

October 23, 1994

TO: Participants in the Conference on the Study of Presidential Election Campaigns

From: Henry E. Brady

Re: Study Design Alternatives

In this memorandum, I draw upon my experience with several campaign studies¹ to raise a number of questions about studying campaigns and to make some suggestions about the resolution of these questions. I consider four basic sets of interrelated issues which must be confronted when designing a campaign study:

- (1) What should the basic design be?
- (2) What should be on the questionnaire?
- (3) How should context and the media be studied?
- (4) How should the data be analyzed?

These questions are interrelated in subtle and complicated ways. For example, a rolling cross section design of 75 interviews per day poses substantial demands for sophisticated statistical analysis. A campaign rolling cross-section with a post-election re-interview calls for decisions about what should be on the pre-election instrument and what belongs on the post-election survey. The decision to go forward with a national study raises problems about studying context and media effects. The content analysis of media reports should be informed, and even guided, by the shape of the questionnaire. I will try to sort through these issues in the following pages.

¹ I have either analyzed and/or been involved in the design of the 1984 ANES rolling cross-section, the 1988 ANES super Tuesday study, the 1988 Canadian election study, the 1992 Canadian referendum study, and the 1993 Canadian election study. My thoughts on these matters have been shaped by my interactions with Santa Traugott, Steve Herrenga, and others associated with the American National Election Studies, with David Northrup and the fine staff of the Institute for Social Research at York University in Toronto, and my collaborators on the 1988 Canadian Election Study (Richard Johnston, André Blais and Jean Crete) and my collaborators on the 1992 Referendum and the 1993 Canadian Election Studies (Richard Johnston, André Blais, Elisabeth Gidengil, and Neil Nevitte). More recently, Ben Highton of the University of California has helped to refine my thoughts about studying campaigns in the American context. Larry Bartels has been a constant and challenging nuisance as he has argued that campaigns, at least in the American context, do not seem to matter very much.

I. What Should the Basic Design Be?

A. Panels versus Rolling Cross-Sections--Panels are complicated, expensive, and intrusive. They tend to affect the responses of those interviewed, and they inevitably lead to difficult problems of panel mortality. Rolling cross-sections have their own peculiar problems, but they are generally cheaper, easier to undertake (especially using telephone interviewing methods), and less intrusive. Furthermore, because a great deal of what goes on in campaigns appears to come quickly and then often (but not always) go quickly, rolling cross-sections have the advantage of being able to capture daily changes that would be missed with even, say, an eight wave (!) panel over the course of, say, a three month campaign (starting in August).

Good rolling cross-sections depend upon the careful blending of samples from different vintages in such a way that the daily mix is essentially a random cross-section.² Every day a new random replicate is opened. Some of these people are contacted immediately on this first day, others on the second day after opening the replicate, and so forth. If replicates are opened every day, and if every replicate is worked in the same way, then fairly soon the actual interviews on a given day are a substantial fraction from that day's replicate, a smaller fraction from the previous day's replicate, a still smaller fraction from the day before yesterday, and so forth. The overall mix of these interviews of different vintages, but all interviewed on the same day, is, as we say in California, a fine varietal --- essentially a random cross-section of the population.

The success of this approach depends fundamentally upon the consistent treatment of each vintage. This poses the biggest problem for a telephone interviewing facility, but it can be and has been done in the United States and in Canada. In the following, I will primarily talk about the problems raised by a telephone rolling cross-sectional study of an American campaign. Before doing that, however, I will discuss an alternative approach --- trying to randomize the date of interview in the existing pre-election ANES.

B. Randomizing Date of Interview in the ANES Pre-Election Study --- Consider the spread of daily interviews for the 1980 ANES pre-election study depicted in Figure 1. These interviews are spread over a period of more than two months (the period after labor day in September and October of 1980) before the election, and there is something like 20 to 40 on most days. This is a reasonable time-period and the number of interviews is a bit small, but enough for many kinds of analyses.

The most obvious problem is the variance in number of interviews by day which is much

² This discussion of the RCS methodology depends a lot upon the tutorial provided Richard Johnston and me sometime around 1987 by Steve Herrenga and Santa Traugott. In this, as so much else, the NES was the pioneer.

larger than in our telephone surveys. Of course, it is much harder to even the flow of personal interviews. Figure 2 smooths these results by looking at the number of interviews by seven day periods. Figure 3 shows pre-election vote intention by day (smoothed using LOWESS regression — see below — which works very well with these kind of data). This figure seems like good news because it appears to pick-up the famous shift towards Reagan in the last days of the campaign. Unfortunately, Figure 4 shows that there is a problem with these data. The characteristics of those interviewed in 1980 changed dramatically at the end of the survey towards Republican party identification (using several different definitions of Republicans). This may very well explain the apparent shift towards Reagan. This is the major danger with these samples. They do not appear to be sufficiently randomized by day of interview. This is undoubtedly because of the difficulties of doing this with an in-person interview.³

Turning to the 1992 election, Figure 5 shows the mean thermometer rating of the presidential candidates by day. Both Clinton and Bush are relatively steady, at least compared to Perot, with a minor downward shift for both. Perot, on the other hand, shows quite a bit of movement. By the end his thermometer rankings are above Bush's. Once again the data seem to mirror reality. Figure 6 is a Lowess regression fitted to the question "Is there anything that makes you want to vote for ..." (where any yes response is coded as one and no responses are zero). Note the rise for Perot starting at the beginning of October. (The question was not asked about Perot before this time.) Something in the campaign educated voters about Perot allowing them to come up with (or giving them) reasons to vote for Perot. This is particularly interesting when compared to Figure 7, "Is there anything that makes you want to vote against". In this figure Perot is quite steady. When he reentered, many people already had reasons to vote against him and they didn't get any more during the last month of the campaign. These findings are not due, we think, to inadequate randomization by day. Figure 8 shows that the proportion of Democrats and Republicans is quite constant by day of the campaign.⁴

These results suggest two things. First, there appear to be changes in crucial variables during the campaign. I would call these "campaign effects." Second, in some circumstances (1992 but not 1980) the date of interview appears to be adequately randomized with respect to individual characteristics. I do not know enough about the current sampling and fieldwork in the ANES to make any suggestions about how to insure that this randomization will be suitable for analyses of campaign effects, but this might be an inexpensive way to increase our knowledge of campaign effects.

³ It also must be remembered that this sample was not designed to serve this purpose. We are asking much more than we should of it.

⁴ My thanks to Benjamin Highton of the University of California who performed these analyses.

C. When to Start, How Often to Interview, How Many to Interview --- Campaigns begin the day after the last election so the best course of action would be to engage in continuous monitoring of the electorate with as large a sample as possible. Financial constraints make this virtually impossible, so that we must seek some logical starting place.

1. *Re-interviewing people from past studies* --- An alternative would be to take people interviewed in the last Presidential or off-year and to re-interview them as part of a rolling cross-section. We did this in the 1992-1993 Canadian studies.⁵ We took people who were interviewed during the Referendum study, and we treated them as part of the 1993 rolling cross-section. This provides us with a very useful baseline for understanding behavior during the campaign. It is especially important for determining whether inter-electoral periods lead to oddities such as increasing disapproval for the incumbent because there is nobody available for comparison. Once there is an alternative, the incumbent's ratings may come bouncing back.

2. *Starting sometime before the Conventions* --- Starting before the conventions (sometime in July) may seem like pure folly because it would require four months of interviewing. It might be possible, however, to interview enough people at some strategic moments to see how these events affect the campaign. I might suggest, for example, interviewing before the two conventions, right after the first one and before the second, and then right after the second. This might require a minimal investment of interviews, and it might provide tremendous benefits. (In 1992, for example, the withdrawal of Perot on the day of Clinton's acceptance speech at the Democratic Convention probably had important impacts.) At the very least, a study should probably begin sometime in August to get the full run-up to the election.⁶

3. *Daily or Weekly Interview Periods?* --- The 1984 rolling cross section opened replicates on a weekly basis; the three Canadian studies opened replicates on a daily basis. We strongly believe that daily replicates are the right way to go. For one thing it does not add that much complexity to the process. More fundamentally, events occur on a daily basis, and only daily samples can capture the full dynamics of a campaign. We have, in fact, been astonished at the rapidity with which events can change the nature of a campaign.

4. *How Many Cases per Day?* --- The strength of the rolling cross-sectional design comes from being able to look for changes that happen over the course of a day or several

⁵ Our report on the 1988 election is in Richard Johnston, Andre Blais, Henry E. Brady, and Jean Crete, *Letting the People Decide: The Dynamics of a Canadian Election*, Stanford University Press, 1992.

⁶ This also raises some complicated problems with respect to the rolling cross-sectional methodology because concentrating the number of interviews in one place is not that easy when a smooth flow of interviews is an essential part of the sampling methodology. This idea, then, requires some careful thought.

days. This can be done, however, with only a relatively small number of cases on each day because the data can be smoothed and statistical strength can be obtained from the long time series of interviews before and after the event of interest. In the Canadian studies we have had approximately 75 interviews per day and this has been enough to allow us to do studies of sub-populations defined by region (the West, Ontario, Quebec, the Atlantic Provinces), party identification, and other characteristics. We believe that a good study could have as few as thirty to fifty cases per day. Below this number of interviews it would be very hard to detect daily events. The daily figure is usually driven by how much money is available (which determines the total number of interviews) and the number of days to be covered (sixty to 120 in the American context). Our 75 interviews per day in Canada resulted from having enough money to do about 3,800 telephone interviews over a fifty day campaign.

5. *How Many Call-Backs? How many Days to Clearance?* — These may seem like fairly technical "survey" questions, but they turn out to be all-important for the conduct of a rolling cross-section. Typically speaking, the more call-backs the better the response rate. Yet call-backs cannot and should not occur repeatedly within too short a period of time because it is important to try different time of day, different days of the week, and so forth to get a maximum chance of finding the person at home. But if call-backs take a long-period of time, then for any given replicate, it will take a long time before the sample is "cleared" and all of the interviews from that replicate which will be obtained are actually finished. In a standard cross-sectional study this may not matter very much, but in a rolling cross-section it might mean that it will take a long time at the start-up of the survey before the first replicate is cleared so that a steady state is reached in which each day of interviewing includes all the kinds of people who will be interviewed from each replicate. This will bias the daily samples. Hence, this consideration argues for a relatively quick clearance of each replicate. This leads to a dilemma:

- * if the clearance is too quick the daily samples will be similar but biased towards those who can be interviewed quickly and the response rate may be fairly low because not enough time has been provided for contacting a large fraction of the replicate;

- * if the clearance takes too long then the initial daily catch of respondents will be different from the later daily group of respondents.

Ultimately some decision has to be made about which problem is more severe. In the Canadian studies we have opted for relatively quick clearance in the 7 to 10 day range. In effect, we have decided to accept some bias in the representativeness of our samples to insure that they are similar over time.

A related problem is when to stop opening replicates before the election. Here, it seems to us that there is an unequivocally right answer: keep opening replicates until the final moment so that the "catch" of respondents is the same up until the last minute. This has the unfortunate effect of lowering response rates because the potential respondents in, for example, the last replicate can only be contacted on the last day — this replicate is, in effect,

cleared in one day. (The solution to this problem, by the way, is certainly not to work this last replicate harder; this will only mess up the whole sampling strategy.)

D. Post-Election Survey? — We believe that a post-election survey is an essential feature of a campaign study. There are at least three reasons for having a post-election study:

1. Obtaining the Vote Decision — The most obvious reason is that a post-election survey allows the researcher to know the vote-decision. It hardly seems reasonable to do a campaign study that focuses on how campaigns affect voting without knowing about the dependent variable. It is true that vote intention during the campaign is an interesting and worthwhile variable, but it has many well-known faults.

2. Controlling for Common Factors — One of the weaknesses of the rolling cross section design compared to the panel is that it does not allow the researcher to directly observe "true" change in which a *particular* respondent says "I like Bush" at one point and then says "I like Clinton" at a later moment. Aggregate changes can be observed, but it would be nice to have more confidence that these aggregate changes are not just sampling error. It would also be nice to be able to say something about changes within subgroups in the population. This is possible for characteristics that can be considered fixed from one moment to another in the campaign such as race, education, age, and so forth, but it is not possible for characteristics that might change such as attitudes and even party identification. Yet we might want to know whether it was Tory identifiers or Liberals who changed the most at some point in the campaign. Did the 1988 Debate, for example, affect Liberals or Tories more? By having a post-election survey, it is possible to control for individual characteristics such as these. We can, for example, take all Tory identifiers on the post-election survey and see if at some crucial moment these were the most likely people to change their opinions about something. This control on a post-election variable has some dangers, but it is much better than taking all Tory identifiers as measured at one point in the campaign and comparing them with all Tory identifiers as measured at another point in the campaign. If the campaign affects party identification (which it did in 1993), then this can be a very misleading strategy. (It might be even better to have a pre-election survey of all respondents as described above, but the post-election also has virtues even in this situation.)

To make this possible, however, the post-election survey must be undertaken very carefully. Attempts must be made to insure that the date of interview on the post-election is uncorrelated with the date of interview on the pre-election. This will insure that there will be no correlation between being identified as Tory on the post-election and the date of interview on the pre-election rolling cross-section. If, for example, in 1993 Tory identification continued to decrease after the election then a re-interview strategy that first contacted those who were interviewed first on the rolling cross-section would lead to a situation in which a larger fraction of those interviewed at the start of the rolling cross-section would be identified as Tory on the re-interview than those interviewed at the end of the rolling cross-section. Presumably these two groups would also have a different composition, and it would be

meaningless to use the post-election identification question to identify Tories.

Randomizing the post-election interview with respect to the rolling cross-section also has the virtue of providing another "quasi" rolling cross-section after the election.

3. *Asking about Campaign Events* — In a post-election interview *all* those interviewed on the rolling cross-section can be asked about campaign events whereas it is impossible to ask those interviewed in the rolling cross-section before a particular campaign event about their exposure or reaction to the event. There is some potentially dangerous business here, but if used adroitly, this possibility can be very powerful. The dangers are that after the election people's memories may be faulty or biased. It might be dangerous, therefore, to rely fully upon people's memories to tell you about their reaction to an event. A campaign study should definitely ask about events as they happen. But post-election questions can also provide some unusual analytical possibilities.

Suppose, for example, that you wished to know the impact of the 1988 mid-campaign debate on John Turner's competence rating. (Turner did exceptionally well in this debate by all accounts.) It seems sensible to suppose that those seeing the debate would have been affected immediately whereas those who did not see it might be affected only later through subsequent media coverage. A simple graph of Turner competence ratings for these two groups after the debate does seem to suggest that those who saw the debate had higher ratings than those who did not. Furthermore, the ratings for those who did not see the debate appear to "catch-up" within three to five days. (See the right-hand side of Figure 9 after the vertical line which indicates the debate). Yet these are two different groups and a variety of ad hoc explanations (including sampling error) are possible. Because we asked on the post-election whether or not respondents had seen the debate, we could use this question to construct the competence ratings for Turner for each group before and after the debate. This figure is quite compelling. The two groups were very similar before the debate, they diverged right afterwards and then they converge again. It certainly looks like the debate had an impact.⁷

II. Questionnaire Design

A. *What Items Go Where?* — A campaign study should be used to study the campaign. This means that the rolling cross-section should emphasize items that might capture change. This means issues, traits, perceptions, voting intention, and even party identification. A rolling cross-section should also ask about factors that mediate change such as media exposure, knowledge about campaign events, and interest and knowledge about politics. A rolling cross-section is not the place for asking about values and other longer term predispositions or characteristics. A post-election interview is a much better place to ask

⁷ We did numerous tests comparing answers to a question asked on the rolling cross section about whether or not the respondent saw the debate with the post-election question. The answers were very similar, and convinced us that at most some random error was introduced by using the post-election question.

about these things. Yet, the possibility of panel mortality requires some compromise on this principle. It would be a shame to have a rolling cross section interview that could not be used because some essential information, left for the post-election interview, was not gathered because of a failure to re-contact the respondent.

B. How to Study the Campaign --- Because campaign effects are hard to find, a rolling cross section must find ways to "amplify" these effects. We know of three methods which seem to work very well:

1. *Using Batteries of Items* --- It is better, we believe, to try to detect a few kinds of campaign effects with batteries of items meant to detect subtle effects than to use a shot-gun approach with items on every conceivable topic. With the small number of interviews per day and the subtlety of some campaign effects, a shot-gun approach is likely to yield very little or nothing. A few well-chosen batteries (on traits or on some major issues), however, can find an effect within the din of the campaign.

2. *Using Experiments, Challenges and Other Active Probes* --- Campaign studies must focus on the rhetoric and framing of issues. Some of the campaign effects we found in Canada were with the way that issues were framed and debated. We were greatly aided in our analysis of these phenomena by using computer assisted telephone interviewing with randomized question wording experiments.² These allowed us, for example, to show that in 1988, Prime Minister Brian Mulroney who had negotiated the free trade agreement with the United States was disadvantaged by his opposition's characterization of the agreement as the "Reagan-Mulroney free trade deal" which threatened social programs. We also showed, however, that as the campaign progressed, the rhetorical advantage shifted to Mulroney and his Tories as they successfully convinced the population that social programs were not especially threatened by the deal but that Canadian trading rights were threatened without it.

We came to these conclusions through the use of an experiment and the use of a "challenge" methodology. In the experiment we asked one random group of the respondents what they thought of the "Free Trade Agreement" and another random group what they thought of the "Mulroney Free Trade Agreement." This allowed us to determine the impact of linking Brian Mulroney with the agreement. In our challenges, we asked people who were in favor of the agreement whether certain considerations would make them less likely to approve of it, and we asked people who were against it whether certain considerations would make them more likely to approve of it. Through these questions, it became apparent that concerns about social programs were very salient and important during the early part of the campaign. In fact, we showed that the rhetorical advantage was with the opponents of the agreement in the early part of the campaign.

² For a discussion of these procedures see Tom Piazza, Paul M. Sniderman, and Philip E. Tetlock, "Analysis of the Dynamics of Political Reasoning: A General Purpose Computer-Assisted Methodology," *Political Analysis*, Volume 1, University of Michigan Press.

3. Asking about Campaign Events --- Campaign studies must also take into account events during the campaign. It is always hard to know exactly what events will be most important and this suggests that a study be nimble and flexible enough to add items at important moments. In our studies we have asked about debates and about specific statements by important leaders.

Despite the evidence that debates have not mattered that much in American politics, we found substantial debate effects in the 1988 election (but not much in the 1993 election). These effects may be unusual and dependent upon the form of the Canadian debates (party leaders debating directly with one another) and the single-minded focus of John Turner (the opposition Liberal leader in 1988) on the free trade issue. In any event, debates mattered in 1988. We suspect that they sometimes matter, beyond a temporary up or down impact on public opinion, in the United States as well although we are not sure that any debate has ever had the impact of the 1988 Canadian debate which may be the Krakatowa of all debates.

In the 1992 Referendum study we asked about a statement by Pierre Elliott Trudeau (at "Le Egg Roll") in which he opposed the Charlottetown Accord that was the basis for the referendum. We found that this had an important impact upon the referendum campaign.

III. Context and Media

A. Studying Context --- Context can vary in at least two ways during campaigns: spatially and temporally. Often more stress is placed on temporal changes in context (e.g., debates, public statements, events) than in spatial variability, but differences across regions or states can be even more important than differences over time. In Canada, we have been especially sensitive to the fact that the campaign in Quebec is different from the campaign in the rest of Canada. In the United States, we suspect that there are different regional campaigns with different issues and different dynamics. This suggests that a national study may suffer from combining too many things together. There may be some virtues in looking at specific areas or regions instead of trying to do a national study. It may also be the case that region and time interact. Events which might be important in one region might not matter at all elsewhere. In any case, some effort should be made to do event coding from media sources in different regions to see if the salient events do differ.

B. Studying the Media --- Campaign effects are certainly mediated by the media, but we believe that they can also come through the media. This suggests that we should find some way to code media coverage. In 1984, I spent a great deal of effort coding UPI articles on the primary campaigns. The coding scheme was explicitly designed to match ANES questions on the 1984 Rolling Cross-Section (RCS). This media coding yielded some very interesting information on how the media covered the election, but it turned out to be very difficult to develop statistical links between media coverage and national reactions as recorded on the 1984 RCS. Perhaps the samples were too small; perhaps the coding needed to be improved (although the coding instrument was very detailed). But I think that the problem is

more fundamental than that: without detailed knowledge about what people are reading, hearing, or viewing, and without detailed content analysis of these sources, it is not surprising that it is hard to link UPI coverage to a national cross-section of respondents.

In the Canadian studies, we content analyzed a large number of advertisements, evening news programs, and other sources of information. This was made especially easy because of the limited extent of Canadian media markets and, in 1988, the central role of the Canadian Broadcasting Corporation. We then used these data in conjunction with our rolling cross-sectional polls to investigate media effects. We believe that we found them in 1988, although they were hard to identify through the inevitable noise from having only a small number of interviews and a small number of media sources for content analysis.

The Canadian case is much easier to analyze than the American one because there are fewer media sources and, at least in 1988, the CBC was all-important. Perhaps in 1964 a researcher could get by with just analyzing the campaign as seen by the nightly news programs, but this is not possible anymore. This suggests, once again, that a national study that looks for media effects will have to overcome some substantial challenges.

C. Studying Polls --- We found a significant amount of learning in the 1988, 1992, and 1993 Canadian campaigns. Part of this learning was about the major agenda items — this was especially true in 1988 with respect to free trade. Another part of this learning was about the chances each party had in forming a government or, in 1992, of the referendum on the Constitution passing. We were able to show that expectations played a major role in each year, and published opinion polls had a significant impact on forming expectations. The 1988 and especially the 1993 situation may be far removed from the typical American election with only two major candidates because both of these elections involved at least three parties. The 1992 referendum may be more relevant because there was only one question, and once expectations formed that it would not pass, many in the electorate seemed to race pell-mell towards making this a reality. Polls have seemed to matter in Canada. Certainly some effort should be devoted to collecting information on polls to see what impact they have in the American context.

