to vote in a general and large election (Feddersen and Sandroni, 2006 and Coate and Conlin, 2004). In Political Science, the role of groups appears in Uhlaner (1989), Morton (1991) and Filer *et al* (1993).

[3] Fowler and Kam (2007) present a direct test on the effect of social identity on voter turnout using laboratory experiments. Shamir and Arian (1999) have examined the effect of collective identity on voting behavior.

The social structure of a typical Arab village/town in the Middle East, including the Arab population in Israel, is commonly composed of several distinct groups called *hamulote* (plural of *hamula*). A *hamula* is defined by anthropologists as a group of several related extended families that share a common great-grandfather and are organized in a lineage of separate type.[4] The *hamula* has a long history of rich relations among its members, such as intra-marriage and a substitute arrangement for capital and insurance markets (Cohen, 1965). Unlike a tribe, a *hamula* consists of independent, property-owning families.

Frequently, an Arab community consists of two to four *hamulote* where each *hamula* lives in a different geographical quarter. The unique social structure in Arab communities should be expected to have a noteworthy effect on voting patterns and voter turnout in local elections if the *hamula* is an influential social group. There is suggestive evidence that indeed a *hamula* is an important component of self-concept for many Arab individuals, consistent with Tajfel (1981) definition of social identity.[5]

Tajfel (1981) define social identity as, "that part of an individual's self-concept which derives from his knowledge of his membership in a social group together with the value and emotional significance attached to the membership" (p.255). The social identity theory suggests that individuals care not only about their own benefits but also about the benefits to their affiliated group members. Benefits are of a symbolic nature, such as respect and perceived status according to this theory (Huddy, 2003). The main prediction of social identity theory with regard to political behavior is that individuals who feel part of a group are more likely to participate in elections (Fowler and Kam, 2007).[6]

The implication in our context is that voter turnout in Arab municipalities should be higher than that in Jewish municipalities, which have relatively similar social structures to typical Western communities. We start our empirical investigation by exploring the

[4] See Cohen (1965), Rosenfeld (1974) and Al-Haj (1988) for more detailed definition of a hamula.
[5] In some cases it takes the extreme form of assigning children to different classes in a school by their *hamula* affiliation.
[6] Note that unlike altruist agents who care about the benefits of all other members in society, social identifiers care about the welfare of a particular group of individuals. Fowler and Kam (2007) present a very neat framework where altruism and social identity political motives are separated.

differences in actual voter turnout between Jewish and Arab municipalities controlling for the standard factors influencing political participation.

A more subtle prediction suggested by a framework that takes into account group behavior refers to the effect of group size on voter turnout. Feddersen and Sandroni (2006) show that group size has an inverted U-shape impact on voter turnout in a two-party system. The intuition of that result is that if one group is large enough it would be more efficient for a small share of that group to show up to win the elections in contrast to the case where the two groups are of equal size. However, the relationship between group size and voter turnout becomes more complicated in multi-party elections. In fact, Coate and Conlin (2004) show that even in a two-party system, relations between group size and voter turnout is unclear but their simulation nevertheless generates an inverted U-shape as suggested by Feddersen and Sandroni (2006). We use our disaggregate data on social structure and voter turnout in local elections to test that prediction.

Do *hamula* members actually vote for a *hamula*-based list in local elections? In the first phase we test whether voters with a particular last name are more likely to vote for a candidate with the same last name as compared to other candidates. This is a vital part of our empirical investigation to uncover whether a *hamula* is indeed a meaningful social group in the political arena.

The relatively low impact of Arab citizens on national elections outcome is another factor that may play a role in understanding their political participation in local elections. According to the compensation hypothesis, the Arab citizens in Israel tend to vote at lower rates in general elections because they feel less attached to Jewish nature of Israel than Jewish citizens. This results in compensating behavior which may affect participation in local elections.

In the next section we present the voter turnout puzzle in Israeli local elections and in Section 3 we provide the theoretical background to guide our empirical investigation. In Section 4 we examine the two main hypotheses that stem from social identity theory. In Section 5 the compensation hypothesis is presented and tested. Section 6 concludes the paper.

2. The voter turnout puzzle in Israeli local elections

Comparative data on political participation in developed countries shows that voter turnout in local elections is in general lower than that of general elections for parliament or presidency. The gap between national and local elections is noticeable in developed countries and on average is around 14 percent (Blais, 2000). There is relatively wide variance in that the gap is large in English-speaking countries (US, UK and New Zealand), while it is small in continental Europe. Japan (and to some extent Belgium) represents an exceptional case where voter turnout in local elections is higher than in national elections.

The greater importance of national elections is the common explanation for its higher voter turnout (Morlan, 1984). In national elections citizens elect a body which makes decisions that have more significant impact on their welfare as compared to local elections, and therefore they tend to vote at higher rates.

Voter turnout in local elections in Israel is lower relative to national elections, as in most developed countries. The voter turnout in the Israeli national elections held in 2003 was approximately 68 percent, as compared to 51 percent in local elections in the same year (but not the same day). Similar to English-speaking countries the gap in favor of voter turnout in national elections is around 20 percentage points (last three election campaigns).

However, the average voter turnout in local elections hides substantial differences in political participation between Arab and Jewish municipalities. Voter turnout in Jewish municipalities is lower than that of Jewish citizens in national elections as found for most developed countries. In contrast, Arab citizens tend to vote at much higher rates in local elections relative to national elections.

In the last local elections (2003) voter turnout in Arab municipalities stood at close to 90 percent, while the average participation in national elections in those same municipalities was 63 percent only (Table 1a). The high voter turnout of Arab municipalities is not unique to the last elections; in fact it has been incredibly high since the first local elections (Chart 1).

