The Impact of Campaigns on Discrepancies, Errors, and Biases in Voting Behavior

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THERE ARE VARIOUS WAYS BY which political campaigns can be relevant. One can look at the impact of political campaigns on vote intentions, on opinions about leaders and issues, on perceptions of candidates' issue positions, and on the determinants of decisions (Bartels 1988, 1992; Franklin 1991; Johnston et al. 1992, 1996b; Johnston, Hagen, and Jamieson 2004; Gelman and King 1993; Norris et al. 1999; Nevitte et al. 2000; Blais et al. 2002). However, one terrain for campaign influence remains to be explored: what happens to interpersonal diversity in behavior during a campaign?

Previous research has identified two forms of heterogeneity in political behavior: diversity in the process of decision making and diversity in the outcome of decision making. First, there is evidence that people of different information or sophistication levels do not reason the same way about politics: they rely on different considerations, or they give different weight to similar considerations (Stimson 1975; Sniderman, Brody, and Tetlock 1991; Johnston et al. 1996b; Fournier 2000). Second, low political information ultimately leads to individual and aggregate choices that deviate from informed decisions: less knowledgeable citizens have opinions that differ from those they would have had they been fully informed (Bartels 1996; Delli Carpini and Keeter 1996; Althaus 1998; Luskin, Fishkin, and Jowell 2002; Sturgis 2003).

The dynamics of these two types of interpersonal heterogeneity during political campaigns have not been investigated. We do not know

whether the differences between very and less informed citizens are minimized or compounded by the progress of a campaign or whether they remain intact, unaffected by the unfolding of campaigns. Yet, such an investigation is crucial, as it informs us about the impact of the democratic process on the quality of voters' decisions. We need to ascertain whether campaigns help people make more enlightened choices. Never mind learning and persuasion, this is arguably the most socially important effect that a campaign can have.

This study tackles an important but neglected issue by analyzing the impact of campaigns on both diversity in decision making and diversity in decision outcome. Three separate campaigns are examined: the 1988, 1993, and 1997 Canadian federal elections. The goal is to determine whether campaigns increase, decrease, or do not influence the differences between information groups in the determinants of vote choice on one hand and the individual and aggregate deviations in vote choice attributable to low information on the other hand.

Heterogeneity and Political Campaigns

There are two types of interpersonal heterogeneity in models of individual political behavior: heterogeneity in the process of decision making, and heterogeneity in the outcome of decision. Heterogeneity in decision making refers to relationships between independent and dependent variables that are not uniform across the entire population, that differ in strength across segments of the population. For instance, in a model of voting behavior, partisan identification, ideology, issues, and leader evaluations may not have the same impact on the vote of all citizens. Ideology may be more closely linked to the decision of some individuals (perhaps the more informed), while leader evaluations are stronger determinants of the choice of other citizens (possibly the less informed). Such results are generally understood as a sign of differing decisional or reasoning rules: people with differing levels of expertise think differently about politics, relying on different considerations or giving different weight to similar considerations (Rivers 1988; Sniderman, Brody, and Tetlock 1991).[1] Sniderman, Brody, and Tetlock (1991) found interpersonal diversity between individuals of different education levels among a myriad of political decisions. An expanding number of studies have uncovered evidence of this type of heterogeneity between citizens of different levels of political information (Zaller

1992; Lupia 1994; Delli Carpini and Keeter 1996; Johnston et al. 1996b; Krause 1997; Fournier 2000).[2]

There is also evidence of heterogeneity in decision outcome. Studies demonstrate that the information deficiencies of the electorate seriously affect individual choices and collective preferences (Bartels 1996; Delli Carpini and Keeter 1996; Althaus 1998; Luskin, Fishkin, and Jowell 2002; Sturgis 2003). First, at the individual level, lack of information leads to opinions that differ from informed opinions. For instance, uninformed voters do not mimic the choices of informed voters with similar sociodemographic profiles: they do not vote the way they would have had they been fully informed (Bartels 1996). So all the means reportedly available to citizens to overcome informational disparities (polls, cues, and shortcuts) do not perform perfectly (Kuklinski and Hurley 1994; Kuklinski and Quirk 2000). These results severely undermine the low information rationality claims (McKelvey and Ordeshook 1986; Popkin 1991; Sniderman, Brody, and Tetlock 1991; Lupia 1994). Furthermore, at the aggregate level, these individual "errors" are not random; they do not cancel each other out; they are systematic. This means that actual collective preferences do not correspond to hypothetical preferences of the same population if it were fully informed. For example, American presidential incumbents receive about 5 percentage points more, on average, than they would under full information, while Democrat presidential candidates do about 2 percentage points better (Bartels 1996).[3] Thus, the aggregationist claims are not vindicated (Miller 1986; Lahda 1992; Page and Shapiro 1992).

The evidence concerning heterogeneity in decision outcome is congruous. Statistical simulations that apply the behavior of the most informed to all individuals (Bartels 1996; Althaus 1998) and quasi-experiments that deliberately increase subjects' level of information (Luskin, Fishkin, and Jowell 2002) both yield informed political preferences that differ from real preferences in comparable ways. Moreover, one study that uses both techniques on the same data uncovered similar "biases" in public opinion attributable to information deficiency (Sturgis 2003).

Beyond their common focus on interpersonal diversity, there is, I believe, a strong link between the two types of heterogeneity. People of identical profiles except for their levels of political information do not have the same opinions *because* they rely on different considerations that do not all lead as effectively to the same judgment. Heterogeneity in the process of decision making is a necessary (but not sufficient) condition for heterogeneity

in the outcome of decision. Thus, similar citizens who reason differently about politics will not necessarily reach different decisions; they may still get to the same choice. However, divergent decisions cannot occur without the presence of heterogeneity in process. The causal sequence follows the following form: reliance on considerations of varying efficiency encourages the emergence of individual deviations from informed behavior, which, in turn, are generally not nullified by the aggregation of opinions and translate into collective preferences that differ from hypothetical fully informed preferences.[4]

Two questions emerge at this point: (1) What happens to the level of heterogeneity in process during electoral campaigns? and (2) What happens to the level of heterogeneity in outcome during campaigns? I now ponder each of these questions, potential answers, and plausible explanations.

Heterogeneity in Decision Making

Postelection data reveal that citizens with differing levels of information do not end up with the same structures of vote determinants (Johnston et al. 1996b). Preelection data also indicate a significant quantity of heterogeneity (Rivers 1988). However, these studies use different methods to document the existence of heterogeneity, so their results are not comparable.[5] Thus, we know that different decision rules exist before and after the election, but whether any movement occurs in the level of heterogeneity in process during the campaign remains to be determined. Three scenarios are possible: divergence, convergence, and stability.

First, in the divergence scenario, differences in decision rules may be magnified by political campaigns. Disparities in exposure or sensitivity to campaign messages may prompt groups of contrasting levels of information to move away from one another. The literature on agenda setting, framing, and priming, by establishing a relationship between political information and the susceptibility to mass media influence, contains evidence that suggests that increasing heterogeneity is a viable scenario. Survey and experimental studies indicate that politically sophisticated citizens are more prone to modify their priorities and considerations according to the attention allocated to the issues by the media (MacKuen 1984; Hill 1985; Krosnick and Brannon 1993; Nelson, Oxley, and Clawson 1997; Miller and Krosnick 2000).[6] If the dominant coverage points to issues and considerations that diverge from the structure of vote determinants used

by the less informed, then the gaps between informed and uninformed in-
dividuals should accentuate.

   The literature on the dissemination of information also lends cre-
dence to the divergence scenario. Most notably, Tichenor and his associ-
ates (1970) found empirical support for the knowledge gap hypothesis: "As
the infusion of mass media information into a social system increases, seg-
ments of the population with higher socioeconomic status tend to acquire
this information at a faster rate than the lower status segments, so that the
gap in knowledge between these segments tends to increase rather than
decrease" (159–60). The knowledge gap hypothesis has also been vali-
dated, to a limited extent, in the political realm (Moore 1987; Holbrook
2002). However, unequal levels of motivation to acquire the information
appear to be a necessary condition for broadening gaps (Tichenor et al.
1973; Ettema, Brown, and Luepker 1983; Kwak 1999). The question is
therefore whether the electoral process generates equal levels of motiva-
tion. Studies indicate that citizens experience varying levels of interest in
and attention to political activities and that campaigns have little aggregate
impact on these attitudes (Lazarsfeld, Berelson, and Gaudet 1944; Berel-
son, Lazarsfeld, and McPhee 1954). Thus, widening political knowledge
gaps are possible. Would they translate into increasingly divergent struc-
tures of vote determinants? There are indications that the learning, discus-
sion, and thought induced by a deliberative poll increase the attitude con-
straint advantage of the more informed over the less informed (Sturgis,
Roberts, and Allum 2003). Thus, widening knowledge gaps during a cam-
paign could translate into widening differences in decision rules.

   In the second scenario—convergence—political campaigns reduce
the level of heterogeneity. There are three plausible paths to convergence.
(1) Everybody learns what the election is about, what the driving issues are,
and on what considerations their voting decision should be based. This path
is consistent with the idea that mass communications, most notably televi-
sion, have a "mainstreaming" effect on public opinion: uniform coverage
cultivates common outlooks (Morgan and Signorielli 1990; Gerbner et al.
1994). In this case, simplified and consensual media coverage of campaigns
could serve to minimize the differences between groups, leading them to
move toward one another, converging on a more unified decisional process.
(2) The less informed learn with the unfolding of the campaign what oth-
ers already know (about issue positions, leader evaluations, and so forth),
and they zero in on the consensual decision process. This path could be

labeled a sophistication-dependent Gelman and King conception (1993) where only a portion of the public, the less knowledgeable, experiences the activation of enlightened preferences. (3) Campaign events and coverage push the most informed, since they are more attentive to new information (Zaller 1992; Price and Zaller 1993) and more sensitive to media effects (Nelson, Oxley, and Clawson 1997; Miller and Krosnick 2000), toward a structure of vote ingredients already adopted by the less knowledgeable.

Finally, in the stability scenario, the level of heterogeneity in process might be unaffected by political campaigns. If campaigns do not carry much information to anyone, or similar amounts of information to everyone, and if they do not modify the public's electoral agenda, two quite improbable assertions in light of the research cited previously, then the level of heterogeneity may remain the same.

Heterogeneity in Decision Outcome

People of different information levels do not think similarly about politics and do not reach the same voting decision. These individual "errors" translate into "biased" collective preferences (Bartels 1996; Luskin, Fishkin, and Jowell 2002). But what is the role of campaigns in this process? Classical democratic theory expects campaigns to be a forum for debate about policies, ideas, and leadership, a debate that exposes the electorate to the major alternatives competing for government, that allows voters to learn about them, compare them, and deliberate on their respective value. In fact, previous evidence of learning is vast and somewhat diverse. During campaigns, citizens gain knowledge about parties, candidates, and intervenors, notably their stance on the major issues of the day; about the nature of referendum proposals; and about the electoral viability of competitors (Bartels 1988; Johnston et al. 1992, 1996b). Furthermore, campaigns activate citizens' political predispositions, indicating that knowledge acquired is related to long-standing preferences and rendered relevant (Bartels 1988; Finkel 1993; Finkel and Schrott 1995; Gelman and King 1993; Johnston et al. 1992, 1996b).

Extending Bartels's work on the deviations from informed vote choice to a dynamic perspective provides another way to determine whether respondents exhibit behavior consistent with a conception of campaigns as a context of deliberation. Two questions are central. First, does the level of individual deviations from informed decisions move dur-

ing the progress of campaigns? Second, do campaigns affect the "biases" in aggregate preferences? If campaigns were conducive to substantial learning and reflection about political parties, candidates, and issues, then we would expect early vote intentions to be marked by much more individual "errors" than Election Day choices. If the uninformed people's capacity to emulate the decision of the more informed improves with the progress of a campaign, individual deviations from informed decisions should decline. Apart from reducing individual deviations, learning may also translate, at the aggregate level, into less significant deviations from full information collective preferences.

The Study

To compare the levels of interpersonal diversity in decision making and in decision outcome present at each stage of the campaign, I need to measure these phenomena. By my count, there are three methods one can employ to expose heterogeneity. First, Douglas Rivers (1988) recommends the use of an econometric specification that uses complete preference orders to correct for the presence of interpersonal heterogeneity in the estimation of the influence of ideology and partisanship on vote choice. This method accounts for the presence of heterogeneity, but it does not easily provide assessments of the magnitude of heterogeneity in decision making, nor does it enable estimation of individual and aggregate deviations from informed decisions.

The second method, the most frequently used, involves splitting the population into separate subgroups according to information and estimating a separate explanatory model for each group.[7] Since it produces a different set of coefficients for each subgroup, this method allows us to directly exhibit differences in parameter strength and to examine any movement in the level of heterogeneity in process during the campaign. However, since the effects of information are not integrated into a single model, this method cannot estimate the total impact and significance of heterogeneity nor individual and aggregate deviations from informed opinions.

The third method is proposed by Bartels (1996): an interactive form where the information scale and its reverse interact with every explanatory variable, thereby producing high and low information sets of coefficients in the same model. This technique allows us to measure the differences in model fit between a heterogeneity-sensitive setup and a traditional

homogeneous design and the individual and aggregate consequences of low information. Unfortunately, due to the less than straightforward specification (each respondent's behavior is a weighted function of the high and low information sets of coefficients), analysis of movement in the magnitude of heterogeneity in process is quite difficult. Moreover, this method restricts the effects of information to be linear, an assumption that is theoretically and empirically problematic (Zaller 1992). Bartels acknowledges this point but argues that experimentation with alternative monotonic and nonmonotonic specifications did not improve the fit of the model in the case of presidential voting in the United States (1996, 207–8). I believe that a more flexible setup that permits the coexistence of linear and nonlinear effects eliminates the necessity to test alternative specifications by allowing information effects to take various forms in the same model.

I propose a fourth method where three information dummy variables (low, medium, high) interact with all independent variables. This specification is illustrated by the following equations:

Homogeneous model:

$$Y = a + b_1(I_f) + b_1(X_a) + b_2(X_s) + b_3(I_1) + b_4(I_3) + e \qquad (1)$$

Heterogeneity in decision making:

$$Y = a + b_1(I_1 \cdot X_a) + b_2(I_2 \cdot X_a) + b_3(I_3 \cdot X_a) + b_4(X_s)$$

$$+ b_5(I_1) + b_6(I_3) + e \qquad (2)$$

Heterogeneity in decision outcome:

$$Y = a + b_1(I_1 \cdot X_s) + b_2(I_2 \cdot X_s) + b_3(I_3 \cdot X_s) + b_4(I_1)$$

$$+ b_5(I_3) + e, \qquad (3)$$

where Y is either vote intention or reported vote; where I_1, I_2, and I_3 are three dummy variables (low, medium, and high information); where X_a is a set of attitudinal independent variables (such as party identification, leader evaluations, and issues positions); and where X_s is a set of sociodemographic independent variables.[8] Because of the binary nature of the dependent variables, the functional form is logistic.

This method combines the advantages of the previous two techniques. First, it estimates a distinct parameter structure for each information group, hence replicating the straightforwardness of the sample-splitting technique in identifying differences in decision rules.[9] Second, by integrating all effects into a single model, this method allows us to measure the significance of the contribution of the heterogeneous specification over the homogeneous design and to calculate variants of Bartels's individual and aggregate deviations from full information. Furthermore, it permits nonlinear effects to coexist with linear ones. The decision to divide the distribution into three tiers simplifies the presentation and interpretation of results, and it allows multiple types of nonlinear effects to manifest themselves.

These equations will be used here to assess the level of heterogeneity in three different ways: two of them dealing with heterogeneity in process and one relating to heterogeneity in outcome. First, I examine the heterogeneity captured by the total gaps between the parameters of each attitude (b_1–b_3 of equation (2)). If homogeneity prevails, if every citizen relies on the same considerations similarly, then the gaps between parameters should be small, even nonexistent. In contrast, if there are important interpersonal differences in decision making, then large parameter gaps should be encountered. Since logistic coefficients use a noninterpretable scale, I rely on first differences—the gain in the probability of voting for X produced by a variable as it moves from one end of its scale to the opposite end. Each first difference was calculated as the difference between two predicted values: one where the manipulated variable is set at its lowest level and all other variables remain unchanged and another where the manipulated variable is set at its highest level and all other variables are unchanged. To assure that all forms of interpersonal differences in parameter strength are captured by the measure, I estimate the gaps between all group pairings. For instance, to measure the variation in the impact of party identification on vote choice, I tally the gaps in party identification (PID) first differences between the low and medium information groups, between the low and high, and between the medium and high. The absolute values of the gaps were then summed for all independent variables in each model. Finally, in order to compare the gaps across different campaign period samples, I adjust for variation in the mean of the dependent variable by dividing each model's total gaps by the period's average vote share.[10]

Second, I look at the improvement in model fit provided by the interactive model (equation (2)) over the basic homogeneous model (equation (1)). There should be a relationship between the level of heterogeneity in a

model and the power of the homogeneous explanatory model (where the impact of each independent variable is constrained to be uniform). Ceteris paribus, high heterogeneity should lead to low model fit. An average parameter that does not accurately reflect the behavior of two different groups should lead to inefficient predictions for both groups. Of course, a heterogeneity-sensitive specification would correct for the interpersonal variation and generate more accurate predictions. So, the greater the differences in decision rules, the larger the model improvement of the interactive setup should be over the homogeneous specification. A log-likelihood ratio test is employed to ascertain the significance of the contribution of the information interactive terms. To compare across different campaign period samples, the standardized difference in log-likelihood is also reported (where each log-likelihood is divided by the number of cases and the mean of the dependent variable).

The third analysis concerns diversity in decision outcome. It determines whether individuals' actual voting preferences coincide with the preferences they would have possessed had they been fully informed. Following Bartels's lead (1996), high information behavior is applied to the entire population on the grounds of similar sociodemographic variables only. Two statistics are produced for each model: an individual and an aggregate deviation from informed opinions. Individual and aggregate deviations are operationalized as the difference between each respondent's predicted value from the complete sociodemographic model (equation (3)) and the corresponding predicted value computed from the high information set of coefficients (b_3 of equation (3)). Instead of calculating deviations from a hypothetical condition where all the electorate is perfectly informed (Bartels 1996), I estimate deviations from a hypothetical situation where everybody behaves as the top third of the information distribution, a less dramatic but more plausible scenario. An average deviation (the mean of all absolute deviations) exposes the average individual difference in behavior attributable to low information, while an aggregate deviation (the mean of all signed deviations) reveals the departure of the entire electorate's actual preference from the hypothetical high information preference. Since information is a valuable resource that "assists citizens in discerning their individual and group interests, in connecting their interests to broader notions of the public good, and in effectively expressing these views through political participation," then informed opinions constitute more enlightened opinions (Delli Carpini and Keeter 1996, 1; Bartels 1996; Fishkin 1991, 1997; Luskin,

Fishkin, and Jowell 2002). Consequently, individual and aggregate deviations from informed opinions can be considered individual errors and aggregate biases attributable to low information.

There are problems with comparing people based only on their sociodemographic characteristics. Two individuals with similar sociodemographic profiles could still have different priorities and different interests. However, using attitudes would be even more problematic. As Bartels notes, attitudes "may themselves be affected by levels of political information, rendering problematic any imputation of vote choices from more informed people to less informed people with the same measured attitudes. By contrast, since demographic and social characteristics . . . are essentially fixed, they provide a firmer base for imputing the hypothetical 'fully informed' voter choices of less informed people from the observed choices of more informed people with similar characteristics" (1996, 208).

The analyses rely on the Canadian Election Studies of the 1988, 1993, and 1997 federal elections. Each of these is a two-wave panel study: one campaign rolling cross-section telephone interview and one postelection telephone reinterview. Since the analysis requires the production of several voting models, identical in structure, each spanning a distinct portion of the campaign; the campaign rolling cross-section surveys are essentially treated as a series of three cross-sectional surveys covering different periods of the campaign. Because each day's sample is a separate replicate, this is totally justified. Each campaign was simply divided into three equal portions.[11] I can therefore compare the levels of heterogeneity present at four points in time: in each third of the campaigns and in the postelection data.

The models contain a wide range of independent variables: partisan identification and leader evaluations, along with an election-specific set of political values and issue positions.[12] Based on the variables used by the co-investigators of the Canadian Election Studies (Johnston et al. 1992, 1996a; Nevitte et al. 2000), these lists were limited to items measured during the campaign in order to avoid postelectoral rationalization. Besides PID and leader ratings, the 1988 set includes the free trade agreement, feelings toward the French, ties with the United States, the power of unions, the level of taxation and services, the Meech Lake constitutional agreement, government honesty, immigration, and abortion. The 1993 models contain feelings toward racial minorities, feelings toward the French, moral tradition-

ism, the power of unions, continentalism, macroeconomic policy, and the welfare state. The 1997 set incorporates regional alienation, feelings toward Quebec, feelings toward racial minorities, political cynicism, moral traditionalism, tax cuts, deficit reduction, government job creation, young offenders, and immigration. The array of independent variables will allow various forms of interpersonal variation in parameter strength to shine through. The list of sociodemographic characteristics is constant across models: region, gender, age, ethnic background, marital status, religion, education, income, union membership, employment status, and public sector employment.

The central concept, political information, is operationalized by a different indicator in each data set. I sought measures of general factual knowledge about politics (Luskin 1987; Fiske, Lau, and Smith 1990; Zaller 1990; Delli Carpini and Keeter 1993). The 1988 election models rely on a seven-item index of knowledge of party placements and local candidates.[13] For 1993, a six-item index of awareness of the major parties' main election stands is employed.[14] For 1997, I use a seven-item index of information about four general facts and three party campaign promises.[15] From each index, a dummy variable was created for each third of the resulting distributions (low, medium, and high information). These three dummy variables interact with all attitudes in equation (2) and all sociodemographic variables in equation (3).

Finally it should be noted that the analyses of 1993 and 1997 are limited to the non-Quebec sample.[16]

The Results

Heterogeneity in Decision Making

First tackled is movement of heterogeneity in process during campaigns. Table 1 reports the results of both equation (1) (homogeneous model) and equation (2) (heterogeneity in decision-making model) at each time point for one of the models: support for the incumbent Liberal Party in our most recent data set (1997). First differences based on the logistic regressions are presented. Each first difference indicates the actual effect of the independent variable on that information subgroup's vote choice. There is no need to take into account the other parameters (as is the case when interactive terms are coupled with main effects). When the three first differ-

ences of an attitude are identical, then that variable has the same impact among all levels of information.

Table 1 contains plenty of examples that the presumption of homogeneity often leads to inaccurate explanatory models that, by estimating the behavior of the "average" citizen, systematically misconceive the behavior of informed and uninformed citizens. Most subgroups' parameters are weaker, stronger, or contrary to the parameters of the conventional homogeneous estimation. And many differences between information subgroups are statistically significant.[17] In some cases, the relationships simply vary linearly in strength across the groups. For instance, in the first portion of the campaign, the impact of party identification increases as information climbs: the effect is strongest among the more informed and weakest among the less informed.[18] But some variables suffer from even greater inconsistency, and the averaging effect of homogeneous parameters can completely mask the subgroups' true relationships. If two correlations of similar strength work in opposite directions, one positive and one negative, then the homogeneous parameter estimate can overestimate the relationship of some voters, underestimate the relationship of other voters, and effectively apply to very few individuals. Even worse, the average parameter can lead to the conclusion that there is no relationship at all. For instance, in the first third of the campaign (period 1), regional alienation, feelings toward Quebec, and feelings toward racial minorities all have contrary effects among some groups that are obscured by the homogeneous design. Attitudes toward minorities are strongly and positively related to the choice of the less informed (.29) but slightly negatively correlated to the decision of the medium and high information subgroups (.03, .06). This variable's homogeneous parameter cancels out these reverse patterns and delivers a barely positive and not statistically significant effect (.02).

Is there any change in the level of heterogeneity in decision making over the campaign? There are large parameter differences at each time point. So the information subgroups clearly possess different structures of vote determinants both at the beginning and the end of the campaign, indicating that the campaign did not create heterogeneity out of thin air. There is support for convergence (for example, regional alienation), divergence (for example, tax cuts), and stability (for example, immigration). The differences in reliance on regional alienation were substantially reduced during the course of the campaign. In contrast, the tax cut issue displays

TABLE I. Homogeneous and Heterogeneous Models, 1997 Liberal Support (first differences of logistic coefficients)

		Homogeneous Models				Heterogeneous Models			
	Info.	Period 1	Period 2	Period 3	Vote	Period 1	Period 2	Period 3	Vote
Party identification	Low	.52***	.40***	.48***	.34***	.33***	.47***	.49***	.37***
	Med					.51***	.30***	.50***	.24***
	High					.60***	.27***	.24***	.29***
Leader evaluation	Low	.61***	.56***	.42***	.38***	.37***	.45***	.35***	.42***
	Med					.65***	.72***	.24**	.36***
	High					.58***	.49***	.64***	.52***
Regional alienation	Low	−.02	−.06	−.06	−.03	.11	−.10	−.13	−.06
	Med					−.10*	−.18***	−.07	−.02
	High					.08	.00	.03	−.04
Feeling for Quebec	Low	−.07	−.03	.04	.04	.01	−.14*	.14	−.03
	Med					−.05	−.09	−.07	.10**
	High					−.14*	.13	.05	.02
Feeling for minorities	Low	.02	.04	−.02	.05	.29***	.21**	−.14*	.11
	Med					−.03	−.09	.08	−.01
	High					−.06	.02	.02	.07
Cynicism	Low	−.12	−.29***	−.12*	−.18***	−.15	−.30***	−.15	−.16**
	Med					−.13	−.24**	.06	−.15**
	High					−.13	−.11	−.25**	−.09

		C1	C2	C3	C4	C5	C6	C7	C8
Moral traditionalism	Low	.02	.04	.02	−.03	.09	−.02	.05	−.04
	Med					−.02	−.03	.01	−.04
	High					−.03	.14*	−.06	−.02
Tax cuts	Low	−.14***	−.06	−.07	−.04	−.18**	−.04	.02	.11*
	Med					−.05	−.06	−.21***	−.10*
	High					−.28**	−.03	−.04	−.06
Deficit reduction	Low	.00	.06	.06	.09***	−.01	−.01	−.16**	−.04
	Med					−.07	.13	.04	.13**
	High					.12	.06	.36***	.20***
Government job creation	Low	.07	−.02	−.04	−.02	.04	−.05	−.05	−.20***
	Med					−.04	.09	−.05	.11
	High					.26	−.06	−.06	−.03
Tough with young offenders	Low	.05*	.06**	−.01	.05**	.00	−.01	−.02	.02
	Med					.06	.06	−.03	.10***
	High					.12	.10*	.08	.00
More immigration	Low	.04	.00	.02	.00	−.01	.05	.16*	−.05
	Med					.09	.01	−.03	.00
	High					.00	−.02	.03	.07
Number of cases		728	855	889	1,991	728	855	889	1,991
Log-likelihood		560.6	639.7	731.4	1,784.7	524.5	598.9	661.6	1,742.6
Total parameter gaps						4.7	4.1	5.4	3.2

Note. Constant and sociodemographic controls not reported.

***p < .01   **p < .05   *p < .1

greater interpersonal differences in parameter strength after the election than earlier in the campaign. Finally, immigration was marked by similar amounts of heterogeneity both in period 1 and after the election. All in all, however, the main story seems to be one of modest convergence. An eyeball estimate suggests that about half of the variables experience convergence and close to half of the others encounter stability. Rare are the occurrences where parameter diversity is actually accentuated by the progress of the campaign.

To examine this evidence more systematically for all decision models, the analysis only concentrates on summary results of the three empirical tests introduced earlier. Table 2 reports the total gaps in first differences for all models.[19] If information is irrelevant for decisional processes, if voting structures are homogeneous, the gaps in parameter strength should exhibit very small values. Inversely, the presence of heterogeneity should be marked by gaps of significant size. Although this is a crude summary measure, it corroborates the subjective interpretation of table 1. The total of all parameter gaps for 1997 Liberal support and the more appropriate measure that controls for size of the vote share also manifest a decrease in the level of heterogeneity. The postelection measure is lower than at any point in the campaign. The other decisions tend to exhibit a similar pattern: heterogeneity exists early and late but declines as the campaign unfolds. As the average adjusted gaps illustrate (at the bottom of the table), there are differences between the less, the moderately, and the more informed in the strength of decision determinants throughout the campaign, and movement in the level of heterogeneity is generally toward convergence. Thus, the campaign diminished, though it did not eradicate, the gaps in decision rules between information groups.

Sometimes, the decrease is not linear. For instance, Liberal support in 1993 shows no decrease in adjusted gaps during the first three periods. A real drop in heterogeneity only occurs in the postelection data. In some cases, there are large jumps in heterogeneity during certain periods of the campaign. Notably, Liberal support in 1997 displays a leap in parameter gaps during the third period. But, ultimately, in all cases except for 1993 Conservative support, the magnitude of diversity in decision rules is lower after the election than at any other point. I will return to this issue of nonincremental convergence in the next section.

Next, I examine movement during the campaigns in the relevance of heterogeneity in decision making by analyzing the model fit improvement

TABLE 2.   Dynamics of Total and Adjusted Gaps in Parameter Strength during Campaigns

	Campaign Vote Intentions			Postelection Reported Vote
	First Third	Second Third	Last Third	
1988 Conservative support				
Total gaps	3.5	2.9	3.9	2.1
Adjusted gaps	8.9	8.8	10.5	5.0
1988 Liberal support				
Total gaps	5.2	2.8	3.4	2.1
Adjusted gaps	27.8	9.4	11.8	8.5
1988 NDP support				
Total gaps	3.6	3.2	2.5	1.2
Adjusted gaps	19.5	17.8	15.3	7.3
1993 Conservative support				
Total gaps	4.1	3.3	3.2	2.6
Adjusted gaps	15.5	16.3	17.8	20.6
1993 Liberal support				
Total gaps	2.8	3.2	3.8	2.1
Adjusted gaps	7.9	8.2	9.8	5.2
1993 NDP support				
Total gaps	3.3	7.1	2.5	1.9
Adjusted gaps	41.6	88.3	38.8	27.2
1993 Reform support				
Total gaps	4.0	4.1	2.8	2.4
Adjusted gaps	31.2	23.0	11.2	10.4
1997 Conservative support				
Total gaps	6.7	4.9	5.3	3.3
Adjusted gaps	43.0	29.8	32.8	24.5
1997 Liberal support				
Total gaps	4.7	4.1	5.4	3.2
Adjusted gaps	12.8	12.7	16.0	10.4
1997 NDP support				
Total gaps	5.1	4.6	4.1	2.7
Adjusted gaps	46.4	44.7	38.0	26.0
1997 Reform support				
Total gaps	4.9	5.0	4.0	3.7
Adjusted gaps	33.2	27.9	20.3	16.0
Average total gaps	4.3	4.1	3.7	2.5
Average adjusted gaps	26.2	26.1	20.2	14.7

provided by the interactive model (equation (2)) over the basic model where all independent variables have a homogeneous impact for all citizens (equation (1)). Table 3 reports the difference in log-likelihood of each decision's two models (the homogeneous and the heterogeneous) for each period of the campaigns. The statistical significance of the differences was obtained from log-likelihood ratio tests. The table also presents the adjusted measure that permits comparison of each model across the four periods. The adjusted statistic is the difference between log-likelihoods that were divided by the average vote share and the number of cases of the period.

These results confirm the conclusions of the preceding test: convergence in voting decision rules. As campaigns proceed, the usefulness of political information's interactions to explain individual political behavior declines in all models. Significant differences in model fit are present within each period, but the standardized differences tend to get smaller over time (see the average adjusted differences at the bottom of the table).

The decline is not always steady and uniform. Again, there is stability or even slight increases in heterogeneity for certain models during the first three periods of the campaign. For example, 1997 Liberal and New Democratic Party (NDP) support shows a peak in model fit improvement during the third period of the campaign. But, again, the smallest level of heterogeneity is found after the election among all models' adjusted difference.

Heterogeneity in Decision Outcome

Campaigns produce decline in the level of heterogeneity in the decision-making process, as indicated by the movement in parameter gaps and model fit improvement. Does the level of heterogeneity in decision outcome move as well during campaigns? Does the relative homogenization of decision rules translate into smaller discrepancies from informed opinions? Does campaign learning and deliberation contribute to reduce the individual error and collective biases in voting preferences? Table 4 reports the individual and aggregate deviations from high information behavior for all models at each point of the campaigns. Here, in keeping with the logic of knowledge gap analyses and allowing campaign dynamics to have meaningful influences, actual behavior is compared to informed behavior of the same period (rather than the alternative: postelection informed behavior). Our focus is to ascertain whether the less informed are able to catch up to the more knowledgeable and improve their ability to express

TABLE 3. Dynamics of Model Improvement by the Heterogeneous Specification during Campaigns

	Campaign Vote Intentions			Postelection Reported Vote
	First Third	Second Third	Last Third	
1988 Conservative support				
Difference in log-likelihood	27.4***	24.9***	39.4***	45.5***
Adjusted difference	8.7	8.1	11.1	4.3
1988 Liberal support				
Difference in log-likelihood	57.5***	27.1***	31***	34.3***
Adjusted difference	38.1	9.5	11.3	5.3
1988 NDP support				
Difference in log-likelihood	27.3***	23.2***	19.4**	13.9
Adjusted difference	18	13.7	12.7	3.3
1993 Conservative support				
Difference in log-likelihood	29***	27.4***	31.3***	28.6***
Adjusted difference	16.6	18.1	22.5	10.4
1993 Liberal support				
Difference in log-likelihood	24.7***	27***	32.4***	27***
Adjusted difference	10.8	9.4	10.7	3.1
1993 NDP support				
Difference in log-likelihood	27.8***	42.8***	24.6***	20.9***
Adjusted difference	53.5	71.4	49.2	13.8
1993 Reform support				
Difference in log-likelihood	23.5***	28.8***	16.1**	20.3***
Adjusted difference	27.8	21.5	8.4	4.1
1997 Conservative support				
Difference in log-likelihood	59.9***	57.2***	52.6***	45.1***
Adjusted difference	51.2	41.2	35.3	16.7
1997 Liberal support				
Difference in log-likelihood	36.1***	40.8***	69.8***	42.2***
Adjusted difference	13	14.8	22.4	6.7
1997 NDP support				
Difference in log-likelihood	40***	42.4***	52.4***	31.2***
Adjusted difference	48.2	48.8	53.5	14.9
1997 Reform support				
Difference in log-likelihood	40.8***	37.7***	51.9***	65.3***
Adjusted difference	36.7	25	28.5	13.9
Average difference	35.8	34.5	38.3	34.0
Average adjusted difference	29.3	25.6	24.2	8.8

Note: Statistical significance of difference based on log-likelihood ratio test.

***$p < .01$ **$p < .05$ *$p < .1$

their underlying interests. Evidence based on comparison with the post-election informed opinions would not directly speak to such concerns. Any observed weakening of deviations from postelection informed behavior could have been due to the most informed driving improvement in the quality of decisions and the less informed falling even further behind. Nevertheless, both reference points yield very similar dynamics of individual and aggregate deviations.

Individual deviations, the summary indicator of individual differences between actual and informed behavior, have a propensity to decrease in all campaigns. Uninformed people tend to match the position of similar informed people more effectively as time goes on. For instance, at the beginning of the 1988 campaign, being more informed changed each respondent's probability of voting for the incumbent Conservative Party by an average of over 16 percentage points.[20] After the campaign, that value had been cut in half. The trend of average individual deviations at the bottom of the table points to an overall decline of individual deviations as the election draws nearer. These data do not actually say people are getting to the right position with regards to their predispositions and beliefs. But, if we assume that informed preferences are more accurate, then the declining individual deviations from high information are indicating that voters are making, on average, more enlightened choices as campaigns proceed.

In some cases, again, the evidence does not exhibit a steady reduction in heterogeneity. The individual deviations experience sudden increases among the models of 1993 Liberal, 1997 NDP, and 1997 Reform support during the second or third campaign period. However, among each model, the postelection individual deviation is always lower than at any other moment.

The aggregate deviations, also in table 4, speak of the collective biases of actual preferences with respect to hypothetical high information preferences. For instance, the Conservative score of 4.5 for the first third of the 1988 campaign signifies that the actual level of support for this party (50.8 percent) was 4.5 percentage points higher than it would have been in a hypothetical outcome where all voters behave like similar individuals with high levels of information (46.3 percent). If we assume that informed behavior is more consistent with people's latent interests, then hypothetical high information preference could be labeled the more enlightened collective preference.

The results show that, in any election, some political parties are

TABLE 4.   Dynamics of Individual and Aggregate Deviations from Informed Preferences during Campaigns

	Campaign Vote Intentions			Postelection Reported Vote
	First Third	Second Third	Last Third	
1988 Conservative support				
Individual deviation	16.5	13.7	10.8	7.7
Aggregate deviation	4.5	7.3	−5.2	3.7
1988 Liberal support				
Individual deviation	14.2	14.6	12.7	7.2
Aggregate deviation	0.7	−3.1	7.0	−0.4
1988 NDP support				
Individual deviation	11.3	11.2	8.4	6.1
Aggregate deviation	−5.2	−4.2	−1.9	−3.3
1993 Conservative support				
Individual deviation	17.5	12.7	9.3	7.3
Aggregate deviation	−3.4	−5.1	1.2	−4.5
1993 Liberal support				
Individual deviation	18.7	13.3	17.1	10.0
Aggregate deviation	5.7	0.8	−2.7	3.5
1993 NDP support				
Individual deviation	12.3	8.7	8.9	5.6
Aggregate deviation	−2.8	4.4	1.2	0.0
1993 Reform support				
Individual deviation	13.7	13.3	11.7	7.6
Aggregate deviation	0.5	−0.1	0.3	1.1
1997 Conservative support				
Individual deviation	13.3	12.4	9.2	4.8
Aggregate deviation	4.4	0.6	3.8	−0.3
1997 Liberal support				
Individual deviation	16.5	16.5	11.9	10.5
Aggregate deviation	−1.8	6.1	4.4	5.7
1997 NDP support				
Individual deviation	9.4	9.5	11.7	5.5
Aggregate deviation	−1.5	−0.5	−4.7	−2.0
1997 Reform support				
Individual deviation	9.2	10.8	11.2	7.9
Aggregate deviation	−1.1	−6.1	−3.5	−3.4
Average individual deviation	13.9	12.4	11.2	7.3
Average absolute aggregate deviation	2.9	3.5	3.3	2.5

advantaged by the public's lack of information, while others are disadvantaged. These parties vary from one election to another. And, most important, the collective biases are relatively consistent over the course of the campaigns.

In 1988, the aggregate deviations of the incumbent party, the Conservatives, are positive in most periods. That party's actual support is greater than the support of a more informed electorate. The positive bias is slightly smaller in the postelection data (3.7 percentage points), but it is essentially the same size as when the campaign started. The incumbent's gains from low information were at the expense of the NDP. The left-of-center party that finished third in the race was systematically getting less support than the enlightened preferences. On Election Day, it obtained 3.3 percentage points fewer than what an informed citizenry would have conferred. The Liberal model exhibits inconsistent aggregate deviations during the campaign. But it concluded with a practically nil aggregate deviation: authentic election preferences for the Liberals coincide with the hypothetical high information preferences.

In 1993, the party that benefited from low knowledge five years earlier—the Conservatives—now had an unpopular incumbent whose fortunes dwindled dramatically during the campaign; it lost over half its vote share and the election (Johnston et al. 1992). Throughout these events, the uninformed were supporting the party less than they would have had they been informed. Despite the great volatility in vote intentions during the campaign, low knowledge consistently led people to punish the Conservatives more than the knowledgeable in three periods out of four. They ended up with 4.5 percentage points below what they would have received under high information. It was the Liberals, who had established themselves as the government in waiting, that benefited. Ultimately, they garnered 3.5 percentage points more than the informed hypothetical scenario. Such a positive deviation was already evident in the first third of the campaign. The NDP and Reform aggregate deviations in the reported vote are basically nonexistent. Some movement toward convergence may have taken place with the NDP, but not with the Reform Party.

Had the population been more informed in 1997, the Liberal Party would have won fewer votes than it did in reality (5.7 percentage points less). The incumbent governing party reaped the rewards of low information to the detriment of the two small off-center parties (left-wing NDP and right-wing Reform). Both of these parties would have fared better

under high information. They would have captured an extra 2 and 3.4 percentage points, respectively. There is no clear indication that the aggregate deviations significantly decreased during this campaign. Throughout the campaign periods, actual support for these parties does not correspond to their hypothetical support under high information.

Incumbency seems to help take advantage of the public's lack of information, but only if the government is in good standing. In fact, the positive aggregate biases of uninformed electorates appear to coincide with a bandwagon conception rather than a blind incumbency advantage.[21] Negative biases tend to hurt the small parties.

These aggregate deviations reveal quite large departures of the actual election outcomes from the hypothetical high information outcomes. But they do not signal that "illegitimate" election results have occurred. None of the hypothetical scenarios would have meant a reversal of the outcome. With a more informed electorate, the same government would have been elected in each election. Even the rankings of parties would have remained the same in each case. However, their potential significance for the balance of power and for close races should not be underestimated.

More to the point, the evidence does not substantiate the claim that campaigns allow aggregation to perform more effectively in canceling individual errors and generating the fully informed preferences. Each model's results along with the summary average absolute aggregate deviations do not display a clear decline pattern. In contrast with the evolution of individual deviations, the collective biases in electoral preferences do not dwindle importantly during campaigns.

Discussion

Although the trend toward the reduction of heterogeneity in decision making during campaigns is clear, many party models exhibit a sudden surge in interpersonal diversity at one point or another. These bumps appear simultaneously in parameter gaps and model improvement statistics (tables 2 and 3). While this simultaneity provides validation that the indicators tend to measure the same basic phenomenon, it also suggests that these bumps are meaningful and deserve an explanation.

Most notably, we see the jumps in heterogeneity among 1988 Conservative and Liberal support during the last third of the campaign; among the Conservatives, Liberals, and NDP during the second and third periods

of 1993; and among Conservative and Liberal support in the last portion of the 1997 campaign. Such instances demonstrate that campaigns often do not bring about a steady and uniform decline in heterogeneity. How can we account for the nonincremental nature of the decrease of interpersonal diversity in these cases?

One thing is certain: these temporary surges in heterogeneity do not happen during flat periods of the campaigns. They generally coincide with instances of great volatility in vote intentions (see campaign dynamics in Johnston et al. 1992, 1996a; Nevitte et al. 2000). However, it is not just a question of increased variance in the dependent variable, since the surges also appear in the measures that control for the size of the vote share. Moreover, some jumps in heterogeneity take place while a party is losing support. One could argue that levels of heterogeneity temporarily escalate when there is an intense period of conversion and reevaluation of voting intentions among numerous parties, when uncertainty, doubt, and possibly anxiety seize citizens. During such times of heightened attention and sensitivity, the correlates of vote choice could become scrambled by various stimuli. I cannot verify the validity of this speculation with the present evidence.

Another puzzle concerns the postelection data. In all tables, heterogeneity measures fall sharply when the reported vote is the dependent variable. Why are the post results so different from those of the end of the campaign? Could it be post hoc rationalization (Rahn, Krosnick, and Breuning 1994); that is, people adjust their answers to the postelection wave questions about the vote correlates to match how they marked their ballot? Because all independent variables were captured in the campaign wave, this account is not viable. Could it be panel attrition (Bartels 2000); that is, those who choose to take part in the second interview are different (they have a more similar set of decision correlates) from those who don't? Actually, nonpanel participants in the campaign models are rare, and analyses limited to panel participants show the same heterogeneity dynamics. Could it be panel conditioning (Bartels 2000); that is, panel participants were influenced by the fact that they responded to an election survey to adopt a more homogeneous structure of vote correlates? Could it be that postelection reported vote is fraught with misreporting (due to fading memory, the wish to support a winner, or the intervention of events since the vote took place) and that this misreporting is somehow correlated to initial heterogeneity? Or could a true reduction of interpersonal diversity in decision

making really have occurred between the last third of the campaign and Election Day? Although unlikely, the last three accounts are possible. There is no way of determining with the data used here.

Thus, the exact source of the late plunge in interpersonal diversity in behavior remains ambiguous. Nevertheless, the conclusions of this study hold regardless of whether the postelection data are reliable, since the decline in heterogeneity is apparent within the campaign data.

Conclusions

The analysis reveals that all three campaigns significantly reduced the level of heterogeneity among the electorate but that considerable amounts of interpersonal diversity still subsist after the campaigns. As campaigns proceed, the discrepancies in decision rules between information groups diminish; the usefulness of a heterogeneity-sensitive specification in explaining individual voting behavior declines; and the ability of uninformed voters to make decisions analogous to those of informed citizens with similar sociodemographic profiles increases. On most counts, the evidence supports the notion that campaigns matter and that they do so by curtailing, but not eradicating, differences between voters with contrasting levels of political information. Only the evidence about aggregate deviations does not follow the same story; the collective biases in preferences are essentially unaffected by the unfolding of campaigns.

The significant reduction in individual deviations from informed opinions highlights the critical importance of the democratic process. Individuals would not have made the same choices had they not experienced these campaigns; they would have made more "erroneous" choices. Therefore, campaigns promote the expression of more enlightened preferences.

How do political campaigns generate these declining trends of heterogeneity? Obviously, patterns of learning and priming about contenders and issues could allow citizens to cut through the complex and conflicting rhetoric, to figure out what the election and the competing options are about, to connect each option to their own preferences and predispositions, to decide in similar ways, and to gradually improve the quality of their decisions.

Alternatively, campaigns may simply be about overcoming voter apathy and inattentiveness and activating predispositions. Early on, people may simply answer survey questionnaires indifferently and carelessly,

thereby introducing errors in responses (attitudes and intentions), errors that affect the relationships between independent and dependent variables, and the precision of explanatory models. As the deadline for decision approaches and as parties and candidates increase their activity, citizens may become more seriously involved in the campaign, and their responses and behavior may accordingly appear more thoughtful and more similar.

Although the evidence I gathered cannot totally disconfirm either of these explanations, it seems to conform with a "campaigns matter because they activate certain predispositions and not others and they provide some kinds of information and not others" approach rather than a "campaigns matter only in activating predispositions" approach. Examination of all the models' parameters (not reported here) suggests that all voters tend to move toward a particular structure of vote choice determinants (some less efficiently than others) rather than one or two information groups catching up to other groups that had already figured things out. The decline in heterogeneity therefore seems to follow the particular and unique dynamics of campaign events and coverage rather than simply falling in line with an unavoidable underlying pattern or an inexorable simplification of things, as the choice becomes imminent, that operates regardless of the length of the campaign. Furthermore, the convergence is more consistent with the expectations drawn from mass media "mainstreaming" than those extrapolated from the widening knowledge gap literature or the agenda-setting/framing/priming research.

APPENDIX: Variables in the Models

The 1988, 1993, and 1997 Canadian Election Studies questionnaires and data can be obtained from the Canadian Election Study (www.ces-eec.umontreal.ca) and from the Inter-university Consortium for Political and Social Research (www.icpsr.umich.edu).

1988

Political information (h2b, h2c, h2d, h4b, h4c, h4d, xm2, xm3, xm4); campaign vote intentions (b1, b2, b3); reported vote (xb1, xb2); leader evaluations (d1a, d1b, d1c, d2a, d2b, d2c); party identification (i1, i2); free trade agreement (l2); Meech Lake constitutional agreement (14a); government honesty (j1); feelings toward French (h1a); ties with United States (h2a); power of unions (h3); level of taxation and services (h4a); immigration (l3); abortion (16a); region (province); gender (rsex); age (n1); ethnicity (n15);

marital status (n2); religion (n11); education (n3); income (n19); union membership (n9); retired (n5); public sector employment (n5).

1993
Political information (pese17a, pese18a, pese19a, pese20a, cpsg3a1, cpsg31b); campaign vote intentions (cpsa3, cpsa4); reported vote (pesa4); leader evaluations (d2a, d2b, d2c, d2d); party identification (cpsm1, cpsm2); feelings toward racial minorities (cpsk3a); feelings toward French (antf_f1a); moral traditionalism (cpsg6a, cpsg6b, cpsg6c, cpsg7a, cpsg7b, cpsg7e); power of unions (cpsk1a); continentalism (cpsf2a, cpsl1, cpsl3); macro-economic policy (cps16a, cps19a, cps19b); welfare state (cps15a, cps15b, cps17b, cps17d, cps17e); region (cpsprov); gender (cpsrgen); age (cpsage); ethnicity (cpso13, refn13); marital status (cpso2); religion (cpso9); education (cpso3, refn2); income (cpso18, cpso18a); union membership (refn, cpsjob6); retired (cpsjob1); public sector employment (cpsjob1, cpsjob5).

1997
Political information (cps16, cpsf13, cpsf14, cpsf15, cpsl11, cpsl12, cpsl13); campaign vote intentions (cpsa4); reported vote (pesa4); leader evaluations (cpsd1a, cpsd1b, cpsd1c, cpsd1d, cpsdr1, cpsdr2, cpsdr3, cpdsr4); party identification (cpsk1, cpsk2); regional alienation (cpsj12); feelings toward Quebec (cpse3a, cpsj3); feelings toward racial minorities (cpsf1, cpsj9, cpsj10); political cynicism (cpsb10d, cpsb10e, cpsb10a); moral traditionalism (cpsf2, cpsf3); tax cuts (cpsa2d); deficit reduction (cpsa2b, cpsf5, cpsf8); government job creation (cpsf6, cpsf4, cpsa2c); young offenders (cpsj21); immigration (cpsj18); region (province); gender (cpsrgen); age (cpsage); ethnicity (cpsm13); marital status (cpsm2); religion (cpsm10); education (cpsm3); income (cpsm16a); union membership (cpsm9); retired (cpsm4); public sector employment (cpsm4, cpsm7).

NOTES
   1. While heterogeneity in decision making is generally interpreted as diversity

in decisional processes, it could also result from interpersonal differences in the levels of measurement error, in the susceptibility to survey effects (wording, ordering, and so forth), in the propensity to rationalize, and in the capacity to recall accurate information. However, it is beyond the scope of this essay to examine such alternative explanations. I will therefore accept, for the purpose of this study, the common interpretation and treat process heterogeneity in voting models as an indication of divergent decision rules.

2. Some dissenting opinions exist. For instance, Wendy Rahn and her colleagues argue that "the rich and often redundant flow of political information in a presidential election year, combined with the relative simplicity of a choice between two presidential candidates, leads to relatively similar assessment and decisional processes for most individuals" (Rahn et al. 1990, 137). Their model of candidate appraisal showed only a few signs of heterogeneity: partisanship had a slightly greater impact on the decision of the less sophisticated, while ideology had a slightly greater impact for the more sophisticated. Goren (2004) also found that information does not systematically enhance the impact of domain-specific beliefs and values on policy preferences.

3. Although the margins of victory would have been different, no winner would have lost under full information in the six presidential elections (1972–92) examined by Bartels.

4. This conjecture about the relationship between heterogeneity in process and heterogeneity in outcome will receive some credence if the analyses conducted herein show that the campaign dynamics of both types of heterogeneity follow the same pattern.

5. In the other major study of heterogeneity (Sniderman, Brody, and Tetlock 1991), the temporal location of the heterogeneity detected in voting models is not stipulated.

6. Some research shows that the effects of agenda setting and priming are greater among the least informed or the least educated (Iyengar et al. 1984; Iyengar and Kinder 1987; Krosnick and Kinder 1990). However, these results may be due to the fact that exposure and attention to media content were not controlled (Krosnick and Brannon 1993; Miller and Krosnick 2000).

7. Notable examples of this practice include Sniderman, Brody, and Tetlock 1991 and Johnston et al. 1996b.

8. Two of the three dummy variables are included to capture the direct effect of information on vote choice.

9. In fact, the estimates of this interactive design are almost equivalent to those produced by three separate estimations where the sample is split according to the three dummies. Slight differences are due to the single constant and the direct effects of information in the interactive design.

10. Otherwise, change in the variance of the dependent variable between periods could artificially modify the level of heterogeneity.

11. For the 1988 models: October 4–19; October 20–November 4; November 5–20. For the 1993 models: September 10–24; September 25–October 9; October 10–24. For the 1997 models: April 27–May 8; May 9–20; May 21–June 1.

12. All variables and original data sources are found in the appendix.

13. That is, the parties' relative positions regarding ties with the United States, the parties' relative positions concerning the level of taxation and services, the local Conservative candidate, the local Liberal candidate, and the local NDP candidate.

14. That is, the party that promised to spend more on public works (Liberal), the party that promised to eliminate the deficit in three years (Reform), the party that promised to eliminate the deficit in five years (Conservative), the party that opposes NAFTA (NDP), the party that opposes the goods and services tax (GST) (Liberal/Reform), and the party that supports the GST (Conservative).

15. That is, the current president of the United States (Clinton), the current provincial premier, the first woman prime minister of Canada (Campbell), the current federal minister of finance (Martin), the party that promised to lower income tax by 10 percent (Conservative), the party that promised to cut unemployment in half by 2001 (NDP), and the party that is against distinct society status for Quebec (Reform).

16. That province would require separate analyses (Johnston et al. 1996a, 1996b; Nevitte et al. 2000; Blais et al. 2002). However, the number of Quebec cases cannot support the interactive specification on three campaign period subsamples.

17. The differences in parameter strength that are statistically significant are not reported here. These can be revealed by variants of equation (2), where one group's interactions are replaced by the regular variables.

18. Note that, in the latter portions of the campaign, the weight of party identification tends to be greater among the less knowledgeable.

19. Again this is the sum of the absolute values of the gaps in first differences between the low/medium, low/high, and medium/high information groups.

20. Since the most informed cannot move (they are the reference point for the simulations), this number is an underestimation of the true effect among the less informed.

21. On the notion of bandwagon, see Gallup and Rae 1940; Simon 1954; Bartels 1988; McAllister and Studlar 1991; Nadeau, Cloutier, and Guay 1993; Goidel and Shields 1994.

REFERENCES

Althaus, Scott L. 1998. "Information Effects in Collective Preferences." *American Political Science Review* 92:545–58.

Bartels, Larry. 1988. *Presidential Primaries and the Dynamics of Vote Choice.* Princeton: Princeton University Press.

———. 1992. "The Impact of Electioneering in the United States." In *Electioneering: A Comparative Study of Continuity and Change*, ed. D. Butler and A. Ranney. Oxford: Clarendon Press.

———. 1996. "Uninformed Votes: Information Effects in Presidential Elections." *American Journal of Political Science* 40:194–230.

———. 2000. "Panel Effects in the American National Election Studies." *Political Analysis* 8:1–20.

Berelson, Bernard R., Paul F. Lazarsfeld, and William N. McPhee. 1954. *Voting: A*

Study of Opinion Formation in a Presidential Campaign. Chicago: University of Chicago Press.

Blais, André, Elisabeth Gidengil, Richard Nadeau, and Neil Nevitte. 2002. *Anatomy of a Liberal Victory: Making Sense of the Vote in the 2000 Canadian Election.* Peterborough: Broadview Press.

Delli Carpini, Michael X., and Scott Keeter. 1993. "Measuring Political Knowledge: Putting First Things First." *American Journal of Political Science* 37:1179–206.

———. 1996. *What Americans Know about Politics and Why It Matters.* New Haven: Yale University Press.

Ettema, James S., James W. Brown, and Russell V. Luepker. 1983. "Knowledge Gap Effects in a Health Information Campaign." *Public Opinion Quarterly* 47:516–27.

Finkel, Steven E. 1993. "Reexamining the 'Minimal Effects' Model in Recent Presidential Campaigns." *Journal of Politics* 55:1–21.

Finkel, Steven E., and Peter R. Schrott. 1995. "Campaign Effects on Voter Choice in the German Election of 1990." *British Journal of Political Science* 25:349–77.

Fishkin, James S. 1991. *Democracy and Deliberation: New Directions for Democratic Reform.* New Haven: Yale University Press.

———. 1997. *The Voice of the People: Public Opinion and Democracy.* New Haven: Yale University Press.

Fiske, Susan, Richard Lau, and Richard Smith. 1990. "On the Varieties and Utilities of Political Expertise." *Social Cognition* 8:31–48.

Fournier, Patrick. 2000. "Heterogeneity in Political Decision-Making: The Nature, Sources, Extent, Dynamics, and Consequences of Interpersonal Differences in Coefficient Strength." PhD diss., University of British Columbia.

Franklin, Charles. 1991. "Eschewing Obfuscation? Campaigns and the Perceptions of U.S. Senate Incumbents." *American Political Science Review* 85:1193–214.

Gallup, George, and Saul Forbes Rae. 1940. "Is There a Bandwagon Vote?" *Public Opinion Quarterly* 4:244–49.

Gelman, Andrew, and Gary King. 1993. "Why Are American Presidential Election Campaign Polls So Variable When Votes Are So Predictable?" *British Journal of Political Science* 23:409–51.

Gerbner, George, Larry Gross, Michael Morgan, and Nancy Signorielli. 1994. "Growing Up with Television: The Cultivation Perspective." In *Media Effects: Advances in Theory and Research,* ed. J. Bryant and D. Zillmann, 17–41. Hillsdale, NJ: Lawrence Erlbaum Associates.

Goidel, Robert, and Todd Shields. 1994. "The Vanishing Marginals, the Bandwagon, and the Mass Media." *Journal of Politics* 56:802–10.

Goren, Paul. 2004. "Political Sophistication and Policy Reasoning: A Reconsideration." *American Journal of Political Science* 48:462–78.

Hill, David. 1985. "Viewer Characteristics and Agenda Setting by Television News." *Public Opinion Quarterly* 49:340–50.

Holbrook, Thomas M. 2002. "Presidential Campaigns and the Knowledge Gap." *Political Communication* 19:437–54.

Iyengar, Shanto, and Donald Kinder. 1987. *News That Matters.* Chicago: University of Chicago Press.

Iyengar, Shanto, Donald Kinder, Mark D. Peters, and Jon A. Krosnick. 1984. "The

Evening News and Presidential Evaluations." *Journal of Personality and Social Psychology* 46:778–87.

Johnston, Richard, André Blais, Henry E. Brady, Elisabeth Gidengil, and Neil Nevitte. 1996a. "The 1993 Canadian Election: Realignment, Dealignment, or Something Else?" Paper presented at the annual meeting of the American Political Science Association, San Francisco.

Johnston, Richard, André Blais, Elisabeth Gidengil, and Neil Nevitte. 1996b. *The Challenge of Direct Democracy: The 1992 Canadian Referendum.* Montreal: McGill-Queen's University Press.

Johnston, Richard, Henry Brady, André Blais, and Jean Crête. 1992. *Letting the People Decide: Dynamics of a Canadian Election.* Kingston: McGill-Queen's University Press.

Johnston, Richard, Michael G. Hagen, and Kathleen Hall Jamieson. 2004. *The 2000 Presidential Election and the Foundations of Party Politics.* Cambridge: Cambridge University Press.

Krause, George A. 1997. "Voters, Information Heterogeneity, and the Dynamics of Aggregate Economic Expectations." *American Journal of Political Science* 41:1170–200.

Krosnick, Jon A., and Laura A. Brannon. 1993. "The Impact of the Gulf War on the Ingredients of Presidential Evaluations: Multidimensional Effects of Political Involvement." *American Political Science Review* 87:963–75.

Krosnick, Jon A., and Donald R. Kinder. 1990. "Altering the Foundations of Popular Support for the President through Priming." *American Political Science Review* 84:497–512.

Kuklinski, James H., and Norman L. Hurley. 1994. "On Hearing and Interpreting Political Messages: A Cautionary Tale of Citizen Cue-Taking." *Journal of Politics* 56:729–51.

Kuklinski, James H., and Paul J. Quirk. 2000. "Reconsidering the Rational Public: Cognition, Heuristics, and Mass Opinion." In *Elements of Reason: Cognition, Choice, and the Bounds of Rationality,* ed. A. Lupia, M. D. McCubbins, and S. L. Popkin. New York: Cambridge University Press.

Kwak, Nojin. 1999. "Revisiting the Knowledge Gap Hypothesis: Education, Motivation, and Media Use." *Communication Research* 26:385–413.

Lahda, Krishna K. 1992. "The Condorcet Jury Theorem, Free Speech, and Correlated Votes." *American Journal of Political Science* 36:617–34.

Lazarsfeld, Paul F., Bernard R. Berelson, and Hazel Gaudet. 1944. *The People's Choice.* New York: Duell, Sloane, and Pierce.

Lupia, Arthur. 1994. "Shortcuts versus Encyclopedias: Information and Voting Behavior in California Insurance Reform Elections." *American Political Science Review* 88:63–76.

Luskin, Robert C. 1987. "Measuring Political Sophistication." *American Journal of Political Science* 31:856–99.

Luskin, Robert, James Fishkin, and Roger Jowell. 2002. "Considered Opinions." *British Journal of Political Science* 32:455–87.

MacKuen, Michael. 1984. "Exposure to Information, Belief Integration, and Individual Responsiveness to Agenda Change." *American Political Science Review* 78:399–419.

McAllister, Ian, and Donley Studlar. 1991. "Bandwagon, Underdog, or Projection? Opinion Polls and Electoral Choice in Britain, 1979–1987." *Journal of Politics* 53: 720–41.

McKelvey, Richard D., and Peter C. Ordeshook. 1986. "Information, Electoral Equilibria, and the Democratic Ideal." *Journal of Politics* 48:909–37.

Miller, Johanne M., and Jon A. Krosnick. 2000. "News Media Impact on the Ingredients of Presidential Evaluations: Politically Knowledgeable Citizens Are Guided by a Trusted Source." *American Journal of Political Science* 44:295–309.

Miller, Nicholas R. 1986. "Information, Electorates and Democracy: Some Extensions and Interpretations of the Condorcet Jury Theorem." In *Information Pooling and Group Decision Making*, ed. B. Grofman and G. Owen. Greenwich: JAI Press.

Moore, David W. 1987. "Political Campaigns and the Knowledge-Gap Hypothesis." *Public Opinion Quarterly* 51:186–200.

Morgan, Michael, and Nancy Signorielli. 1990. "Cultivation Analysis: Conceptualization and Methodology." In *Cultivation Analysis: New Directions in Media Effects Research*, ed. N. Signorielli and M. Morgan, 13–34. Newbury Park: Sage.

Nadeau, Richard, Édouard Cloutier, and Jean H. Guay. 1993. "New Evidence about the Existence of a Bandwagon Effect in the Opinion Formation Process." *International Political Science Review* 14:203–13.

Nelson, Thomas E., Zoe M. Oxley, and Rosalee A. Clawson. 1997. "Toward a Psychology of Framing Effects." *Political Behavior* 19:221–46.

Nevitte, Neil, André Blais, Elisabeth Gidengil, and Richard Nadeau. 2000. *Unsteady State: The 1997 Canadian Federal Election.* Toronto: Oxford University Press.

Norris, Pippa, John Curtice, David Sanders, Margaret Scammel, and Holli A. Semetko. 1999. *On Message: Communicating the Campaign.* London: Sage.

Page, Benjamin I., and Robert Y. Shapiro. 1992. *The Rational Public.* Chicago: University of Chicago Press.

Popkin, Samuel. 1991. *The Reasoning Voter.* Chicago: University of Chicago Press.

Price, Vincent, and John Zaller. 1993. "Who Gets the News: Measuring Individual Differences in Likelihood of News Reception." *Public Opinion Quarterly* 57: 133–64.

Rahn, Wendy M., John H. Aldrich, Eugene Borgida, and John L. Sullivan. 1990. "A Social-Cognitive Model of Candidate Appraisal." In *Information and Democratic Processes*, ed. J. Ferejohn and J. Kuklinski, 136–59. Urbana: University of Illinois Press.

Rahn, Wendy, Jon Krosnick, and Marijke Breuning. 1994. "Rationalization and Derivation Processes in Survey Studies of Political Candidate Evaluations." *American Journal of Political Science* 38:582–600.

Rivers, Douglas. 1988. "Heterogeneity in Models of Electoral Choice." *American Journal of Political Science* 32:737–57.

Simon, Herbert. 1954. "Bandwagon and Underdog Effects and the Possibility of Election Predictions." *Public Opinion Quarterly* 18:245–53.

Sniderman, Paul M., Richard A. Brody, and Philip E. Tetlock. 1991. *Reasoning and Choice: Explorations in Political Psychology.* Cambridge: Cambridge University Press.

Stimson, James A. 1975. "Belief Systems, Constraint and the 1972 Election." *American Journal of Political Science* 19:393–417.

Sturgis, Patrick. 2003. "Knowledge and Collective Preferences: A Comparison of Two Approaches to Estimating the Opinions of a Better Informed Public." *Sociological Methods and Research* 31:453–85.

Sturgis, Patrick, Caroline Roberts, and Nick Allum. 2003. "A Different Take on the Deliberative Poll: Information, Deliberation and Attitude Constraint." Paper presented at the annual meeting of the American Association of Public Opinion Research, Nashville, Tennessee.

Tichenor, P. J., G. A. Donohue, and C. N. Olien. 1970. "Mass Media and Differential Growth in Knowledge." *Public Opinion Quarterly* 34:158–70.

Tichenor, P. J., J. M. Rodenkirchem, C. N. Olien, and G. A. Donohue. 1973. "Community Issues, Conflict and Public Affairs Knowledge." In *New Models for Communication Research*, ed. P. Clarke. Beverly Hills: Sage.

Zaller, John R. 1990. "Political Awareness, Elite Opinion Leadership, and the Mass Survey Response." *Political Cognition* 8:125–53.

———. 1992. *The Nature and Origins of Mass Opinion.* Cambridge: Cambridge University Press.