D, Thoughts on Context and the Media --- Despite the difficulties of measuring contextual and media stimuli and the even greater difficulties of linking these stimuli to voter perceptions or attitudes, it would be a shame to have a campaign study without studying the media and context. One way to minimize the problems would be to study the national campaign in a few selected places. If this is done, then it would be best to maximize variability across places. With telephone interviewing, it would be possible to select, say, ten places with media markets that are congruent with the places. Then contextual materials could be collected for each place. The problem with this design is that it might require content analysis and event coding in these ten different places. Thus, we are left with the following questions:

- * Must we have a national study? Would a regional study be better?

- * If we do a study of specific places, should we also try to have variability across places by studying more than one location?
- * How much content analysis and event coding can we afford to do if we study multiple places?

IV. Analysis Problems -- Dealing with Small Number of Cases Per Day

This is probably not the place to get into a full-fledged discussion of how to analysis rolling cross-sections. But there has been a substantial amount of skepticism expressed over the years by those who have wondered how anything could be done with just 75 cases per day. The answer is that traditional techniques are limited, but modern statistical and graphical technology has developed to the point where a great deal can now be done.

A. Taking Daily Aggregates and Smoothing -- The simplest, and often the most illuminating way, to study rolling cross-sections is to take a daily aggregate (possibly of just a subgroup such as all Tories or all those in Quebec) and to see how it changes over time. There are two classes of techniques for doing this:

1. *Smoothing Algorithms* --- In the 1988 and subsequent studies, we have found that simple three, five, and seven day moving averages have often provided more than enough smoothing to reveal patterns that would otherwise be hidden. This is very simple to do with a package like Harvard Graphics which has a simple command for computing and graphing moving averages. More sophisticated methods are also now available. SPSS has a Lowess routine with is a local weighted regression routine. The Figures discussed at the beginning of this memorandum used this routine. There are also many other "smoothers" available and a body of software. See W. Hardle, *Applied Nonparametric Regression*, Cambridge University Press, 1990.

2. *Kalman Filtering* --- For those who want to do multivariate analysis and who have stronger statistical skills, the Kalman Filter provides an ideal way to analyze time-series in which there is a known amount of error in the time-series. In rolling cross-sections, the daily sampling error for each variable is very easy to compute because we know the sample size. This means that the Kalman filter can be used to smooth these data. See Nathaniel Beck, "Estimating Dynamic Models Using Kalman Filtering," *Political Analysis*, Volume I, Michigan University Press.

B. Using Micro-Data and Doing Time-Series Cross-Sectional Estimations --- These kinds of analyses can be done in several different ways.

1. *Instrumental Variables* --- Charles Franklin has developed a method for analyzing cross-sections in his paper on "Estimation Across Data Sets: Two Stage Auxiliary Instrumental Variables Estimation," *Political Analysis*, Volume I, Michigan University Press. In this paper, he shows how a regression of some putatively changing characteristic such as

party identification on the fixed characteristics of respondents from one cross-section can be used to predict what the party identification would have been for respondents in another cross-section under the hypothesis of no change. Then, the difference between the predicted party identification and the observed party identification can be treated as true change and analyzed. This is an innovative and clever technique that should be more widely used.

2. *Simultaneous Analysis of Time-series versus Cross-sectional Variation* — In the 1988 Canadian study, we took the daily mean of important independent variables such as competence ratings and included that in regressions along with the individual deviations from that daily mean to see how each affected important dependent variables such as vote choice or thermometer ratings of leaders. This kind of analysis requires some assumptions about the underlying processes generating the data, but we found them to be very useful for separating out the well-known cross-sectional variation in many variables from the temporal changes that we really cared about.

3. *Using the Panel Feature of a Study with Both Rolling Cross-Sections and a Post-Election Interview* — We found that the best kind of analysis was probably using the panel feature of our Canadian data to control for individual ("cross-sectional") effects so that we could focus on true change over time. A description of this and the method described in (2) above can be found in the Appendix to our book on the 1988 election, *Letting the People Decide*.

V. Conclusions

Our experience suggests that a daily telephone rolling cross-section with a post-election interview is the best design for studying campaigns. We have also found that content analysis and event coding are useful and important sources of information about the campaign. As for instrumentation, we recommend the use of batteries of items, questions about events (on the rolling cross-sections and the post-election interviews), and active probes through experiments and challenges.

In the American context, the most important decisions may be the following:

- * When should we begin interviewing?
- * Should we do a national study or a local study or several local studies?
- * How much content analysis and event coding should we do?
- * What instrumentation should we include? What batteries of items? What events should be covered? What experiments and challenges should be tried?

