

**ECONOMIC PERFORMANCE AND ELECTORAL  
ACCOUNTABILITY:**

**THE ECONOMY  
AND PARTY POPULARITY IN CANADA, 1957-2000**

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## I. Introduction

In his opening to *The Responsible Electorate*, V.O. Key argues that voters are not fools.<sup>1</sup>

They are rational and the political institutions that they have developed are also rational.<sup>2</sup>

In fact, Key depicts the electorate as a great god – "a rational god of vengeance and reward."<sup>3</sup> In this role, voters assess the past performance of the incumbent government and depending upon their assessment, punish or reward it by voting for or against its return. It is through this mechanism that governments in democratic systems are held accountable for the outcomes of their actions and policies. This is the philosophy which forms the basis of my examination of the extent to which the Canadian electorate holds the federal government accountable for the performance of the economy through the traditional democratic mechanism of accountability – voting.

Since the work of Key, a great deal of theorising on the issue of economic accountability has been advanced and a vast number of studies have been undertaken. For example, in 2000 Michael Lewis-Beck and Mary Stegmaier reviewed over 150 major books and articles on the economic determinants of electoral outcomes. This literature is essential to understanding the process by which any electorate holds its government accountable. Many of the theories found in this literature are incorporated into this study of the impact of macro-economic conditions on aggregate government popularity.

This examination of economic performance and electoral accountability proceeds as follows. In section II, I highlight the key findings from the vast literature on economic performance, government popularity and voting, placing this study in context. In section

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<sup>1</sup> Key, V.O. Jr. 1966. *The Responsible Electorate: Rationality in Presidential Voting, 1936-1960*. Cambridge, Massachusetts: The Belknap Press of Harvard University Press.

<sup>2</sup> Ibid.

<sup>3</sup> Key, V.O. Jr. 1964. *Politics, Parties, and Pressure Groups*. Fifth ed. New York: Thomas Y. Crowell Company.

III, I describe the key variables – macro-economic conditions and government popularity – and discuss the statistical difficulties inherent in modelling such economic and political data. To address these issues, I propose a time-series, state-space model of aggregate party popularity. In section IV, I provide and discuss the results produced by estimating the effects of economic conditions on party popularity using the state-space model.

## II. Economic Determinants of Voting and Popularity

In this section, I outline the key literature surrounding the economy, government popularity, and voting. A great number of modelling techniques have been utilised in the search for the impact of the economy on public opinion regarding the government.

Models fall into two broad categories - voting models and popularity models. Although this study utilises the latter of these models, it is important to consider the major findings produced by both approaches. This is necessary to put the results from this study into perspective. As a review of the literature demonstrates, these approaches complement each other but should not be expected to produce precisely the same conclusions.

In voting models, the dependent variable is the electorate's vote decision. These models are alternatively estimated using individual level survey data or aggregate electoral outcomes as their unit of analysis. The first uses cross-sectional modelling techniques and the second time series.<sup>4</sup> In the cross-sectional case, measures of economic performance are based on survey responses to questions regarding the voters perceptions of the economy. In the time series case, aggregate measures of economic performance such as inflation, changes in unemployment, and economic growth are usually used. The time series models have the advantage of being able to examine the impact of variables that vary over time but are constant across the electorate during any one election. Their disadvantage is a relatively small t value, constrained by the number of elections that occur during any particular time period. With the accumulation of cross-sectional studies over time, researchers may be able to combine the cross-sectional and time series approaches by pooling individual level cross-sectional data sets over time and combining them with aggregate measures of economic performance. Such studies have the potential

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<sup>4</sup> As will be seen, some time series approaches use cross-sectional regional or provincial panel data.

to be very powerful but pose the researcher with serious data management and statistical modelling issues.

When examining the degree of public support for the government, aggregate level voting models benefit from the fact that the most direct measure is electoral outcomes. However, since these are relatively rare and insensitive to specific government initiatives, academics regularly rely upon public opinion measures, such as government popularity ratings. In such popularity models, the dependent variable is the electorate's response to a survey question inquiring into their hypothetical vote preference or their approval of the government's performance. These models are estimated using aggregate survey response data and aggregate measures of macro-economic performance measured over multiple time points (on a monthly or quarterly basis). Such models have the advantage of examining public opinion over time while not being so limited by small t values.

Voting models preceded popularity functions. In his 1971 study, Gerald Kramer uses changes in income relative to the previous year to explain short-term fluctuations in aggregate party vote outcomes for the US House of Representatives, during the period of 1896-1964.<sup>5</sup> He notes his findings support those of Key. Economic upturns help the Congressional candidates of the incumbent party, and economic decline benefits the opposition. A 10% decrease in per capita real personal income costs the incumbent administration four or five percentage points in the Congressional vote.<sup>6</sup> Kramer also examines Presidential elections and finds them substantially less responsive to economic conditions. He further tests the impact of other economic variables, such as cost of living indices and unemployment levels but finds their impact to be relatively insignificant. In

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<sup>5</sup> Kramer, Gerald H. 1971. Short-Term Fluctuations in US Voting Behaviour, 1896-1964. *The American Political Science Review* 65 (1):131-143.

<sup>6</sup> Ibid.

his 1975 study, Edward R. Tufte uses both presidential popularity and economic performance to predict midterm congressional election outcomes.<sup>7</sup> Tufte, like Kramer, finds that a 10% decrease in economic growth can produce a loss of four to six popularity points for the incumbent.<sup>8</sup>

Howard Bloom and Douglas Price examine the impact of economic conditions on the electoral success of candidates to the US House of Representatives belonging to the party of the incumbent president. They argue that voter response to short-run economic conditions is asymmetric in the face of prosperity and recession.<sup>9</sup> Specifically, voters are more likely to respond to bad economic times by punishing the government than they are to respond to good economic times by rewarding the government. This means that economic conditions should have less of an impact on government electoral success during times of prosperity. By examining elections between 1896 and 1970, they demonstrate that downturns in per capita income reduce the vote for the party of the incumbent President, while upturns fail to create an equivalent benefit.<sup>10</sup>

In "The Effect of Economic Events on Votes for President: 1984 Update," Ray C. Fair updates his previous examination of the impact of aggregate economic conditions on presidential electoral outcomes in the US since 1916 to include the 1984 election.<sup>11</sup> He finds a stronger role for economic conditions in presidential electoral outcomes than Kramer. He confirms his earlier findings that the most important variable is the increase or decrease in real per capita GNP about six months to a year before the election. Fair

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<sup>7</sup> Tufte, Edward R. 1975. Determinants of the Outcomes of Midterm Congressional Elections. *Ibid.* 69 (3):812-826.

<sup>8</sup> *Ibid.*

<sup>9</sup> Bloom, Howard S., and H. Douglas Price. *Ibid.* Voter Response to Short-Run Economic Conditions: The Asymmetric Effect of Prosperity and Recession. (4):1240-1254.

<sup>10</sup> *Ibid.*

<sup>11</sup> Fair, Ray C. 1988. The Effect of Economic Events on Votes for President: 1984 Update. *Political Behaviour* 10 (2):168-179.

also demonstrates that voters consider only the performance of the economy under the incumbent party and not the performance of the economy the last time the opposition party was in power.

In "Voter Sensitivity to Economic Conditions: A Canadian-American Comparison," J.R. Happy examines the impact of provincial economic conditions in the year of an election on provincial level aggregate federal electoral outcomes in Canada from 1930 to 1979.<sup>12</sup> He compares these economic effects to those found in American Congressional elections by Kramer.<sup>13</sup> Happy uses pooled time-series, provincial level, cross-sectional data. Happy argues and demonstrates that it is important to control for the number of candidates running in a constituency. Overall, Happy finds that real and nominal increases in income benefit candidates of the incumbent party. The same is true of decreases in inflation.<sup>14</sup>

Happy's findings are very similar to those of Kramer's. Canadians in parliamentary elections are about equally as sensitive as Americans in House of Representatives elections. However when comparing Happy's results to those of Fair, it appears Canadians in parliamentary elections are not quite as sensitive to economic conditions as Americans are in presidential elections.

Happy makes two further important discoveries. First, economic conditions previous to the election year also affect Canadian electoral behaviour. Second, when only

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<sup>12</sup> Happy, J. R. 1986. Voter Sensitivity to Economic Conditions: A Canadian-American Comparison. *Comparative Politics* 19 (1):45-56.

<sup>13</sup> Kramer, Gerald H. 1971. Short-Term Fluctuations in US Voting Behaviour, 1896-1964. *The American Political Science Review* 65 (1):131-143.

<sup>14</sup> Happy, J. R. 1986. Voter Sensitivity to Economic Conditions: A Canadian-American Comparison. *Comparative Politics* 19 (1):45-56.

a single year passes from one election to the next, economic events have less of an effect on incumbency voting.<sup>15</sup>

In "Economic Conditions and the Popularity of the Incumbent Party in Canada," Calum Carmichael uses pooled time-series, regional level, cross-sectional electoral results from 1945 to 1988 to examine the impact of macroeconomic conditions on the vote for the incumbent party in Canadian federal elections. Generally, he finds that from 1945 to 1972 poor economic conditions improved the government's electoral success, while from 1974 to 1988 poor economic conditions hurt the incumbent party.<sup>16</sup>

Carmichael's measures of economic performance are price levels, the unemployment rate and real personal disposable income per capita. Carmichael also uses measures of economic performance that compare these aspects of the Canadian economy to those of the US economy.

Carmichael suggests that the 1972/1974 structural split is a product of double-digit inflation, followed by stagflation that began in 1974. He argues this may have changed the electorate's response to economic conditions. Furthermore, he cites evidence that the positions of the Liberal and Conservative parties became more distinct in the late seventies.<sup>17</sup>

As already mentioned, there are also voting studies that estimate models using individual level data. According to Lewis-Beck and Stegmaier, in individual-voter level studies of electoral outcomes there are three primary dimensions. These are time, target, and context. Time refers to retrospective versus prospective considerations; target refers

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<sup>15</sup>Ibid.

<sup>16</sup> Carmichael, Calum M. 1990. Economic Conditions and the Popularity of the Incumbent Party in Canada. *Canadian Journal of Political Science* 23 (4):713-726.

<sup>17</sup> Ibid.



to the distinction between egotropic and sociotropic considerations; and context refers to whether perceptions of economic conditions are driven by party preferences.<sup>18</sup> These dimensions have been a constant source of debate for individual level studies.

The first of these debates (retrospective versus prospective considerations) stems from the difference between Key's and Downs' views of voters. Key depicts them as rational gods, looking back at the past performance of the incumbent, and punishing or rewarding them accordingly.<sup>19</sup> Downs depiction is also of a rational being but one that looks to the future, carefully calculates the gains and losses likely to occur with each potential government, and votes to maximise the outcome.<sup>20</sup> In this way, Key's voters are retrospective and Downs' are prospective.

The second debate (egotropic versus sociotropic considerations) is over whether voters take into account their own personal financial situation and/or the financial situation of the economy as a whole (either retrospectively or prospectively) when making a vote choice. According to Lewis-Beck and Stegmaier's overview of the literature, most individual level studies find "strong collective effects and weak to nonexistent personal economic effects."<sup>21</sup> However, Haller and Norpoth show that personal financial experiences have a greater impact on broader economic judgments for people sheltered from mainstream news information.<sup>22</sup>

In "Inflation, Unemployment and Canadian Federal Voting Behaviour," Archer

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<sup>18</sup> Lewis-Beck, Michael S., and Mary Stegmaier. 2000. Economic Determinants of Electoral Outcomes. *Annual Review of Political Science* 3:183-219.

