Past comparative voting-behavior research has revealed that electoral institutions can explain much of the variation in voter turnout between nations. This study takes an alternative and dynamic approach by identifying and explaining a pattern of turnout decline within industrial democracies, which is beyond purely institutional explanation. Multivariate analysis of a pooled cross section of 18 industrial democracies between 1950 and 1997 suggests that turnout decline can best be explained in terms of changing patterns of group mobilization and electorate demographics. The authors specifically point to the decline of unions and labor parties, which have traditionally been associated with the mobilization of peripheral voters and the real increases in the cost of mobilization. The authors control for institutional changes and find that they are less useful in explaining variation in turnout within advanced industrial democracies.

DECLINING VOTER TURNOUT IN ADVANCED INDUSTRIAL DEMOCRACIES, 1950 TO 1997
The Effects of Declining Group Mobilization

MARK GRAY
MIKI CAUL
University of California, Irvine

Few other areas of political science research have been as riddled with puzzles and paradoxes as the study of electoral participation. Empirical studies relying on survey data have continually reinforced the generalization that high levels of education and socioeconomic status are strong determinants of electoral participation and political involvement (Almond & Verba, 1963; Verba & Nie, 1972). Yet, ironically at the aggregate level, education

and incomes have steadily increased in industrialized democracies during the past 50 years, whereas levels of voter turnout in national elections have continued to decline.

Comparative aggregate-level research has sought to model the variation in the levels of voter turnout between advanced industrial democracies within static cross sections (Jackman, 1987; Jackman & Miller, 1995; Powell, 1986). Taken together, this literature has established that institutional characteristics are the strongest determinant of variations in voter turnout. In part, we agree with this past literature: Institutions do matter for comparative levels of turnout. Yet problematically, whereas turnout has systematically declined during the post–World War II era, electoral institutions have remained fairly constant within advanced industrial democracies. It is impossible to understand these changes in turnout within countries with a purely institutional model. This article was conceived as a response to the static literature surrounding explanations of turnout by specifying a dynamic model capable of explaining the changing patterns of voter turnout over time within advanced industrial democracies.

We hypothesize in this study that declining levels of voter turnout are to a large extent the products of systematic deteriorations of the mobilization of peripheral voters. More specifically, we hypothesize that the declining levels of union density and the diminishing success and effectiveness of traditional labor-affiliated parties in industrial democracies have left many voters uninterested, uninformed, and politically inactive. In the context of research produced by Rosenstone and Hansen (1993), we agree that "citizens participate in elections and government both because they go to politics and because politics goes to them" (p. 6). We posit that where and when this linkage of mobilization and support has broken down between labor and the working class, that turnout has also been in decline. At the same time, we are not so provincial as to think that this has been the only important change to occur in industrial democracies during this period. To control for other relevant factors, we have designed a model that includes the influences established in previous literature that might also have an effect on levels of voter turnout. Taken together, we examine the most highly specified model for which available data would allow, including five sets of explanatory factors: institutional, party system, economic, sociodemographic, and group mobilization.

ESTABLISHING TURNOUT DECLINE

Perhaps the best indication that one has a good research question is if it has yet to be addressed. This is indeed the case with comparative turnout decline.

Before one can even begin reviewing the few pieces of relevant literature surrounding the topic, one must first establish that there has indeed been a decline. Powell (1986) states that "in general, turnout from election to election is consistent within nations" (p. 24). Flickinger and Studlar (1992) admit some fluctuation but note that "turnout decline is not uniformly present and is incremental rather than dramatic in most cases" (p. 12). In a similar fashion, Klingemann and Fuchs (1995) observe that "the evidence indicates that over recent years there was no general trend towards a decline in institutionalized participation" (p. 422).

We sought to check the validity of these statements with a time-series cross-sectional (TSCS) data set that includes observations for every national election in the 18 continuously democratic industrialized nations with populations greater than 500,000 since 1950. This exhausts the population of what one could call "advanced industrial mass-democracies." We have included both parliamentary and presidential elections.[1] This unit of analysis is an important deviation from past research, which has often mistakenly limited its focus to highly salient elections in each nation. For example, the most widely cited comparative studies (Jackman, 1987; Jackman & Miller, 1995; Powell, 1986) look only at U.S. presidential elections and ignore the off-year turnout for congressional elections. This strategy excludes variations in turnout that are indicative of the phenomenon we are trying to explain.[2] Why do voters show up in greater numbers for some national elections and not others? The measure of interest is the percentage of valid votes cast by the voting-age population in any given election. Because invalid votes are often a sign of potential protest or abstention, particularly in compulsory voting systems, they have been excluded from the measure of turnout.

1. Data on presidential and parliamentary contests are organized within a stacked pooled data set within their own panels. Thus, when we measure change, it is not only nation specific but specific to election type as well. The necessity of this is obvious. If one calculated the change in turnout in U.S. congressional and presidential elections, one would get a zig-zag sawtooth pattern that is clearly a remnant of the saliency of on- and off-year elections. Change is thus calculated in two panels for the United States—one congressional, one presidential. This same technique was used for presidential elections in Austria, France, Finland, and Ireland (where they were contested).

2. It is clearly possible that turnouts in presidential elections in any of the presidential systems in this study have different trajectories of turnout or different influences. They are national elections and deserve inclusion in any study of turnout rather than the usual picking and choosing of types of elections that has occurred in past research. We sought to study the entire universe of elections for each nation, with the caveat that where two types of elections occurred, they would be represented in two panels so as not to obscure the trend in turnout. The analyses do not include European Union elections.

For the initial analysis of this data, we created an index to measure long-term changes in turnout.[3] We averaged each nation's level of turnout in its first two post-1950 elections, producing a baseline of turnout for each nation (and election type within nation, i.e., presidential and parliamentary). These baselines were then subtracted from all of the values in each nation's series of turnout observations.

CHANGE IN TURNOUT$_i$ = TURNOUT$_i$ – TURNOUT$_{avg1950s}$

These calculations produced comparable series that measure the change in turnout for each nation (and election type within nations) regardless of their actual level of turnout in the 1950s.[4] To display these trends in a figure, we have pooled the separate national indices of change into a nonparametric regression as shown in Figure 1.[5] The pattern is clear: Levels of voter turnout have undeniably fallen from their immediate postwar levels since the late 1980s. On average for this set of nations and elections, turnout is currently down approximately 10 percentage points from what it was in the early 1950s. A recent study analyzing levels of turnout in 24 advanced industrial democracies from 1980 to 1998 by Ghobarah (1998) supports our finding. On average, Ghobarah found a 2.5 percentage point decline from 1980 to 1990 and another 4.5 percentage point decline from 1990 to 1998 using a pooled average of the levels of voter turnout across his sample.[6]

3. The technique is designed to measure long-term trends and differences between elections in the 1950s from those that have occurred since, up to 1997. We have also produced a first-differences estimation that more readily addresses election-to-election changes; this is reported in the appendix.

4. This technique provides a common baseline for each nation that is equivalent to zero. Any subsequent observation is comparable across nations as each series is "standardized" by its initial level of turnout. The advantage is that an index can be "used to make relative comparisons . . . from the base" (Klein, 1997, p. 76).

5. The nonparametric regression averages the observations in each year for the nations that had an election in that year. The first two elections since 1950 were chosen as a benchmark to capture the first postwar elections, which were unlikely to be affected by the socioeconomic milieu of the immediate postwar era. This measure includes both parliamentary and presidential elections (where applicable), which are treated separately for each nation with separate indexes. For the pool of 18 nations in the time series, the average number of elections in any year was 6.2, with a standard deviation of 1.7. The minimum number of elections in any year was 3, in 1957, 1985, and 1989.

6. It is important to note that the Ghobarah (1998) study uses untransformed data that average the levels of voter turnout across its sample—which is quite different from the figure we present, which has removed the variation that can be attributed to the different levels of turnout across democracies. Furthermore, Ghobarah uses the notoriously unreliable technique of figuring turnout based on the number of registered voters and not on the eligible voting-age population. Thus, the data provided in Figure 1 provide a clearer estimate of change.
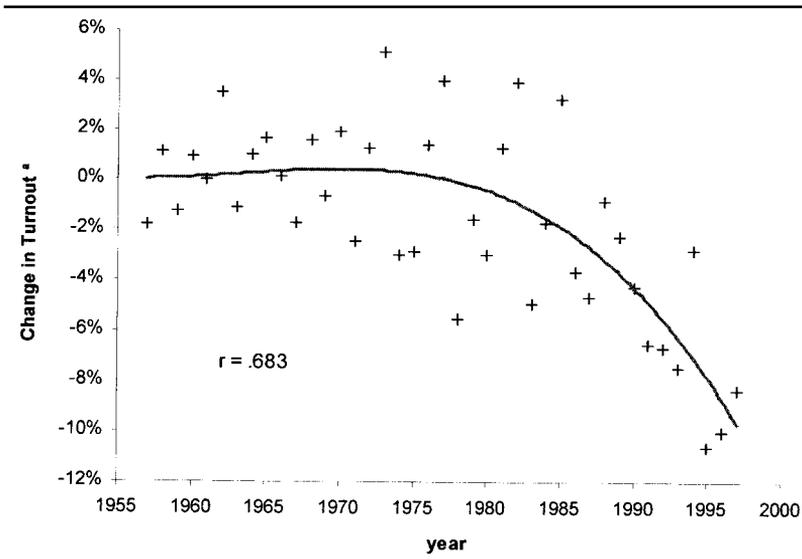
Figure 1. **Aggregate trend of change in turnout in 18 organization for economic coopera-
tion and development (OECD) industrial democracies.**
Source: Mackie and Rose (1991), IDEA Database (1997).
a. Change represents any observation subtracted from the mean of that nation's first two elec-
tions of that type (lower house or presidential). These scores were then averaged by year and
plotted. Best-fit trend line produced by Curve Expert 1.3. Third degree polynomial: $y = 5942.9 + -9.325x + .0049x^2 + -8.4E–007x^3$.

When we disaggregated our data by nation, the pattern of decline
remained consistent. The first two columns of Table 1 display the percentage
point difference in voter turnout from the average of any nation's first two
elections in the 1950s to the average of that nation's two most recent elections
and the difference between the nation's highest and lowest turnout elections
since 1950. More than one third of the nations experienced turnout variation
greater than 15 percentage points in parliamentary national elections.[7] Even
Australia, with its compulsory voting law, has experienced a 9 percentage
point differential between its highest and lowest levels of turnout since 1950.

Thus, relative to their 1950s levels, voter turnout has declined in 16 of our
18 industrial democracies. Only in Denmark and Sweden has turnout
increased from its levels in the 1950s. Yet, if we had chosen a later time point
from which to start our calculations—for example, 1960—then Sweden and

7. For the United States, we substituted presidential turnout.

Denmark would also show a slight decline. This evidence shows that the reliance on decade national averages of turnout in the voting-behavior literature (Jackman, 1987; Powell, 1986) has concealed important variance that may have led to the misleading conclusion that turnout is largely an institutionally determined political behavior.

EXPLANATIONS FOR TURNOUT DECLINE

The results provided in Figure 1 and Table 1 led us to question the existing dominant comparative theories and literature surrounding explanations of the variance in voter turnout. We asked ourselves if the theories that explain variance between nations could also explain the turnout changes within countries over time that we have identified. Clearly, it appears as if there have been some important systematic and noninstitutional changes that have yet to be identified that may explain the decline in turnout within advanced industrial democracies. To provide a multifaceted explanation, we drew on a diverse set of literature and statistical measures to make our case.

INSTITUTIONAL EXPLANATIONS

Jackman (1987) and Powell (1986) have produced two seminal pieces explaining cross-national variations in voter turnout.[8] These articles contribute mutually reinforcing models that indicate that electoral institutions are clearly the most important determinant of variation in national levels of turnout. Both studies use multivariate regression analysis to model the variance between national decade averages of voter turnout for high-salience elections in samples ranging from 15 to 22 industrialized democracies. Both studies conclude that the single most important institutional determinant of high voter turnout is, not surprisingly, compulsory voting.

In addition, Jackman (1987) finds that proportionality, unicameralism, and what he calls "nationally competitive districts" have had a moderate positive effect on voter turnout. Jackman reasons that proportional systems should make the voter feel more efficacious because this type of votes-seats allocation increases the likelihood that the individual vote affects a party's share of seats in parliament and perhaps may even determine the final selec-

---

8. Powell (1986) and Jackman and Miller (1995) explain more than 90% of the variation between national decade averages of turnout with a model consisting largely of institutional factors and dummy variables. For a critique of the methodology used in both studies, see Gray (1998).

Table 1
Percentage Point Changes and Variation in Turnout

Nation (N)	Change in Turnout Since 1950s[a]	Highest – Lowest Turnout 1950-1997[a]	Election Year With Highest Turnout[b]
Australia (19)[c]	–0.7	9.0	1963
Austria (23)	–11.9	14.4	1965
Belgium (15)[c]	–4.6	10.4	1981
Canada (15)	–3.3	15.7	1958
Denmark (19)	+2.9	13.0	1981
Finland (21)	–5.7	14.0	1982
France (19)	–13.3	16.7	1965
Germany (12)	–9.1	17.0	1972
Ireland (19)	–4.2	15.5	1977
Italy (12)[c]	–7.5	11.3	1972
Japan (17)	–10.4	14.8	1952
Netherlands (13)[c]	–8.8	14.6	1972
New Zealand (16)	–17.6	23.1	1951
Norway (12)	–2.2	10.8	1969
Sweden (15)	+4.3	13.0	1976
Switzerland (12)	–23.8	27.0	1951
United Kingdom (14)	–6.3	12.3	1950
United States (24)	–9.5	11.1	1952

Source: Data compiled by authors from sources listed in the appendix.
Note: Change since 1950s represents the percentage point difference of the average of the two most recent elections from the average of the first two post-1950 elections.
a. Legislative elections only, except for U.S. entries, which are based on presidency.
b. Includes presidential elections.
c. Use of compulsory voting laws.

tion of a government. Finally, Jackman hypothesizes that strong bicamerialism leads to a less decisive role for the lower house in the legislative process. The reduced saliency of legislative elections at the lower level of parliament decreases voters' perception that their votes can make a difference in policy outcomes.

As impressive as their models are, both Jackman (1987) and Powell (1986) avoid the necessity of explaining variance in turnout over time. Reliance on national decade averages has limited the possible inferences that can be made with their results and concealed the changes in turnout that began in the 1980s.[9] As Barnes (1997) concurs, "the explanatory power of institutional arrangements is impressive. . . . [Yet] there has been a decline in turnout

9. Both studies rely on a very small number of cases with multivariate models, leaving precious few degrees of freedom.

in Europe over the past decade, a decline evident in almost all countries, yet no institutional arrangements seems responsible" (p. 120). Both Flickinger and Studlar (1992) and Lewis-Beck and Lockerbie (1989) argue similarly that institutional explanations cannot explain turnout decline because institutions have remained fairly constant across these nations.[10] Although we do include variables for any major institutional changes within our sample of nations, we do not expect that they will be able to explain the declines in turnout reported in Table 1. Hence, we believe that if one is to gain a complete understanding of the research question at hand, one must turn to those other factors at work in advanced industrial democracies.

PARTY SYSTEM EXPLANATIONS

We expect that the nature of the party system will have considerable influence on the aggregate level of voter turnout. Specifically, the number of parties and the degree of competition among them in each election should affect voters' decisions of whether to show up at the polls. One might expect that where there is a greater number of party alternatives on the ballot, it is more likely that there is a party close to individual voters' preferences. Thus, a higher number of parties may draw more voters to the polls. However, Jackman (1987) argues that multipartyism places the voters a step further away from government formation, which may alienate voters and depress turnout. Therefore, we expect the number of parties to have a diminishing returns effect in which a multitude of parties with small vote shares will fractionalize the system to the point where proportional systems lead to nearly worthless votes in terms of future government policy.

Dittrich and Johansen (1983) conclude that large changes in fractionalization, both positive and negative, encourage turnout, whereas modest changes discourage turnout. It may be that activity in the party system attracts voters' attention and draws them to cast a vote or that during realignments, citizens are being mobilized into a new party structure, which increases the aggregate levels of turnout.

Another critical feature of the party system is party strength. Where one dominant party continually wins elections by a large margin, it is difficult to reason why anyone supporting an opposition party should go to the polls on election day. We can expect that in elections where the major parties are in heated competition, voters will be stimulated to vote. Greater competition

10. Italy and the Netherlands have switched from compulsory to noncompulsory voting, whereas Sweden and Denmark have moved from bicameralism to unicameralism during the 1950 to 1997 period. Other minor changes in electoral systems have occurred as well, but not of the magnitude necessary to explain the generalized decline.

not only yields excitement in a campaign but also, in the rational choice framework, increases the potential likelihood that any one vote will matter for the outcome of the election. Thus, we reason that the degree of competitiveness, measured by the percentage point difference between the largest two parties, should be a good supplementary indicator to Powell's (1986) and Jackman's (1987) institutional measure of nationally competitive districts.[11]

ECONOMIC EXPLANATIONS

Perhaps the most widely studied set of election-specific factors related to turnout at the individual level deals with economic factors. Theoretically, voters' unhappiness with high levels of inflation or unemployment may make them more likely to register their discontent at the polls. However, at the aggregate level, the findings of Lewis-Beck and Lockerbie (1989) suggest that whereas the state of the economy does influence the level of turnout, it is not in the terms of individual pocketbook effects. Instead, it seems voters' collective evaluations of economic performance have a greater impact on voting behavior: The perception that the economy will do well in the year to come heightens the likelihood that respondents will vote. This research is supported by Radcliff's (1992, 1996) recent studies, which surmise that economic growth during the year before an election compels voters to go to the polls in greater numbers. Yet Radcliff does not establish why this should occur, and the overall effect is not dramatic.[12] In light of these studies, we include the potentially relevant economic factors in the model that could possibly account for election-to-election variations in turnout within countries, with the caveat that we are unsure of their directional effects.

SOCIODEMOGRAPHIC EXPLANATIONS

No study of voter turnout, whether at the level of the individual, the group, or the nation, can exclude sociodemographic factors. This area of analysis has provided the foundation of survey research explanations of political participation in cross-national as well as nation-specific studies for more than 50

---

11. We have sought to remain consistent with Powell (1986) and Jackman (1987) and reproduced their measure of nationally competitive districts in a variable we call "electoral competitiveness." It is basically the same scale, which simultaneously measures the inherent proportionality and district magnitude of an electoral system. We have broken out their scale into a larger measure that is more sensitive to electoral system changes as described by Lijphart (1994) and Taagepera and Shugart (1989).

12. In his own words, "a 5% decline in national income [gross domestic product] lowers turnout by approximately 1%" (p. 445).

years.[13] Yet it has also provided political science with one of its most endur-
ing puzzles. To date, there are no systematic explanations for why turnout has
declined during a period in which the individual-level characteristics posi-
tively associated with the vote have increased in all industrial democracies.

Yet we do have expectations that we can test at the aggregate level. We
expect that those nations that have made a greater commitment to educating
their youth, particularly at the university level, should eventually reap the
electoral benefits of a more informed electorate. In addition, based on survey
data, we expect younger voters to be less likely to vote due to lack of interest
and little "social connectedness" (Teixeira, 1992, p. 38). With the lowering of
the legal voting age in several of the nations in this study, we expect that a
greater number of these uninformed and unattached potential voters have
lowered the aggregate level of turnout in these nations.[14] At the other
extreme, it is reasonable to expect that very old age may inhibit voting as
elderly citizens lose some of their cognitive capacities or are immobilized by
illness. Thus, we include a measure of the proportion of the electorate
between 30 and 65 years of age in our analysis.

GROUP MOBILIZATION

The intent of this article is to introduce the importance of mobilization into
the study of turnout decline. Whereas Rosenstone and Hansen (1993) and
Burnham (1965, 1987) have given considerable credence to this idea, their
focus has been primarily limited to the United States and within micro-level
research. At the aggregate level, we expect that data related to the strength of
parties, unions, and other organizations, which have traditionally encouraged
peripheral voters to go to the polls, will be positively associated with voter
turnout. Organizations are often capable and responsible for contacting, edu-
cating, and reminding their members of the importance of their votes on elec-
tion day. More important, they may also provide a value to a vote.

Several classic studies have highlighted the importance of groups in get-
ting out the vote. Uhlaner (1989, p. 391) finds that group identifications can
make it more rational for particular segments of the electorate to show up
at the polls, even when the cost-benefit incentive structure clearly predicts
that they should not. Verba, Schlozman, and Brady (1995) find that the

---

13. The relevant literature is too massive to cite. Perhaps the most complete series can be
found in Verba and Nie (1972), Verba, Nie, and Kim (1978), and Verba, Schlozman, and Brady
(1995).

14. See Topf (1995) for an empirical analysis of the effects of changing age structures on
turnout.

politicization that occurs within parties, interest groups, churches, and racial organizations can increase the likelihood that an individual will vote. Rosenstone and Hansen (1993) explain the multifaceted process behind this phenomenon by arguing that "mobilization underwrites the costs of political participation . . . [through] the creation of selective social incentives for political involvement. . . . [They] tap networks of family, friends, neighbors, co-workers, and associates and exploit complex relationships of social identity, expectation and obligation" (p. 176).

Whereas Powell (1986) stresses the importance of party-demographic group linkages, he stops short of linking this directly to mobilization. Instead, Powell highlights the importance of the cognitive links between economic or religious groups and parties that can encourage citizens to vote. He reasons that linkages provide cues for voters, even for those citizens who are poorly informed. Yet Powell's analysis is static, so he is unable to estimate the impact of party linkages over time. Furthermore, Powell does not factor in the strength of the actual organizations that represent many of these groups and interests and instead relies on limited individual-level survey data and class-voting indexes, which severely limits the number of cases.

In this study, we concentrate on the mobilizing forces from the left of the ideological spectrum, which have traditionally had the biggest impact on mobilizing peripheral voters. The data presented in Table 2 display the reasonably large shifts in the aggregate levels of unionization and labor party vote shares since the 1950s. These columns represent the percentage point difference from the average levels during the first two elections of the 1950s to the average during the two most recent time points.

Unionization declined in 10 of the 18 nations. Comparing this to the turnout data, we can see that in each case where union density has declined, voter turnout has declined as well. Yet the reverse is not true. Turnout decline does not necessarily correspond to union decline. However, in both Sweden and Denmark, where turnout has increased since 1950, we note especially large growth rates in union density. After careful examination of the union density data over time in each individual nation, we find that our evidence supports the decline patterns cited by Griffin, McCammon, and Botsko (1990):

> Unions in more than three-fourths of the 18 largest, politically stable capitalist democracies experienced sustained declines or stagnation in the depth or density of their organization from the late 1970s to the mid-1980s. In half of these nations, labor suffered again as it did in the United States, absolute losses in union members. (p. 172)[15]

15. The reason our study finds fewer cases of decline in union density is that our starting point is the 1950s instead of the 1970s.

Table 2
Percentage Point Changes in Union Density and Labor Vote Share

Nation (N)	Change in Union Density Since 1950s	Change in Labor Parties' Vote Since 1950s	Change in Turnout Since 1950s
Australia (19)	–15.5	–7.1	–0.7
Austria (23)	–12.0	–10.8	–11.9
Belgium (15)	+6.5	–15.6	–4.6
Canada (15)	+0.5	–0.1	–3.3
Denmark (19)	+14.0	0.0	+2.9
Finland (21)	+43.0	–12.1	–5.7
France (19)	–15.5	–18.1	–13.3
Germany (12)	–4.0	+6.8	–9.1
Ireland (19)	+16.5	+8.2	–4.2
Italy (12)	+4.0	–12.8	–7.5
Japan (17)	–12.0	–5.9	–10.4
Netherlands (13)	–20.0	–3.9	–8.8
New Zealand (16)	–18.5	+0.6	–17.6
Norway (12)	+4.5	–4.2	–2.2
Sweden (15)	+13.0	–3.2	+4.3
Switzerland (12)	–17.0	–7.2	–23.8
United Kingdom (14)	–4.5	–9.5	–6.3
United States (24)	–15.0	—[a]	–9.5

Source: Data compiled by authors from sources listed in the appendix.
Note: Change since 1950s represents the percentage point difference of the average of the two most recent election year observations from the average of the first two post-1950 election observations.
a. The U.S. vote share for labor parties is less than 1% in both cases.

As one can see from the second column of Table 2, the percentage vote share of self-identifying labor parties such as the communists, socialists, and social democrats or labor have also been in decline in all but three nations as of 1997. Only in Germany, Ireland, and slightly in New Zealand have the labor parties' share of votes increased since 1950. In general, for Australia, Austria, France, Germany, Japan, Switzerland, and the United Kingdom, the decline for the left has been occurring since the 1980s.[16]

16. In the U.S. context, the actual vote shares for these parties are counted in our study, yet the Democratic vote is excluded with good reason. Although traditionally a party of the working class, it deserves this label only in a nominal sense. One can be sure that a good portion of the votes received by the Democrats in the South and the West never had anything to do with working-class activism or radical labor movements. Furthermore, if it was included in any form, it would have forced us to include a wide array of comparable nominal left-liberal parties in the other nations of this study, which would seriously muddle this measure. Therefore, the inclusion of any labor party in this category is considered only in the utmost literal and strict sense of self-identification as communist, labor, socialist, or social democratic.

Overall, those nations that saw a decrease in unionization also saw the greatest average decline in voter turnout. The decline in labor party vote shares appears to have less impact in this long-term aggregate form. Yet in nations where both unionization and the labor vote share has declined, turnout has declined, on average, 10.5 percentage points. In contrast, in the group of nations in which labor vote shares and unionization actually increased, voter turnout declined by a much lower average of only 2.3 percentage points.

