INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

U·M·I

University Microfilms International
A Bell & Howell Information Company
300 North Zeeb Road Ann Arbor MI 48106-1346 USA
313 761-4700 800 521-0600

Order Number 9217184

Subnational economic variation and the vote: Economic influences on voting behavior in Western Europe

Mitchell, Glenn Ernest, II, Ph.D.

The University of Iowa, 1991

U·M·I
300 N. Zeeb Rd.
Ann Arbor, MI 48106

SUBNATIONAL ECONOMIC VARIATION AND THE VOTE

ECONOMIC INFLUENCES ON VOTING BEHAVIOR IN WESTERN EUROPE

by

Glenn Ernest Mitchell II

A thesis submitted in partial fulfillment
of the requirements for the Doctor of
Philosophy degree in Political Science
in the Graduate College of
The University of Iowa

December 1991

Thesis Supervisor: Professor Michael S. Lewis-Beck

Graduate College
The University of Iowa
Iowa City, Iowa

CERTIFICATE OF APPROVAL

PH.D. THESIS

This is to certify that the Ph.D. thesis of

Glenn Ernest Mitchell II

has been approved by the Examining Committee for the thesis requirement for the Doctor of Philosophy degree in Political Science at the December 1991 Graduation.

Thesis committee:

Thesis supervisor

Member

Member

Member

Member

ACKNOWLEDGEMENTS

This research project has been assisted by many individuals. Every person whom I have contacted has been immediately forthcoming with assistance and advice.

First and foremost, I would like to thank and commend Professor Michael S. Lewis-Beck, the supervisor of this dissertation. Professor Lewis-Beck's influence is manifest throughout this dissertation, just as it is throughout the economic voting behavior literature. Professor Lewis-Beck was free with his time, his counsel, and his data. The most important stimulus Professor Lewis-Beck provided was his personal character and his scholarly integrity. I have come to respect Professor Lewis-Beck in a way that I respect few others. Professor Lewis-Beck is indeed a rara avis. I was very privileged to be able to work together with Professor Lewis-Beck on this project, and I thank him for his assistance, his patience, and his wisdom.

A special thanks is also owed to Professor James Stimson. Professor Stimson's advice and counsel was especially helpful in obtaining research support for this project from the National Science Foundation. He gave both his time and

his counsel in great measure. We spent countless hours discussing facets of this dissertation.

This was far from an individual project. A large number of other scholars provided valuable advice and/or access to data. First and foremost would be the members of my dissertation committee -- Professors Joel Barkan, Douglas Madsen, Forrest Nelson, and Peter Snow. Colleages at the University of Iowa both within and outside the department who played a significant role in the project include Professors Jae-On Kim, Robert Parker, Lois Sayrs, David Strang. Ricky Dale Iverson, a graduate student in the University of Iowa Sociology Department was also an valuable source of advice. Important assistance by scholars outside the University of Iowa include Professors Christopher Achen, Alan Abromowitz, Bill Berry, William Claggett, Russell Dalton, Cees van der Eijk, Robert Erikson, Mark Franklin, John Freeman, Michael Giles, Robert Jackman, Kathleen Knight, Thomas Lancaster, Thomas Mackie, Michael Marsh, Walter Mebane, Helmut Norpoth, Charles Ostrom, Richard Rose, Herman Schmidt, and Christopher Wlezien.

Institutional support was also extremely important in successfully completing this dissertation. The National Science Foundation provided a Doctoral Thesis Research Grant, SES 89-20568. Their financial research was essential

to this study. The Collegiate Academic Council (CAC) of the University of Iowa also provided financial assistance. So did the Main Library of the University of Iowa, which purchased the REGIO dataset for this project.

The Political Science Department of the University of Iowa deserves special thanks for all of their assistance. So, too, does the Political Science Department of Florida State University, which reduced my teaching load to give me the free time necessary to complete this dissertation.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION*

We take it for granted that economic conditions influence electoral behavior. As the economy worsens, support for the incumbent weakens. Hundreds of studies have probed the intricate ties between the economy and the electorate in democratic societies. Most assume a powerful relationship links electoral behavior to economic performance. The primary questions which drive the existing literature focus on identifying the salient economic components. How does the electorate measure economic performance? Do voters fix their attention on unemployment, inflation, or economic growth? Do they use their own pocketbook as a yardstick for measuring economic performance?

Analysts measure key economic variables both as aggregates and as individual survey responses. Yet, virtually all of these studies rely on one level of economic aggregation for traditional measures of macroeconomic

---

*Funding for this project was provided by the National Science Foundation under a Dissertation Improvement Grant, SES 89-20568, and a research grant from University of Iowa Collegiate Academic Council. The National Science Foundation is not responsible for the opinions expressed in this thesis. Their financial assistance and the assistance of the CAC are gratefully acknowledged.

performance such as unemployment and inflation -- the nation. Whether or not local economic conditions contribute independently to the vote decision is ignored.

This assumption that only national economic performance matters largely remains unexamined. Regional and sectoral deviations from the overall national economy, when considered at all, are viewed simply as a form of statistical error. Kramer (1983), for example, recognizes that some regions fare better, some worse. But, as the deviations from the arithmetic mean sum to zero for any population, the error terms associated with economic sectors and regions are expected to sum to zero.

> "[T]he same will be true for sectoral changes in the economy, with losses in declining industries or regions being offset by gains in growth industries or areas." (1983:98)

This study rejects Kramer's a priori assumption that local and regional deviations from national economic conditions cancel, having little or no causal effect on support for political incumbents. On the contrary, this study argues that aggregated national results cannot be properly understood apart from the local economic contexts in which electors make their vote choice.

The rich tapestry of activity that takes place within and across various economic sectors, e.g., the farm economy, the industrial economy, and the service economy, can

generate differing perceptions of economic well-being. Just as farmers might be expected to react to the variable performance of the agricultural sector, voters in the southeast or the northwest might also be expected to react to the performance of the local economy. It is reasonable to assume that economic activity is evaluated through perceptual filters associated with various regional and local subdivisions, each yielding different economic perceptions.

Purpose of the Study

The existing literature speaks with one voice.[1] Economic performance drives electoral behavior. What electorates know about the economy determines, in large measure, what they will do in supporting and selecting governments.

What do voters know about the economy? Where do they get their information? These are questions which the existing literature leaves largely unanswered.

The distinguishing characteristic of this thesis is an emphasis on local economic conditions as the basis for the familiar ties between economic performance and electoral behavior. One cannot reasonably predict *a priori* whether the local economy is casual or error. Whether, to what degree, and under what conditions national electoral

behavior can be understood as aggregated responses to distinctively local economic variations are questions this study pursues. To better evaluate the complex interrelationship between the state of the economy and the electorate's voting behavior, this study employs a seven nation comparative analysis.

Theoretical Innovation

The central theoretical premise of the economic voting literature is that voters respond to deteriorating economic conditions by withholding support from the incumbent political party or parties. The articulation of this explanatory theory began with Downs' (1957:4-8) rationality hypothesis. An elector's vote in an election represents a choice between alternative governing teams. Kramer (1971) later modified Downs' argument into a simple decision rule: if the recent past performance of the incumbent is satisfactory, the voter votes to retain the incumbent. While Kramer was thinking of national economic performance, the model can explain both nationally and regionally based perceptions of economic performance. This study proposes an extension to the theoretical framework of economic voting, adopting and extending the theoretical concept of relative deprivation presented by Gurr (1967, 1970) . The specific premises this dissertation proposes are the following:

> Significant regional differences in economic conditions cause voters in disaffected regions to develop feelings of relative deprivation.
>
> Feelings of relative deprivation lead to reduced support for the incumbent party or parties.

The theoretical conclusion then becomes:

> Significant regional differences in economic conditions lead to reduced support for the incumbent party or parties among voters in deprived regions.

Gurr defines relative deprivation (1970:23-30) as the perceived difference between goods and conditions of life the public receives and the goods and conditions of life they believe that they are entitled to. It is the psychological conflict between what is and what ought to be. For Gurr, whose interest is political violence, relative deprivation is the source of civil strife. For this study, relative deprivation is the link between economy and electorate.

This study suggests an addition to Gurr's relative deprivation typology -- differential deprivation. Differential deprivation occurs when citizens perceive that some groups are worse off relative to others. The groups could be cultural, regional, or sectoral. Relative deprivation theory provides a framework of explanations for

a variety of economic changes resulting in anti-incumbent behavior.

Statement of the Problem

The primary research goal of this study is to demonstrate that local economic conditions have an independent effect on the electoral support the national government receives. This study employs both aggregate and individual-level models of macroeconomic influences and tests those models within a comparative framework. The empirical focus is on seven Western European nations.

Notes

1. The literature literally speaks with almost one voice. Stigler (1973), for example, is skeptical that changing economic conditions alter electoral behavior. Arcelus and Meltzer (1975) are less skeptical about the link between the economy and electoral behavior. Their skepticism relates to the traditional decision rule advanced by the economic voting literature -- worsening economic conditions lead to increased votes for the opposition. Arcelus and Meltzer urge that instead of increased votes for the opposition, worsening economic conditions may lead to increased abstentions and spoiled ballots.

   The skepticism of Stigler and of Arcelus and Meltzer are not widely echoed in the economic voting literature. Indeed, analysts largely take for granted that changing economic conditions affect incumbent support.

REVIEW OF THE LITERATURE

Scholarship on the incidence of economic voting falls into three bodies of literature. The earliest attempts to understand the intricate relationship between the state of the economy and the electorate try to predict aggregate shifts in support for the incumbent party on the basis of aggregate economic indicators across extended time series (see especially Kramer 1971). Aggregate studies remain an important research strategy. Researchers also employ individual-level survey data (see especially Fiorina 1981). Individual survey responses lend themselves to disentangling important theoretical elements. Comparative analyses of economic electoral behavior are becoming more common (see especially Lewis-Beck 1988).

Aggregate-Level Analyses

Kramer (1971) attempts to explain short-term fluctuations in the vote shares for the two major American parties for the U.S. House of Representatives. He argues that short-term fluctuations in incumbent support can be explained by a simple decision rule. If the recent past performance of the incumbent is satisfactory, the voter votes to retain the incumbent. Otherwise the voter votes

against the incumbent. Kramer's decision rule is a modified form of Downs' (1957:4-8) rationality hypothesis. An individual's vote in a national election represents a choice between alternative governing teams. Kramer tests this hypothesis by analyzing the relationship between national vote shares for the U.S. House and national macroeconomic conditions from 1896 to 1964. He employed a simple vote function. The Republican vote share in a given election is a function of income, inflation, and unemployment. Kramer concludes that election outcomes are responsive to objective changes in economic conditions. Economic upswings aid the incumbent; downturns assist the opposition.

Stigler (1973) challenges Kramer's conclusions. He begins by demonstrating that Kramer's results are sensitive to changes in the time period covered and to changes in the lagged-variable structure used to calculate economic changes.

Stigler questions the theoretical model underlying Kramer's work. He rejects Kramer's simple retrospective voting model. Stigler argues that American political parties do not differ significantly in their economic policies. Economic fluctuations are often beyond the control of incumbents. Retrospective voting, in Stigler's opinion, is irrational. A visceral reaction from the

electorate can worsen economic conditions as elected officials attempt to placate the public.

Arcelus and Meltzer (1975) echo Kramer's skepticism. Arcelus and Meltzer also object to Kramer's simple decision rule that voters vote for the incumbent if recent past economic performance is acceptable. They noted that voters have a third option. Voters can abstain from voting. Is it less rational, Arcelus and Meltzer ask, for a voter to abstain rather than shift loyalty? Arcelus and Meltzer incorporate both turnout and party vote shares in their analysis of U.S. House elections from 1896 to 1970. They conclude that with the possible exception of inflation, aggregate economic variables affect neither the participation rate nor the vote shares of the two major political parties in U.S. House elections.

Subsequent research has wrestled with Kramer's theoretical assumptions and wrangled over econometric methods. The pessimism of Stigler, echoed by Arcelus and Meltzer, is not representative of the literature on economic voting behavior. The works of Stigler and of Arcelus and Meltzer aside, there is near unanimity that economic conditions influence voting behavior.

Bloom and Price (1975) reject Kramer's assumption that economic effects are symmetric. Kramer argues that economic upswings aid the incumbent, downturns assist the opposition.

Bloom and Price instead argue that incumbents gain very little from economic upswings but they suffer heavily from economic downturns. They argue that party identification and other salient political issues come to the fore in periods of economic prosperity. Economic considerations become salient during periods of economic distress. Bloom and Price divide all of the congressional elections between 1896 and 1970 into two groups. One group represents elections where the economy was expanding in the year preceding the election. The other represents elections where the economy was contracting. Bloom and Price find no significant effects for elections preceded by economic expansion. For elections preceded by economic contraction, the incumbent party's share of the national vote is inversely related to the magnitude of economic contraction (see also Claggett 1986).

Additional evidence for the asymmetry noted by Bloom and Price comes from Kernell (1977). Kernell employs individual-level data to demonstrate that individuals who are dissatisfied with the president's performance are more likely to vote than are those who are pleased with the president's performance. Kernell demonstrates that individuals who are dissatisfied with the president's performance are more likely to defect from their party than are those who are pleased with the president's performance.

Lau (1982) similarly finds that evaluations of presidential candidates are more strongly influenced by negative information than by positive information.

Two different approaches to measuring the effects of economic conditions on electoral behavior have been advanced. Vote functions are used to measure the aggregate level of electoral support for the incumbent over time and relate the level of electoral support to the economic conditions for that same period (Kramer 1971). Popularity functions measure the aggregate level of satisfaction with the incumbent from survey polls over time and relate the level of satisfaction to the economic conditions for the same period (Mueller 1970).

The relative infrequency of elections gives the researcher employing popularity functions a much larger number of observations. Mueller (1970) examines presidential popularity from Truman through Johnson with over 300 monthly observations available. Kramer (1971), in contrast, has 35 observations for his study of congressional elections from 1896 to 1964. Statistical methods which have come to the fore, such as Box-Jenkins ARIMA modelling, require a much larger number of observations than vote functions can provide (Norpoth 1984, 1989; van der Eijk 1987).

Paldam (1981a) counters that popularity functions are an unreliable measure of electoral behavior. They rely heavily upon survey questions which ask the respondent to identify the party they would support if an election were held tomorrow. Popularity functions assume that voting intention and voting behavior are congruent, a problematic assumption.

When an attempt is made to parcel out the effects of various macroeconomic factors such as inflation, unemployment, and disposable income, different results emerge. Kramer (1971) finds that the levels of inflation and real income have a significant effect on vote for the incumbent party while unemployment has no such effect (see also, Fair 1978). Lepper (1975) finds that high levels of unemployment reduce incumbent support (see also, Li 1976). Kirchgassner (1980) finds that inflation has a significant effect on the German electorate but unemployment and real income do not. Lecaillon (1981) finds that both inflation and unemployment have a significant effect on the popularity of the French president but real income does not. The literature is replete with similar examples. Several explanations have been advanced for the instability associated with macroeconomic variables. Frey and Schneider (1981) note that inflation, unemployment and real income are plagued with high levels of collinearity. This effect is

especially pronounced when all three are included in the same model (see also, Bellucci 1985). Schneider (1985) speculates that the periods over which aggregate studies have been measured explains the anomalous results noted above. Structural changes such as the economic crises of 1929-1933 may cause instability in the estimation of economic effects, if they are made part of the economic time series (see also, Stigler 1973).

Researchers employing individual-level data have attempted to estimate the length of time over which macroeconomic factors remain salient for the electorate. Researchers employing aggregate data have made more limited attempts. Kramer (1971) presents a rationale for simple retrospective voting which argues that voters use the recent past performance of the incumbent party as an indicator of what the incumbent party will do, if reelected. Voters, according to Kramer, base expectations for the present year on the previous year's experience. Hibbs (1981) presents evidence that the electorate's evaluation of the economy is not limited to the recent state of the economy. They also include retrospective evaluations of a much longer term (see also, Monroe 1978).

Individual-Level Analyses

The application of survey data permits the researcher to uncover the psychological motivations underlying electoral behavior (Kiewiet and Rivers 1985). Important theoretical elements can be more adequately tested with individual survey responses than they can with aggregated responses. With several notable exceptions, individual-level survey analyses rely almost exclusively upon surveys of the American electorate.

The influence of personal financial conditions on voting behavior has been the primary focus of individual-level studies. There is widespread agreement among researchers utilizing survey data that respondents who report being better off financially are more apt to vote for the incumbent political party in presidential elections than respondents whose financial condition worsened or remained stable (Fiorina 1978, 1981; Kinder and Kiewiet 1979, 1981; Kiewiet 1983, Lewis-Beck 1988a). Fiorina (1981) and Kinder (1981) demonstrate that changes in the personal financial conditions of survey respondents is positively associated with the level of satisfaction with presidential performance. The positive association between personal financial well-being and support for the incumbent party which Fiorina and Kinder demonstrate at the presidential level fails to appear at the congressional level (Klorman

1978, Fiorina 1978, Kinder and Kiewiet 1979, Kinder and Kiewiet 1981).

The influence of personal financial conditions upon voting behavior lacks the level of substantive significance associated with aggregate economic conditions. Several of the individual-level analyses fail to find a statistically significant effect for personal financial conditions. Hibbs, Rivers, and Vasilatos (1982) attempt to explain the relative lack of substantive significance by analyzing the effects of personal financial conditions on the electoral behavior of groups for whom personal financial circumstances are more salient as a political issue, groups such as working-class voters (see also, Weatherford 1978; Conover 1985). Several scholars have attempted to demonstrate that voters tend to hold themselves responsible for changes in their financial well-being rather than the incumbent government (Brody and Sniderman 1977; Sniderman and Brody 1977; Kinder and Mebane 1983). Feldman (1982) argues that economic conditions influence electoral behavior only to the extent that voters attribute responsibility for the state of economic conditions to the incumbent political party (see also, Kiewiet 1983).

Research on the influence of economic performance on individual voting decisions has not been restricted to personal financial well-being. Recently, scholars have

attempted to separately analyze survey respondents' evaluations of their personal financial condition and their evaluations of the state of the economy for society as a whole (Kinder and Kiewiet 1979, Kinder and Kiewiet 1981, Lewis-Beck 1988b). The terms pocketbook and sociotropic are often used to distinguish personal financial considerations from evaluations of the economy as a whole. Kinder and Kiewiet (1978) find that voters are more likely to hold the incumbent party responsible for changes in general economic conditions than for changes in personal financial conditions (see also Kinder and Mebane 1983, Kiewiet 1983). This research into the distinction between voting based on personal economic conditions and voting based on the state of the economy as a whole has led to a controversy still current within the literature. The controversy centers on the appropriate level of analysis for studying the effects of economic conditions on electoral behavior.

Kinder and Kiewiet (1978) argue for the adoption of individual-level data. They contend that aggregate-level data has little to say about how economic conditions affect individual voters. Substantively, they present evidence that personal economic grievances and voting behavior in congressional elections are unrelated. Voters whose financial conditions have worsened show little inclination to punish candidates of the incumbent president's party.

The connection between economic conditions and voting behavior stems from evaluations of the general economy, judgments Kinder and Kiewiet refer to as sociotropic.

Kramer (1983) disagrees with Kinder and Kiewiet (1978). Kramer argues that individual-level studies of changes in personal income are badly biased due to measurement error and are consequently apt to severely underestimate the effects associated with change in personal income. The measurement error associated with individual survey responses tend to cancel out in aggregation, since they relate to life-cycle and other factors arguably unassociated with government performance. Kramer notes that aggregate time series analysis will often yield reasonably good estimates of the underlying individual-level effects, estimates which are not as severely attenuated as their corresponding individual-level estimates. Admitting that aggregate time series analysis cannot disentangle voting based on personal economic conditions from voting based on the state of the economy as a whole, Kramer concludes that the measurement error associated with individual-level analyses renders them incapable of adequately discriminating between voting based on personal economic considerations and voting based on sociotropic considerations.

Markus (1988) has recently offered a different explanation for the discrepancies between individual-level analyses and aggregate-level analyses.

Markus' explanation rests on the observation that individual-level analyses tend to focus on one single election as the basis of their cross-sectional studies. Cross-sectional studies cannot address the effects of temporal changes in objective national economic conditions on voting behavior, unlike aggregate time series analysis, because in any given election the objective state of the economy is a constant rather than a variable.

Markus explicitly recognizes that perceptions relating to the state of the economy are not invariant across individuals for any one cross-section. He argues, however, that cross-sectional variation in those perceptions are small compared to the variation that occurs across time with changes in the objective economic conditions. To attenuate the shortcomings of both aggregate time series analysis and individual cross-sectional analysis, Markus employs pooled cross-sectional time series analysis to examine simultaneously the effects of longitudinal changes in the national economy and cross-sectional, cross-time variations in individual perceptions of personal financial well-being on electoral behavior. His pooled cross-sectional time series analysis results in findings similar to those for

aggregate-level time series with the added advantage of being able to disentangle voting based on personal financial well-being from voting based on sociotropic considerations.

Individual-level data also facilitates the analysis of both retrospective and prospective evaluations of economic performance.

Kuklinski and West (1975) present individual-level survey evidence that voters' perceptions of past performance are poor indicators of voters' expectations for the future. Chappell and Keech (1985; see also Chappell 1983) build upon the work of Kuklinski and West. Both object to Kramer's simple retrospective evaluation. Kuklinski and West contend that Kramer's model leaves the electorate susceptible to manipulation. If voters predict future unemployment and inflation rates from their past values, politicians have an incentive to create desirable but unsustainable combinations of unemployment and inflation just before each election. Cyclical manipulation will be most pronounced if voters have short memories (Chappell and Keech 1983). Chappell and Keech argue that sophisticated voters would have some sense of feasibility constraints in evaluating economic performance. Incumbents would be rewarded for selecting desirable policies, even when times are bad. They would be punished only for those undesirable outcomes for which they could reasonably be held responsible (see also Hibbs and

Vasilatos 1981). Sophisticated voters reward or punish according to whether the incumbent's policies promote desirable long-range goals or not. Voters do not respond to inflation or economic growth indiscriminately. Chappell and Keech (1985) present evidence consistent with a sophisticated standard of economic evaluation (see also, Lewis-Beck 1988b).

Fiorina (1978a, 1978b) uses survey data to test Stigler's (1973) assertion that there is no relationship between economic conditions and voting behavior. Fiorina favored survey data because the measurements were perceptual rather than objective. Fiorina presents strong evidence that economic performance affects electoral behavior in presidential elections. He fails to find a similar relationship in congressional elections. Fiorina also presents strong evidence that voters base their evaluations on past economic performance and not just on recent economic conditions (1981). He concludes that voters are cumulating actors. Voters' evaluations of the economy reflect their experiences accumulated throughout their lifetimes.

Lewis-Beck (1988b) has recently addressed the role of prospective evaluations of the economy. He has attempted to demonstrate that prospective evaluations of the economy, derived <u>partly</u> from short-term retrospective evaluations, are as important an explanation for explaining voter

behavior as are the long-term retrospective evaluations noted by Fiorina (1981).

Comparative Analyses

Comparative analysis of economic conditions on electoral behavior focuses almost exclusively upon transnational studies. Alt (1985) compares the effect of unemployment on voting behavior in both the United States and Great Britain. Frey (1979) analyzes the influence of unemployment, inflation and real income on the popularity of the incumbent party in Denmark, Norway and Sweden. Madsen (1980) includes both conventional macroeconomic measures and measures designed to capture transnational differences among the Scandinavian nations relating to their social and political systems.

The application of individual-level survey data to transnational comparative analysis has recently been undertaken. Comparable measures tapping survey respondents' perceptions of economic conditions in a transnational setting were unavailable until recently. Lewis-Beck (1988b, 1989) incorporated several measures of individual perceptions of economic conditions in Eurobarometer surveys administered in Great Britain, France, Germany, Italy and Spain during October 1983 and again during April 1984. The measures were designed to separate retrospective evaluations

from prospective evaluations and personal financial evaluations from general economic evaluations.

Intranational comparative analyses of macroeconomic conditions on electoral behavior are even fewer in number than transnational studies. Madsen (1980) suggests regional variations as an explanation for the weakness of national level political-economy models in Norway, but does not follow up with any regional data analysis.

Bellucci (1985) performs a cross-sectional analysis in which the units are Italian regions. While studying the effect of changing economic conditions on support for the two major Italian parties, i.e. the Christian Democrats (DC) and the Communists (PCI), Bellucci discovers a puzzling relationship between the national unemployment rate and support for the DC. Increased unemployment is associated with increased support for the incumbent DC governments. Switching from national unemployment to regional unemployment does not fully Bellucci's puzzle, but it does mark a departure from the customary reliance upon national economic conditions in economic voting behavior.

Lancaster and Lewis-Beck (1987) lend support to the argument that localized economic conditions affect voters' perceptions of how the economy is faring. Their interest is the relationship between changing personal financial conditions in Spain and support for regional parties and

regional economic policies. They discover that personal financial considerations provide little or no explanation for how the average Spaniard votes. Collective economic judgments, however, do shape the perceptions of Spanish voters. Economic hardships provide an important causal explanation for Spanish voters who abandon the national parties and support instead a regional political party (1986:669).

From which level of economic aggregation does the electorate draw its perceptions of the economy? The existing literature on economic voting remains silent on this question. Is it the national economy? Or, is it the more localized economic experiences which matter?

Peltzman (1987) casts doubt on the causal significance of local economic conditions. According to his analysis, voters penalize or reward candidates from the U.S. President's party according to national performance on inflation and growth. The inclusion of local growth rates and local deviations from national growth appear to be far less effective components. Peltzman interprets these findings as suggesting that voters view local deviations from the national pattern as idiosyncratic and apparently outside the anyone's control. Only with respect to local matters that governors can control -- like the state budget -- do voters penalize incumbents.

The results from these attempts to include economic variation at a level intermediate between voters and the nation have produced mixed results. The question still remains open to study. Do voters base their electoral behavior just on how the national economy fares or do they employ a more sophisticated calculus, including both national economic performance and regional economic experiences.

THEORETICAL FRAMEWORK

Relative Deprivation

The central theoretical premise of the economic voting literature is that voters respond to deteriorating economic conditions by withholding support from the incumbent political party or parties. The articulation of the explanatory theory underlying the economic voting literature has proceeded in an incremental fashion from Kramer's modification (1971) of Downs' (1957:4-8) rationality hypothesis. This thesis also builds upon the existing theoretical framework of the economic voting literature. It incorporates the theoretical concept of relative deprivation (Gurr 1967, 1970). Relative deprivation provides the theoretical underpinning to this study.

Gurr defines relative deprivation (1970:23-30) as the perceived difference between goods and conditions of life the public receives and the goods and conditions of life they believe that they are entitled to. It is the psychological conflict between what is and what ought to be. Gurr defines three common patterns of deprivation (1970:46-56). