SOCIOECONOMIC BIAS IN VOTING FOR THE KNESSET

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Abstract

This study examines whether the large decrease in voter turnout (20 percentage points) between the elections for the 14th Knesset in 1996 and the 17th Knesset in 2006 was differential by socioeconomic class. The study reveals that the electoral participation rate during the last decade declined commensurate with the level of socioeconomic ranking in 1996. This is in addition to the socioeconomic bias that was found in each of the four elections that were examined. An increase in socioeconomic bias was found between voting for the 14th Knesset elections in 1996 and the 17th Knesset elections in 2006, when it was measured by comparing municipalities in terms of the extent of the decrease in voter turnout by the average level of income in previous elections. Moreover, the decrease in voter turnout was greater in municipalities that experienced a lower economic growth rate between 1996 and 2006 (in Jewish municipalities).

1. INTRODUCTION

Nearly 2 million eligible Israeli voters did not vote in the Knesset elections that were held in 2006. The large number of citizens who did not exercise their right to vote reflects the large decrease in the participation rate in elections for the Knesset during the last decade. Voter turnout, which had been high compared with Western countries and relatively stable at approximately 80 percent since the birth of the State of Israel, fell heavily and amounted to 63 percent in the 2006 elections. One of the questions arising from this development is whether the decrease in the electoral participation rate was uniform in all the economic strata in the population.

Differential political participation by socioeconomic status is worrying because it may impair the functioning of representative democracy. In particular, politicians are more likely to advocate measures that may harm the well-being of the weak strata of society, given the significant socioeconomic bias in political participation. Empirical evidence from

the US shows that the extent of socioeconomic bias in political participation has a tangible effect on socioeconomic policy (Quaile and Leighley, 1992).

Class bias in political participation is likely to derive from the resources required for this participation (Ansolabehere et al., 2002). Under this approach, electoral participation is a consumer good whose acquisition is influenced by the resources available to the individual. Voter turnout is likely to be greater among high income-earning citizens than among low-income earners, if electoral participation is a luxury good whose share increases with a rise in income (income elasticity greater than one).

Under another approach, known as the relative power theory, an increase in economic inequality is expected to impinge on the electoral participation rate because of the dissatisfaction with the political system felt by the weak groups in society (Goodin & Dryzek, 1980). The poor population is likely to regard the expansion of economic gaps as evidence of its powerlessness in the media and in the government's decision-making. It can be readily assumed that citizens who are apprehensive in this respect will steer clear of political participation because of what they regard as its futile nature (for them).

Other researchers, however, claim that no relationship is expected to exist between socioeconomic class and voter turnout. Since the extent of inequality accentuates the economic conflict between the different strata in the population, it increases the incentive for vibrant political participation by all strata of the population (Solt, 2008). Poor members of the population will wish to participate in elections in order to use the political system to improve their well-being via a redistribution of resources, and the wealthy will want to participate more actively in the political process in order to restrain the power of those seeking to bring about such policy.

The relation between the extent of economic inequality and political participation is not unidirectional. It was previously suggested that while the electoral participation rate is affected by the depth of economic gaps, the electoral participation rate itself also likely to affect economic policy and as a result, the extent of inequality. The median voter in the Meltzer & Richard (1981) model will support economic policy that does not overtly represent the interests of the median citizen if the tendency to participate in elections declines with a rise in income. Therefore, the extent of redistribution may decline with an increase in socioeconomic bias in voting.[1] In other words, sparse political participation by the lower deciles leads to greater income inequality.

Blais (2000) presented substantial evidence from various parts of the world regarding the existence of class bias in voter turnout, which results in a positive correlation between social class and political participation.[2] Voter turnout among higher-earning/more highly educated citizens (or those whose occupation confers them with a high social status) is higher than among citizens from the weak strata of society. In notable contrast to the consensus regarding the existence of socioeconomic bias in voter turnout is the disagreement in the US over whether the decline in electoral participation over time has

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[1] Alesina and Rodrik (1994) showed that a larger increase in economic inequality results in more generous welfare policy.

[2] Socioeconomic bias is particularly apparent in intensive and time-consuming forms of participation, such as work at the electoral office, making contact with the government personnel, donations to parties or candidates, and informal work in the community (Lijphart, 1997).

been accompanied by an increased bias in voter turnout that benefits those from a high socioeconomic class.[3]

Empirical evidence also exists at the aggregate level for supporting theoretical predictions, whereby the extent of inequality adversely affects political participation. Goodin & Dryzek (1980) found a negative correlation between inequality and voter turnout in 38 democracies during the 1950s. These findings recur in the studies of Boix (2003), who used data from across the US, and of Solt (2004), who examined this hypothesis in Italy. Solt's new study (2008) based on recurrent cross-country data on 23 democracies, including Israel, provides renewed empirical support for the adverse effect of economic inequality on voter turnout.[4]

To date, no attempt has been made in Israel to examine the development over time of the extent of socioeconomic bias in voter turnout at Knesset elections or at the prime ministerial elections. This may be because the decline in electoral participation is a relatively recent development, and only became apparent over the last decade. Neither has any attempt been made to estimate the effect of income inequality, which has risen considerably in Israel over the years (Dahan, 2002), on voter turnout. It may reflect the difficulty of isolating the effect of inequality based on a single country's data, in this case Israel.