As we have shown, concomitant with declining voter turnout, participation in unions has also declined in recent decades. Trade unions are not only an independent mobilizing force but also play an important role in the linkage of party to citizen. However, this traditional linkage between unions and left parties has become increasingly weaker in many industrial nations since the 1970s (Taylor, 1993). Trade unions have historically acted as facilitating organizations in unison with labor parties to achieve reforms and social justice through the potential electoral capital provided by the working class vote. Although it is debatable whether increased turnout actually benefits leftist parties, socialist parties have accepted this hypothesis and therefore design their election strategies and party activities with the intention of mobilizing the voting reserves (Dittrich & Johansen, 1983). Thus, the combined effect of strong unions and strong labor parties creates the greatest incentives and effectiveness of working class mobilization. As Griffin et al. (1990) found, social democratic parties have traditionally depended on unions for their success; thus, it is no surprise to find that union decline in the 1970s and 1980s was the smallest in those nations with the highest degree of long-term social democratic governance.

Decline in unions or labor parties and the increasing weakness in the relationship between the two organizations may influence the ability of these organizations to mobilize working class voters, which in turn, affects aggregate levels of turnout. As Pacek and Radcliff (1995) reason,

> higher-status citizens are "core" voters—they turn out with a high and roughly constant probability. Lower-status individuals, conversely, are "peripheral" voters—the chance that they will vote is lower, and it varies from election to election. With the weakening in either the left party structure or the link that binds citizens to left parties, we should observe decline in turnout and increased turnout among the "peripheral voters." (p. 138)[17]

17. The core-peripheral voter relationship exists theoretically in any given industrialized nation. As Lipset (1960) found 40 years ago, "patterns of voting participation are strikingly the same in various countries: Germany, Sweden, America, Norway, Finland, and many others for which we have data. . . . The better educated [vote] more than the less educated . . . higher-status persons, more than lower" (p. 182). Yet in some nations, it is weakened to the point of insignifi-

Although unions and labor parties traditionally target working-class voters, their mobilization efforts should also spur a countermobilization by organizations across the ideological spectrum. Hence, we expect that declining efforts by established organizations to mobilize voters would affect more than just the working-class vote.

In addition, we draw on research by Dahl and Tufte (1973) and Wallerstein (1989) to hypothesize that the real costs of mobilization become limiting when voting-age populations either become too large or grow too quickly. This is particularly important for change explanations, for it appears that turnout has declined the most in the nations that have had the larger populations and high levels of population growth. The size and density of voting-age populations can cause problems for mobilization due to the costs involved in getting so many citizens to vote for one's party.[18] In a particularly populous region, the strategy for many parties is likely to be one of sectional or segmental mobilization. In this respect, with limited resources, parties target cost-effective strategies toward potential voters who are the easiest and most likely to be swayed or influenced while neglecting those who are unlikely to offer support (Rosenstone & Hansen, 1993). With the proliferation of survey research, focus groups, and computer technology, this technique of "focused mobilization" has become a virtual science. This hypothesis can also be framed in terms of a rational choice framework. Where a large number of voters are expected to cast a ballot, the potential that any one individual's vote will decide an election decreases accordingly. Furthermore, we expect that the psychological effect involved in this estimation only increases in situations where the potential voters are highly visible and numerous.[19] Thus, for a variety of reasons, we expect that where voting-age populations have grown rapidly and significantly, turnout will have declined as well.

MULTIVARIATE METHODOLOGY

Analyses of voting behavior are most commonly made at one of two levels: the nation or the individual. Powell (1986) provides the best example of

---

cance as aggregate turnout levels reach the 85% and above range, where the pool of nonvoters approaches a random socioeconomic group of abstainers and where mathematically the proportionate difference between classes can only exist between a very small range.

18. Taagepera and Shugart (1989) have quantified this relationship in their theory of "communication channels." The greater the number of communication channels making a demand on a party or government representative, the less capacity they have to act effectively.

19. As each of our nations has had fixed borders within the time frame discussed here, any growth in voting population is an increase in voter density as well.

successfully intermixing both levels of analysis. Yet it is a rarity to coherently blend aggregate and individual-level data. First, survey data limit the number of cases to those nations that have election studies and to a small period of time, because even fewer countries have this data preceding 1970. Second, responses to survey items are rarely comparable across nations. For example, party identification appears to have a very different meaning depending on where one asks the question. The result is usually the equivalent of mixing apples and oranges.[20] Finally, it has long been established that turnout data in surveys are notoriously unreliable, as people respond that they have voted or will vote at a much higher rate than we know actually occurred in the population based on registrar data (Clausen, 1969). In this study, we rely primarily on aggregate data. Our independent variables are thus based on aggregate national-level statistics.

Whereas the summary data provided in Tables 1 and 2 shaped our initial analysis, the results were for the most part only capable of providing information about a nation's first two and last two elections in the series. To really get at the problem of turnout decline over nearly 50 years, we provide explanations that model the variation in turnout, observation by observation for 240 elections.[21] The application of this data into a meaningful statistical procedure required some careful methodological reasoning. The sample size and resulting degrees of freedom allow for the legitimate use of ordinary least squares (OLS) regression. As Stimson (1985) notes, "OLS is quite probably the most often utilized model for pooled data" (p. 918). However, there are risks associated with OLS estimates because they treat each observation as an independent event. In the stacked pooled data set used in this study, this is clearly not the case, because turnout in any given nation at any time is more than likely strongly related to the unique qualities of that nation within that specific frame of time.[22] This problem could potentially lead to violations of OLS assumptions regarding the error terms. Lewis-Beck (1980) explains that if the error terms are systematically related within or across cases, then significance tests are more likely to yield statistically significant coefficients.

20. For example, the relationship between turnout and the percentage of population responding that they identify with a party or trust the government was insignificant and nearly random in our data.

21. The true *N* equals 286, but after removing two standardizing elections for each nation and each type of election within those nations, there are only 240 cases for which we have standardized change in turnout and 263 for the first-differences estimation reported in the appendix.

22. The data are arranged first by nation, then by type of election, and then by year, providing a stacked series of observations for each country and each type of election over time.

This is most likely to occur when one relies on untransformed data that measure the actual levels of variables across time.[23]

We have transformed our variables into index measures that quantify change over time. This procedure rendered our time-series cross-sectional data stationary, thereby helping us avoid the problems associated with correlated error terms.[24] This procedure also allowed us to measure change over time within nations rather than differences between nations. Following these requirements, our dependent variable was operationalized at each observation as the percentage point difference from the average level of turnout in the first two post-1950s elections in each nation and type of election (presidential or legislative).

23. A pooled estimation of our time-series cross-sectional using untransformed data (the actual levels of each variable) will better explain differences between countries rather than changes within countries (this estimation is provided in the table in the appendix). This procedure obscures the phenomenon we are trying to explain. Because nearly all of our nations have experienced decline on some magnitude and have wide-ranging differences in their levels of turnout, a pooled time-series analyses will almost constantly measure the differences in the level of turnout between countries. The variations in the levels between the 18 countries analyzed here are greater than the variation within them over time. Because we are interested in changes within our set of countries, the standardized measures of change represent the optimum procedure for the research question presented here. Even if one used the actual levels—measurement with country dummy variables—one would still largely be measuring differences between nations rather than within them. Country dummy variables control for panel differences that cannot be accounted for with the theoretical variables. They do not, as is commonly believed, remove all panel differences, allowing the theoretical measures the absolute capacity to measure changes within countries.

24. Although it has almost become standard practice to use the levels of variables with ordinary least sqaures regression and a lagged endogenous variable, this procedure does not necessarily measure change in the most efficient manner. In one regard, "a lagged endogenous variable produces biased parameter estimates if it is measured with error, if there is autocorrelation in the equation" (Bartels & Brady, 1993, p. 130). Johnston and DiNardo (1997, p. 194) note that when using a lagged observation of the dependent variable as an explanatory measure, one must also include lagged observations of all independent variables. Otherwise, the power of the lagged endogenous variable will obscure the power of the explanatory variables, which are related not only to the current observation but to the lagged observation of the dependent variable as well. Finally, as Klein (1997, p. 12) illustrates brilliantly, the levels of two variables could co-vary over time in a positive direction, as many aggregate indicators do. Without transforming the data to a stationary process, it will appear that these two measures have a positive relationship when in reality a positive change between observations for one measure actually leads to negative changes for the other for each observation. Even when one includes a lagged observation in the nonstationary measurement, the two variables will erroneously appear as if there were a positive association when indeed it is negative when one analyzes the data from a pure change perspective.

$$\text{CHANGES IN TURNOUT}_i = \text{TURNOUT}_i - \text{TURNOUT}_{avg1950S}$$

By this method, we have converted each observation of turnout into a measure of change from a nation's 1950s levels.[25] Through this process, we remove a great deal of the between-country variation in turnout by standardizing every nation's series to the same baseline, which allows us to create models that explain long-term turnout decline within countries.[26] This focus is especially important for measures that change rather methodically, such as union density.[27] We used the same process to standardize and convert the independent variables.