The very high voter turnout in Arab municipalities is puzzling in light of two factors. First, those municipalities tend to experience recurrent financial crises (associated with low quality of local services) which may tend to deter potential voters. Second, the high voter turnout implies very active participation of Arab women, who are usually discouraged to be that active in other areas of life such as labor force participation.[7] Moreover, not even a single female is found among hundreds of mayoral candidates despite the very high voter turnout among women.

It is commonly hypothesized that the high political participation rate in Arab municipalities is related to the unique social structure of Arab communities.[8] Most of the literature on the link between voter turnout in local elections and social structure of Arab communities is of a descriptive nature. Two exceptions are the studies by Cohen (1965) and Al-Haj (1988), who have explored the strength of *hamula* throughout most of the twentieth century. They both provide descriptive evidence that lend support for the *hamula*-based-voting hypothesis, although their investigation was limited to one municipality. Another hypothesis is that voter turnout in local elections is high because of lower turnout in national elections. We will come back to this in Section 5.

3. Theoretical background and econometric models

According to social identity theory, individuals derive utility from affiliating with social groups (Tajfel, 1981). There are two empirical implications of social identity theory that will be presented in the form of hypotheses and examined in the empirical section. First, some people act politically for the benefit of their groups by voting for candidates that favor their social group's interests (i.e., the *hamula*-based-voting-hypothesis). These individuals are instrumental, but only as part of a group. Second, people with a sense of attachment to a certain social group are expected to participate in elections more than those individuals who are mainly self-interested (i.e., the *group size* hypothesis).

3.1 Hypothesis I: *hamula*-based-voting hypothesis

A key feature of the hamula throughout its history, which dates back to the period of Othman Empire, is a marriage between paternal cousins that has been the basic channel

[7] The average labor force participation of Arab women in Israel is around 20 percent- much lower than that of Jewish women which is close to 60 percent.
[8] See Cohen (1965), Al-Haj (1988), Landau (1993), Goldberg (2001) and Ozechki-Lazar (2005).

by which different branches of the *hamula* link themselves and form a descent group. For example, Al-Haj (1988) found that in the town of Sefaram the majority of (large) *hamula* members marry within the *hamula*. The intra-marriage in *hamulote* of 500 members or more is 57%.

The *hamula* has also an economic role. In the last century, the economic role played by the *hamula* has been transformed as more and more Arab communities became urbanized. In the agrarian economy period, the *hamula* provided to some extent a substitute for capital and insurance markets (Cohen, 1965). However, in recent decades monetary transfers between *hamula* members play a negligible role (Al-Haj, 1988).

As Arab communities became more urbanized, and in particular after democratic local elections were introduced in Israeli Arab villages/towns (in the late 1950s), *hamula* economics has became in those early years more linked to local elections. The winning *hamula*-based-party could gain not only reputation and honor but also the opportunity of channeling municipal resources. They may have provided a better infrastructure to their *hamula* district and lower effective local taxes to some of its members. In recent years, using municipal resources to benefit *hamula* members seems to be more limited due to effective monitoring by the Ministry of Interior.

In such a social environment it would be natural to expect the emergence of *hamula*-based-candidates, and the obvious prediction of social identity theory is that *hamula* members would be more likely to vote for *hamula*-based-candidates in local elections. If indeed the *hamula* is an important social group, a member of a particular *hamula*- represented by a certain last name- is expected to vote for candidate, which is affiliated with that particular *hamula*. This can be summarized in the following econometric model to be estimated below:

$$(1) \quad y_{ijh} = a + b_h + cD_{ijh} + v_{ijh}$$

where y_{ijh} represent the votes (in percentage points) for a candidate with a certain last name, i in ballot box j in municipality h and b_h denotes a fixed effect for a municipality. D_{ijh} gets a value of one if the last name of a candidate i match the last name of part or all of the residents who are assigned to vote in ballot box j (in municipality h), and zero

otherwise. We expect that the coefficient c would be positive and quantitatively meaningful if indeed social identity plays a key role in voting behavior of *hamula* members.

3.2 Hypothesis II: the group size hypothesis

The comparative static prediction regarding the effect of group size on voter turnout is a key component of our investigation. Feddersen and Sandroni (2006) show that in a two-party system the relation between the size of a social group and voter turnout is of inverted U-shape form. In their theoretical framework, there are two groups of individuals where each group consists of both ethical agents and self-interested individuals.

The incentive to participate on part of an ethical individual is affected by the chances of winning of his or her affiliated group. Obviously, the probability of winning the election is influenced by the relative size of the two social groups. The voter turnout tends to zero if one group is close to 100%. In that case, political participation of a small fraction of the large group is enough to win the election. In contrast, political participation is expected to be relative high if the two groups are of identical size (50%).

It would be easy to show that using social identifiers instead of ethical agents (or "doing their part" type of individuals) generates the same implication concerning the inverted U-shape relations between political participation and group size. Naturally, group size, or in our context *hamula* size, is not the only factor affecting voter turnout and other variables should be included in our analysis. The estimated model is:

$$(2) \quad Y_i = \alpha + \beta X_i + \gamma S_i + \delta S_i^2 + \varepsilon_i ,$$

where Y_i is the natural logarithm of the ratio of voter turnout over 1 minus voter turnout, as is often done in the voter turnout literature. S_i denotes a measure of *hamula* size and X_i reflects a vector of explanatory variables that are frequently used to explain voter turnout in local elections. The inverted U-shape relations between group size and voter turnout, following our interpretation of Feddersen and Sandroni (2006) to the case of social identity, implies that γ would be positive and δ negative.

We would use various measures of group size to explore the effect of social identity on voter turnout. Our main measure, that *hamula* is used to capture group size, is the relative size of the biggest. For a robustness check we use also the biggest two, three and four *hamulote* as alternative measures of group size. These simple measures of group size have the advantage of being not sensitive to the municipality's population size. However, these measures do not summarize the whole distribution of group size as does the Herfindhal-Hirschman index. For this reason, we also employ a Herfindhal-Hirschman index (normalized) of *hamula* concentration as a measure of group size.