<sup>19</sup> Key, V.O. Jr. 1964. *Politics, Parties, and Pressure Groups*. Fifth ed. New York: Thomas Y. Crowell Company.

<sup>20</sup> Downs, Anthony. 1957. *An economic theory of democracy*. New York,: Harper.

<sup>21</sup> Lewis-Beck, Michael S., and Mary Stegmaier. 2000. Economic Determinants of Electoral Outcomes. *Annual Review of Political Science* 3:183-219.

<sup>22</sup> Haller, H. Brandon, and Helmut Norpoth. 1997. Reality Bites: News Exposure and Economic Opinion. *Public Opinion Quarterly* 61 (4):555-575.

and Johnson focus on sociotropic effects. They use individual level election survey data to examine the effect of macro-economic performance on levels of partisan support in Canada during the 1970s and 1980s.<sup>23</sup>

They find that the effects of inflation and unemployment on partisan popularity are unstable overtime. Inflation increased from approximately 3 percent in 1971 to over 11 percent in 1974. It continued to rise to 13 percent in 1981 and then declined to about 4 percent in 1984. The Liberals did not benefit from this large decline in inflation. The issue of inflation, which was a focus of the 1974 election had declined by the 1979 election. Unemployment, on the other hand seemed to be a bigger issue amongst Canadians in 1979 compared to 1974. Despite the salience of inflation in 1974, no party seemed to benefit from it. However, the Conservatives benefited from the unemployment issue in 1984.<sup>24</sup>

In their “Support for the Canadian Federal Progressive Conservative Party since 1988: The Impact of Economic Evaluations and Economic Issues,” Herald Clarke and Allan Kornberg consider both the retrospective/prospective and egotropic/sociotropic issues. They use cross-sectional and panel data to examine the decline in support for the PCs from 1988 to 1990.<sup>25</sup> They argue that the decline in support evident during this period is largely due to the public's negative evaluation of the Canadian economy and the government's handling of it. They demonstrate that retrospective individual economic assessments do in fact divide into sociotropic and egocentric factors. However, this

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<sup>23</sup> Archer, Keith, and Marquis Johnson. 1988. Inflation, Unemployment and Canadian Federal Voting Behaviour. *Canadian Journal of Political Science* 21 (3):569-584.

<sup>24</sup> Ibid.

<sup>25</sup> Clarke, Harold D., and Allan Kornberg. 1992. Support for the Canadian Federal Progressive Conservative Party since 1988: The Impact of Economic Evaluations and Economic Issues. Ibid. 25 (1):29-53.

distinction breaks down for future oriented assessments. Overall, this produces three distinct economic assessment factors: sociotropic, egocentric, and future.<sup>26</sup>

The third debate is particularly pronounced in discussions of bias produced by survey design. If a survey designed to measure an individual's perception of recent economic conditions and their vote preference places these two items relatively close to each other, respondents may be cued by the structure of the survey to be artificially consistent. This may produce an exaggerated link between perceptions of economic conditions and vote preference. This bias will become even more pronounced if the survey items measuring perceptions of economic conditions explicitly refer to the government's role in producing those conditions.<sup>27</sup>

The earliest US research on popularity functions was done by J. Mueller.<sup>28</sup> Lewis-Beck and Stegmaier identify the earliest published popularity function ever as being C.A.E. Goodhart and R.J. Bhansali's British case.<sup>29</sup> Goodhart and Bhansali examine monthly measures of British government popularity between 1947 and 1968. They find that levels of unemployment with a four to six-month lag and the rate of inflation influence the government's political popularity. They also find that the strength of the impact of these economic conditions had increased over the time period under study. Further, they find that government popularity may follow what they call a "natural path" between elections.<sup>30</sup> Such a path includes honeymoon effects, trending downwards after the honeymoon and trending upwards leading into an election. Overall, this suggests

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<sup>26</sup> Ibid.

<sup>27</sup> Lewis-Beck, Michael S., and Mary Stegmaier. 2000. Economic Determinants of Electoral Outcomes. *Annual Review of Political Science* 3:183-219.

<sup>28</sup> Ibid.

<sup>29</sup> Goodhart, C.A.E., and R.J. Bhansali. 1970. Political Economy. *Political Studies* 18 (1):43-106.

<sup>30</sup> Ibid.

popularity follows an inter-election cycle. Goodhart and Bhansali attempt to control for this inter election “natural path” through the application of dummy and index variables.

While most studies find that economics affect government popularity, the specifics vary between studies because of the different statistical methodologies applied, and different time period covered.<sup>31</sup> Paul Whiteley, in "Inflation, Unemployment and Government Popularity: Dynamic Models for the United States, Britain and West Germany," examines the impact of economic conditions on monthly measures of government popularity in the United States, Britain and West Germany.<sup>32</sup> Whiteley uses a process developed by Box and Jenkins to specify the popularity functions. This allows him to account for autocorrelation and trending in the independent and dependent variables. It also allows him to determine the lag structure of the independent variables. Overall, Whiteley finds that the impact of economic conditions on aggregate government popularity is relatively weak and unstable overtime.<sup>33</sup>

Harold Clarke and Gary Zuk construct Box-Jenkins-Tiao models of party popularity similar to that of Whiteley. In "The Politics of Party Popularity: Canada 1974-1979," they examine the impact of economic performance on monthly measures of party popularity. They restrict their analysis to the 1974-1979 period, arguing that the effects of economic variables may vary overtime and therefore should not be estimated over an extended period.<sup>34</sup> Clarke and Zuk also criticise other studies of the political economy of party popularity for not considering the political context in which economic performance

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<sup>31</sup> Lewis-Beck, Michael S., and Mary Stegmaier. 2000. Economic Determinants of Electoral Outcomes. *Annual Review of Political Science* 3:183-219.

<sup>32</sup> Whiteley, P. 1984. Inflation, Unemployment and Government Popularity: Dynamic Models for the United States, Britain and West Germany. *Electoral Studies* 3 (1):3-24.

<sup>33</sup> Ibid.

<sup>34</sup> Clarke, Herald D., and Gary Zuk. 1987. The Politics of Party Popularity: Canada 1974-1979. *Comparative Politics*:299-315.

is translated into vote preference. They included in their model dummies for the occurrence of political events, such as leadership conventions, election honeymoons and "crises of Confederation" – the latter being exemplified by the 1976 election of the Parti Québécois government in Quebec.

While many of the political forces included within the model were found to be statistically significant, this was not the case with any of the variables measuring macroeconomic conditions. It is concluded that political forces rather than macroeconomic conditions were responsible for shifts in party popularity during the 1974-1979 period. Clarke and Zuk attribute the failure of economic conditions to impact party popularity to the way in which parties and the mass media translate economic conditions into political issues. They also highlight the importance of existing partisan predispositions, the image of party leaders and exogenous political events as factors that may mute economic effects.<sup>35</sup>

Kristen Monroe and Lynda Erickson examine the impact of unemployment, inflation and changes in real personal income per capita on the popularity of the Progressive Conservatives, Liberals and NDP.<sup>36</sup> Quarterly measures of party popularity between 1954 and 1979 are used. Like Clarke and Zuk, Monroe and Erickson control for political events such as a change of Prime Minister or a change in government, the FLQ crisis, the election of the Parti Québécois in Quebec and elections. They use the Cochrane-Orcutt procedure to control for first order autocorrelation. Generally, Monroe and Erickson find that support for the Liberals versus the Conservatives is relatively unaffected by economic conditions. They argue that the lack of policy differentiation

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<sup>35</sup> Ibid.

<sup>36</sup> Monroe, Kristen, and Lynda Erickson. 1986. The Economy and Political Support: The Canadian Case. *The Journal of Politics* 48:616-647.

between the Liberals and Conservatives may be responsible for mediating the impact of the economy on popularity. Economic conditions do however play a role in the popularity of the NDP.<sup>37</sup> Unfortunately, the nature of this role is difficult to determine from their results.

Erickson in "CCF-NDP Popularity and the Economy," further examines the effect of economic growth, inflation and unemployment on the popularity of the CCF/NDP.<sup>38</sup> Erickson uses quarterly aggregate party popularity time-series measures from 1954 to 1984 and corrects for autoregression using the Cochrane-Orcutt procedure. She finds that economics effects vary overtime. During some periods, real personal income benefited the party's popularity; during other periods, it reduced the party's popularity; and at some times it had no effect at all. During the eighties, inflation improved the popularity of the CCF-NDP. During earlier periods, unemployment produced a decline in party popularity.

Richard Johnston examines the impact of economic factors on the popularity of Canadian federal governments measured monthly from 1974 to 1998 in "Business Cycles, Political Cycles and the Popularity of Canadian Governments, 1974-1998."<sup>39</sup> He uses an error-correction and a partial adjustment model to examine the data. In both cases he accounts for first-order autoregression using a Hildreth-Liu grid search. Johnston examines the impact of economic growth, unemployment and inflation. Like Clarke and Zuk, Johnston controls for the effect of leadership conventions.<sup>40</sup>

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<sup>37</sup> Ibid.

<sup>38</sup> Erickson, Lynda. 1988. CCF-NDP Popularity and the Economy. *Canadian Journal of Political Science* 21 (1):99-116.

<sup>39</sup> Johnston, Richard. 1999. Business Cycles, Political Cycles and the Popularity of Canadian Governments, 1974-1998. Ibid. 32 (3):499-520.

<sup>40</sup> Ibid.

Johnston determines that the dynamics of public opinion differ before and after 1993. Economics have a statistically significant effect on government popularity before 1993 but not after. Before 1993, real income growth benefited the popularity of the government as did an increase in inflation. Furthermore, an electoral cycle appears to exist pre but not post 1993. Unemployment produced no significant impact on government popularity during either period.<sup>41</sup>

In their summary of the literature on economic conditions and election outcomes Lewis-Beck and Stegmaier concluded that overall, "economics and elections form a tight weave. When anchoring economic threads snag, governments can fall....For all democratic nations that have received a reasonable amount of study, plausible economic indicators, objective or subjective, can be shown to account for much of the variance in government support....Among the issues on the typical voter's agenda, none is more consistently present, nor generally has a stronger impact, than the economy. Citizen dissatisfaction with economic performance substantially increases the probability of a vote against the incumbent."<sup>42</sup> Despite this claim, the examination of macro-economic conditions on aggregate popularity in Canada has produced few results and these have been largely inconsistent. This study attempts to correct this by employing a state-space model estimated using Bayesian analysis.

The difficulty in determining the impact of macro-economic conditions on aggregate popularity in Canada is a perplexing challenge given the strength of the relationship in other nations such as the US. It is even more perplexing given the many arguments that suggest aggregate, time-series popularity models have advantages over

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<sup>41</sup> Ibid.

<sup>42</sup> Lewis-Beck, Michael S., and Mary Stegmaier. 2000. Economic Determinants of Electoral Outcomes. *Annual Review of Political Science* 3:183-219.

individual-level, cross-sectional voting models. Many important variables such as political context and real economic performance are constants during any one election. All voters at any one time experience roughly the same economic environment, therefore the effects of the economy should be more evident over time because economic conditions vary over time. Furthermore, Lewis-Beck and Eulau stress the importance of keeping the historical context in mind.<sup>43</sup> This also requires the long-term perspective of time series analysis.

When examining the impact of the economy on public opinion, it is argued that aggregate level studies have advantages over those at the individual level. "With the national economy being the focus of attention, the most telling variance is the movement of national aggregates over time."<sup>44</sup> A second advantage is that aggregate economic indicators are superior since individual economic measures produced by surveys contain a great deal of measurement error.<sup>45</sup>

In addition to being an interesting challenge, it is also important to establish that a link between economic conditions and public opinion exists outside of voting studies. Individual level voting models are susceptible to the artificial linking of perceptions of the economy with vote choice. Utilising macro-economic data rather than individual level perceptions alleviates this problem. Using macro-economic data may reveal a weaker connection between the economy and vote preference than models that use direct measures of voters' economic perceptions. However if we are ultimately interested in

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<sup>43</sup> Lewis-Beck, Michael, and Heinz Eulau. 1985. Economic Conditions and Electoral Behaviour in Transnational Perspective. In *Economic Conditions and Electoral Outcomes: The United States and Western Europe*, edited by H. Eulau. New York: Agathon Press, Inc.

<sup>44</sup> Haller, H. Brandon, and Helmut Norpoth. 1997. Reality Bites: News Exposure and Economic Opinion. *Public Opinion Quarterly* 61 (4):555-575.

<sup>45</sup> At the same time, it is necessary to avoid ecological fallacy when examining results from aggregate level research.



government accountability, it is the voter's response to objective economic conditions that we are most interested in. Studies that use time-series voting models incorporating macro-economic conditions also examine this link. However, even these studies are measuring a different phenomenon than those that utilise popularity functions.

Voting data focus exclusively on the election, while popularity data include both election and inter election periods. Consequently, these two forms of analysis are not examining the exact same phenomenon and differential findings can be expected as a result of substantial differences in the focus of study as well as due to technical considerations.<sup>46</sup>

Norpoth has found that prospective considerations are more likely to be found in voting models than in popularity models.<sup>47</sup> That is, prospective voting may only be an election day phenomenon. This is consistent with Lewis-Beck and Heinz Eulau's argument that retrospective economic evaluations dominate government popularity and Lewis-Beck and Mary Stegmaier's finding that prospective economic considerations are found to be much stronger than retrospective considerations in individual level American National Election Studies.<sup>48</sup>

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<sup>46</sup> Whiteley, P. 1984. Inflation, Unemployment and Government Popularity: Dynamic Models for the United States, Britain and West Germany. *Electoral Studies* 3 (1):3-24.

<sup>47</sup> Norpoth, Helmut. 1996. The Economy. In *Comparing Democracies: Elections and Voting in Global Perspective*, edited by P. Norris. Thousand Oaks, California: Sage Publications.

<sup>48</sup> Lewis-Beck, Michael, and Heinz Eulau. 1985. Economic Conditions and Electoral Behaviour in Transnational Perspective. In *Economic Conditions and Electoral Outcomes: The United States and Western Europe*, edited by H. Eulau. New York: Agathon Press, Inc, Lewis-Beck, Michael S., and Mary Stegmaier. 2000. Economic Determinants of Electoral Outcomes. *Annual Review of Political Science* 3:183-219.

Paldam suggests that one would naturally expect to find retrospective and prospective evaluations taking on different roles in popularity and voting models.<sup>49</sup> He suggests polls between elections elicit more of a 'gut feeling' and are probably more influenced by simple short-term expectations. Polls during elections are likely influenced more by a greater collection of information.<sup>50</sup> The movement in polls is often much larger around elections than at most other times. Frizzell and Westell describe polls between elections as "somewhat like by-elections. They constitute an expression of opinion, a sort of "free vote," when nothing is at stake, and they should be evaluated as such."<sup>51</sup> Furthermore, there is evidence from Britain that the electorate assigns greater importance to economic conditions in their vote decision during elections than during the period between elections.<sup>52</sup>

A further characteristic which distinguishes government popularity studies as they are performed in the US and voting studies is the nature of the dependent variable. The time series used in estimating popularity models are usually obtained from asking voters to evaluate their approval of the Presidents job performance. Voting studies use either actual electoral results or voter responses to a question regarding their voting intention or behaviour. Approving of a President's job performance and voting for that President are two different things. The first is an evaluation and the second is a behaviour or intended behaviour that is influenced by the evaluation, in addition to other factors.

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<sup>49</sup> Paldam, Martin. 1991. How Robust Is the Vote Function?: A Study of Seventeen Nations over Four Decades. In *Economics and Politics: The Calculus of Support*, edited by J.-D. Lafay. Ann Arbor, Michigan: The University Of Michigan Press.

<sup>50</sup> Ibid.

<sup>51</sup> Frizzell, Alan, and Anthony Westell. 1994. The Press and the Prime Minister. In *The Canadian General Election of 1993*, edited by A. Westell. Ottawa: Carlton University Press.

<sup>52</sup> Norpoth, Helmut. 1996. The Economy. In *Comparing Democracies: Elections and Voting in Global Perspective*, edited by P. Norris. Thousand Oaks, California: Sage Publications.

By comparing measures of leadership approval and party support in Britain, Nadeau, Niemi and Amato take the position that they measure distinguishable concepts.<sup>53</sup> Irving Crespi goes even further by suggesting that there is no straightforward relationship between the two measures in US surveys.<sup>54</sup> To the extent that a relationship does exist, we would expect the evaluation to effect the behaviour. As Stewart and Clarke demonstrate, measures of leadership approval strongly predict voting choice in British elections.

Canadian studies that examine government popularity use time series constructed from survey responses to vote intention questions. Therefore, the distinction between the dependent variables examined in popularity studies and voting studies is less important, although not insignificant. Keeping the potential distinction in mind, this study constructs popularity models in order to examine the impact of macro-economic conditions on public opinion towards federal Canadian political parties between 1957 and 2000. Using macro-economic measures the popularity function is by its very nature an examination of the impact of sociotropic economic factors. Furthermore, it assumes that voters are retrospective in their considerations. Finally, attempts are made to control for the fact that inter election polls may differ from election polls by accounting for any inter election cycling or trending that may be produced by this phenomenon.

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<sup>53</sup> Nadeau, Richard, Richard Niemi, and Timothy Amato. 1996. Prospective and Comparative or Retrospective and Individual? Party Leaders and Party Support in Great Britain. *British Journal of Political Science* 26:245-258.

<sup>54</sup> Crespi, Irving. 1980. The Case of Presidential Popularity. In *Polling on the Issues*, edited by A. Cantril. Washington DC: Seven Locks Press.

### III. Data and Methods: Modelling Canadian Federal Party Popularity, 1957-2000

In many popularity studies, the dependent variable is the popularity of the government, regardless of the party in power. Other studies use the popularity of each party, both in and out of government. In such cases, some effort has been made to control for whether or not the party is in power.<sup>55</sup> The models presented in this study use party popularity as the dependent variable, while allowing the effect of economic conditions to vary according to whether the party is in power or opposition. As will be seen, the examination of the NDP also allows the impact of economic conditions on its popularity to vary according to whether the PCs or Liberals are in government.

The dependent variable for each model is the popularity of a particular party measured monthly. Party popularity is measured by asking Canadians: "If a federal election were held today, which party's candidate do you think you would favour?" The popularity of a particular party is calculated as the proportion of respondents indicating they would vote for that party. The calculation is made excluding those that indicate they do not know for whom they would vote.<sup>56</sup> Figure 1 is a plot of Liberal and Conservative party popularity from 1957 to 2000.

Some of the largest shifts in party popularity coincide with fairly clear historical events. One of the most popular times for the Tories during the period under consideration (1957-2000) was experienced from April-October, 1958. This is a product of Diefenbaker's electoral break into Quebec. The Liberals experienced the opposite fortune in popularity, losing much of Quebec for the first time since the 1930 election.

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<sup>55</sup> In Canada, Munroe and Erickson have gone the furthest to make these distinctions: Monroe, Kristen, and Lynda Erickson. 1986. The Economy and Political Support: The Canadian Case. *The Journal of Politics* 48:616-647.

<sup>56</sup> See appendix for references to data sources.

The spike in popularity for the Liberals in December, 1970 corresponds with the FLQ Crisis. This is likely the product of a "rallying around the flag effect," similar to that experienced by the Liberals between March, 1977 and March, 1978 in response to the election of a separatist Parti Québécois in the November, 1976 Quebec provincial election. In each case, the Liberal's gain was greater than the opposition PC's loss.

In the 1984 election, Mulroney produced a coalition between Quebec and the West, similar to that of Diefenbaker. This gave the PC party a surge of popularity between October 1984 and April 1985. Subsequently, the popularity of the Tories dropped significantly between November 1988 and January 1989. This corresponds with the debate over the FTA. PC popularity rebounded from this low just in time for the 1988 election.

The record low popularity for the Tories between February, 1990 and January, 1991 was likely driven by the unpopularity produced by the Meech Lake Accord and Brian Mulroney's personal unpopularity - his approval rating declined to 15 percent. The fate of the PC party became even worse in October, 1993 during Kim Campbell's election campaign. On a much smaller scale, the Liberals experienced a similar election-time downward spike in popularity during Jean Chrétien's 1997 election campaign.

The primary source of popularity deviations to be examined here are those produced by economic conditions. While there is no obvious connection between the larger deviations in popularity and traditional economic variables such as unemployment, inflation and income growth, economics likely still plays a role in more subtle ways. After all, the Canadian electorate often focuses on economic issues. Monroe and Erickson demonstrate that Canadians believe the federal government has control over the domestic

economy and that inflation and unemployment are its responsibility.<sup>57</sup> In many elections, such as that in 1968, high taxes, high prices and inflation have topped the list of the most urgent problems facing the country as identified by voters.<sup>58</sup> Clarke and Zuk state a great deal of Gallup poll evidence that Canadians felt the government could and should do more to manage the economy.<sup>59</sup>

Unemployment was an important issue during the 1972 election, as was inflation during the 1974 election and energy pricing in 1980.<sup>60</sup> In 1984, unemployment was again a major concern and received a great deal of media coverage, as did the economy as a whole.<sup>61</sup> "In the 1988 election, free trade policy was the issue, and once that was settled, unemployment once again dominated the issue agenda in 1993, along with the deficit and debt reduction. In the 1997 election, jobs were once again at the forefront."<sup>62</sup> Dornan found that "during the 2000 election, even in a time of comparative prosperity and economic stability [news] articles about unemployment, debt and tax reduction were still newsworthy, although they did not have the same focus as in the 1988 campaign."<sup>63</sup>

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<sup>57</sup> Monroe, Kristen, and Lynda Erickson. 1986. The Economy and Political Support: The Canadian Case. *The Journal of Politics* 48:616-647.

<sup>58</sup> The Gallup Report, April 6, 1968

<sup>59</sup> Clarke, Herald D., and Gary Zuk. 1987. The Politics of Party Popularity: Canada 1974-1979. *Comparative Politics*:299-315.

<sup>60</sup> Irvine, William P. 1978. An Overview of the 1974 Federal Election in Canada. In *Canada at the Polls: The General Election of 1974*, edited by H. R. Penniman. Washington D. C.: American Enterprise Institute for Public Policy Research, Pammett, Jon H. 2001. The People's Verdict. In *The Canadian General Election of 2000*, edited by C. Dornan. Toronto: The Dundurn Group. However, in 1974 the Liberals attempted to divert attention from inflation to leadership issues Fletcher, Frederick. 1978. The Mass Media in the 1974 Canadian Election. In *Canada at the Polls: The General Election of 1974*, edited by H. Penniman. Washington, D. C.: American Enterprise Institute for Public Policy Research..