Thus, with the exception of the institutional measures, the variables discussed in the literature review, which are all sensitive to real continuous change, were converted to specific unit changes from the average of the first two 1950s elections for each nation and election type (see the appendix). This method of analysis isolated each election and asked the following questions: How different is turnout in this election from what it was for that nation in the 1950s, and how different are the explanatory factors as well? Thus, we have set a benchmark for the analysis. We assume that the theoretical variables discussed in the literature review have a certain relationship to voter turnout. We hypothesize that as they change, turnout will change as well across the years and elections. With greater divergence from the baseline of any variable, we assume there will be some equivalent magnitude of change in turnout. This again allows us to isolate differences within countries through time rather than differences between nations. It also allowed us to analyze long-term changes and trends across many years.

The reasoning behind the choice of baseline was clear. Elections before 1945 could not be included because of the sweeping changes to the political and party systems brought about by World War II. Furthermore, many of the nations in the sample did not have elections during the war period or were under different regimes. We excluded the elections between 1945 and 1950 to

25. Once again, this is specific to election type. For example, in the U.S. case, off-year and on-year elections are set on the same plane as they are standardized only by other off-year and on-year elections.

26. We restrict ourselves to the limitation of "a great deal" because after a sufficient number of elections, cross-national variation will reappear to the extent that these nations have different trajectories of decline. We, in part, use country dummy variables in the estimations to ensure that panel differences do not obscure our temporal findings.

27. And indeed, as the first-differences estimation shows, election-to-election changes in union density are not statistically significant indicators of election-to-election changes in turnout—and perhaps they should not be. One would not expect a 2% decline in union density from one election to the next to matter as much as a long-term deterioration of 10 percentage points over five elections.

create a buffer zone of time in which many of the nations in the sample were rebuilding and reconstituting under new constitutions and electoral rules. We chose to use an average of a nation's first two post-1950s elections to establish how voter turnout was generally operating in the immediate postwar era after reconstruction. This allowed us to analyze the longest uninterrupted series of elections possible. This sampling strategy is thus not unlike the one used by Lijphart's (1994) recent comparative sample.

As we have already noted, there were relatively few significant institutional changes within these nations during this period. In the context of change, institutional variables were thus operationalized as dummies, which measure the adoption or dissolution of a particular institution that has been identified in the literature as having an impact on voter turnout. For example, if a country had compulsory voting laws in the 1950s and did not change that law throughout the time-series, then they receive a zero on the change in compulsory voting variable. Only nations that have dropped compulsory voting—Italy and the Netherlands—receive a 1 on their observations, which are indeed different from their 1950s elections.

The only other exceptional measurement issue concerns the construction of a higher education variable. An established, non-survey-based, comparative measure of aggregate levels of education does not exist. We have created one here to the best of our ability by dividing the natural log of students enrolled in college by the natural log of the total population of any given nation in any given election year. We believe this is an appropriate measure and approximation of the societal commitment to advanced education.

RESULTS

We estimated the model using the TSCS analysis procedures described by Beck and Katz (1995, pp. 634-647), which provide what we believe to be the optimum reliability for this type of data.[28] Specifically, this entailed running a series of regressions in OLS, controlling for the pooled nature of the data with panel corrected standard errors.[29] In the initial runs, we included dummy vari-

28. We have provided two other models in the appendix: one using the untransformed levels of variables and the other using variables measuring first differences. The untransformed model includes a dummy variable for type of election (presidential/parliamentary) as well. This was necessary because the panels here are not standardized by the change transformations—thus, variations between types of elections must be accounted for, whereas in the change estimations they are treated as separate panels with their own series of change.

29. Using the "xtgls" option in STATA 5.0, we controlled for the pooled nature of the data by specifying panel-specific error structures ("psar1" and "hetero") and designated the panels

ables for each nation to correct for any country-specific effects.[30] The Durbin-Watson statistic for the estimation was 1.887—well within the acceptable range within which we can assume stationarity and that the effects of autocorrelation had been removed from the analysis (Johnston & DiNardo, 1997, p. 515).

As Figure 1 reported, on average by the late 1990s, turnout showed a long-term 10 percentage point decline from the 1950s for the set of nations in this study.[31] Although this is not a wide range of variance to explain, the variables in our model were able to account for a large part of it, achieving an adjusted R^2 of .723.

Interpreting the regression results that we present in Table 3 is, for the most part, straightforward. A one-unit change in any of the independent variables is associated with a change in turnout relative to the level of turnout experienced in the first two post-1950s elections, which is equal to the magnitude of the unstandardized coefficient (all percentages, including turnout, were measured in decimal form).

As we hypothesized, the impact of changes in labor party success within a country compared to what it experienced in the immediate postwar period was a statistically significant indicator of changes in turnout. A 10% decline in the success of labor parties relative to what those types of parties experienced in the 1950s led to, on average, a 1.3 percentage point decline in voter turnout. The accumulated changes in union density showed their influence in the model as well, achieving statistical significance at the .01 level. A 20 percentage point decline (like the decline experienced in the Netherlands by

---

within the data by singling out the observations by nation and election type. This produced 23 separate panels of data. The year of the election observation is also specified in chronological order. Because the years between elections do not occur at equal intervals, we used the "force" option of estimation. The STATA statistical package does not report a Durbin-Watson statistic or a measure of R^2 with this set of options. The Durbin-Watson statistic was thus calculated manually with use of the residuals. The adjusted R^2 corresponds to the Prais-Winsten (time-series) estimation of the models. An adjusted R^2 produced with a standard OLS model was almost identical to the Prais-Winsten estimates reported.

30. All of the estimations included country dummy variables (with Austria as a reference category) as controls for any nation-specific influences that are not accounted for in the transformation of the data into change measures. In the index model, Australia (.064**), Canada (.077***), Ireland (–.050*), Netherlands (.046*), and the United States (.040*) were statistically significant. Notice that the Swiss dummy is not significant in either model because it usually is in standard estimations and that the U.S. dummy is actually in the positive direction. Thus, this model had little trouble explaining the often exceptional cases for voter turnout.

31. The average change in turnout from the 1950s average to each nation's last election was –7.3 (averaging the first column of Table 1).

Table 3
The Impact of Social, Political, and Institutional Change on Turnout Decline

Variable	Unstandardized B	Standard Error
Constant	.0635***	.0174
Group mobilization		
Change in labor party vote share	.1261**	.0495
Change in union density	.1373**	.0567
Change in size of VAP	−.0857***	.0101
Party system		
Change in margin of victory	.0290	.0372
Change in number of parties	−.0084***	.0025
Demographic/economic		
Change in percentage of VAP 30 to 69 years old	.4056***	.1079
Change in higher education	.4234***	.1413
Change in inflation (consumer price index)	.0004	.0006
Change in economic growth		
(gross domestic product)	.0001	.0009
Institutional		
Change in electoral competitiveness	.0050**	.0016
Change in legal electorate	.0089	.0095
Change from compulsory voting[a]	−.0215	.0191
Change to unicameralism[a]	.0298	.0242
Change to voting holiday[a]	.0029	.0138
Number of cases	240	
Durbin-Watson	1.887	
χ^2	1057.85***	
Adjusted R^2	.723	

Source: Data compiled by authors from sources listed in appendix.
Note: Table omits atheoretical country dummy variables. VAP = voting-age population.
a. Dummy variable.
**p < .01. ***p < .001.

1994) in union density over what a country had in the 1950s led on average to a 2.8 percentage point decline in turnout.

The long-term impact of growth in the electorate also had an impact on the rate at which citizens made it to the polls. In countries where the voting-age population doubled (increase of at least 100% in Australia, Canada, Japan, New Zealand, Switzerland, the United Kingdom, and the United States) during the period under consideration, one would expect, controlling for everything else in the model, that turnout would have declined nearly 8.5 percentage points. In Switzerland, where the voting-age population has actually

more than tripled (234% increase by 1995), turnout would be expected to have declined by 19.9 percentage points on the basis of this variable alone (the actual decline in Switzerland for that period was 23.8 percentage points).

Changes in the closeness of an election did not in and of themselves affect turnout in any measurable way. However, an increase in the number of parties achieving the 5% vote share threshold did lead to a decline in voter turnout. Three additional parties above this threshold, such as that experienced by Italy since 1994, controlling for all other factors in the model, equates to a decline in turnout of 2.5 percentage points.

Consistent with past research, a decline in the *mature* age distribution of the voting-age population and in the societal commitment to higher education had the effect on turnout that we had predicted. By the early 1990s, on average, the portion of the electorate made up of 30- to 69-year-olds had declined by 6 percentage points from what they were in the first two initial elections in the 1950s for most nations. The maximum decline was 17 percentage points in New Zealand. Thus, on average, the decline in mature voters of 6 percentage points would equate to a 2.4 percentage point decline in turnout. Yet a shift like that in New Zealand could lead to as much as a 6.9 percentage point decline turnout.

Shifts in the indicator for college education in a society (natural log of students/natural log of population) on average were between .08 and 1.0 by the elections of the latter 1990s. This magnitude of change in the societal commitment to higher education, on average, led to increases in turnout of approximately 3.4 to 4.2 percentage points after controlling for the other factors included in the model. Economic changes, measured here with indicators for inflation and economic growth, were not statistically significant indicators of shifts in the rate of voter turnout.

The only institutional change to register a long-term impact on voter turnout was a shift in the electoral system to a more competitive set of electoral rules. A nation moving from a single-member plurality system to a PR system with low magnitude ($M < 6$) and d'Hondt allocation rules (from a 1 to a 9 on the scale) would lead to a long-standing 3.7 percentage-point increase in turnout. However, countries that dropped compulsory voting laws did not see a permanent impact on their level of voter turnout. Although the dummy variable for the legal expansion of the electorate was not significant, the more sensitive measures of voting-age population growth and structure clearly show that shifts in the number of eligible voters undoubtedly have an impact. The success of these measures eclipses the statistical power of this institutional dummy variable.

MICROLEVEL ANALYSIS

Our analysis, based on aggregate-level data, made several assumptions about individual behaviors based on group memberships. The microlevel foundation that older and more educated members of the electorate vote at higher levels than younger and less educated members of the electorate is well established in the field of voting behavior, as we have shown in our review of the literature. Thus, our findings in regard to those two indicators were not a great surprise. However, our analysis did offer a new group linkage explanation: Changes in union membership appear to affect levels of voter turnout. To provide further evidence for this linkage, we conducted some microlevel research.

Table 4 includes the results of our analyses of survey data in four of the nations included in this study. We averaged the results of two surveys at two different time points, one early and the other more recent, to capture the changing structure of union mobilization and membership. As we can see, unions have been and remain effective mobilizers when it comes to getting their members to the polls. In the 1990s, union members voted at a higher rate than nonmembers in each of the nations for which we had comparable union and turnout data. However, as one can see from the second column of Table 2, unions in all four nations have had trouble keeping their members and attracting new ones. As our previous data showed, union density has declined since the 1950s in 12 of our 18 nations. As the sphere of eligible voters within the influence of unions has shrunk, turnout has suffered as well.

Yet unions remain an important influence, even where they are relatively weak. Although the United States has seen a steady decline in union membership for decades, unions still act as important mobilizers. In the 1998 midterm election, nearly one in four voters came from a union household—well above their representative rate in the general population and at a rate nearly 10 percentage points higher than people from nonunion households (Rubin, 1998).[32] It seems that if unions could only attract and keep new members as well as they can get their members to vote, turnout would be higher, and as we have shown here, that is the case in Sweden and Denmark.

CONCLUSION

Our systematic analysis leads us to the conclusion that several factors have influenced changes in voter turnout for our sample of elections. Changes in

32. Voter News Service poll results as reported in the *Los Angeles Times* as cited in the references (Rubin, 1998).

Table 4
The Impact of Union Membership on Voter Turnout

	Union Turnout Above Population Turnout	Change in Union Membership
United States		
1950s	+3.1	
1990s	+8.8	−17.5
Netherlands		
1970s	+3.7	
1990s	+1.6	−12.7
Germany		
1970s	+2.3	
1990s	+1.5	−4.2
United Kingdom		
1960s	−1.4	
1990s	+2.8	−4.3

Source: American National Election Study, Dutch Parliamentary Election Study, German Social Survey, British Election Study.
Note: Each union turnout entry represents the average of two surveys during that decade, except for Britain, where we relied on 1987 and 1992 as the 1990s average, and the Netherlands, where we used the 1989 and 1994 studies. Change in union membership is derived from aggregate data (see the appendix for sources).

union density, labor party vote share, the size of the voting-age population, the percentage of the voting population between 30 and 69 years old, the number of parties above a 5% vote share, and the societal commitment to higher education have all significantly influenced the variance in voter turnout within advanced industrial democracies. We conclude that factors affecting and shaping group mobilization have been vitally important in sustaining historical levels of aggregate voter turnout.

For the future, we believe it is an important finding that a growing proportion of the population between 30 and 69 years of age is associated with increasing levels of turnout. Voting-age populations are becoming increasingly older across our set of industrial democracies with improvements in the standard of living and health care. As this segment becomes a larger part of the electorate within industrial democracies in the near future, we can expect that voter turnout will rebound somewhat from the decline seen with the introduction of politically inexperienced teenagers into the electorate just as the postwar birth boom came of age. In many of the nations studied here, the proportion of older voters to younger voters is now beginning to regress back to the ratio that proceeded the lowering of the voting age.

At the same time, work on size and democracy (Dahl & Tufte, 1973; Wallerstein, 1989) must be revisited, and the implications of continued popu-

lation growth within advanced democracies cannot be ignored as an important determinant of the calculus of voter mobilization and turnout. Where populations continue to grow and grow quickly, we can expect that it will become ever more difficult and costly to mobilize voters and that individual voters will continue to see their relevance in an ever-increasing electorate diminish.

As we have stated, the number of institutional changes within this set of nations over time is relatively small, whereas changes in turnout have registered in the double digits. Although we agree with past research that institutions do affect turnout differences between static national cross-sections, our study has shown that institutions are less useful in explaining turnout variation within nations over time.

It appears that institutions may not have been directly affecting the changes in turnout we have identified but instead have been indirectly important through the mediation of other influences. Theoretically, these conditions may be linked in a chain of circumstances. Rather than thinking about these variables as simultaneously influencing the decline of turnout, we might imagine them as a series of historically related factors so that we can explain how turnout declined in industrial democracies.

We begin with the broad and indirect influences and move toward those that more specifically and proximately affect voter turnout. However, we should keep in mind that changes in one set of influences could reinforce the changes in broader, less proximate influences.

A long-standing shift through modernization and "postmodernization" in industrial nations brought about dramatic demographic changes within the electorates we have studied here (Inglehart, 1990). Although we expect rising education and income levels to increase the proportion of those who vote, we can also imagine how these demographic changes counteract the individual-level influences. New technology created a need for educated and skilled workers. Specifically, as the occupational structure changed and more people entered service-oriented jobs, class loyalties weakened. As fewer voters identify with a class, voters' policy preferences are more difficult to predict. In effect, the traditional class structure is more fluid. Thus, the previously well-defined cleavages have become more difficult to discern and even more difficult to organize.

The disintegration of the traditional class structure led to a weakening in the historically close relationship between unions and labor parties. In competition for votes, as labor parties reached to incorporate new issues in the 1970s and 1980s, this relationship came under increasing strain. Today, the

union-labor party link is much weaker and more fluid in almost all industrial democracies than it was at its height in the 1960s.[33] In turn, this weakening relationship and the decline of union organizations signifies a decline in the power and scope of institutions that worked to "get out the vote" since the 1950s, especially for peripheral voters. The decline of this loyal structure for supplying voters has made it more difficult for labor parties to mobilize because it is more costly to mobilize unorganized interests—especially as they continue to grow in real numbers.

Before these broad effects affected voter turnout, we expect that they were mediated by the electoral institutions of any given specific nation. For example, where voting occurs on a workday, the decline of mobilizing organizations should have a greater impact. In contrast, where it is legally mandatory to vote, we can expect that mobilization organizations should have less impact. People still have more incentive to vote, even without union cues. We have made a first attempt to show that mobilizing organizations affect turnout. Our intent is to show that they may be affecting turnout across the board.

To provide additional evidence in future research, we must carefully examine how the decline of unions, labor parties' votes, and the weakening relationship between them specifically affects working-class votes. We must also examine other mobilizing organizations, such as the church. Certainly, class is not the only social cleavage in industrial societies, although it is undoubtedly one of the most important. With more data, we might capture other dimensions of mobilization both on the right as well as in emergent postindustrial organizations and parties. Thus, whereas our story at this point is still incomplete, we are hopeful that it has at least provided a new and dynamic avenue of research in political participation.