The main factors, in addition to social identity, that are likely to explain voter turnout in local elections include the number of eligible voters, income per capita, the extent of political competition and voter turnout in general elections. These variables are measured at the municipality level. In the first stage of this work several other variables (such as demographic composition, population density and income inequality) were included, but none of them appears to generate a robust effect on voter turnout.

The size of municipality population and political competition both represent indicators for the probability of casting a decisive vote and should have a positive effect on voter turnout in light of the instrumental view of voting. Income level often reflects the potential benefits of voting in individual-based research. However, in our context the average resident in a wealthy municipality should not benefit necessarily more or less than the average resident in a poor municipality. Residents in municipalities with higher levels of income may vote at higher rates to the extent that wealthier residents are also better informed. Income per capita may also capture the value of time to participate in local elections and that has a negative effect on voter turnout.

Political competition is measured here as the difference between the votes for the winner and those for the candidate next to him/her, divided by the total number of votes in the mayoral elections. In a similar fashion, a political competition index is computed for the previous two elections campaigns to deal with the risk of endogeneity. Candidates may wish to invest more resources to attract more voters if they expect the race to be very close (Shachar and Nalebuff, 1999). Thus, voter turnout might be higher in a close race not only because of the perceived likelihood of casting a decisive vote,

(supply side effect) but also due to more funds spent by candidates (demand side effect).

In this paper, the average national voter turnout in each municipality represents an indicator for a sense of civic duty of the average municipality resident. A municipality with a high voter turnout in general elections may indicate a higher benefit from the act of voting for citizens in that locality according to the expressive view of voting. However, the variation in national voter turnout across municipalities may also capture differences in omitted variables. That risk is limited here given that our list of explanatory variables includes two important municipality characteristics: population size and per capita income.

4. The empirical analysis

4.1 Local elections in Israel

Voting in local or national elections is not legally required in Israel. The voter may cast two votes (in two different colors), one for a mayor and one for a municipality council. The elections for mayor and council members are held on the same day. Local and national elections took place on the same day in the first three decades of the State of Israel. Since 1978, however, local elections have been held every five years and are separate from national elections.

In 1978, direct and personal elections for mayor were inaugurated while elections for council members continue to take place according to proportional representation rules. To win the mayoral election a candidate has to receive at least 40 percent of the vote. Otherwise a second round between the two candidates who received the largest number of votes must take place, and the winning candidate is the one receiving the majority of the votes.

4.2 The data

We developed two different data sets to test each of these two hypotheses described above. The unit of observation in the first data set is a ballot box while it is a municipality in the second. The first data set comprises local elections results in 354 ballot boxes in 35 Arab municipalities. Almost half (49%) of the Arab population in

Israel lives in those 35 municipalities and the average voter turnout in those same municipalities is similar to that in the general Arab population (Tables 1a and 1b).

In those municipalities, the eligible residents are allocated to ballot boxes according to the first letter of their last name, unlike all other Arab and Jewish municipalities where residents are assigned by place of residence.[9] In a particular ballot box a few letters are assigned and thus more than one surname is included in that ballot box. The average number of eligible residents assigned to a ballot box is more than 700 (Table 1b). This assignment of residents has a long history and is done solely by the Ministry of the Interior.

Our data set also includes the last name of each candidate in those 35 municipalities. For each ballot box we have the actual number of votes that each candidate receives. The unique way by which residents in those municipalities are assigned to ballot boxes allows us to test directly the first hypothesis of whether residents in these municipalities vote for *hamula*-based candidates.

The full dataset covers 394 ballot boxes in 44 municipalities but in five municipalities the first letters of two different last names of two (or more) candidates both appear in the same ballot box. In those cases, it would not be possible to use our identification strategy to estimate the importance of *hamula*-base voting. Our identification strategy could not be useful also if there are exactly two candidates and they both have the same last name. There are four such municipalities in our data. Therefore, we exclude these nine municipalities and the regression analysis is based on 354 ballot boxes in 35 municipalities.

The other 31 Arab municipalities, where residents are assigned by geographical criterion, could not be used due to lack of information on the joint distribution of voters' last names and place of residence (within municipality).

[9] In some of those 44 municipalities, residents are assigned to ballot boxes according to the first two letters of their last name or a combination of the first letter in their first and last names.

The second data set that is employed here covers 186 municipalities that consist of 111 Jewish localities and 75 Arab localities.[10] Some municipalities consist of both Jews and Arabs and a municipality is defined here as Jewish if more than a half of its population is of Jewish origin; likewise, a municipality is defined as Arab if more than a half of its population is of Arab origin.

In this paper we use voter turnout in mayoral elections in the first round rather that of council elections. Voter turnout is quite similar in both mayoral and council elections since, as noted, these two elections take place on the same day. Moreover, the mayor is legally granted dominant authority to shape policy as compared to a standard council member which determines the balance of power in local government in Israel.

This paper uses voter turnout data from one local election for the year 2003.[11] Employing panel data is not an option given that the Interior Ministry provided us with data on the distribution of last names for only one point in time (2003). The use of a cross section (instead of a panel) allows us to exploit more observations. As can be seen from Figure 2, voter turnout is fairly stable over time. In contrast, the variation in voter turnout across municipalities is relatively large. In addition, focusing on cross section variation opens the possibility of using lag variables to deal with the risk of endogeneity in estimating the effect of political competition on voter turnout.

A histogram of voter turnout in local elections separately for Jewish and Arab municipalities is presented in Figure 3. While the variation in voter turnout is large in the general population, this is not the case when the population is divided into two sub-groups. In particular, the variation in voter turnout is relatively low across Arab municipalities and that might indicate that a common and important factor plays a role in shaping voter turnout in the Arab population.