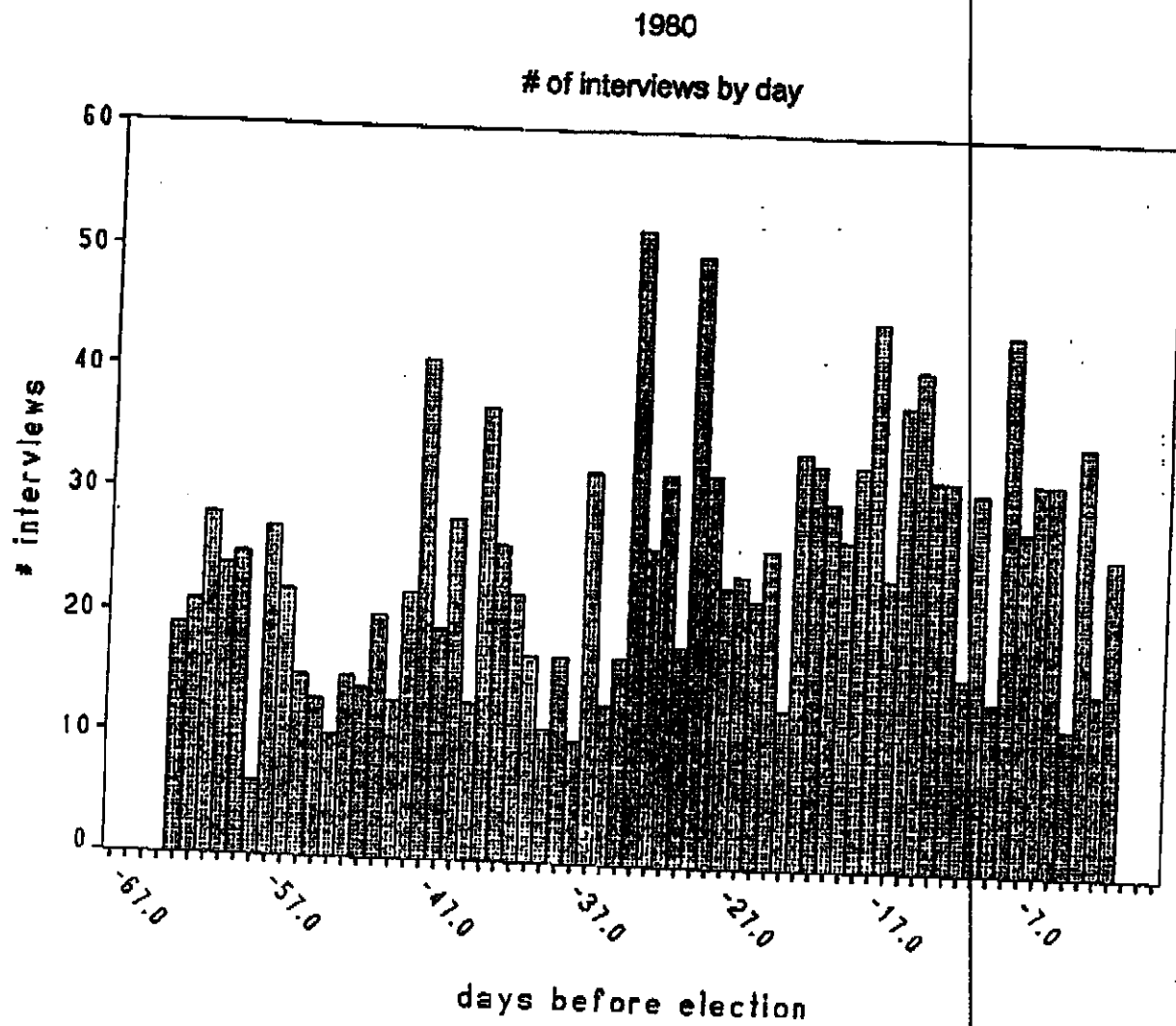


Figure 1

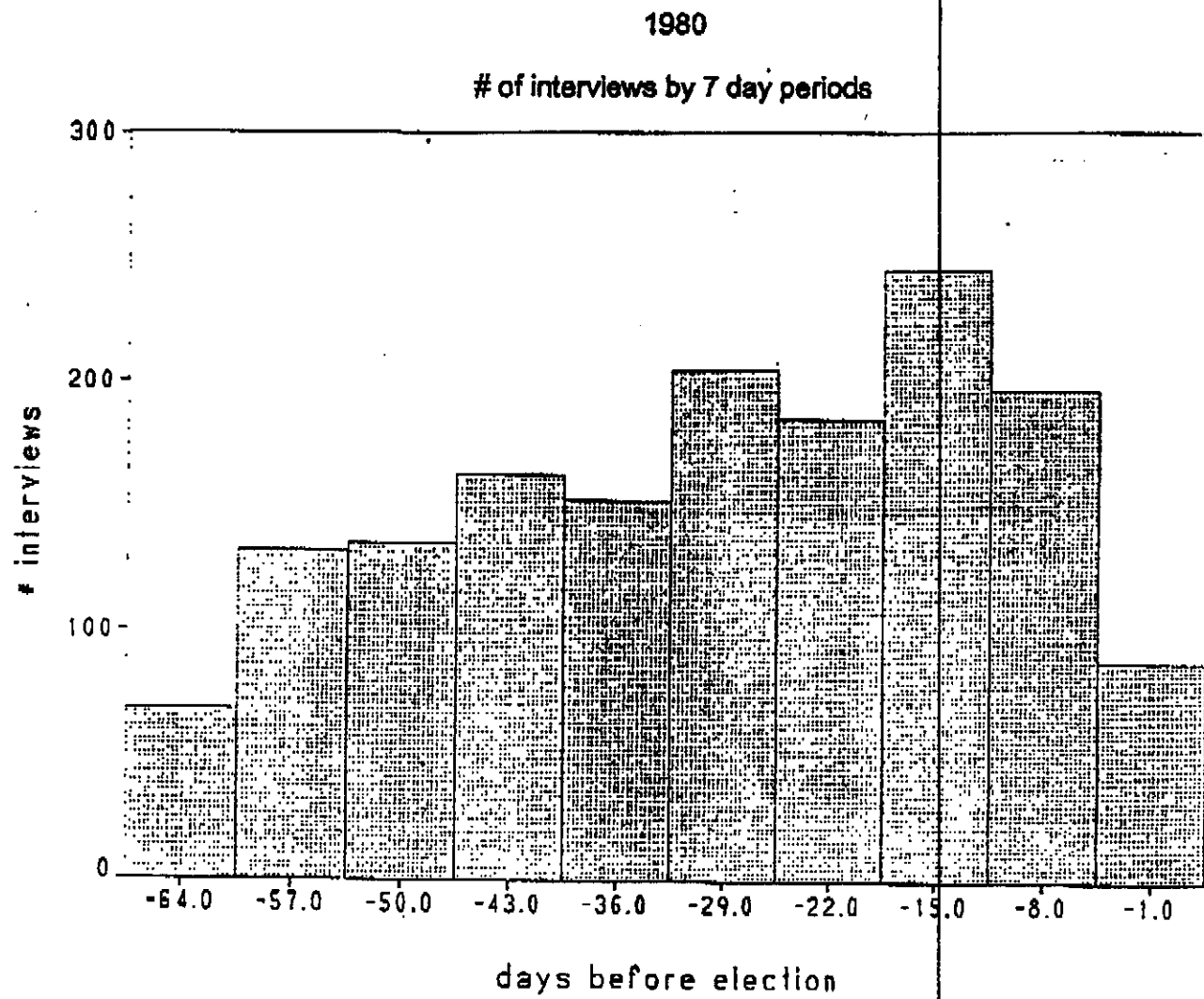
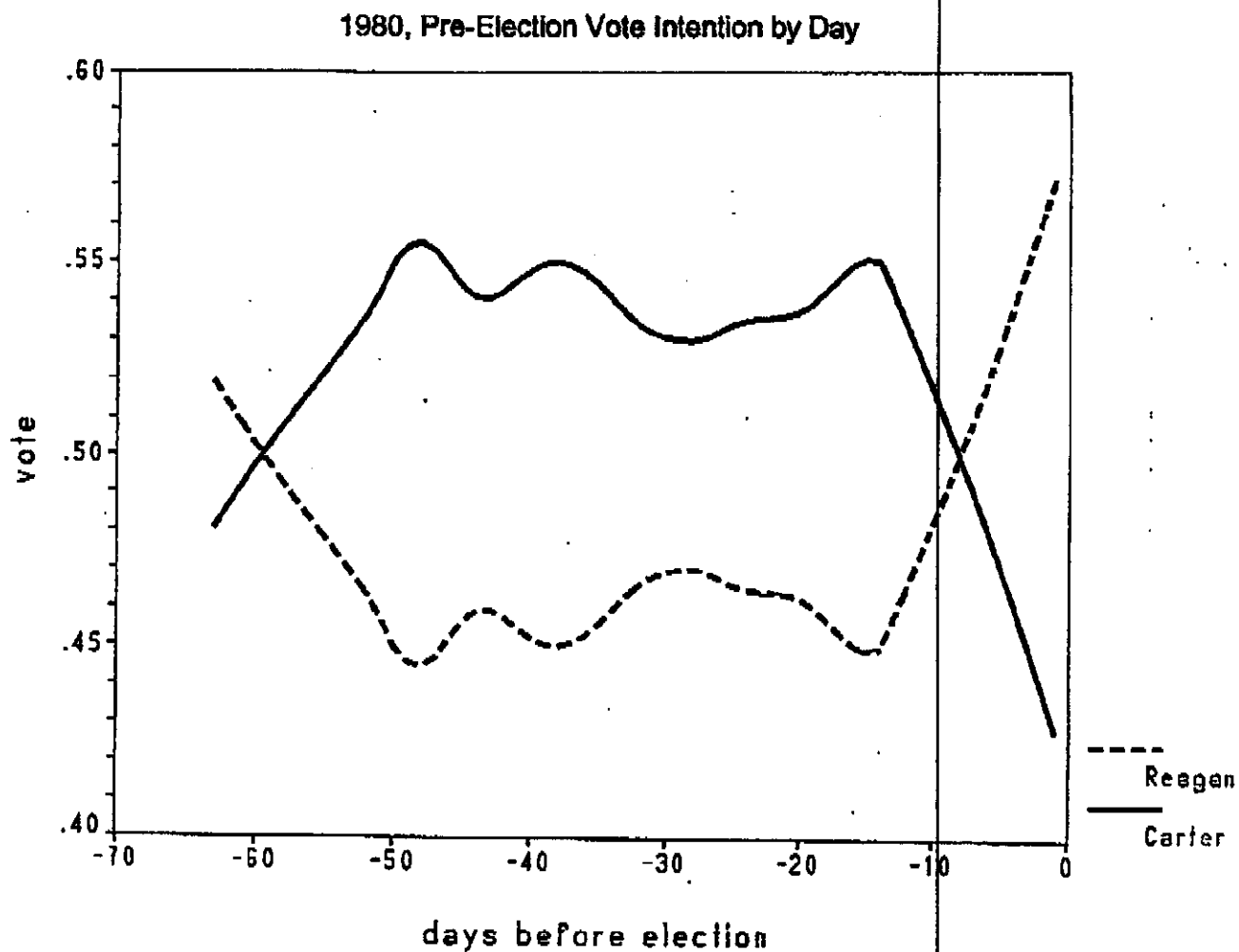