<sup>61</sup> Frizzell, Alan, and Anthony Westell. 1985. *The Canadian General Election of 1984: Politicians, Parties, Press and Polls*. Ottawa: Carlton University press.

<sup>62</sup> Pammett, Jon H. 2001. The People's Verdict. In *The Canadian General Election of 2000*, edited by C. Dornan. Toronto: The Dundurn Group.

<sup>63</sup> Dornan, Christopher, and Heather Pyman. Ibid. Facts and Arguments: Newspaper Coverage of the Campaign.

The economic variables included in the models of this study are the three most commonly used and have been found to have the greatest impact. These are inflation, changes in real per capita GDP (change in real income) and unemployment levels. Figures 2, 3 and 4 provide plots of each of these variables between 1957 and 2000. Inflation is the year-over-year change in the consumer price index, GDP is year-over-year percentage change in real personal income per capita, unemployment is the monthly percentage, seasonally adjusted.

It is constructive to consider some of the larger shifts in these economic variables over the past half century. The small but steady increase in inflation from 1962 to 1970 was simply the product of rising aggregate demand. Compared to later patterns, inflation was relatively low. However, at the time it caused Canadians concern. The sudden drop in inflation in 1970 was a reaction to the US switching from fixed to floating exchange rates. GDP throughout this period was fairly consistent with nearly uniform positive growth. Unemployment was also relatively low with its peak occurring in the late fifties and early sixties. This is likely a reflection of the Eisenhower recession occurring at the time in the US.

Around 1973, inflation spiked to a record high as a result of increasing oil prices produced by the Yom Kippur War and the Arab Oil embargo. Unemployment rates increased slightly at the same time and there were long-term consequences for economic growth.

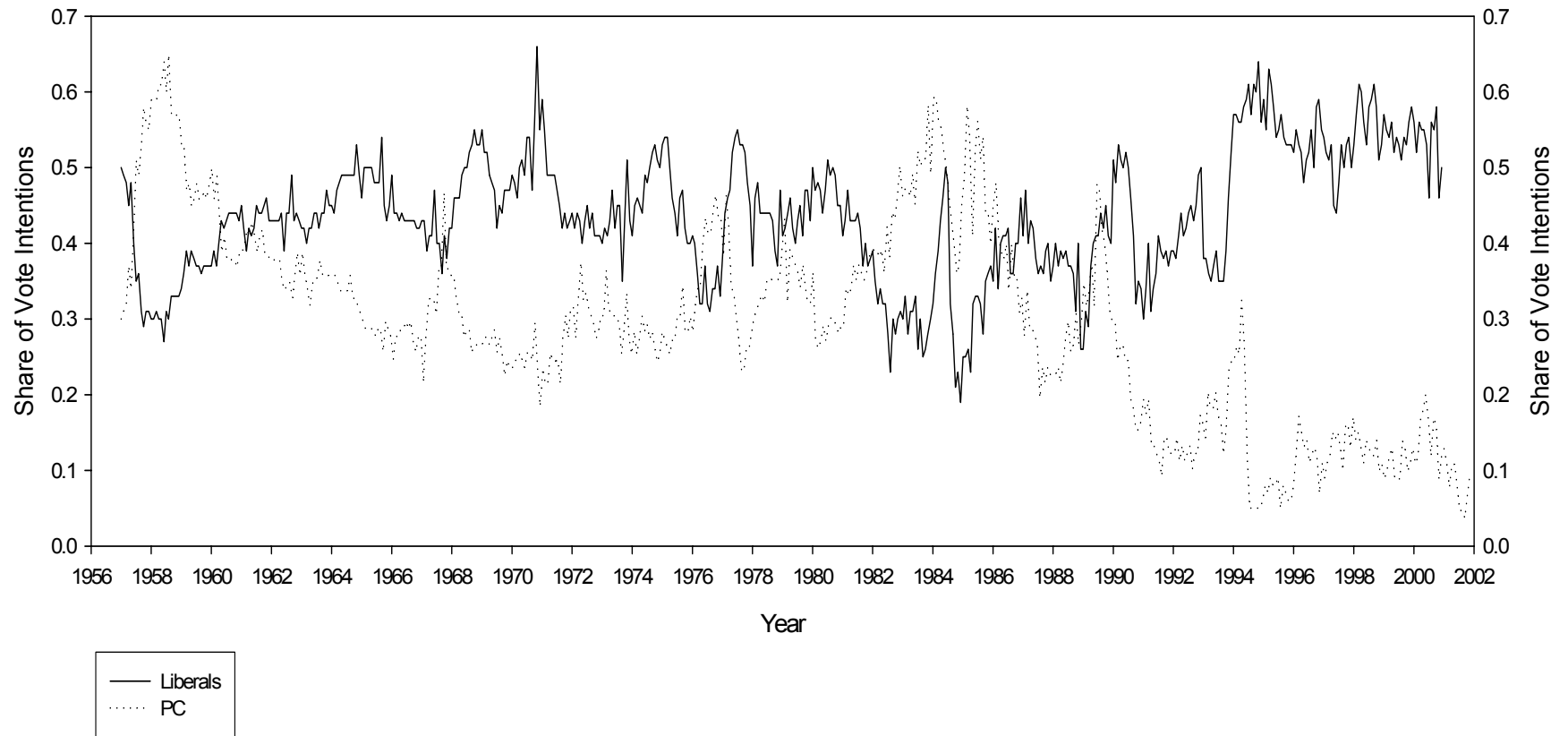
The second spike in inflation in the late seventies/early eighties coincided with the overthrow of the Iranian Shah in 1979 and was also the consequence of rising world oil prices. Around 1982, US Federal Reserve chairman Paul Volcker implemented economic

policies that put an end to rising inflation. These policies; simultaneously resulted in negative economic growth and skyrocketing unemployment in Canada.

The economy in the latter part of the eighties was reasonably stable. In the early nineties, the world economy experienced a recession. This recession was felt particularly strongly in Canada due to the government's monetary policies at the time. This produced a small spike in inflation, a noticeable increase in unemployment and a quick downturn in economic growth. The rest of the nineties witnessed a steady decline in unemployment and inflation levels. Economic growth cycled but at reasonably high levels.



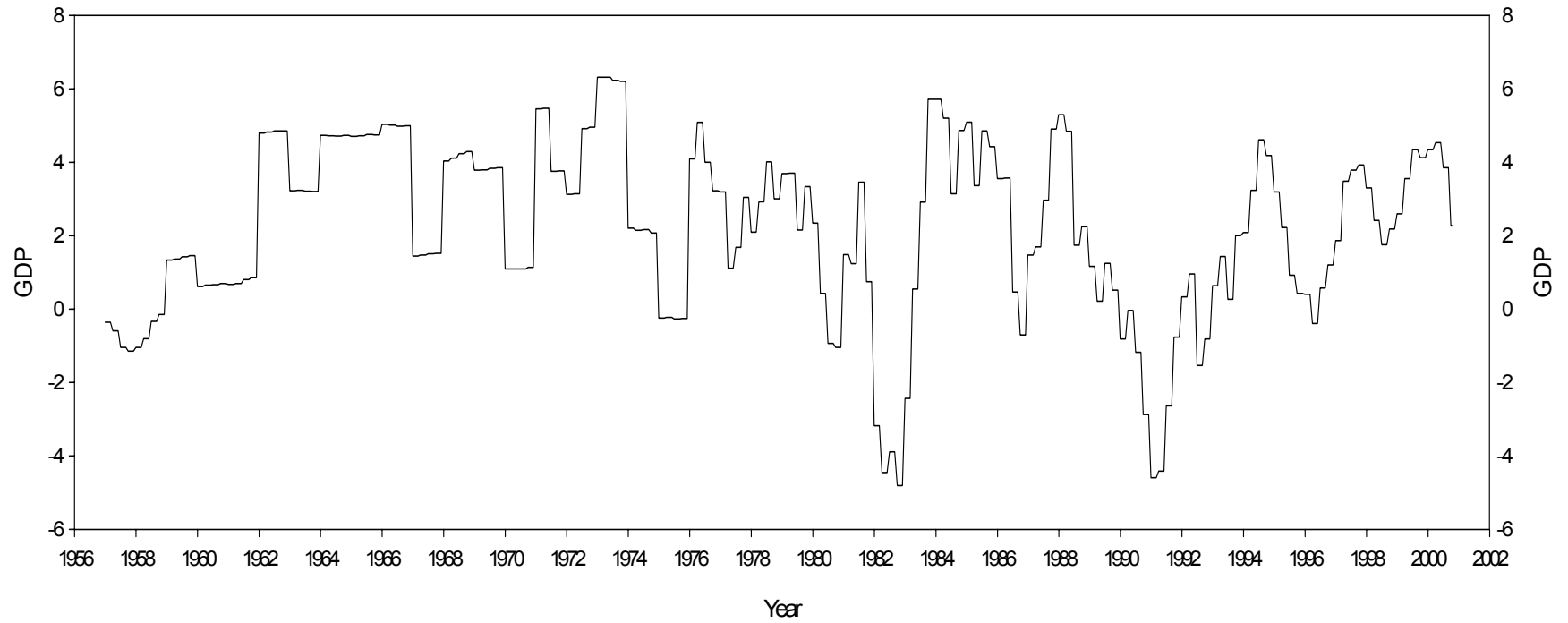
**Figure 1: Progressive Conservative and Liberal Party Popularity, 1956-2000**



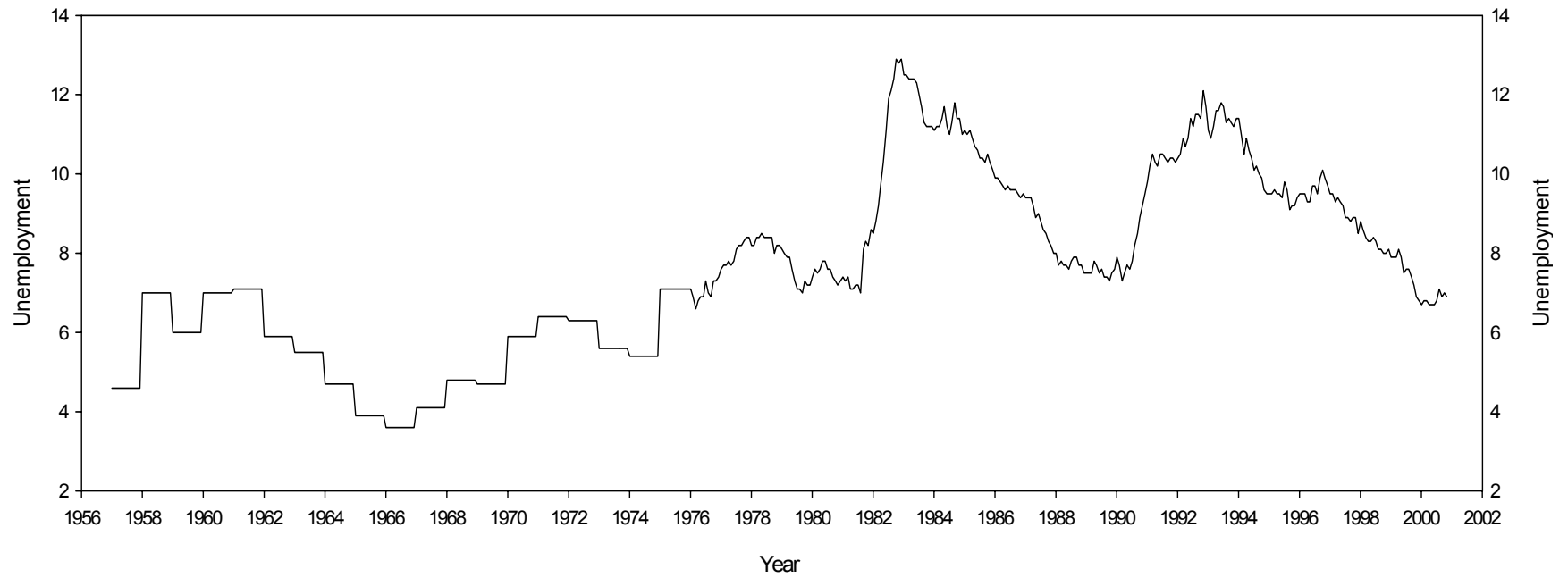
**Figure 2: Inflation (year-over-year change in the consumer price index)**