Surprisingly, only limited studies have been made in Israel of the effect of socioeconomic class indices, such as education and income, on the tendency to participate in elections.[5] Uri Avner (1975) examined the participation patterns in the elections that were held in Israel several months after the Yom Kippur War, and found no significant differences by level of education. A table appearing in that study, which segments electoral participation by the level of education, shows that voter turnout amounted to 90 percent regardless, except for citizens with no education at all, whose voting rate amounted to 83 percent.

Asher Arian and Michal Shamir (2002) found a positive correlation between the level of education and the declared intention to participate in the prime ministerial elections in surveys that were conducted among the Jewish population prior to the 2001 elections. However, this effect was found to be only marginally significant and sensitive to the estimation method. The level of education did not have a significant effect in a linear regression. According to the findings of these surveys, the intention to participate in elections was not found to be significantly correlated with income.[6] Ben Bassat and Dahan

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[3] Leighley and Nagler (1992) provide an examination of the extent of the socioeconomic bias in the US over time, as well as a review of conflicting findings from previous studies. These authors found that no change occurred in the extent of the socioeconomic bias in voter turnout. See also the recent study published by the same authors.

[4] The study of Oliver (2001) is exceptional in that it found a positive correlation between the extent of inequality and voter turnout at elections for local authorities.

[5] This study is not concerned with potential class bias in voting patterns for parties in Israel. Readers interested in this literature are referred to the study of Michael Shalev and Sigal Kish (2001, pp. 91-136), who also reviewed relevant studies.

[6] The results may have been affected by the inclusion of education and income together in the regression. The high correlation between education and income could lead to these results.

(2010) recorded a surprising finding in local elections, whereby voter turnout decreases with an increase in the income or the level of education of the municipality's residents.

The purpose of this study is to examine whether the large decrease in the participation rate in the Knesset elections during the last decade was accompanied by an increase in the socioeconomic bias in voter turnout. In order to surmount the lack of data on actual political participation at the individual level, use was made of actual data at the municipality level with respect to the following principal variables: voter turnout in four Knesset elections, and average income (or education) per resident in the municipality at the time of the elections.

2. DESCRIPTION OF DATA

Electoral participation and the variables representing the socioeconomic cross-section are measured using municipality data on average per resident. Since the unit studied is the municipality, any variability among its residents is not expressed. The use of municipality data limits the ability to interpret the differences between municipalities as representing the differences between individuals. This is because residents' tendency to participate in elections may be effected by the characteristics of the municipality in which they live. Nevertheless, the analysis in our study is based on four elections, thereby reducing the fear of ecological fallacy.

This study is based on a unique database that merges voter turnout data at each municipality with the socioeconomic data characteristic of the municipality. Data on Knesset election results are collected by the central election committee for each municipality, and include *inter alia* the number of actual voters and the number of eligible voters in each municipality. The participation rate in the Knesset elections is calculated according to the actual number of voters divided by the number of eligible voters.

The socioeconomic data for each municipality was taken from a number of studies that were conducted by the Central Bureau of Statistics (Burak and Feinstein, 2000; Burak and Tzibil, 2003; Burak and Tzibil, 2004).[7] The studies resulted in the creation of a socioeconomic index consisting of ten clusters, to which each municipality was classified.[8] This study used three variables that are included in the socioeconomic index: average wage, the percentage of high school graduates, and the percentage of those studying for university degrees.[9]

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[7] The data was obtained with the kind permission of the Israel Social Sciences Data Center at the Hebrew University of Jerusalem.

[8] The variables comprising the socioeconomic index are: average per-capita income (including pension), percentage of vehicle owners, percentage of high school graduates, the percentage of university students, the percentage of job seekers, the dependency ratio and the percentage of those receiving minimum income support.

[9] Although studies for the purpose of characterizing local authorities and classifying them by socioeconomic level were first made back in 1987, the variables included in the socioeconomic index and the geographical units studied were only finally determined in a study reflecting data for 1999. For this reason, the level of higher education in 1996 was only measured according to the percentage of BA students

Since the municipalities underwent a process of amalgamation in 2003, in order to maintain data uniformity over the years it was decided to refer to these municipalities as if they had already been amalgamated in 1996. Part of the data for certain municipalities was lacking. After offsetting these municipalities, there remained 180 municipalities in the research population for 1996, 183 municipalities for 1999 and 186 municipalities for the years 2003 and 2006. When changes over time were analyzed, these were examined only with respect to municipalities for which complete data exists for each of the four election campaigns. Comparable data on the regional councils, which are a collection of smaller settlements, is not available and was not included. The Central Bureau of Statistics compiles a separate socioeconomic index for such regional councils.