Figure 2

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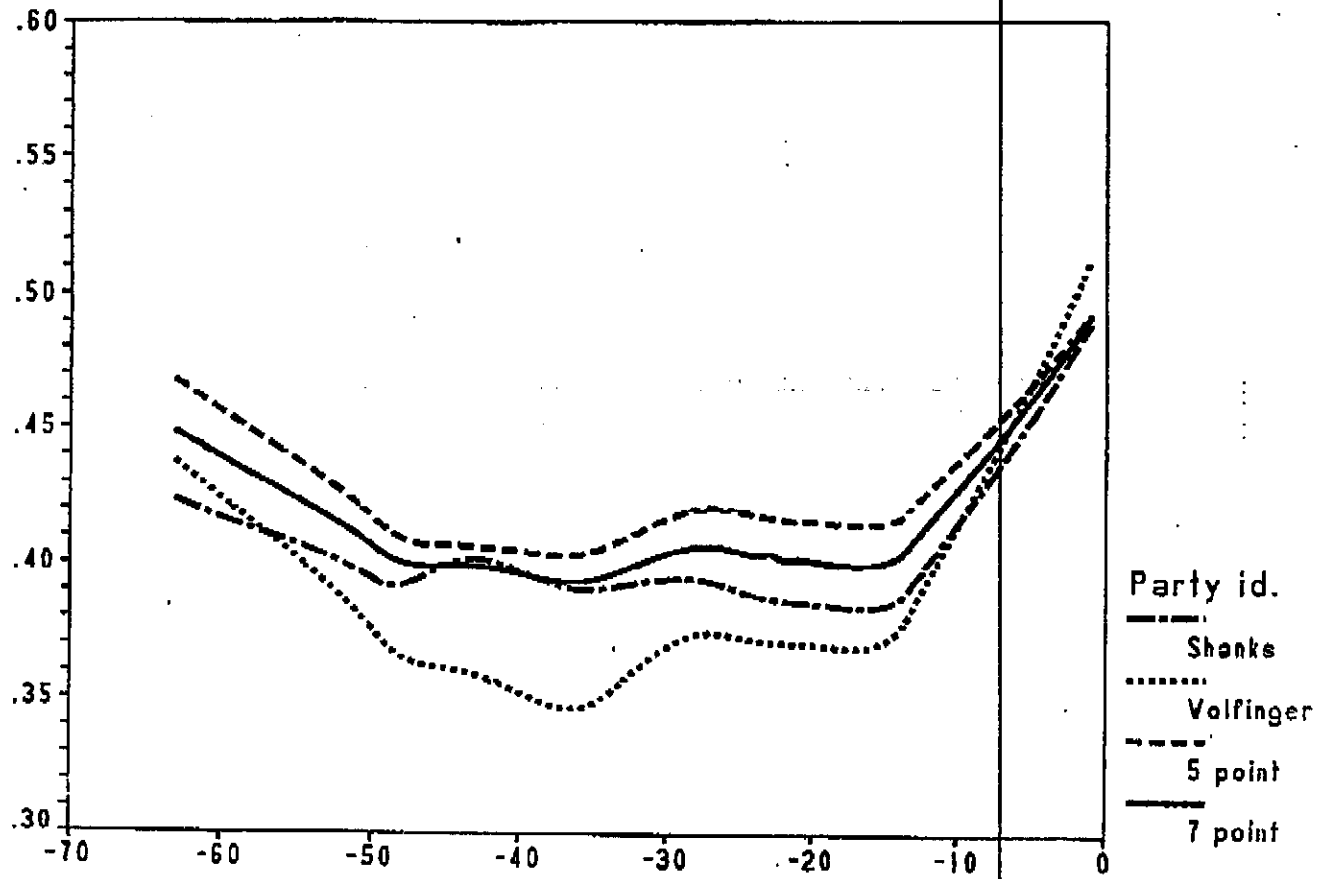


LOVESS 45%

Figure 3

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B

1980, Mean Party Identification by Day



each variable rescaled on a 0-1 interval

0=Democrat; 1 =Republican

LOVESS 45%

Figure 4

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A

1992, Mean Thermometers by Day

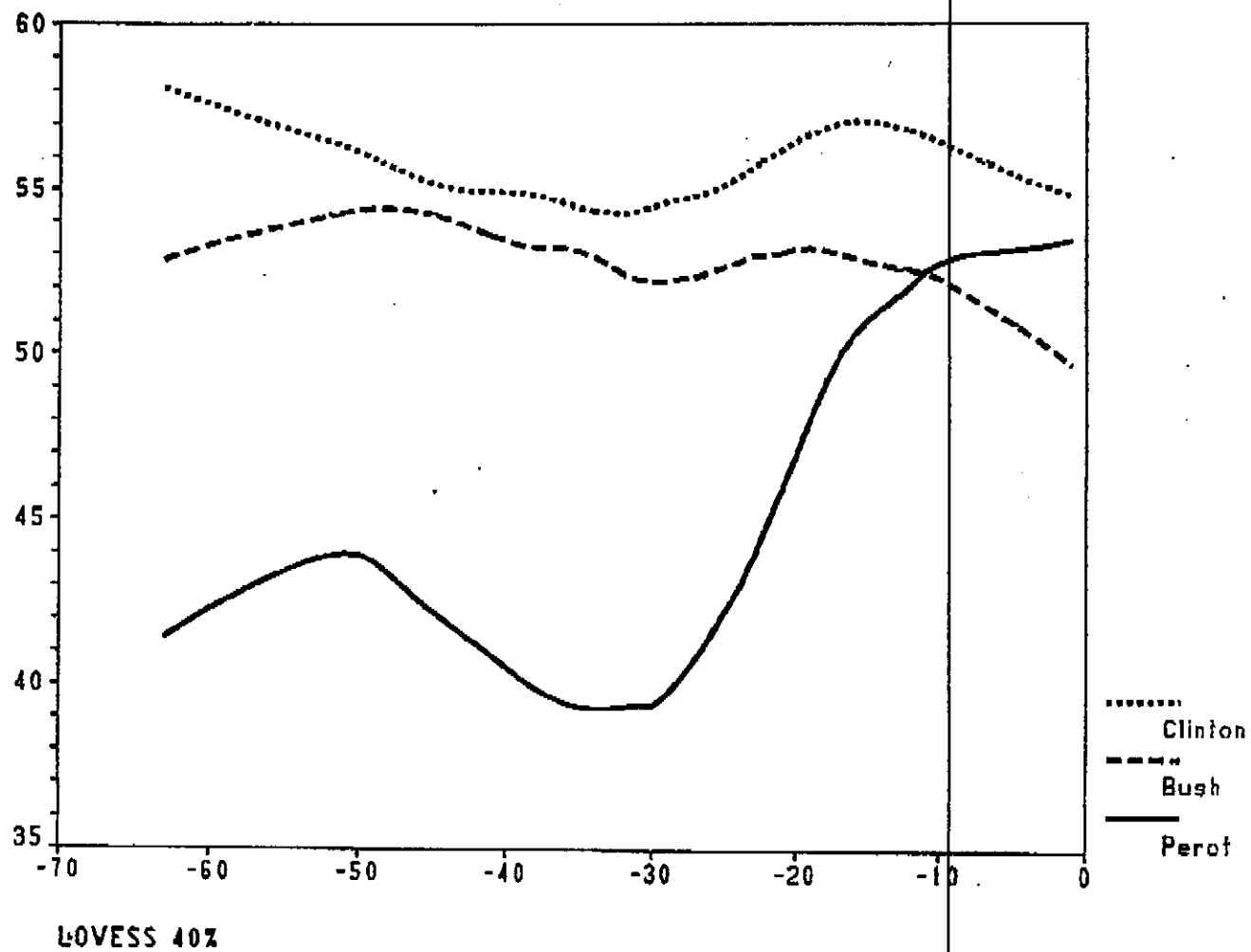


Figure 5

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1992, "Is there anything that makes you want to vote for ...,"

by day

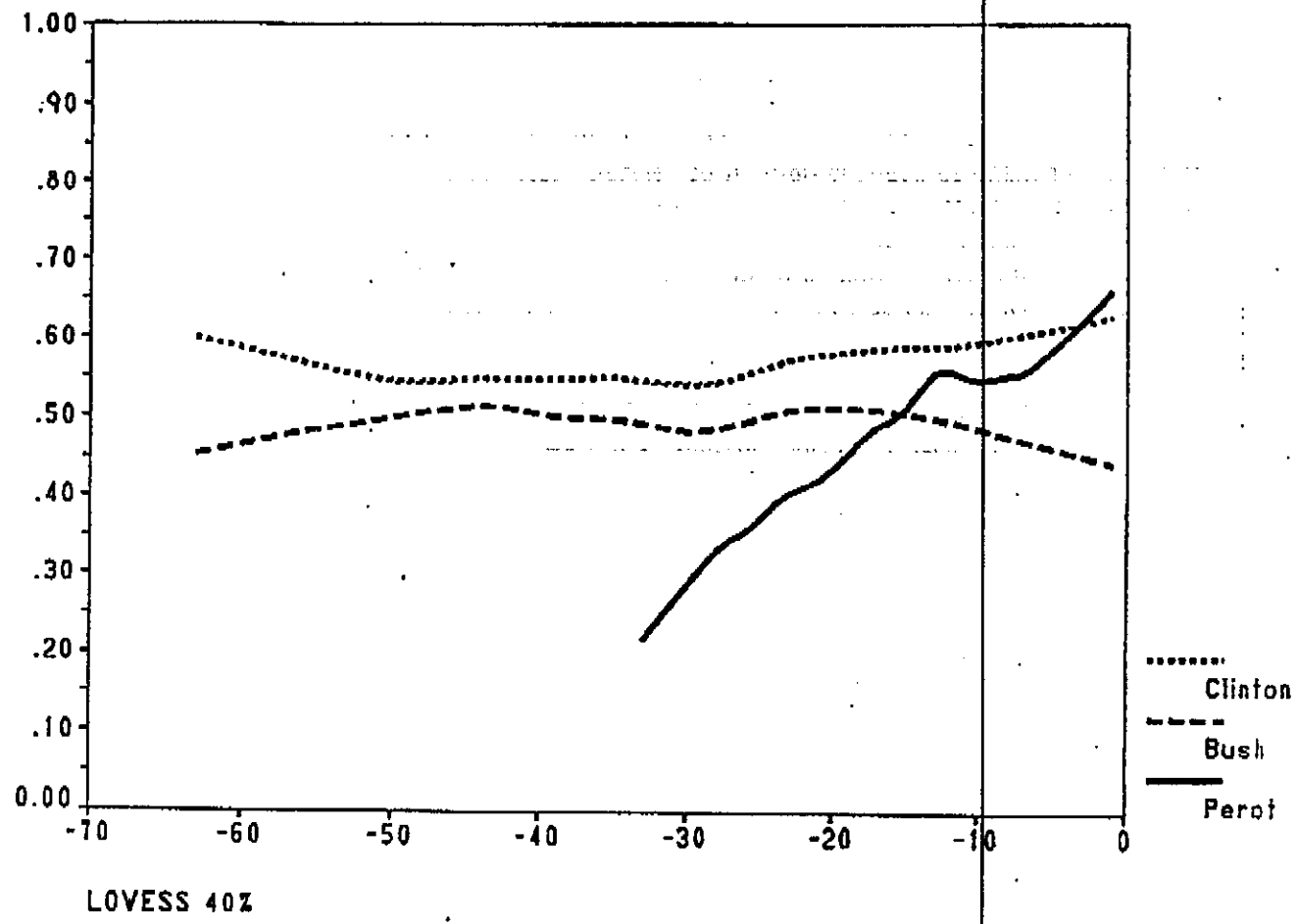


Figure 6

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18

1992, "Is there anything that makes you want to vote against..."

by day

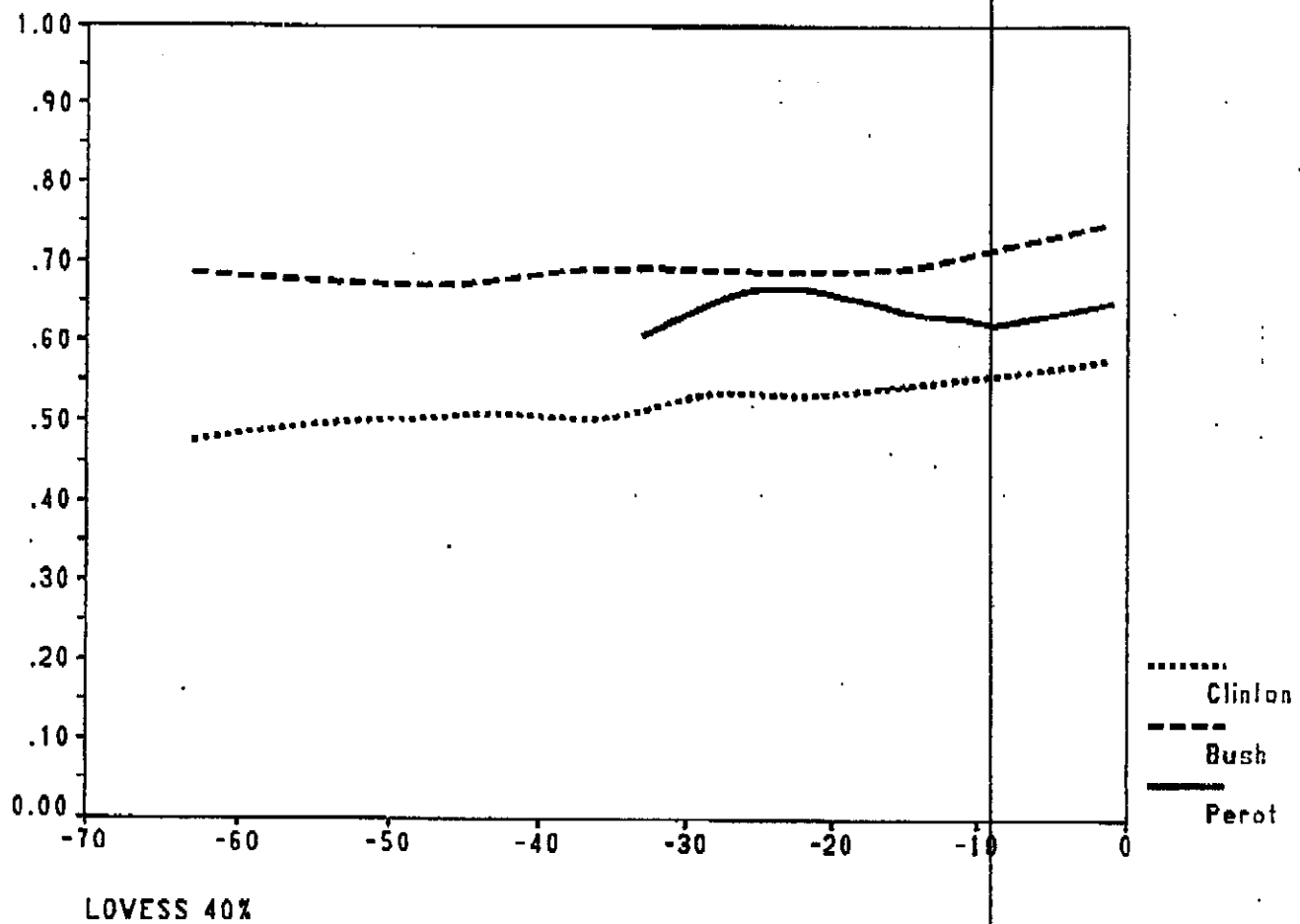


Figure 7

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7

1992, Party Identification by Day

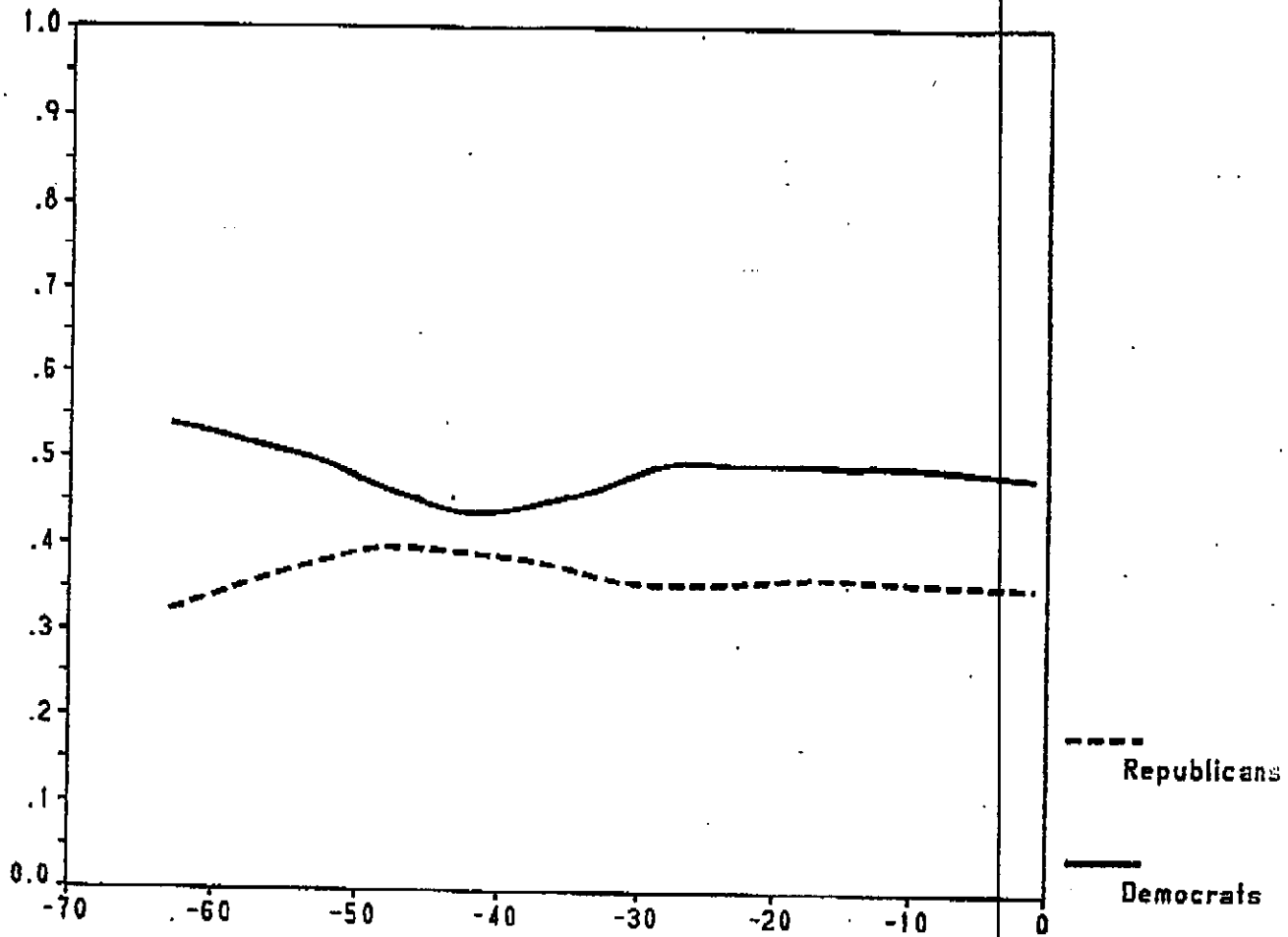
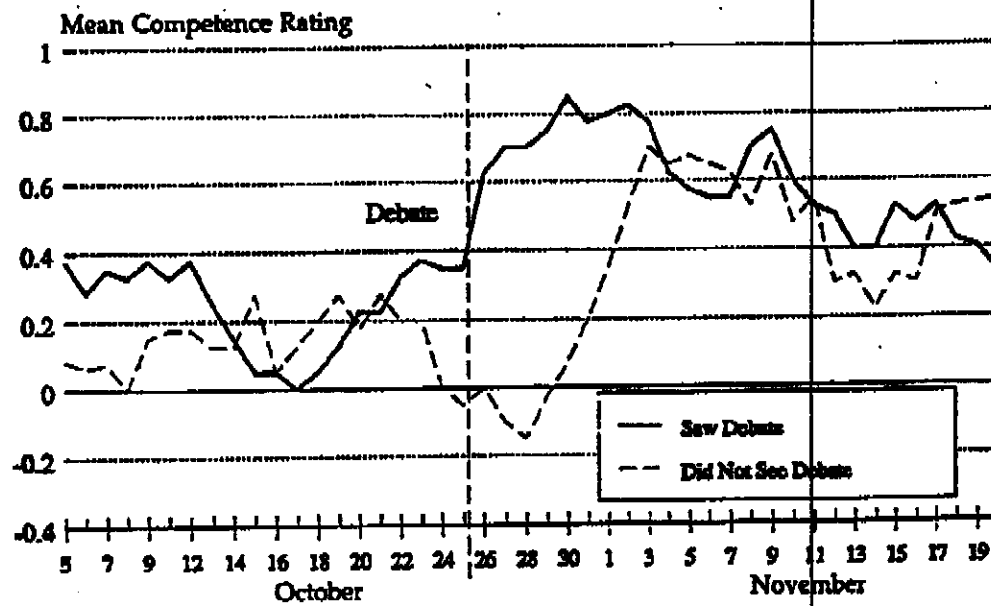


Figure 8

Debate Viewership and Perceptions of Turner's Competence

5-day moving average
Report of viewership from post-election wave

FIGURE 9