**Figure 3: GDP (year-over-year percentage change in real personal income per capita)**



**Figure 4: Unemployment (monthly percentage, seasonally adjusted)**



### Time-Series Models of Party Popularity

A great number of technical issues are poorly dealt with in much of the literature on the impact of economic conditions on government popularity. With the exception of those studies that use the Box-Jenkins approach, the studies discussed thus far assume that the government popularity series is stationary. A time-series process  $(y_1, y_2, \dots, y_T)$  is said to be weak stationary if:

- 1)  $E(y_1) = E(y_2) = \dots = E(y_t) = \mu$ ;
- 2)  $Var(y_1) = Var(y_2) = \dots = Var(y_t) = \sigma^2$ ;
- 3)  $Cov(y_t, y_{t-1}) = Cov(y_t, y_{t-\tau}) = \omega_\tau$ ;

where  $\mu$  and  $\sigma^2$  are the mean and variance of  $(y_1, y_2, \dots, y_T)$ .  $\omega_\tau = Cov(y_t, y_{t-\tau})$  is called the autocovariance at lag  $\tau$ .

The first condition for weak stationarity will be violated if the mean of the time-series is correlated with time. That is, the series trends up or down. The second condition will be violated if the variances are correlated with time. This may occur if the underlying variance of the process and/or the variance in the measurement process itself changes over time. The third condition will be violated if the autocorrelations are correlated with time. This will occur in data that contains cycles. In a previous study, I demonstrate that the Canadian monthly aggregate popularity time-series is subject to each of the violations of stationarity.<sup>64</sup> The causes of trending or cycling could be a number of phenomenon, including the fact that inter election polls may differ from those closer to elections. Regardless of the cause, these violations of stationarity must be controlled for.

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<sup>64</sup> Pickup, Mark. "Cycles, Trends, Periods and Shocks: Understanding Government Popularity in Canada, 1953-2002." Presented at the 2003 Canadian Political Science Association Meeting (June 2003).

A further challenge to analysis has also been identified previously. There appears to be three distinct time periods since World War II, in which the cyclicity of government popularity diverges.<sup>65</sup> The earliest period extends back before the beginning of our time-series to the end of the War and ends during the early seventies (around the 1974 election). The second period continues from the early seventies until the 1993 election and the most recent period picks up from there. Johnston describes the first period as exhibiting no special inter-election rhythm. In the second, he notes a consistent cycle. Each election is followed by a honeymoon period in which popularity increases. Subsequently, popularity drops below the level of the government's election return and bottoms out. Popularity then begins to recover as the government enters the next election. Underlying these cycles is a long downward trend. In the third period (after 1993), this downward trend ceases and government popularity surges up beyond the 50 percent level. This level of popularity is largely sustained for the entire period except during election campaigns when popularity temporarily spikes downwards to produce a vote return within the forties.<sup>66</sup>

A problem heretofore only tangentially discussed is that the measurement error component of an economic popularity model's error term may also be correlated with time. Since 1974, Gallup has regularly used sample sizes of just over 1000 respondents. Before that time, many of the Gallup poll results used much smaller sample sizes (although, sometimes much larger). Moreover, the fifties and sixties component of the time series contains a number of missing values at the monthly level of measurement. This means more values in an analysis must be interpolated. These interpolated values

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<sup>65</sup> Johnston, Richard. 1999. Business Cycles, Political Cycles and the Popularity of Canadian Governments, 1974-1998. *Canadian Journal of Political Science* 32 (3):499-520.

<sup>66</sup> Ibid.

will, of course, contain greater errors than those which were directly measured.<sup>67</sup> These circumstances could possibly produce greater variances in the earlier part of the time-series, compared to the later.<sup>68</sup> A trend which runs counter to this but which may also produce complications is the increasing number of respondents over time that indicate they do not know whom they would vote for (except during election months). Since our measure is of decided voters, the increase in “don't know” respondents may produce greater variances in the latter part of the time-series, compared to the earlier.

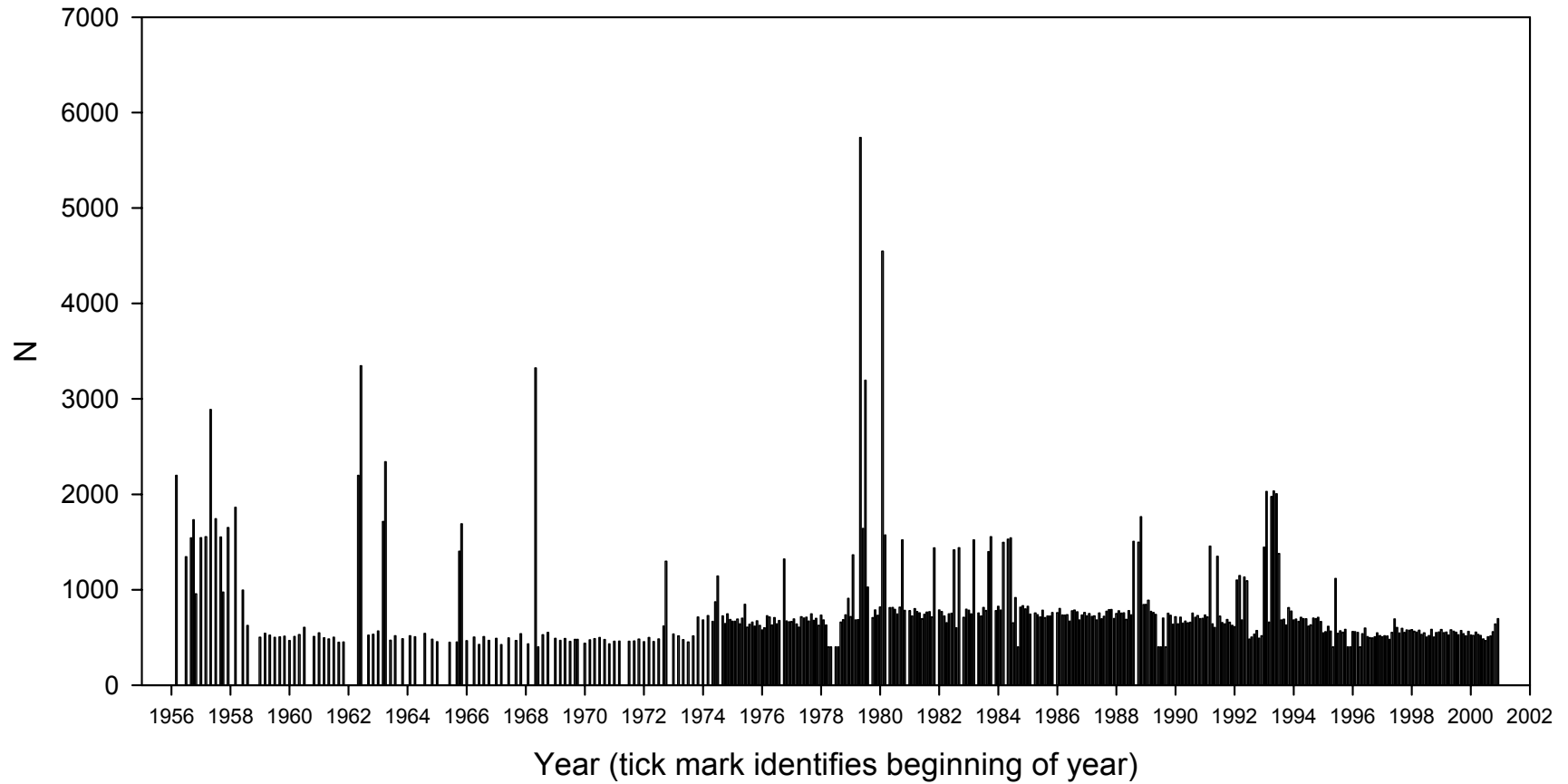
In addition to the increased precision with which public opinion is measured overtime, figure 5 also reveals how spikes in measurement accuracy occur around elections. This is produced by the combination of two phenomenon. Leading into an election, there is an increase in the number of polls, while at the same time the number of undecided voters drops significantly. This has the potential to actually produce a cycling in the measurement accuracy between elections and therefore cycling in the popularity series.

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<sup>67</sup> Aggregating the data to a quarterly level does not solve this problem. Quarterly measurements made later in the time series will still be more accurate and have smaller variances than those earlier in the time series.

**Figure 5**

Number of Decided Voters Interviewed Each Month





In order to address each of the statistical challenges identified above, the following state-space model of Liberal Party popularity is proposed.

### Liberal Popularity State-Space Equation

$$\begin{aligned}
 LIBVOTE_t &= \alpha_t + B_t + cyc_t + v_t \\
 \alpha_t &= \rho\alpha_{t-1} + \gamma_1 LIB_t + \gamma_2 PC_t \\
 &+ \delta_1 GOV_t INF_{t-1} + \delta_2 OPP_t INF_{t-1} + \delta_3 GOV_t GDP_{t-1} + \delta_4 OPP_t GDP_{t-1} \\
 &+ \delta_5 GOV_t UNEMP_{t-1} + \delta_6 OPP_t UNEMP_{t-1} + \delta_7 GOV_t GDP_{t-1} INF_{t-1} + \delta_8 OPP_t GDP_{t-1} INF_{t-1} + \varepsilon_t^\alpha \\
 B_t &= \beta_1 LIB_t + \beta_2 PC_t + \varepsilon_t^B \\
 cyc_t &= \Theta_1 \sin(\lambda\theta) LIB_t + \Theta_2 \cos(\lambda\theta) LIB_t + \Theta_3 \sin(\lambda\theta) PC_t + \Theta_4 \cos(\lambda\theta) PC_t + \varepsilon_t^{cyc}
 \end{aligned}$$

where

- $\varepsilon_t^\alpha \sim (0, \sigma_{\varepsilon_t^\alpha}^2)$ ,  $\varepsilon_t^B \sim (0, \sigma_{\varepsilon_t^B}^2)$ ,  $\varepsilon_t^{cyc} \sim (0, \sigma_{\varepsilon_t^{cyc}}^2)$ ,  $v_t \sim (0, \sigma_{v_t}^2)$  and  $COV(\varepsilon_t, v_t) = 0$
- $\sigma_{v_t}^2$  is the estimated sampling error  $\sqrt{p_t(1-p_t)/N_t}$ , where  $p$  is the proportion of respondents and  $N_t$  is the sample size. The sample size is calculated as the number of decided voters polled in each survey. If more than one poll was performed in any given month, the individual responses were combined and overall aggregate popularity values were calculated. The sample sizes in these cases would be the total number of decided voters obtained from combining the polls. Including the separate measurement error term ( $v_t$ ) is consistent with Beck's use of the Kalman filter to estimate presidential popularity.<sup>69</sup>
- $\rho$  is the AR(1) term

<sup>69</sup> Beck, Nathaniel. 1990. Estimating Dynamic Models Using Kalman Filtering. *Political Analysis* 1.