As can be seen from Table 1a, Arab municipalities are less populated, characterized by a higher degree of political competition and much poorer in terms of income per capita as compared to Jewish municipalities. At the outset, those three characteristics should

[10] There are 210 regular municipalities and 54 regional municipalities (a collection of several villages, mainly agricultural) in Israel, but due to data limitations our research covers 186 (elections results are missing for 10 municipalities and income per capita data does not exist for the other 14 municipalities).
[11] We include also those municipalities that for various reasons held elections one and two years before or after 2003.

generate higher voter turnout in Arab relative to Jewish municipalities. However, voter turnout in general elections in Jewish municipalities is higher in comparison with Arab ones, which is expected to work in the opposite direction in case voter turnout in general elections is a reasonable proxy for the strength of civic duty.

4.3 The results

4.3.1 *Hamula*-based-voting

The first stage of our empirical investigation is exploring the voting patterns of Arab communities in Israel. People who go to vote on election day are seeking to increase the chances that their favorite candidate will win the race. Thus, examining whether voting behavior is influenced by *hamulote* is a prerequisite test that social groups are important in determining political participation.

We use the last name of candidates and eligible voters as our proxy for social identity. Given that candidates' last names are public knowledge it is possible to explore the linkage between voters and candidate group affiliation in those municipalities where the Ministry of Interior allocates eligible voters to ballot boxes according to their last name.

The dependent variable is the share of votes that a certain candidate in a specific ballot box receives relative to the total number of votes in that same ballot box. In the standard race between two candidates each ballot box would have appeared once in our data set. However, each ballot box appears in the current empirical analysis more than once according to the number of candidates in that particular municipality given that more than two candidates could run for mayor. In general, the number of observations is the product of the number of ballot boxes and number of candidates. For example, the number of observations in a municipality that has 3 candidates and 3 ballot boxes equals 9.

Table 2 presents regressions that test the *hamula*-based-voting hypothesis. As can be seen, a candidate with a certain last name receives between 11.8 and 17.5 percentage points more votes in a specific ballot box if the eligible voters who are assigned to that particular ballot box share that same last name. The coefficient of the last name variable is not very sensitive to the inclusion of fixed effects dummies for municipalities. This

implies a quantitatively large effect given that the actual gap in terms of votes between the winner and the next candidate in line is 11.8 percentage points on average.

Table 2 also includes a test of whether the voting behavior of *hamula* members is influenced by the probability of winning the election. We use two proxies for that probability: ex-post election results and *hamula* size. The coefficient of group identity, as measured by voters' last name, is somewhat lower when an interaction between (ex-post) winners and voters' last name is used.[12] While voters do vote for *hamula*-based-candidates, they are sensitive to the probability of winning to the extent that ex-post results are correlated with ex-ante probability.

We also use *hamula* size to test whether people with a sense of social identity would be likely to vote for *hamula*-based-candidates regardless of the probability of winning. Table 2 shows that the coefficient of the interaction between *hamula* size and last name is negative and quantitatively non-negligible. Thus, voters are less likely to vote for "their candidates" if they are members of a small *hamula* as compared to a large *hamula*.

In 17 out of 44 municipalities, the mayoral race is between two (or more) candidates that have the same last name (i.e., the same *hamula*). This indicates that while the social structure of several *hamulote* plays an important role in local elections, a *hamula* is not always a unified social group. The estimated coefficient of last name partially reflects the competition within the *hamulote*. One more indication that local elections should not be seen just as a *hamulote* contest is the fact that not all *hamulote* are represented in the mayoral race. In particular, in 9 out of 44 municipalities, the biggest *hamula* fielded no candidate in the mayoral race.

4.3.2 Constructing group size

Following the previous empirical examination it would be natural to use the last name of an individual as our measure of social group affiliation. The Interior Ministry, with the help of Central Bureau of Statistics, provided us with data on the distribution of last names of all individuals age 20 years or over in 75 Arab municipalities in the year 2003.

[12] This specification also includes an interaction between the winner dummy and municipality fixed effects.

The raw data must be adjusted to account for differences between Arab and Hebrew transcription since the Arab last names are registered in Hebrew transcription in the Interior Ministry's files. Therefore, the same Arab last name could appear in several different spellings in Hebrew, which may introduce biases in *hamula*/group size that is based on last name. We have done extensive work to merge all individuals with different last name in Hebrew transcription into a particular *hamula* if they share the same last names in Arab transcription.

The size of the group/*hamula* is the ratio of the number of individuals in a particular locality who are 20 years of age or older that share a certain last name divided by the total number of people in that same age group in that particular locality. To a large extent, that age group overlaps with those individuals who are eligible to vote in local elections (a person aged 17 or older is entitled to vote in local elections). The constructed group size approximately reflects the upper boundary of the size of *hamula*'s constituency.[13]

4.3.3 Voter turnout and group size

Table 3 presents the benchmark regression for voter turnout in the 2003 local elections. It is comprised of the following explanatory variables: national voter turnout, political competition, the log of eligible population and the log of income per capita. All variables including voter turnout were measured for the year 2003.

As expected, the effect of national voter turnout on local participation is positive and statistically significant. The coefficient of political competition is negative, which implies that a close race (lower difference in terms of votes between the winner and candidate next in line) tend to attract more voters to ballot boxes. A similar finding has been established by many (but not all) of those who have previously studied political participation (Matsusaka and Palda, 1993).

Table 3 also explores the possible bias in political competition coefficient due to candidates' response to an expected close race. As can be seen from Table 3 the

[13] Hamula size has been used in the past to explore the social and political roles of the hamula. Comprehensive research on the evolution of hamula strength between the years 1910 to 1983 in the town of Shfara'am has found that hamula size (self-reported) is positively correlated with the tendency to vote for hamula-based lists in elections held in Shfara'am in the year 1983 (Al-Haj, 1988). Shavit and Pierce (1991) show that educational achievements are associated with hamula size.

coefficient is negative, as before, when political competition for the previous two elections (the average of 1993 and 1998 local elections) is employed instead of the current index of political competition. The use of a lag variable, however, generates a lower coefficient as would be predicted.

The political competition indicator that is often calculated in terms of the percentages of total votes might be misleading in large elections as Schwartz (1987) suggested.[14] In contrast, there are 22 municipalities in our data base with a difference of less than 100 votes between the winner and candidate next in line. In two of those municipalities there was a tie. We nevertheless use a variable for political competition in terms of percentages rather than the absolute number of votes to allow the inclusion of population size. Otherwise, multicollinearity between political competition and population size is likely to occur.

The estimated coefficient of eligible population size is negative and significant, which is consistent with the instrumental view of voting. The size of that coefficient implies a large effect. For example, voter turnout in a municipality populated by 7,500 eligible voters, which replicates the average eligible population in Arab municipalities, is higher by 12 percentage points as compared to a municipality with 37,000 eligible voters, which is the average eligible population in Jewish municipalities.[15]

This regression also shows that the effect of (log) income per capita on voter turnout in local elections is negative and significant, which is somewhat surprising.[16] A similar result with regard to the effect of income on voter turnout has been found for local elections in the US (Filer et al, 1993) and Belgium (Ashworth et al, 2006). This coefficient implies a large effect, but as will be evident below its size is very sensitive to the inclusion of additional variables and especially to our measure of social group size.

[14] Schwartz (1987, p.118) has used a compelling metaphor: "Saying that closeness increases the probability of being pivotal is like saying that tall men are more likely to bump their head on the moon."
[15] Those estimates are based on a regression where voter turnout is used as a dependent variable instead of logistic transformation (not reported here).
[16] The results are similar using education level instead of income level (not reported here).

This standard list of four variables has impressive explanatory power in accounting for voter turnout in local elections in Israel according to the adjusted R^2 (Table 3).[17] However, the explanatory power of that list is substantially lower if the analysis is limited to Arab municipalities only (Table 4).

The voting behavior of residents in Arab municipalities that are characterized by a unique social structure provides a quasi-natural experiment to test the hypothesis that social identity plays an important role in reconciling the paradox of voting. Naturally, examining the effect of social groups on voter turnout is limited to Arab localities, but we first start our investigation by comparing political participation in Arab and Jewish municipalities.

Table 3 shows that voter turnout in Arab localities is significantly higher (the implied effect is around 17 percentage points) as compared to Jewish localities, controlling for the list of variables included in the basic regression. There is some variation within Arab municipalities, in that voter turnout among the Arab-Christian population is higher by "only" 13 percentage points in comparison to Jewish municipalities while it is higher by 19 percentage points in Druze municipalities.[18]

In the rest of this paper we combine Arab-Muslim, Arab-Christian and Druze municipalities given the relatively small differences among Arab municipalities of various religious origins in terms of voting behavior. In fact, the variance of voter turnout in Arab municipalities is only around 5 percent.

While all other coefficients remain highly significant and preserve their signs, the quantitative effects implied by most coefficients are sensitive to the inclusion of the Arab dummy variable. For example, the coefficient of income per capita is much smaller when a dummy for Arab municipality is added to the basic regression.

The highly significant coefficient of Arab municipalities suggests that we should delve into the distinctive characteristics of the Arab population. Its social structure is a natural

[17] Table 3 shows an interesting result: unlike the general elections where two particular sectors (Orthodox Jews and Jewish settlers beyond the Green Line) tend to participate at higher rates (12.5 and 9 percentage points above the national average, respectively) Orthodox and non-Orthodox Jewish municipalities have similar voter turnout in local elections and Jewish settlers have even lower voter turnout.

[18] These estimates are based on a specification that uses voter turnout as a dependent variable, instead of logistic transformation (not presented in the tables).

candidate to explain the high voter turnout in local elections. Table 4 presents results of regressions that include various measures of group size in addition to the standard control variables. Obviously, the analysis is restricted to Arab municipalities (75 observations).

In Table 4 both a linear and a quadratic form of the Herfindhal-Hirschman index is used as a measure of group size. The coefficient of Herfindhal-Hirschman index is positive and significant whereas the coefficient of the square of that index is negative and almost significant. A similar picture emerges if we use the size of the biggest *hamula* instead of the Herfindhal-Hirschman index as a measure of group size.[19] Those results are consistent with the comparative static prediction of recent theoretical models that grants social groups an important role in shaping individuals' voting behavior (See for example, Feddersen and Sandroni, 2006).

According to the estimated coefficient, a rise of one standard deviation in the Herfindhal-Hirschman index would lead to an increase of 1.5 percentage points in voter turnout. This estimated impact of social identity on voter turnout may seem relatively small, but recall that the variance of voter turnout in Arab municipalities is approximately 5 percent only.

Three out of the standard four variables are still statistically significant and with the expected signs even when the empirical analysis is limited to Arab municipalities. While the income per capita coefficient keeps its sign, it is no longer significant when the regressions are based on Arab municipalities only. Note that the coefficient of political competition implies larger effect on voter turnout in Arab municipalities.

5. The compensation hypothesis

An additional hypothesis was put forward to account for the intensive political participation of Arab residents in local elections. Both researchers and popular commentators have suggested that the very high voter turnout of Arab voters in local elections is the result of their relatively low turnout in general elections. However, this hypothesis has never been tested in a systematic way.

[19] In fact, our findings are not sensitive to other measures of group size that have been employed such as the two, three and four biggest hamulas (not reported here).

There are two different channels through which compensation might work. First, the marginality of Arab voters in national elections may induce them to use local elections as their main field of political expression. Since the establishment of the State of Israel, Arabs have been allowed to vote and run as candidates for the Israeli parliament. However, Arab political parties were never asked to join the coalition and be part of the government. Some Arab parliament members were part of the coalition but only if they were associated with Zionist-based lists. Thus, it seems plausible to assume that the Arab population in Israel has less chance to affect political outcomes. According to this first channel, the benefit from the act of voting in local elections is seemingly higher due to the low probability of shaping the results in national elections.

The second channel through which compensation voting occurs stems from the weak attachment of some Arab citizens may feel towards the Jewish nature of the state of Israel. Some of these Arab citizens may even deny the existence of Israel. As a result, some Arab citizens do not vote in general elections because they do not benefit from the act of voting in general elections, and for some of them voting may even reduce their utility.

The stated boycott of two Arab political movements (the Islamic Movement and Bnei Ha-Kfar) that persuaded their supporters to refrain from voting in national elections provides direct evidence that indeed a small part of the Arab population in Israel does perceive voting in national elections as a negative act that may lend legitimacy to the State of Israel. While these movements discourage their followers from voting in national elections, they do participate in local elections. In fact, the Islamic Movement even won elections for mayor in a few Arab municipalities.

The compensation hypothesis states that some Arab voters benefit more from the act of voting in local elections because of their absence from general elections. Recall, however, that most eligible Arab voters do actually vote in national elections (Table 1a) and this type of compensation voting behavior should not apply to the majority of Arab population.

According to the compensation hypothesis, we should expect different behavior in Arab municipalities with respect to the relations between local and national voter turnout. Unlike Jewish municipalities, we expect a negative correlation between local and

national voter turnout in Arab municipalities (*ceteris paribus*) if indeed compensation voting behavior plays an important role.

In Table 5 we introduce an interaction term between municipality origin and national voter turnout to account for different behavior. We also run the baseline regression separately for Arab and Jewish municipalities. The regression results strongly reject the compensation hypothesis. Even the sign of the coefficient is not in line with that hypothesis.

6. Conclusion

This paper exploits the unique social structure of the Arab population in Israel to test whether social identity has a noticeable effect on voter turnout. Voter turnout in Arab municipalities in Israel has been around 90 percent since the first local elections. It is commonly hypothesized that the high political participation rate in Arab municipalities is related to the unique social structure of Arab communities.

The *hamula*, which is a well-known social group in Arab communities, is our main social group. *Hamula* affiliation is measured in this paper by individuals' last names. All individuals who share the same last name form a social group or *hamula*. We find that *hamula* members tend to vote for *hamula*-based-candidates in local elections. In particular we show that voters are more likely to vote for a candidate who shares their last name as compared to other candidates. This finding suggests that the *hamula* is a meaningful social group in terms of political behavior.

Based on this finding, social groups in Arab communities are constructed using the last name as a measure of group affiliation. We find empirical evidence of an inverted U-shaped relationship between social group size and voter turnout, which is consistent with recent theoretical models that incorporate social groups in the decision to vote (for example, Feddersen and Sandroni, 2006).

Our finding, which is based on actual voting behavior, lends empirical support to the recent direction in voter turnout literature that attempts to explain the voting paradox by adding the benefits that an individual may gain by improving the welfare of his/her social group.

We do not find empirical support for the compensation hypothesis, which attributes the high voter turnout of Arab residents in local elections to their marginality in national arena. Arab municipalities that are characterized by lower rates of voter turnout in national elections tend also to exhibit low levels of political participation in local elections.

Table 1a: Descriptive Statistics – Municipality level, 2003

	All municipalities	Jewish municipalities	Arab municipalities
Voter turnout in local elections	72.4 (17.2)	61.0 (12.4)	89.2 (5.3)
Voter turnout in national elections	68.6 (10.4)	72.4 (7.5)	63.1 (12.3)
Political competition index	18.9 (19.2)	24.0 (21.4)	11.4 (12.1)
Number of eligible voters	24,064 (54,671)	36,937 (68,140)	7,493 (6,795)
Income per capita	2,490 (1,302)	3,262 (1,138)	1,347 (302)
Herfindhal-Hirschman Index	-	-	0.089 (0.096)
Biggest *hamula*	-	-	19.1 (13.5)
Number of municipalities	186	111	75

Standard deviations are in parentheses.

Table 1b: Descriptive Statistics – Ballot box level, 2003
(35 Arab municipalities)

	Average and standard deviation
Number of eligible residents per ballot box	737 (77)
Number of voters per ballot box	652 (81)
Voter turnout (%)	88.5 (6.35)
Number of candidates	4.43 (2.16)
Size of biggest *hamula* (%)	16.2 (10.16)
Share of votes to candidates in ballot boxes that contain their last name	31.5 (25.01)
Share of votes to candidates in ballot boxes that do not contain their last name	18.1 (18.21)
Number of ballot boxes	354

Standard deviations are in parentheses.