Table 1 shows the 20 percentage point decrease in the electoral participation rate between the elections for the 14th Knesset in 1996 and the 17th Knesset in 2006.[10] It should be noted that the decrease in voter turnout between these four recent elections occurred within a relatively short period of time of just a decade. The table also reveals that the decrease in voter turnout was common to all sectors of the population and occurred in Jewish, Arab and ultra-Orthodox municipalities. However, the decrease in voter turnout at ultra-Orthodox municipalities was smaller, and occurred mainly in the last of the four campaigns in 2006.

Table 1
Description of the data

	1996	1999	2003	2006
Average monthly employee wage	3,872 (178)	4,635 (184)	5,371 (186)	5,569 (186)
Rate of matriculation eligibility (high school graduates) (%)	32.7% (169)	40.2% (184)	48.7% (186)	No data
Percentage of university students from 20-29 age group	4.9% (167)	11.3% (184)	12.9% (186)	No data
Voter turnout (%) **	81.1% (180)	80.1% (183)	68.3% (186)	61.3% (186)
Voter turnout at Jewish municipalities (excl. ultra-orthodox)	83.4% (104)	82.5% (105)	71.4% (106)	62.7% (106)
Voter turnout at Arab municipalities	77.5% (71)	75.9% (71)	62.3% (73)	57.6% (73)
Voter turnout at ultra-orthodox municipalities	85.8% (5)	86.0% (7)	84.3% (7)	77.0% (7)
Percentage of 20-29 age group in population	15.8% (184)	16.7% (186)	16.2% (186)	15.8% (186)

Excluding regional councils and excluding Bet El and Basma. The number of municipalities is in parentheses.
NOTE: The ultra-orthodox municipalities are: Betar Ilit, Bnei Brak, Modiin Ilit, Emmanuel, Kiryat Yearim and Rechasim.

from the 20-29 age group, while for 1999 and thereafter this variable was measured according to the percentage of those studying for all university degrees from the 20-29 age group.

[10] In the special prime ministerial elections, held in 2001, low participation rates were recorded. Due, however, to the specific characteristics of those elections, they were not included in the analysis.

Table 2 presents the differences in voter turnout by socioeconomic clusters, and reveals the existence of socioeconomic bias in the electoral participation rate: In each of the four election campaigns, voter turnout by residents of the strongest municipalities (clusters 8-10) was higher than that by residents of the weakest municipalities (clusters 1-2). It can also be seen that the extent of the decline over time in Knesset electoral participation rates was not uniform among all the socioeconomic clusters. The decline in voter turnout between the 1996 and 2006 elections amounted to 19 percentage points at the weakest municipalities (clusters 1-2), compared with 16 percentage points at the strongest municipalities (clusters 8-10). A comparison of the extent of the decline in voter turnout by socioeconomic clusters at non-ultra-Orthodox Jewish municipalities alone uncovers an even larger gap between the strongest and weakest municipalities. A similar picture emerges from a comparison of voter turnout in local authorities by quintile level of wage per employee post.

Table 2
Rate of decrease in voter turnout in Knesset elections by socioeconomic cluster

	Number of municipalities	Voter turnout in 1996	Voter turnout in 2006	Extent of decrease in voter turnout
All municipalities	**186**	**81.1%**	**61.3%**	**19.8%**
Clusters 1-2	38	78.7%	60.2%	18.5%
Clusters 8-10	27	86.3%	70.1%	16.2%
Non-ultra-orthodox Jewish municipalities	**106**	**83.4%**	**62.7%**	**20.7%**
Clusters 2-4	22	81.0%	57.3%	23.7%
Clusters 8-10	27	86.3%	70.1%	16.2%

Excluding regional councils and excluding Bet El and Basma.

The results provide an initial indication of the existence of socioeconomic bias and an increase in this bias in the last decade. However, it is not possible to ascertain from the table whether the decrease in voter turnout is statistically significant. For this purpose, the following section is intended to examine the issue directly.

3. THE ECONOMETRIC ESTIMATION

a. The dependent variable

In studies of this type it is usual to use a dependent variable that is a transformation of the voter turnout rate, which is the natural log of the ratio of participation rate divided by the rate of non-participation. This transformation is intended to deal with the fact that a regular regression could produce forecast values outside of the range between zero and one even though the voter turnout rate is limited to this area.

However, use of the odds ratio instead of the voter turnout rate could lead to an erroneous conclusion in an analysis of the evolution of socioeconomic bias. Assume that the voter turnout of the lowest decile and the highest decile fell by a uniform rate of 10 percentage points. In such a case, it will be concluded that no change occurred in the extent of socioeconomic bias if its definition is based on the gap in percentage points between these two population groups. However, that same uniform decline of 10 percentage points will result in smaller socioeconomic bias if it is measured in odds ratio. In general, the impact of a change in voter turnout on odds ratio is sensitive to the level of voter turnout rate. This means that the use of odds ratio biases the conclusion towards a weakening of socioeconomic bias when comparing over time. But the use of this ratio between the voter turnout rate of the lower decile and the upper decile, as has sometimes been made in the literature, pushes the conclusion towards an increase in the socioeconomic bias.

We chose to use voter turnout as the dependent variable in order to avoid creating a bias in favor of one conclusion or another when studying the changes in socioeconomic bias over time, despite the previously mentioned statistical price. Note that the elections outcome is determined by actual voter turnout rate of each of the population groups, and not on one transformation or another.

b. The explanatory variables

The socioeconomic conditions of the municipality are represented in this study by three main variables, which are also the principal components of the socioeconomic index published by the Central Bureau of Statistics.

1. Average wage per employee post at the municipality level.[11]

2. The average rate of matriculation certificate eligibility from within the 17-18 age group at the municipality (in percentage points).

3. The average proportion of students studying at universities or colleges for a first degree and above among 20-29 age group at the municipality (in percentage points).

These three variables were measured for each of the four Knesset elections that were included in this study. For reasons of data availability, it was decided to use average wage per employee post instead of average income per resident, which is usually included as one of the components of the socioeconomic index. Since the Central Bureau of Statistics has not published the components of the socioeconomic index for 2006 to date, no data on average income per resident by municipality in that year are yet available.

Because of the high correlation between income and education (Table 3), the effects of these two variables were examined in two separate equations rather than in the same equation. In addition, the hypothesis that voter turnout is affected to a different extent by different levels of education was not examined, again because of the high and significant correlation between the two variables representing education in this study (Table 3). Instead, use was made of an aggregate education variable, which is the weighted average of

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[11] Since data on wage per employee post in the settlements of Bet El and Basma looked to be unreliable, these settlements were not included in the research population.

the matriculation certificate eligibility rate and the percentage of those studying for a first degree, in order to express variability in the two education indices.

Table 3
Correlation between the main variables, 2006

	Arab municipalities	Ultra-orthodox municipalities	Average monthly wage per employee post	Matriculation eligibility (rate percent)	Percentage studying for first degree and above from 20-29 age group	Voter (turnout percent)	Percentage of 20-29 age group in population
Arab municipalities	1		-0.620*** (0.000)	-0.434*** (0.000)	-0.533*** (0.000)	-0.257*** (0.000)	0.235*** (0.001)
Ultra-orthodox municipalities		1	-0.192*** (0.009)	-0.469*** (0.000)	-0.224*** (0.002)	0.274*** (0.000)	0.085 (0.250)
Average monthly wage per employee post			1	0.716*** (0.000)	0.877*** (0.000)	0.404*** (0.000)	-0.473*** (0.000)
Matriculation eligibility rate (percent)				1	0.793*** (0.000)	0.235*** (0.001)	-0.174** (0.018)
Percentage studying for first degree and above from- 20-29 age group					1	0.380*** (0.000)	-0.310*** (0.000)
Voter turnout (percent)						1	-0.203*** (0.006)
Percentage of 20-29 age group in population							1

The precise level of significance is in parentheses.
* Significant at a level of 10 percent; ** significant at a level of 5 percent; *** significant at a level of 1 percent.
NOTE: The matriculation eligibility rate and the percentage of those studying for a first degree and above from the 20-29 age group refer to the year 2003. Excluding regional councils as well as Bet El and Basma

c. Control variables

Arab and ultra-Orthodox voter turnout for Knesset elections is usually regarded as affected by unique factors over and above socioeconomic differences. Over the years, the elected representatives of the ultra-Orthodox population have served as a fulcrum that has conferred them with special influence in excess of their electoral power. According to the instrumental approach, the tendency to vote is dependent on the probability of being able to influence the results of the election. According to this view, the political participation of the

ultra-Orthodox population can therefore be expected to be greater, all else being equal. In contrast, because of the lesser influence of Arab residents, which is reflected for example by the fact that Knesset members from the Arab parties have never joined a coalition government, will tend to participate at lower rates in Knesset elections.

In order to isolate the effect of the municipality's socioeconomic variables on voter turnout, two sector-specific dummy variables were included for Arab municipalities and ultra-Orthodox municipalities. Included among the ultra-orthodox municipalities are: Betar Ilit, Bnei Brak, Modiin Ilit, Emmanuel, Kiryat Yearim and Raksim.

Numerous studies have shown that the tendency to vote is affected by the citizen's age. The young population tends to vote at lower rates than the adult population. The list of control variables therefore includes the proportion of the young population in the municipality (the percentage of those aged 20–29 in the municipality's population). The inclusion of this variable is important for the purpose of measuring socioeconomic bias, because the positive relationship between age and wages, which is well documented in labor economics literature, is likely to bias the coefficient of wages in the electoral participation equation.

d. The econometric models

The first econometric model that will help to reveal the degree of socioeconomic bias in political participation is formulated in terms of levels (voter turnout) for each of the four elections that were examined.

$$(1) \quad Y_{m,t} = a_0 + a_1 X_{m,t} + a_2 S_m + a_3 D_{m,t} + \varepsilon_{m,t}$$

$Y_{m,t}$ is the number of residents who voted in municipality m in the elections that were held in the year t divided by the number of those eligible to vote in that municipality. A separate regression was run for each of the four elections, while the dependent variable and the explanatory variables were measured for each four elections. Following the discussion above, the dependent variable is measured also in terms of odds ratio (in logarithmic terms), as well as the voter turnout ratio at a specific municipality divided by the national average voter turnout in the elections. $X_{m,t}$ is the explanatory variable (income or education) at municipality m in the elections that were held in year t, and S_m represents the sector to which the municipality belongs (Arab or ultra-Orthodox; since the sector does not change over time, it does not bear a time index), and $D_{m,t}$ denotes the demographic composition of the municipality. Running a regression of this type makes it possible to simultaneously and directly verify the existence of socioeconomic bias at a specific point in time, and to study potential developments in the intensity of this bias over four election campaigns.

The second econometric model examines whether a decrease in voter turnout (in percentage points) is uniform for all local municipalities, or whether it differs according to the socioeconomic level of the locality's residents:

$$(2) \quad \Delta Y_m = b_0 + b_1 X_{m,t-1} + b_2 S_m + b_3 D_{m,t} + v_m$$

The coefficient b_1 examines whether the decline in voter turnout for Knesset elections differs between local authorities according to the socioeconomic level at the starting point. This regression addresses the concern of reverse causality (the participation rate affecting the level of income). It is unlikely to expect the (reverse) causality to run from the change in the political participation between two elections to the economic level of the municipality at the time when the previous elections were held. This concern decreases as the length of time between the two elections increases.

In the estimation section, an additional version of the econometric model appearing in Equation (2) will be presented, whereby the *change* in the municipality's socioeconomic level is the central explanatory variable instead of the socioeconomic level at a specific time. This specification allows examining whether the socioeconomic bias in voting in Knesset elections increased according to income growth rate.

This version is indirect examination of the effects of increased economic inequality on political participation. It is not possible to draw conclusions regarding the effect of increased income or educational inequality on voter turnout on the basis of the coefficients a_1 or b_1 (in the first regression), even if they are positive in each election and increase over time. However, a positive coefficient of the income growth in the regression of the change in political participation (b_1 in the second regression) implies that in municipalities where income rose at a high rate, voter turnout increased more or decreased less in comparison with local authorities where income rose at a low rate. In such a case, an increase in inequality, which is reflected by a more rapid growth in the income of high salary earners, will lead to an increase in socioeconomic bias.

4. RESULTS

Table 4 presents the coefficient of the average wage per employee post per municipality in a regression of the Knesset election participation rate in four elections. The coefficient is positive and statistically significant in each of the four most recent elections to the Knesset. These results confirm the existence of socioeconomic bias in the electoral participation rate in Israel, whereby residents of high socioeconomic class local authorities tend to vote at a higher rate than residents of weak municipalities.

It can be seen that the coefficient of wage per employee post, which is an index of the extent of socioeconomic bias, increased consistently from the elections to the 14th Knesset in 1996 until the elections to the 17th Knesset in 2006, which can be interpreted as a strengthening of the bias. As was explained above however, the change in the size of socioeconomic bias is sensitive to the way of measuring the dependent variable. However, this estimated increase in socioeconomic bias is disappeared if the dependent variable is formulated in terms of the electoral participation odds ratio (Appendix Table 1), but is accentuated if the ratio of voter turnout at the municipality to average voter turnout is used (Appendix Table 2).

Table 4
Participation in Knesset elections and level of income

	1996 elections	1999 elections	2003 elections	2006 elections
Constant	37.732	8.885	-22.607	**-96.352*****
	(0.205)	(0.719)	(0.362)	(0.002)
Arab municipality	0.129	1.440	-1.645	3.746*
	(0.942)	(0.427)	(0.373)	(0.062)
Ultra-Orthodox municipality	3.528	4.607	**14.263*****	**19.469*****
	(0.332)	(0.206)	(0.000)	(0.000)
Monthly wage per employee post (log)[a]	**6.647****	**10.052*****	**11.894*****	**18.331*****
	(0.046)	(0.000)	(0.000)	(0.000)
Percentage of 20-29 age group in population	**-0.709****	**-0.826*****	**-0.634****	-0.103
	(0.021)	(0.005)	(0.049)	(0.791)
Adjusted R^2	0.151	0.228	0.340	0.252
F test	8.807	13.904	23.507	15.732
Test significance F	0.000	0.000	0.000	0.000
No. of observations	176	176	176	176

The dependent variable: Participation rate. The precise level of significance is in parentheses.
* Significant at a level of 10 percent; ** significant at a level of 5 percent; *** significant at a level of 1 percent;
[a] Monthly wage per employee post is measured in the same year as the elections or in a year close to it if no data are available.
[b] For the permanent population of municipalities excluding Bet El and Basma. Municipalities for which at least one of the variables is missing for at least on of the years are: Elad, Bukata, Coechav Abu el Hija, Kfar Bara, Kfar Tavor, Modiin, Modiin Ilit, Masadeh, Maaleh Iron and Katzir-Harish.

The result with respect to socioeconomic bias within a broad cross section of local authorities in each of the four elections is obtained after taking into account municipalities' sector-specific affiliation to the ultra-Orthodox or the Arab population and the demographic composition. Interesting to note is that the coefficient of an Arab municipality is not significantly different from zero. In other words, the voting patterns of the residents of Arab local authorities do not differ from those of the residents of Jewish local authorities when income-level differences are controlled for.

The tendency of residents of ultra-Orthodox municipalities to participate in Knesset elections is greater than that of all other municipalities of the country, judging by the ultra-Orthodox municipality coefficient in Table 4. The regressions show a large increase in the coefficient of ultra-Orthodox municipalities: voter turnout in ultra-Orthodox municipalities was 19 percentage points higher than in other municipalities (in 2006). It should be noted that this increase in the coefficient of an ultra-Orthodox municipality reflects mainly a large decrease in voter turnout in non-ultra-Orthodox municipalities, compared with the stability (with a slight downturn) in voter turnout in ultra-Orthodox municipalities. This result is maintained even if the dependent variable is formulated in terms of the participation odds ratio (Appendix Table 1).

As expected, the proportion of the young population (those aged between 20 and 29) adversely affected voter turnout in all the Knesset elections. The significance of the variable in the 2006 elections is sensitive to the variable representing the municipalities' socioeconomic class. The former variable is not significant when economic status is represented by average wage per employee post, and becomes significant when the level of education is used as an indicator of socioeconomic class.

The result with respect to the existence of socioeconomic bias is robust even when the wage per employee post variable is replaced by a complex index of education (weighted average of matriculation certificate eligibility rate and the percentage of those studying for a first degree). Table 5 shows that the coefficient of the level of education in the municipality was consistently positive and significant in each of the last four elections to the Knesset. In municipalities whose residents are more highly educated, voter turnout in Knesset elections is higher than in municipalities whose residents have a low level of education. As with the finding regarding the coefficient of wage per employee post, the coefficient of the level of education also increased with the approach of the most recent elections (2006).

Table 5
Participation in Knesset elections and level of education

	1996 elections	1999 elections	2003 elections	2006 elections
Constant	**91.130***	**95.350***	**77.630***	**60.860***
	(0.000)	(0.000)	(0.000)	(0.000)
Arab municipality	1.728	0.344	-2.142	3.005
	(0.381)	(0.849)	(0.212)	(0.124)
Ultra-Orthodox municipality	7.955*	8.139*	**20.306***	**24.097***
	(0.075)	(0.082)	(0.000)	(0.000)
Education[a]	**0.208***	**0.233***	**0.332***	**0.428***
	(0.010)	(0.000)	(0.000)	(0.000)
Percentage of 20-29 age group in population	**-0.921***	**-1.309***	**-1.007***	**-0.943****
	(0.004)	(0.000)	(0.002)	(0.013)
Adjusted R^2	0.167	0.218	0.313	0.217
F test	9.083	12.236	19.376	12.141
Test significance F	0.000	0.000	0.000	0.000
No. of observations	162	162	162	162

The dependent variable: Participation rate. The precise level of significance is in parentheses.
* Significant at a level of 10 percent; ** significant at a level of 5 percent; *** significant at a level of 1 percent;
[a] Education is measured in the same year when the elections were held or in a year close to it if no data are available. The variable is calculated according to the average matriculation certificate eligibility rate within the 17-18 age group and the percentage of those studying for a first degree and above in the 20-29 age group. It should be noted that for 2006, education data from 2003 were taken.
[b] For the permanent population of municipalities.

Tables 5 and 6 present an estimation of Equation (2), which examines whether a differential change has occurred in voter turnout in Knesset elections according to the economic level of the municipality, which is represented by average wage per employee

post or average level of education in the municipality, as measured in the previous elections. This examination was based on a comparison of the difference between voter turnout in each of the Knesset elections in 1996, 1999 and 2003, and voter turnout in the most recent elections in 2006.

Table 6
Change in electoral participation rate and socioeconomic level of the municipality

	Difference between 2006 and 1996	Difference between 2006 and 1999	Difference between 2006 and 2003
Constant	**-84.482*****	**-70.599*****	**-44.496*****
	(0.000)	(0.000)	(0.000)
Arab municipality	**4.696*****	**4.683*****	**6.271*****
	(0.005)	(0.003)	(0.000)
Ultra-Orthodox municipality	**10.958*****	**13.728*****	3.417*
	(0.003)	(0.000)	(0.065)
Monthly wage per employee post (log)	**7.535*****	**5.802*****	**4.089*****
	(0.001)	(0.005)	(0.001)
Adjusted R^2	0.071	0.102	0.189
F test	5.578	7.861	15.326
Test significance F	0.001	0.000	0.000
No. of observations	180	183	186

The dependent variable: Participation rate. The precise level of significance is in parentheses.
* Significant at a level of 10 percent; ** significant at a level of 5 percent; *** significant at a level of 1 percent;
NOTE: The monthly wage refers to 2003 excluding Bet El and Basma.

Table 7
Change in electoral participation rate and socioeconomic level of the municipality

	Difference between 2006 and 1996	Difference between 2006 and 1999	Difference between 2006 and 2003
Constant	**-30.768**	**-27.772*****	**-13.166*****
	(0.000)	(0.000)	(0.000)
Arab municipality	**4.581**	**4.629*****	**5.733*****
	(0.002)	(0.001)	(0.000)
Ultra-Orthodox municipality	**16.066*****	**17.600*****	5.177**
	(0.000)	(0.000)	(0.014)
Level of education in previous elections	**0.270*****	**0.210*****	**0.118*****
	(0.000)	(0.000)	(0.002)
Adjusted R^2	0.106	0.123	0.188
F test	8.084	9.518	15.250
Test significance F	0.000	0.000	0.000
No. of observations	180	183	186

The dependent variable: Participation rate. The precise level of significance is in parentheses.
* Significant at a level of 10 percent; ** significant at a level of 5 percent; *** significant at a level of 1 percent;
NOTE: The level of education refers to 2003 excluding Bet El and Basma.

The decline in voter turnout was found to be more notable in socio-economically weak municipalities. The coefficient of average wage per employee post (or the level of education) is positive and statistically significant. A positive coefficient implies that the difference (which is negative because of the decrease in the electoral participation rate) between voter turnout in the 2006 elections and in the previous elections, was small in strong municipalities. The result recurs and to a significant extent in each of the three comparisons that were made.

The differential decrease in electoral participation by socioeconomic level of the municipality is obtained even after taking into account specific municipalities' affiliation to the two population sectors that were mentioned: Arab and ultra-Orthodox. Interesting to note is that Tables 6 and 7 show a modest decrease in Arab municipalities and an even more moderate decrease in ultra-Orthodox municipalities, judging by the regression coefficients of the sector-specific variables.

Table 8 examines whether the change in the rate of participation in Knesset elections matches the change in the level of income. (A similar examination was made regarding the level of education, but is not presented here because of the similarity in the results). The estimated regressions examine whether municipalities that experienced a more rapid income growth in average wage per employee post behaved differently from municipalities that did not benefit from such economic prosperity.

Table 8
The change in electoral participation in the change in the municipality's socioeconomic level

	Difference between 2006 and 1996		
	All municipalities	Jewish municipalities	Arab municipalities
Constant	**-23.054***	**-25.988***	**-15.479***
	(0.000)	(0.000)	(0.000)
Arab municipality	1.117		
	(0.412)		
Ultra-Orthodox municipality	**9.511***	**11.769***	
	(0.010)	(0.000)	
Change in monthly wage per employee post (difference in logs)	6.119	**13.251***	-20.081
	(0.170)	(0.000)	(0.137)
Adjusted R^2	0.022	0.254	0.018
F test	2.319	19.251	2.260
Test significance F	0.077	0.000	0.137
No. of observations	178	108	70

The dependent variable: Participation rate. The precise level of significance is in parentheses.
* Significant at a level of 10 percent; ** significant at a level of 5 percent; *** significant at a level of 1 percent;
NOTE: Excluding Bet El and Basma.

When the municipalities examined are limited to Jewish municipalities, the results of the estimation reveal a significant difference in the rate of decrease in electoral participation

between municipalities in which residents' income increased rapidly compared with those whose residents' income increased slowly or decreased. Electoral participation decreased more heavily among Jewish municipalities that experienced slow economic expansion than municipalities which grew rapidly, according to the regression coefficient.

The result obtained is surprising in view of the aggregate data presented in Table 1, whereby the decrease in the Knesset electoral participation rate during the period studied was accompanied by an increase in the level of per-capita income, in the matriculation eligibility rate and in the percentage of those studying for a first degree or above. The combination of a negative correlation at the aggregate level between the electoral participation rate and the level of income over time, together with a positive correlation at the level of the individual (or municipality) between the electoral participation rate and level of income at a given point in time was found in other developed countries as well (Filer et al., 1993).

The lack of a significant correlation between the rate of change in voter turnout and the income growth rate with respect to Arab municipalities highlights the need for adopting a cautious approach when relying on this result in order to predict electoral participation patterns in a specific municipalities according to the expected increase in the economic level of that municipality. This is despite the findings in the previous tables, which show that voter turnout in an economically strong municipality exceeds that in a weak municipality.

5. SUMMARY AND CONCLUSIONS

This study examines whether the large decrease in Israeli citizens' electoral participation rate between the four elections in 1996, 1992, 2003 and 2006 is more typical of the weaker socioeconomic strata, in view of the importance of participation for representing the preferences of the country's citizens.

In the absence of actual data on a voter turnout and socioeconomic characteristics at the level of the individual, the study used municipality data, including the average electoral participation rate of the municipality's residents in each of the four Knesset elections studied, and variables that represent the socioeconomic level of the municipality's residents, such as average wage per employee post and the average level of education at the municipality at those four points in time.

The study found that the main socioeconomic variables had a positive effect on voter turnout in each of the four elections that were examined. Residents in municipalities with a high level of income (or education) tend to vote at a higher (average) rate than residents in weak municipalities. In other words, a socioeconomic bias exists in electoral participation patterns in each of the four elections that were examined.

A comparison of the four elections shows that the extent of the socioeconomic effect on electoral participation increased consistently, according to the coefficient of the average wage per employee post at the municipality. Similar results are obtained when the average wage is replaced by the average level of education. This implies an increase in socioeconomic bias in voter turnout in the decade between 1996 and 2006. Support for this

finding is provided by an examination of the change in the electoral participation rate according to the municipality's socioeconomic rating in 1996. The decrease in the electoral participation rate was larger in municipalities with a low socioeconomic level than in municipalities with a high wage rate.

An analysis of the evolution over time of socioeconomic bias in voter turnout based on "the difference of differences" — the difference in the electoral participation rate between the two elections in 1996 and 2006, and the difference in wages (in logs) between the same two points in time—shows that voter turnout fell less at municipalities where wages increased more rapidly. However, these results are significant only for the Jewish population.

It was also found that voter turnout at ultra-Orthodox municipalities is higher than at non-ultra-Orthodox Jewish municipalities, even after taking into account the level of income (or education). However, residents of Arab municipalities tend to vote at a rate similar to that of non-ultra-Orthodox Jewish municipalities, here too after taking into account income (or education) differences.

The findings of this study give cause for concern regarding Israeli democracy's ability to engender decisions (especially economic decisions) matching the public's preferences. An increase in socioeconomic bias could result in decision-makers failing to take into consideration the well-being of the weak strata. The fact that many of those at the bottom of the economic scale abstain from voting makes it impossible to discern their actual preferences. The problem is greatly exacerbated in a society where income gaps are increasing. A source of apprehension is that increased inequality will lead to a decrease in the electoral participation rate, which will effectively dictate an economic policy that will lead to ever-expanding economic gaps. This vicious circle, if it exists, is endangering Israeli democracy, which is not particularly sound in any case.

APPENDIX

Appendix Table 1
Participation in Knesset elections and level of income

	1996 elections	1999 elections	2003 elections	2006 elections
Constant	-2.829	**-4.466*****	**-3.956*****	**-6.709*****
	(0.159)	(0.004)	(0.001)	(0.000)
Arab authority	0.064	0.168	-0.039	**0.182****
	(0.589)	(0.134)	(0.655)	(0.042)
Ultra-Orthodox authority	0.318	0.394*	**0.770*****	**0.884*****
	(0.195)	(0.080)	(0.000)	(0.000)
Monthly wage per employee post (log)[a]	**0.606*****	**0.787*****	**0.606*****	**0.823*****
	(0.007)	(0.000)	(0.000)	(0.000)
Percentage of 20-29 age group in population	-0.040*	**-0.044****	-0.025*	0.002
	(0.054)	(0.014)	(0.091)	(0.899)
Adjusted R^2	0.148	0.251	0.346	0.242
F test	8.579	15.651	24.095	14.930
Test significance F	0.000	0.000	0.000	0.000
No. of observations	176	176	176	176

The dependent variable: log [turnout/(1-turnout)]. The precise level of significance is in parentheses.
* Significant at a level of 10 percent; ** significant at a level of 5 percent; *** significant at a level of 1 percent;
[a] The monthly wage per employee post is measured in the same year when the elections were held or in a year close to it if no data are available.
[b] For the permanent population of municipalities, excluding regional councils, Bet El and Basma.

Appendix Table 2
Participation in Knesset elections and level of income

	1996 elections	1999 elections	2003 elections	2006 elections
Constant	0.466	0.106	-0.325	**-1.581*****
	(0.203)	(0.732)	(0.373)	(0.002)
Arab authority	0.002	0.018	-0.025	0.061*
	(0.920)	(0.437)	(0.362)	(0.063)
Ultra-Orthodox authority	0.044	0.058	**0.208*****	**0.319*****
	(0.330)	(0.207)	(0.000)	(0.000)
Monthly wage per employee post (log)[a]	**0.081****	**0.126*****	**0.174*****	**0.301*****
	(0.047)	(0.000)	(0.000)	(0.000)
Percentage of 20-29 age group in population	**-0.009****	**-0.010*****	**-0.009****	-0.002
	(0.021)	(0.005)	(0.050)	(0.791)
Adjusted R^2	0.150	0.228	0.339	0.252
F test	8.712	13.903	23.415	15.734
Test significance F	0.000	0.000	0.000	0.000
No. of observations	176	176	176	176

The dependent variable: Voter turnout in specific elections divided by average voter turnout in those elections. The precise level of significance is in parentheses.
* Significant at a level of 10 percent; ** significant at a level of 5 percent; *** significant at a level of 1 percent;
[a] The monthly wage per employee post is measured in the same year when the elections were held or in a year close to it if no data are available.
[b] For the permanent population of municipalities, excluding regional councils, Bet El and Basama. Average voter turnout for permanent population: 1996-81.4 percent; 1999-80.3 percent; 2003-68.2 percent; 2006-61.0 percent.

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