- $\lambda$  is the frequency (1/wavelength) of the popularity cycle and is defined by the length of the inter-election period, varying from one election to the next
- $\gamma_1, \gamma_2, \delta_1, \delta_2, \delta_3, \delta_4, \delta_5, \delta_6, \delta_7, \delta_8, \beta_1, \beta_2, \Theta_1, \Theta_2, \Theta_3$  and  $\Theta_4$  are parameters to be estimated.
- *INF* is the year-over-year change in the consumer price index.
- *GDP* is year-over-year percentage change in real personal income per capita.
- *UNEMP* is the monthly percentage, seasonally adjusted.
- *GOV* and *OPP* are dummy variables. *GOV* is 1 when the Liberals were in government and 0 otherwise. *OPP* is 1 when the Liberals were in opposition and 0 otherwise. Both *GOV* and *OPP* are 0 the first month after a new party became the government.
- *PC* and *LIB* are dummy variables. *PC* is 1 when the Conservatives were in government and 0 otherwise. *LIB* is 1 when the Liberals were in government and 0 otherwise.
- Estimated parameters  $\Theta_1$  and  $\Theta_2$  can be used to calculate the cycle amplitude =  $\sqrt{\Theta_1^2 + \Theta_2^2}$  and phase =  $\cos^{-1}(\frac{\Theta_1}{\text{amplitude}})$  for the Liberals when they are in government. Parameters  $\Theta_3$  and  $\Theta_4$  can be used to calculate the cycle amplitude and phase for the Liberals when they are in opposition.
- The impact of trending can be calculated by  $\gamma/(1-\rho)$ . This is total drift that would occur in the Liberals popularity if they were to remain in government/opposition indefinitely.

In the state-space model, empirical values of party popularity (*LIBVOTE*) are considered the sum of structural elements  $B_i$  and  $cyc_i$ , economically determined popularity  $\alpha$  and

measurement error  $\nu_t$ . The  $cyc_t$  component explicitly accounts for any inter election cycling that may exist within the party popularity series.  $B_t$  is a measure of base-line support for the party excluding any trending. The component  $\alpha$  acts as the dependent variable in the equation which estimates the impact of economic conditions on popularity (its stochastic element also tends to capture the effects of unmeasured variables not related to baseline support or cycling). The  $\rho$  term within the  $\alpha$  equation represents the first order autoregression within party popularity. The equation describing component  $\alpha$  is similar to the partial adjustment model recommended by Nathaniel Beck and used by Johnston.<sup>70</sup> The  $\gamma$  terms, along with the lagged values of  $\alpha$ , accounts for trending.

The sum of  $B_t$ ,  $cyc_t$  and  $\alpha$  represents “filtered” values of party popularity, in that they exclude  $\nu_t$ , the “noise” produced by survey measurement error. This is the strength of the state-space model.<sup>71</sup> Furthermore, Bayesian estimation of these values uses information from the empirical measures of party popularity previous to time  $t$  to increase the precision with which each day’s filtered popularity is estimated.<sup>72</sup> Over all, this provides filtered party popularity estimates ( $\alpha_t + B_t + cyc_t$ ) that are the empirical measures of party popularity with the “noise” of sampling error filtered out. This allows us to explicitly account for the variations in measurement accuracy produced by fluctuating sample sizes, hereinbefore described – that is, increased accuracy overtime

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<sup>70</sup> Beck, Nathaniel. 1991. The Economy and Presidential Approval: An Information Theoretic Perspective. In *Economics and Politics: The Calculus of Support*, edited by J.-D. Lafay. Ann Arbor, Michigan: The University Of Michigan Press. Johnston, Richard. 1999. Business Cycles, Political Cycles and the Popularity of Canadian Governments, 1974-1998. *Canadian Journal of Political Science* 32 (3):499-520.

<sup>71</sup> Harvey, A. C. 1993. *Time series models*. 2nd ed. Cambridge, Mass.: MIT Press.

<sup>72</sup> Jackman, Simon. 2000. Estimation and Inference via Bayesian Simulation: An Introduction to Markov Chain Monte Carlo. *American Journal of Political Science* 44:369-398. Missing values are handled by using interpolation and then assigning large standard errors to the interpolated value. Within the Bayesian framework, this allows the surrounding time points which have more certain measurements to be used to fill in for the missing data.

with rising numbers of polls, decreased accuracy over time with increasing numbers of undecided voters, spikes in accuracy near and during election months and cycling accuracy between elections.

The *PC*, *LIB*, *GOV* and *OPP* dummy variables allows for the impact of economic conditions on party popularity to vary both across parties and across each party's position as government or opposition. By constructing *GOV* and *OPP* such that they are 0 the first month after a new party becomes the government allows for a type of honeymoon affect. This effect is based on the hypothesis that a new government will not be held accountable for the economic condition of the nation in the month previous to or of the election they just won.

The component of the model estimating the impact of economic conditions includes an interaction term between changes in real per capita income and inflation. This is done for two reasons. The first is technical. Inflation is incorporated into the calculation of real per capita income and so there is a built-in interaction between the two. The second reason for the interaction is substantive. The gains or losses in popularity produced by changes in real income are likely to be mediated by the degree of concurrent inflation.

Finally, in order to account for the potential of three distinct government popularity periods, the time-series model is estimated separately for each proposed period – 1957-1975, 1976-1993, 1993-2000. The equivalent model was used for the popularity of the PC party. The popularity of the NDP was modelled slightly differently.

### NDP Popularity State-Space Equation

$$NDPVOTE_t = \alpha_t + B_t + cyc_t + v_t$$

$$\alpha_t = \rho\alpha_{t-1} + \gamma_1$$

$$+ \delta_1 LIBGOV_t INF_{t-1} + \delta_2 PCGOV_t INF_{t-1} + \delta_3 LIBGOV_t GDP_{t-1} + \delta_4 PCGOV_t GDP_{t-1}$$

$$+ \delta_5 LIBGOV_t UNEMP_{t-1} + \delta_6 PCGOV_t UNEMP_{t-1} + \delta_7 LIBGOV_t GDP_{t-1} INF_{t-1} + \delta_8 PCGOV_t GDP_{t-1} INF_{t-1} + \varepsilon_t^\alpha$$

$$B_t = \beta_1 + \varepsilon_t^B$$

$$cyc_t = \Theta_1 \sin(\lambda\theta) + \Theta_2 \cos(\lambda\theta) + \varepsilon_t^{cyc}$$

- *LIBGOV* and *PCGOV* are dummy variables. *PCGOV* is 1 when the Conservatives were in government and 0 otherwise. *LIBGOV* is 1 when the Liberals were in government and 0 otherwise.
- All other variables are defined as in the PC and Liberal popularity models.

A similar equation was constructed to determine the impact of economic conditions on Reform/Alliance popularity during the third period – except of course, the Reform/Alliance was only ever in opposition under a Liberal government. The next section discusses the results of modelling the impact of economic conditions on party popularity for the PCs, Liberals, NDP and Reform/Alliance.

#### **IV Results and Discussion**

The following tables contain median values of the Bayesian-estimated distributions of the parameters from the state-space models of party popularity during the three periods under consideration.<sup>73</sup> When plots of density estimates for each parameter are examined, they are unimodal and appear to be roughly normally distributed.

Tables 1a and 2a are estimates of the cycling, trending and autoregressive components of PC and Liberal party popularity, estimated without the inclusion of economic predictors. In a previous study, I suggest that the cycling component for the Canadian government popularity time-series is greatest during the 1976-1993 period, smaller for the 1993-2000 period and statistically insignificant for the 1957-1975 period.<sup>74</sup> This same pattern roughly holds for the Liberals while in government and for the PCs while in opposition. During the 1993-2000 period, the Liberals were never in opposition and the PCs were never in government but for both parties the amplitude of the cycling terms are greater in the second than in the first period. These findings are again consistent with Johnston's observations.<sup>75</sup>

The calculated trend and equilibrium values are measures of each party's baseline support while in government or in opposition. The trend value is the total shift in baseline popularity that would occur if the party in question remained in government/opposition indefinitely. The equilibrium value is the baseline level of popularity that the party in question would ultimately reach if it remained in government/opposition long enough. For example, a Liberal government during the 1957-1975 period, given enough time,

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<sup>73</sup> Estimations were made using Winbugs. All models were estimated using two chains with varying initial values.

<sup>74</sup> Pickup, Mark. "Understanding Government Popularity in Canada, 1953-2002." Presented at the 2003 Canadian Political Science Association Meeting (June 2003).

<sup>75</sup> Johnston, Richard. 1999. Business Cycles, Political Cycles and the Popularity of Canadian Governments, 1974-1998. *Canadian Journal of Political Science* 32 (3):499-520.

would have inevitably lost 1.3 percent of its baseline popularity over the life of its reign settling at 46.1 percent. During the 1976-1993 period, its baseline popularity would have decrease 2.7 percent settling at 37 percent. During 1993-2000 the declined would have been 2.8 percent reaching a baseline of 54.8 percent.

Trend and equilibrium values are also calculated for a Liberal opposition during the first two periods. In each case, popularity would have increased by less than half a percent to reach an equilibrium of about 40 percent.

For a PC government during the 1957-1975 period, baseline support would have declined 1.2 percent reaching an equilibrium of 43.3 percent. During the 1976-1993 period, its baseline popularity would have decrease 15.4 percent settling at 21.9 percent. The PC party in opposition during the second and third periods would have gained popularity. The equilibrium for the second period is 45 percent and for the third 13.2 percent. During the first period the PC party in opposition would trend downward to an equilibrium of approximately 30 percent.

The autoregressive component in each model allows us to assess the level of memory within public opinion towards the parties. For both the Liberals and PCs, memory is the greatest within the 1976-1993 period and smallest for the 1993-2000 period. Overall, the smallest first order autoregressive value is found for the Liberal party in the third period (0.56).