Table 2: Effect of voter's last name on elections outcome
Dependent variable: share of votes for candidates in 2003 local election

	(1)	(2)	(3)	(4)
Constant	**18.1***** (31.11)			
Last name of candidate i appears in ballot j	**13.5***** (11.66)	**13.3***** (12.50)	**11.8***** (12.45)	**17.5***** (10.84)
Winner*last name			**8.6***** (4.04)	
Hamula less than 10%*last name				**-7.43***** (-3.50)
Fixed effects	No	yes	yes	yes
Observations	1612	1612	1612	1612
Adjusted R^2	0.077			
R^2 – Within		0.090	0.148	0.099
Between		0.017	0.162	0.001
Overall		0.078	0.139	0.082

*** Significance at 1%.
** Significance at 5%.
* Significance at 10%.

Table 3: Baseline regression

Dependent variable: log [turnout/(1-turnout)] in 2003 local election

	(1)	(2)	(3)	(4)	(5)
Constant	**4.625***** (10.52)	**4.762***** (10.87)	**1.870***** (4.95)	**1.777***** (4.88)	**1.736***** (4.64)
Voter turnout in national elections	**0.014***** (3.38)	**0.020***** (4.72)	**0.025***** (8.20)	**0.024***** (8.28)	**0.024***** (8.13)
Political competition index	**-0.008***** (-3.82)		**-0.006***** (-4.14)	**-0.006***** (-4.23)	**-0.006***** (-4.05)
Eligible population (log)	**-0.358***** (-10.72)	**-0.393***** (-12.35)	**-0.266***** (-10.27)	**-0.256***** (-10.62)	**-0.250***** (-10.08)
Income per capita (log)	**-1.219***** (-13.67)	**-1.468***** (-16.54)	**-0.441***** (-4.61)	**-0.396***** (-4.63)	**-0.431***** (-5.05)
Competition-lag		**-0.006***** (-2.85)			
Orthodox Jews			0.015 (0.07)		
Settlers			**-0.289**** (-2.39)		
Arabs			**1.252***** (11.77)		**1.298***** (13.65)
Christians				**0.910***** (5.90)	
Muslims				**1.315***** (13.04)	
Druze				**1.559***** (12.26)	
Observations	186	146	186	186	186
Adjusted R^2	0.762	0.836	0.885	0.890	0.882

*** Significance at 1%.

** Significance at 5%.

* Significance at 10%.

Table 4: Effect of social identity,
Dependent variable: log [turnout/(1-turnout)] in 2003 local election

	(1)	(2)	(3)	(4)	(5)
Constant	**2.734***** (4.00)	**1.967**** (2.70)	**1.793**** (2.44)	**1.782**** (2.33)	**1.561**** (2.00)
Voter turnout in national elections	**0.026***** (5.48)	**0.029***** (6.16)	**0.030***** (6.33)	**0.030***** (6.18)	**0.030***** (6.26)
Political competition index	**-0.014***** (-3.07)	**-0.014***** (-3.37)	**-0.015***** (-3.46)	**-0.014**** (-3.31)	**-0.014***** (-3.34)
Eligible population (log)	**-0.221***** (-3.13)	**-0.173***** (-2.45)	**-0.173**** (-2.46)	**-0.167**** (-2.33)	**-0.164**** (-2.29)
Income per capita (log)	-0.173 (-0.73)	-0.105 (-0.45)	-0.037 (-0.16)	-0.100 (-0.43)	-0.044 (-0.19)
Herfindhal-Hirschman Index		**1.434**** (2.48)	**3.722**** (2.12)		
Herfindhal-Hirschman Index ^2			-6.047 (-1.38)		
Biggest *hamula*				**0.011**** (2.46)	0.027* (1.94)
Biggest *hamula* ^2					-0.000 (-1.24)
Observations	75	75	75	75	75
Adjusted R^2	0.367	0.410	0.418	0.410	0.414

*** Significance at 1%.
** Significance at 5%.
* Significance at 10%.

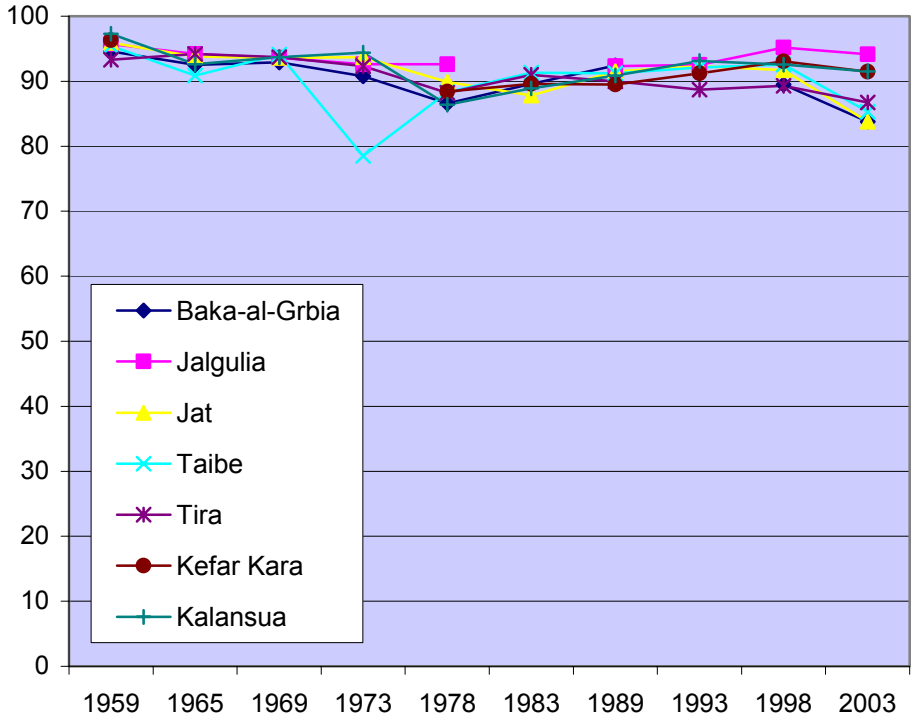
Table 5: Effect of compensation motive

Dependent variable: log [turnout/(1-turnout)] in 2003 local election

	All municipalities	Jewish municipalities	Arab municipalities
	(1)	(2)	(3)
Constant	**2.113***** (3.76)	**2.381***** (5.22)	**2.734***** (4.00)
Voter turnout in national elections	**0.020***** (3.87)	**0.019***** (4.67)	**0.026***** (5.48)
Political competition index	**-0.006***** (-4.02)	**-0.004***** (-3.56)	**-0.014**** (-3.07)
Eligible population (log)	**-0.260***** (-9.48)	**-0.276***** (-11.83)	**-0.221***** (-3.13)
Income per capita (log)	**-0.423***** (-4.94)	**-0.478***** (-6.80)	-0.173 (-0.73)
Arabs	**1.186***** (7.55)		
Arabs* Voter turnout in national elections	0.127 (0.90)		
Observations	186	111	75
Adjusted R^2	0.882	0.786	0.367

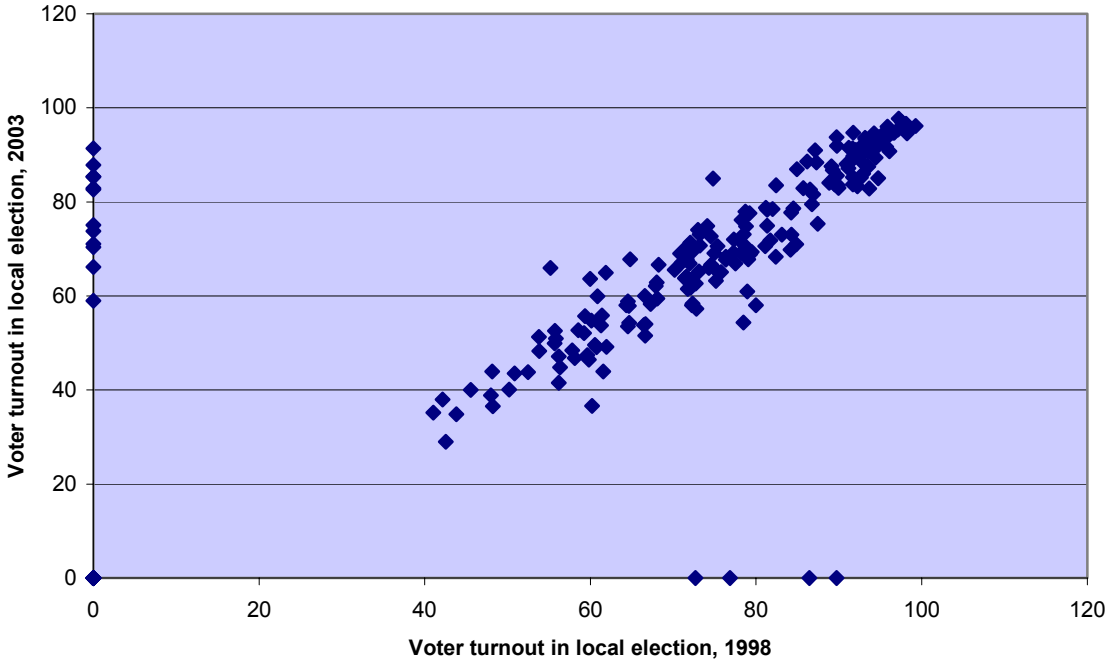
*** Significance at 1%.
** Significance at 5%.
* Significance at 10%.

Figure **1: Voter turnout in selected Arab towns/villages, 1959-2003**



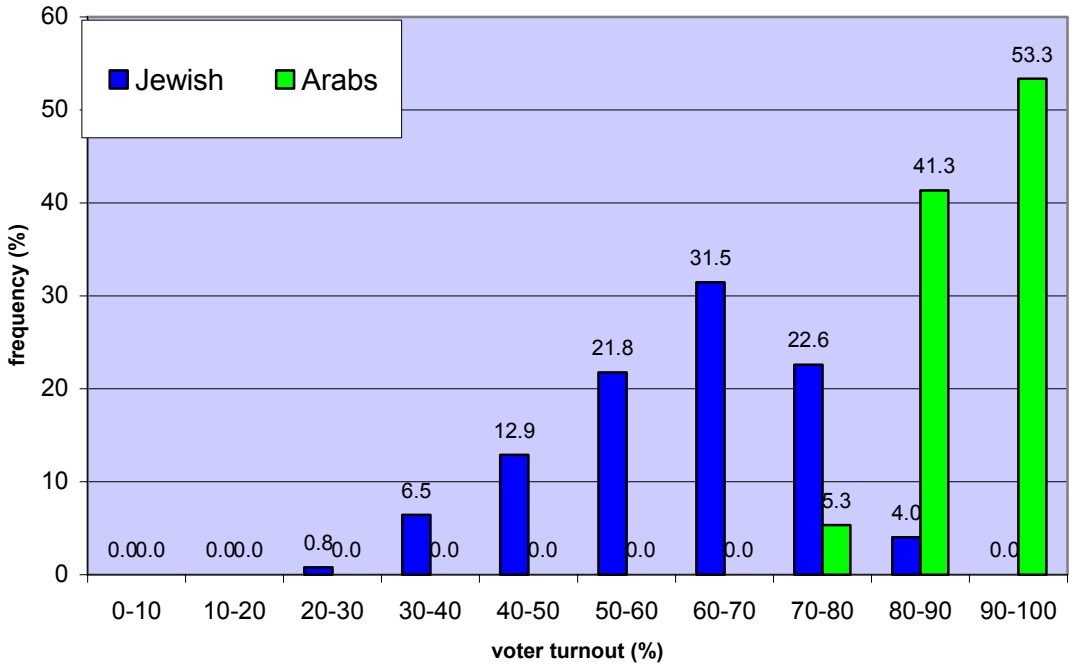
Source: Ministry of the Interior

Chart 2: Voter turnout in the last two elections



Source: Ministry of the Interior

Chart 3: Voter turnout distribution, 2003 local elections



Source: Ministry of the Interior

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