33. The height of the union-labor party relationship differs for each nation, but in general, we can say the 1960s.

APPENDIX

Measures of change. The following variables are measured by change for each nation and each election type (legislative or presidential where applicable) based on their 1950s levels. For this indexed measure of change, we averaged the values for each variable at their first two elections, post-1950. We then subtracted this from any subsequent observations for each nation and type of election. In the case of institutional change, we have created dummy variables for any nation that adopts compulsory voting, holiday voting, or unicameralism or that expands its legal electorate (age/gender changes).

BASE DATA DEFINITIONS

1. Valid vote turnout: the percentage of voting-age population (VAP) casting valid votes in national elections with at least two candidates running for the same office. In the case of two-round elections, turnout is measured by the second round of voting. Lijphart (1997) believes that these are "the only proper turnout percentages both in absolute and for comparative purposes" (p. 5). Although adjustments for noncitizens, prisoners, and other ineligibles would be advantageous, the practicality and possibility of this effort for the period and scope of this study is not high. Data are derived from Mackie and Rose (1991) as well as the *IDEA Database* (1997), *Electoral Studies* (1990-1997), and the *European Journal of Political Research* (1993-1997). Where voting-age population was absent, this was computed using data from *U.N. Demographic Yearbooks* (United Nations, 1950-1993) and the U.S. Bureau of the Census's International Data Base (http://www.census.gov./ipc/www/idbnew.html).

2. Labor parties vote shares: a sum of the total vote shares in any given election going to parties who explicitly identify themselves as labor, communist, socialist, or social democratic. In the U.S. context, the actual vote shares for these parties are counted, yet the Democratic Party vote is excluded with good reason. Although traditionally a party of the working class, it deserves this label only in a nominal sense. One can be sure that a good portion of the votes received by the Democrats in the South and the West never had anything to do with working-class activism or radical labor movements. Furthermore, if the votes for the Democratic Party were included in any form, it would have forced us to include a wide array of comparable nominal left-liberal parties in the other nations of this study, which would seriously muddle this measure. Therefore, the inclusion of any labor party in this category is considered only in the utmost literal and strict sense.

    Although it could be argued that this is a one-dimensional party characteristic, it really does have the potential to measure more than its label. It would not be outlandish to believe that high levels of Labor Party mobilization are likely to be associated with high levels of countermobilization from the right and center, which may also effect the aggregate level of turnout in these elections. Data were derived from Mackie and Rose (1991) as well as *Electoral Studies* (1990-1997) and the *European Journal of Political Research* (1993-1997). Identification of parties was verified using Lane, McKay, and Newton (1997).

3. Union density: number of union members divided by the total dependent labor force (wage/salary earners plus nonretired unemployed). Data are from multiple sources: Bain and Price (1980), Visser (1992), and Golden, Lange, and Wallerstein (1997).

4. Size of VAP: In its index form, it is measured as percentage growth from the 1950s base-line. Derived from *U.N. Demographic Yearbooks* (United Nations, 1950-1993) and the U.S. Bureau of the Census IDB (http://www.census.gov./ipc/www/idbnew.html).

5. Margin of victory: a measure of the simple difference between the total vote shares of the two parties that received the most votes in the election. Data are derived from Mackie and Rose (1991) as well as *Electoral Studies* (1990-1997) and the *European Journal of Political Research* (1993-1997).

6. Number of parties: calculated as the number of parties with vote shares greater than 5%. We chose this method of measurement over the political science standard of the effective number of parties (ENEP) because we believe it is more realistic and accessible to the voters and nonvoters we are studying. We doubt that few voters are squaring and summing vote shares when they are deciding if their vote for a specific party within a party system "matters." Data are derived from Mackie and Rose (1991) as well as *Electoral Studies* (1990-1997) and the *European Journal of Political Research* (1993-1997).

7. Percentage of VAP age 30 to 69: derived from *U.N. Demographic Yearbooks* (United Nations, 1950-1993) and the U.S. Bureau of the Census IDB (http://www.census.gov./ipc/www/idbnew.html).

8. Higher education: Natural log of the number of people currently enrolled in university divided by the natural log of the total population. Derived from *U.N. Demographic Yearbooks* (United Nations, 1950-1993), Cross-National Time Series Data Archive (Banks, 1997), and the U.S. Bureau of the Census IDB (http://www.census.gov./ipc/www/idbnew.html).

9. Inflation: percentage change in the Consumer Price Index (CPI) for the given year in which the election takes place. Whereas others have used lagged CPI estimates, this requires a leap of faith. Which matters more—the reported inflation rate heard 12 months prior or the prices paid in the store the day of the election? It is used here as an approximation of the economy at the time of the election. The inclusion of lagged economic measures in a change study such as this would be nearly meaningless. One would have to make the argument that a change in the inflation rate from the year prior to the current election, when compared to the rate of inflation one year prior to the last election, has some significance to the voters. It would be difficult to make the argument that voters are actually reasoning in this manner. Derived from *OECD Economic Outlook* (1982-1997).

10. Economic growth: percentage of annual growth in gross domestic product during the election year. Again, others have used lagged estimates, but we believe the immediacy of the economy matters more than the memory of what it was 12 months prior. Derived from *OECD Economic Outlook* (1982-1997).

11. Electoral competitiveness: otherwise known as "nationally competitive districts" as used by Jackman (1987) and Powell (1980). However, their measures had too few categories, and they have wrongly specified presidential elections by placing them in their highest category with multimember proportional representation (PR) districts. Thus, it is operationalized as classified by Shugart in unpublished data for Taagepera and Shugart (1989). The ordinal scale simultaneously measures district magnitude and proportionality of seat allocation capturing the systematic competitiveness of any given nation's districting system. Jackman's (1987) scale with four categories and improperly specified presidential elections performed poorly in the analysis and was thus replaced. (M = district magnitude, or the number of seats allocated in an electoral district.)

 1 M = 1 plurality (includes any final ballot in presidential elections)
 2 M = 1 two rounds majority
 3 M = 1 majority at first ballot, plurality at second
 4 M > 1 plurality
 5 M > 1 two rounds
 6 M > 1 majority at first ballot, plurality at the second
 7 M > 1 single nontransferable vote
 8 M > 1 limited vote
 9 PR, low magnitude (M < 6) d'Hondt or Hagenbach-Bischoff
10 PR, low magnitude, Ste.-Lague
11 PR, low magnitude, quota and largest remainders
12 PR, high magnitude (average 6 to 20), d'Hondt or Hagenbach-Bischoff
13 PR, high magnitude, Ste.-Lague
14 PR, high magnitude, quota and largest remainders
15 PR, effective nationwide allocation, d'Hondt
16 PR, effective nationwide allocation, Ste.-Lague
17 PR, effective nationwide allocation, quota and largest remainders

12. Expansion of legal electorate: a (0,1) dummy variable that takes the value of 1 when any nation expands the definition of its legal electorate.
13. Compulsory voting: a (0,1) dummy variable that takes the value of 1 when any nation drops the compulsory voting laws it had in the first two 1950s elections.
14. Voting holiday: A (0,1) dummy variable that takes the value of 1 when any nation that previously voted on a nonholiday in the first two 1950s elections chooses to hold an election on a weekend or holiday.
15. Unicameralism: A (0,1) dummy variable that takes the value of 1 whenever a nation switches to unicamerialism after its first two 1950s elections.

Unreported Model: Differences in Turnout (untransformed)

Variable	Short-Term Change Within Countries (first difference)	Difference Between Countries (actual level)
Constant	−.0170*	.3560**
Group mobilization		
Labor party vote share	.1557**	.1394**
Union density	.0450	.1399**
Size of VAP	−.1614***	−.0011***
Party system		
Margin of victory	.0028	−.0093
Number of parties	−.0055*	.0067**
Demographic/economic		
Percentage of VAP		
30 to 69 years old	.5118***	.3170***

Unreported Model: Continued

Variable	Short-Term Change Within Countries (first difference)	Difference Between Countries (actual level)
Demographic/economic		
Higher education	.6991**	.1650
Inflation (consumer		
price index)	−.0005	.0005
Economic growth		
(gross national product)	−.0004	.0006
Institutional		
Electoral competitiveness	.0044*	.0061***
Expansion of electorate	.0247**	−.0025
Compulsory voting[a]	−.0814*	−.0196
Unicameralism[a]	−.0106	.0380*
Voting holiday[a]	.0042	−.0114
Presidential election[a]	NA	.0643***
Number of cases	263	286
Durbin-Watson	1.986	1.843
χ^2	97.29***	1386.35***
Adjusted R^2	.107	.906

Source: Data compiled by the authors from sources listed in this appendix. Dependent variable in the first column is the election-to-election change in turnout. The independent variables are also converted to first differences by subtracting X_t from X_{t-1}. The dependent variable in the second column is the level of valid vote turnout of voting-age population. In the second column, all explanatory variables are based on their levels, not changes. Entries are unstandardized regression coefficients.
Note: VAP = voting-age population.
a. Dummy variable. Country dummy variables for N-1 nations (Austria is the excluded country) have been excluded from the table. Presidential election dummy is included in the estimation in the second column because the data have not been transformed to change measures in which the panel structure of the data (separated by country and type of election) is not completely accounted for without it. In a first differences estimation, these register a 1 only in the election immediately following the institutional change. In the index or long-term estimation, the institutional dummy variables receive a 1 only when that indicator differs from what a nation had in its first two post-1950s elections.
*p < .05. **p < .01. ***p < .001.

REFERENCES

Almond, Gabriel, & Verba, Sidney. (1963). *The civic culture*. Boston: Little Brown.
Bain, George, & Price, Robert. (1980). *Profiles of union growth*. Oxford, UK: Basil Blackwell.

Banks, Arthur. (1997). Cross-national time series data archive [Electronic data file]. Binghamton, NY: Computer Solutions Unlimited.

Barnes, Samuel. (1997). Electoral behavior and comparative politics. In Mark Lichbach & Alan Zuckerman (Eds.), *Comparative politics: Rationality, culture, and structure* (pp. 115-141). Cambridge, UK: Cambridge University Press.

Bartels, Larry, & Brady, Henry. (1993). The state of quanitative political methodology. In Ada W. Finifter (Ed.), *The state of the discipline* (Vol. 2, pp. 121-162). Washington, DC: American Political Science Association.

Beck, Nathaniel, & Katz, Jonathan. (1995). What to do (and not to do) with time-aeries cross-section data in comparative politics. *American Political Science Review*, *89*, 634-647.

Burnham, Walter Dean. (1965). The changing shape of the American political universe. *American Political Science Review*, *59*(1), 7-28.

Burnham, Walter Dean. (1987). The turnout problem. In James A. Reichley (Ed.), *Elections American style* (pp. 97-133). Washington, DC: Brookings Institution.

Clausen, Aage. (1969). Response validity: Vote report. *Public Opinion Quarterly*, *32*, 588-606.

Dahl, Robert, & Tufte, Edward. (1973). *Size and democracy*. Stanford, CA: Stanford University Press.

Dittrich, Karl, & Johansen, Lars Norby. (1983). Voting turnout in Europe, 1945-78: Myths and realities. In Hans Daadler & Peter Mair (Eds.), *Western European party systems* (pp. 95-114). London: Sage.

Electoral Studies. (1990-1997). *National elections*. Guildford, UK: Butterworths.

European Journal of Political Research. (1993-1997). Election results. Dordecht, the Netherlands: Kluwer Academic.

Flickinger, Richard, & Studlar, Donley. (1992). The disappearing voters? Exploring declining turnout in Western European elections. *West European Politics*, *15*, 1-16.

Ghobarah, Hazem. (1998, September). *The decline in voter turnout across the advanced (post) industrial democracies, 1980-1998*. Paper presented at the American Political Science Association Meetings, Boston.

Golden, Miriam, Lange, Peter, & Wallerstein, Michael. (1997). *Union centralization among advanced industrial societies: An empirical study*. Dataset available at http://shelly.sscnet.ucla.edu/data

Gray, Mark. (1998, March). *Institutional explanations of voter turnout in mature industrial democracies: If you build it they may not come*. Paper presented at the Western Political Science Association Annual Meetings, Los Angeles.

Griffin, L., McCammon, H., & Botsko, C. (1990). The unmaking of a movement? The crisis of U.S. trade unions in comparative perspective. In M. Hallinan, D. Klein, & J. Glass (Eds.), *Changes in societal institutions* (pp. 169-94). New York: Plenum.

IDEA Database. (1997). *Voter turnout from 1945 to 1997: A global report on political participation*. Stockholm: International Institute for Democracy and Electoral Assistance.

Inglehart, Ronald. (1990). *Culture shift in advanced industrial society*. Princeton, NJ: Princeton University Press.

Jackman, Robert. (1987). Political institutions and voter turnout in industrial democracies. *American Political Science Review*, *81*, 405-423.

Jackman, Robert, & Miller, Ross. (1995). Voter turnout in the industrial democracies during the 1980s. *Comparative Political Studies*, *27*, 467-492.

Johnston, Jack, & DiNardo, John. (1997). *Econometric methods*. New York: McGraw-Hill.

Klein, Judy. (1997). *Statistical visions in time*. Cambridge, UK: Cambridge University Press.

Klingemann, Hans-Dieter, & Fuchs, Dieter. (1995). *Citizens and the state*. Oxford, UK: Oxford University Press.

Lane, Jan-Erik, McKay, David, & Newton, Kenneth. (1997). *Political data handbook OECD countries*. Oxford, UK: Oxford University Press.

Lewis-Beck, Michael. (1980). *Applied regression*. London: Sage.

Lewis-Beck, Michael, & Lockerbie, Brad. (1989). Economics, votes and protests: Western European cases. *Comparative Political Studies*, *22*, 155-177.

Lijphart, Arend. (1994). *Electoral systems and party systems: A study of twenty-seven democracies, 1945-1990*. Oxford, UK: Oxford University Press.

Lijphart, Arend. (1997). Unequal participation: Democracies unresolved dilemma. *American Political Science Review*, *91*, 1-14.

Lipset, Seymour Martin. (1960). *Political man: The social basis of politics*. New York: Doubleday.

Mackie, Thomas, & Rose, Richard. (1991). *The international almanac of electoral history*. Washington, DC: Congressional Quarterly.

OECD economic outlook: Historical statistics. (1982-1997). Paris: Organization of Economic Cooperation and Development.

Pacek, Alexander, & Radcliff, Benjamin. (1995). Turnout and the vote for left-of-centre parties: A cross-national analysis. *British Journal of Political Science*, *25*, 137-143.

Powell, G. Bingham. (1980). Voting turnout in thirty democracies: Partisan, legal, and socio-economic influences. In Richard Rose (Ed.), *Electoral participation: A comparative analysis*. London: Sage.

Powell, G. Bingham. (1986). American turnout in comparative perspective. *American Political Science Review*, *80*, 17-43.

Radcliff, Benjamin. (1992). The welfare state turnout, and the economy: A comparative analysis. *American Political Science Review*, *86*, 444-454.

Radcliff, Benjamin. (1996). Turnout and the economy. *Comparative Political Studies*, *29*, 718-723.

Rosenstone, Steven, & Hansen, Mark. (1993). *Mobilization, participation, and democracy in America*. New York: Macmillian.

Rubin, Alissa. (1998, November 7). This time, unions mobilized the troops. *Los Angeles Times*, p. A5.

Stimson, James. (1985). Regression in space and time. *American Journal of Political Science*, *29*, 914-947.

Taagepera, Rein, & Shugart, Matthew. (1989). *Seats and votes*. New Haven, CT: Yale University Press.

Taylor, Andrew J. (1993). Trade unions and the politics of social democratic renewal. *West European Politics*, *16*(1), 133-156.

Teixeira, Ruy. (1992). *The disappearing American voter*. Washington, DC: Brookings Institution.

Topf, Richard. (1995). Electoral participation. In Hans-Dieter Klingemann & Dieter Fuchs (Eds.), *Citizens and the state* (pp. 28-51). Oxford, UK: Oxford University Press.

Uhlaner, Carole. (1989). Rational turnout: The neglected role of groups. *American Journal of Political Science*, *33*, 390-422.

United Nations. (1950-1993). *United Nations demographic yearbooks*. New York: Author.

Verba, Sidney, & Nie, Norman. (1972). *Participation in America*. New York: Harper & Row.

Verba, Sidney, Nie, Norman, & Kim, Jae-on. (1978). *Participation and political equality*. Chicago: University of Chicago Press.

Verba, Sidney, Schlozman, Kay, & Brady, Henry. (1995). *Voice and equality*. Cambridge, MA: Harvard University Press.

Visser, Jelle. (1992). Trade union membership database. Amsterdam: Unpublished dataset.

Wallerstein, Michael. (1989). Union organization in advanced industrial democracies. *American Political Science Review*, *83*, 481-501.

Mark Gray is a Ph.D. student at the University of California, Irvine. His research interests include political participation, democratization, and American politics from a comparative perspective.

Miki Caul is a Ph.D. student at the University of California, Irvine. Her research interests include women and politics, and empirical democratic theory.