**Table 1a: Liberal Vote**

		<b>1957-1975</b>	<b>1976-1993</b>	<b>1993-2000</b>
		Median	Median	Median
<b>Government</b>	Equilibrium	0.461	0.370	0.548
	Trend	-0.0133	-0.0267	-0.0276
	Phase	1.414	1.031	2.106
	Amplitude	0.0175	0.0364	0.0274
<b>Opposition</b>	Equilibrium	0.390	0.4013	
	Trend	0.00763	0.0480	
	Phase	1.797	2.182	
	Amplitude	0.0215	0.0269	
	Memory	0.858	0.918	0.563

**Table 1b: Impact of Economic Conditions on Liberal Vote**

		<b>1957-1975</b>	<b>1976-1993</b>	<b>1993-2000</b>
		Median	Median	Median
<b>Government</b>	Unemployment	-0.0080 (0.0113)	<b>-0.0047</b> <b>(0.0027)</b>	0.0055 (0.0060)
	Inflation	0.0012 (0.0054)	0.0027 (0.0024)	-0.0138 (0.0156)
	GDP	-0.0034 (0.011)	0.0079 (0.0057)	-0.0002 (0.00 87)
	GDP x Inflation	-0.0005 (0.0015)	<b>-0.0008</b> <b>(0.0006)</b>	0.0034 (0.0033)
	Equilibrium	0.507	0.474	0.4871
	Trend	0.136	0.0221	-0.0864
	Phase	1.167	0.905	2.398
	Amplitude	0.0135	0.0811	0.0229
<b>Opposition</b>	Unemployment	0.0147 (0.0109)	0.0021 (0.0025)	
	Inflation	-0.0243 (0.0149)	0.0007 (0.0023)	
	GDP	-0.0012 (0.0169)	<b>-0.00 77</b> <b>(0.0045)</b>	
	GDP x Inflation	0.0130 (0.0091)	<b>0.0015</b> <b>(0.0009)</b>	
	Equilibrium	0.332	0.247	
	Trend	0.202	-0.234	
	Phase	1.908	2.191	
	Amplitude	0.0265	0.0283	
	Memory	-0.318	0.867	0.3315



**Table 2a: PC Vote**

		<b>1957-1975</b>	<b>1976-1993</b>	<b>1993-2000</b>
		Median	Median	Median
<b>Government</b>	Equilibrium	0.433	0.219	
	Trend	-0.0117	-0.154	
	Phase	2.054	0.632	
	Amplitude	0.0241	0.0401	
<b>Opposition</b>	Equilibrium	0.302	0.450	0.132
	Trend	-0.0338	0.0993	0.0523
	Phase	1.505	1.951	1.980
	Amplitude	0.0191	0.0396	0.0240
	Memory	0.923	0.949	0.810

**Table 2b: Impact of Economic Conditions on PC Vote**

		<b>1957-1975</b>	<b>1976-1993</b>	<b>1993-2000</b>
		Median	Median	Median
<b>Government</b>	Unemployment	0.0046 (0.0153)	-0.0005 (0.0022)	
	Inflation	<b>0.0258</b> <b>(0.0154)</b>	-0.0001 (0.002)	
	GDP	-0.0174 (0.0210)	<b>0.0098</b> <b>(0.0039)</b>	
	GDP x Inflation	-0.0085 (0.0085)	<b>-0.0013</b> <b>(0.0007)</b>	
	Equilibrium	0.413	0.253	
	Trend	0.309	-0.0811	
	Phase	1.398	0.666	
	Amplitude	0.0404	0.0314	
<b>Opposition</b>	Unemployment	0.0013 (0.0083)	<b>0.0043</b> <b>(0.0025)</b>	0.0013 (0.0036)
	Inflation	-0.0014 (0.0049)	<b>-0.0038</b> <b>(0.0022)</b>	0.0024 (0.01)
	GDP	-0.0014 (0.0102)	<b>-0.0106</b> <b>(0.0051)</b>	-0.0008 (0.0054)
	GDP x Inflation	-0.0003 (0.0014)	<b>0.001</b> <b>(0.0006)</b>	-0.0002 (0.0035)
	Equilibrium	0.305	0.449	0.0737
	Trend	0.113	0.139	0.0008
	Phase	1.279	2.021	2.027
	Amplitude	0.0132	0.0683	0.0243
	Memory	-0.261	0.887	0.792

**Table 3: NDP, Reform and Alliance Vote**

		NDP		Reform and Alliance
		1957-1975	1976-1993	1993-2000
		Median	Median	Median
<b>PC Government</b>	Unemployment	-0.0037 (0.0052)	-0.0006 (0.001)	
	Inflation	-0.0247 (0.0567)	<b>0.0032</b> <b>(0.002)</b>	
	GDP	0.0102 (0.0111)	-0.005 (0.0031)	
	GDP x Inflation	-0.0209 (0.0327)	<b>0.0016</b> <b>(0.0008)</b>	
	Equilibrium*	0.1073	0.186	
	Trend*	0.0432	0.0096	
	Phase*	2.647		
	Amplitude*	0.0131	0.027	
<b>Liberal Government</b>	Unemployment	0.0016 (0.005)	-0.0006 (0.0011)	-0.0015 (0.0038)
	Inflation	<b>0.0182</b> <b>(0.0111)</b>	0.0007 (0.002)	-0.0019 (0.0103)
	GDP	0.0093 (0.0063)	0.0011 (0.0032)	-0.0049 (0.0071)
	GDP x Inflation	-0.0007 (0.003)	-0.0002 (0.0006)	0.0025 (0.0038)
	Equilibrium	0.1073	0.186	0.1189
	Trend	0.0432	0.0096	0.0116
	Phase	2.647		0.8062
	Amplitude	0.0131	0.027	0.032
	Memory	-0.259	0.925	0.5952

\*Cycling and trending components for NDP were restricted to be equivalent across Liberal and PC governments.

Figure 6 plots the baseline support and cycling and trending components for both the Progressive Conservatives and Liberals based on these estimates. Figure 7 plots the estimation of the remaining movement in party popularity – that is the  $\alpha_t$  term without trending. Notice this plot has the appearance of a much more stationary process than the original popularity series. It is within this remaining movement that we expect to find the impact of economic conditions. That is not to say that cycling or trending or even baseline support may not be in part products of the economy. If they are, we should see

changes in the estimated parameters for these components, once economic terms are included in the model.

Tables 1b and 2b present the estimated parameters for the economic state-space models predicting Liberal and PC party popularity. Table 3 presents the estimated impact of economic conditions on the NDP during the 1957 to 1975 and 1976 to 1993 periods. Economic impact is estimated separately for when the PC party and the Liberal party were in power. Table 3 also considers the impact of economic conditions on the Reform/Canadian Alliance during the 1993 to 2000 period. This estimation was made based on the hypothesis that during this time it was the Reform/Alliance that acted as the opposition, even during the short time when the Bloc Québécois acted as the Official Opposition.

The estimated parameters suggest that economic conditions had little impact on any party's popularity during the 1993-2000 period; during the 1957-1975 period, the economy played a statistically significant but small role in party popularity; and during the 1976-1993 period economics played a much larger role.

From 1957 to 1975 the only relevant economic variable was inflation. Increased inflation benefited PC governments. This is consistent with the theory that Tories were seen as the best party to deal with inflation. However, this line of reasoning would also suggest that inflation should decrease the popularity of a Liberal government, while increasing that of the Tory opposition. This is not seen in the estimated parameters. In fact under a Liberal government, it is the NDP that benefits from increased inflation.

From 1976 to 1993, the Liberal party while in government was negatively affected by increases in unemployment. The PCs benefited from this same

unemployment while in opposition. The magnitudes of these effects are roughly equivalent. When unemployment hit a high of 12.9 percent in October of 1982, it cost Trudeau's Liberal government 6.1 percentage points of popularity. The Tories gained 5.5 points.

The direction of the estimated parameters in the second period suggest that while in government, the PCs benefited from increases in economic growth, just as the Liberal opposition was disadvantaged by it. Also under PC governments, the NDP benefited from increases in inflation.

Neither GDP nor inflation is statistically significant for the Liberals while in government. However, the interaction term is. This suggests some combination of inflation and GDP were important to Liberal government popularity. The parameters suggest that the PC party while in opposition was heavily disadvantaged by economic growth. They also suggest that PC oppositions were disadvantaged by inflation. Given the significance of the GDP/inflation interaction terms, these results are difficult to interpret. Some clarity can be gained by looking at examples of the combined impact of GDP and inflation at various points in time.

When growth in real per capita GDP hit a high of 5.71 under the Liberals during the last quarter of 1983 and the first quarter of 1984, inflation varied between 4 and 5.5 percent. This gained the Liberals 3.8 percent in the polls and lost the Tories 5.2 percent. Previous to this point in time in the fourth quarter of 1982, economic growth was down to -4.81 percent and inflation varied between 9 and 10 percent. The Liberals at this time certainly didn't make the gains they did in 1983-1984. However, they still benefited to the tune of 2.5 percent and the PCs were penalised 3.4 percent.

When economic growth hit 5.29 percent in the first quarter of 1988, inflation hovered just above 4 percent. This cost the PC government at the time 2.1 percent. In this case the Liberal opposition did not benefit, losing 0.5 percent themselves. The NDP however, gained the 2.1 percent lost by the Tories.

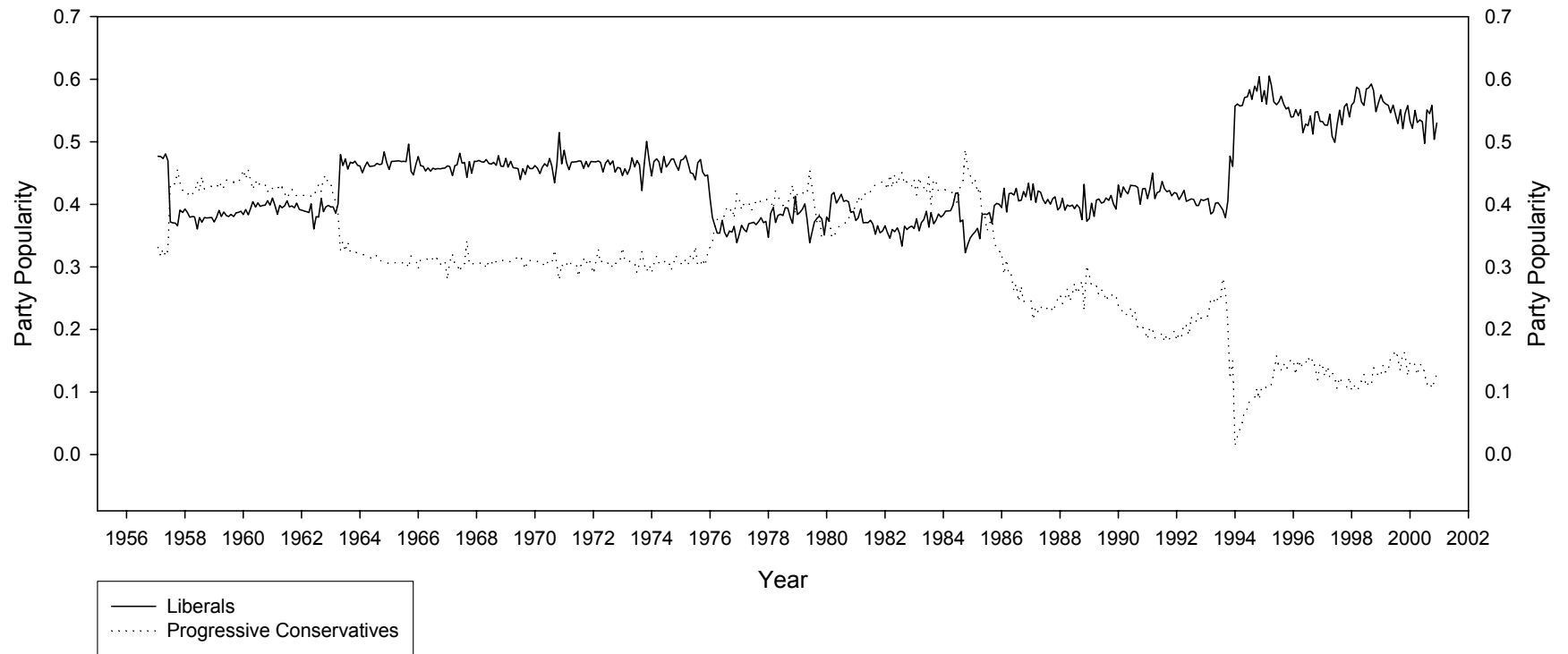
Essentially, the gains to be made by a PC opposition by a downturn in GDP or by a PC government by an upturn were offset by a reluctance to vote PC during times of high inflation. Voters alternatively turned to either the Liberal party or the NDP. This suggests a change in the public reaction to inflation seen during the 1957-1975 period, when PC governments benefited from it.

Including economic variables changes the estimated parameters for the autoregressive, trending, equilibrium and cycling components of the model. First order autoregression changes little for the second and third periods. For the 1957-1975 period, the AR(1) term becomes negative for both the PCs and Liberals. It is unclear why this occurs.

When excluding economic variables, the popularity of parties in government is largely estimated to trend downward and the popularity of parties in opposition is largely estimated to trend upwards. This pattern is not as clear once economic variables are included. It continues to hold for the 1993-2000 period. From 1957 to 1975, controlling for economic conditions, the Tories and the Liberals tended to trend upwards regardless of whether or not they were in government or opposition. Again controlling for economic conditions, from 1976 to 1993, the PCs trended downwards while in government and trended upwards while in opposition. The Liberal party on the other hand, trended upwards while in government and downwards while in opposition.

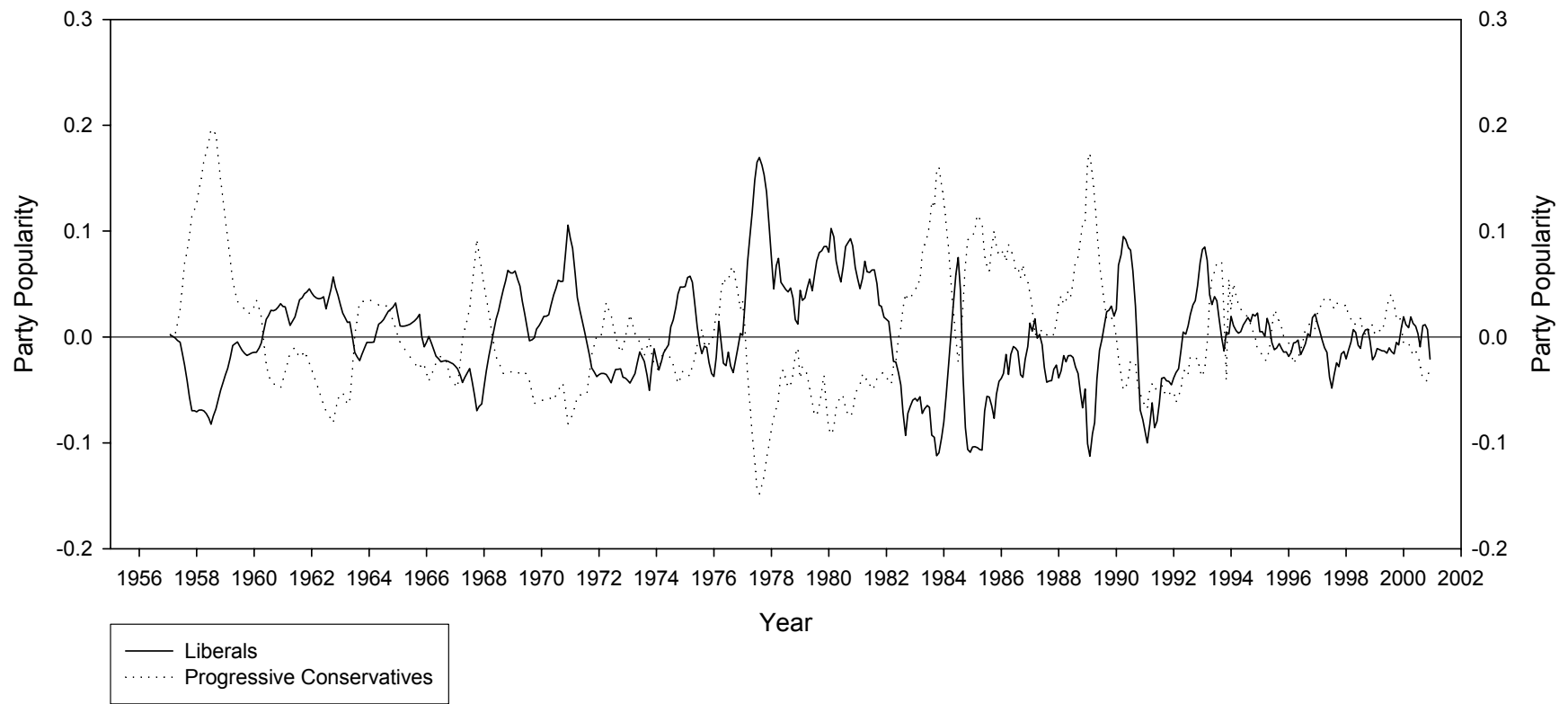
**Figure 6**

Components B +  $cyc_t$  with Trending



**Figure 7**

Component  $\alpha$  without Trending



The cycling components in each model are changed somewhat once economic conditions are included. With the exception of PC party popularity from 1976 to 1993, the amplitude of the estimated popularity cycles increase or remain the same once economic variables are included. Equilibrium values also changed to some degree. The calculated cycle phase values changed little for the Liberals and Progressive Conservatives.

The fact that the amplitude of the cycling component of each model tends to remain roughly the same or to be increased once economic variables are included suggests that economic conditions are unlikely to account for the inter election popularity cycle. In fact, fluctuations in economic conditions may actually subdue the underlying popularity cycle to some extent. The exception to this is PC party popularity from 1976 to 1993, where economics may play a role in the cycle.

The equilibrium values for Liberal governments in the first two periods are increased once economic conditions are included. This is equivalent to controlling for economic conditions. This suggests that economic conditions reduced baseline support for Liberal governments between 1957 and 1993. Beyond 1993, a different pattern is apparent. The results suggest that economic conditions increased the baseline support for the Liberal government in the third period.

The equilibrium values for PC governments in the first two periods changed little once economic variables are included. The baseline support for PC governments were likely unaffected by economic conditions between 1957 and 1993. Keep in mind, this does not mean that economics did not impact popularity. It just means that the impact was not felt in baseline support.



The evidence suggests that voters respond to the major parties differently within the 1974-1993 period and between the first and second periods. The Progressive Conservatives benefited in some way from inflation during the first period but were disadvantaged by it during the second. From 1974 to 1993, the Liberals were punished for high unemployment when in government but did not benefit from it when in opposition. Conversely, the Tories picked up Liberal losses due to high unemployment while in opposition but were not affected by unemployment while in government.

Depending upon inflation levels, the Liberals were also rewarded/punished for poor/good economic growth when in opposition, just as the PCs were rewarded/punished for good/poor growth when in office. When in government, the Liberals benefited from economic growth reducing the popularity of the PC opposition.

Interestingly, the magnitude of the impact of inflation and economic growth on PC popularity during the 1976-1993 period was greater than that for the Liberal party. This suggests that a PC gain or loss was not translated into a Liberal loss or gain on a one-to-one basis. In some instances, Tory government losses translated into NDP rather than Liberal gains. This and the fact that economic conditions had no significant impact on NDP popularity when the Liberals held the government during this period suggests that the NDP were viewed as an economic alternative to a PC Government but not a Liberal Government.

Overall, the success of the Canadian electorate at holding the federal government accountable for the performance of the economy is mixed. Different parties have been held accountable for different aspects of the economy in varying ways between 1957 and

2000. The next task, of course, is to determine why the democratic mechanism of economic accountability is subject to such variations.

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## Appendix: Data Sources

### **Inflation 1914-2003**

CANSIM II SERIES V735319

TABLE NUMBER: 3260001

TABLE TITLE: CONSUMER PRICE INDEX (CPI), 1996 BASKET CONTENT

Data Sources: IMDB (Integrated Meta Data Base) Numbers:

# 2301 - Consumer Price Index

SERIES TITLE: INDEX; CANADA; ALL-ITEMS

CANSIM I Series Number: P100000

SERIES FREQUENCY: Monthly

SCALING FACTOR: units

DECIMALS: 1

### **GDP 1961-2000**

CANSIM II SERIES V498943

TABLE NUMBER: 3800002

TABLE TITLE: GROSS DOMESTIC PRODUCT (GDP), EXPENDITURE-BASED

Data Sources: IMDB (Integrated Meta Data Base) Numbers:

# 1901 - National Income and Expenditure Accounts

SERIES TITLE: CANADA; 1992 CONSTANT PRICES; UNADJUSTED; GROSS DOMESTIC PRODUCT (GDP) AT MARKET PRICES

CANSIM I Series Number: D15721

SERIES FREQUENCY: Quarterly

SCALING FACTOR: millions

DECIMALS: 0

Also run with

CANSIM II SERIES V1992259

TABLE NUMBER: 3800002

TABLE TITLE: GROSS DOMESTIC PRODUCT (GDP), EXPENDITURE-BASED

Data Sources: IMDB (Integrated Meta Data Base) Numbers:

# 1901 - National Income and Expenditure Accounts

SERIES TITLE: CANADA; 1997 CONSTANT PRICES; SEASONALLY ADJUSTED; GROSS DOMESTIC PRODUCT (GDP) AT MARKET PRICES

CANSIM I Series Number: D100525

SERIES FREQUENCY: Quarterly

SCALING FACTOR: millions

### **GDP 1926-1961**

Label: D14606

Title: SELECTED PER PERSON SERIES IN C & K \$ / G.D.P. AT MARKET PRICES IN CONSTANT (1986) DOLLARS

Subtitle: SELECTED PER PERSON INCOME AND PRODUCT SERIES AT CURRENT PRICES AND AT 1986 PRICES, ANNUALLY, FROM 1926.

Factor: UNSCALED  
Unit: K DOLLARS  
Source: SDDS 2501 STC (13-531 & 13-201)  
Update : 25 June, 1996  
Period : 1926 - 1995  
Frequency : annual

### **Unemployment 1976-2000**

CANSIM II SERIES V159752

This series has been deleted by Statistics Canada.

Use only for comparisons with your earlier retrievals.

TABLE NUMBER: 2790001

TABLE TITLE: LABOUR FORCE SURVEY ESTIMATES (LFS), BY AGE GROUP AND SEX, CANADA

Data Sources: IMDB (Integrated Meta Data Base) Numbers:

# No sources available

SERIES TITLE: CANADA; UNEMPLOYMENT RATE; BOTH SEXES; 15 YEARS AND OVER; SEASONALLY ADJUSTED

CANSIM I Series Number: D980745

SERIES FREQUENCY: Monthly

SCALING FACTOR: units

DECIMALS: 1

### **Unemployment 1946-1975**

**Title:** Historical statistics of Canada / F. H. Leacy, editor. --

**Author:** Leacy, F. H.

Statistics Canada.

Social Science Federation of Canada.

**Published:** Ottawa : Statistics Canada in joint sponsorship with Social Science Federation of Canada, c1983.

**Series:** D491

**Series Title:** Unemployment Rates, Canada total, annual averages

SERIES FREQUENCY: annually

**Edition:** 2nd ed.

### **Vote Share 1956-2000**

**Title:** Gallup poll [electronic resource].

**Uniform title:** Gallup poll (Canadian Institute of Public Opinion)

**Other titles:** Canadian Gallup poll

CIPO Gallup poll

**Author:** Canadian Institute of Public Opinion.

Canadian Gallup Poll Limited.

**Published:** Toronto: Canadian Institute of Public Opinion,

The data files of individual level responses for each poll were merged into one composite data file. From this file, aggregate party popularity for each month of each year was

calculated. In 1992, Gallup began to consistently ask a follow-up question of those that could not name a party for the vote intention question. The question asked which party the respondent may be leaning towards. To retain consistency throughout the popularity series, this “leaning” question was not used in the calculation of party popularity at any time.

Vote intention results published in The Gallup Poll were used for May 1995, November and December 1995, April 1996, April-August 1978, and June 1968.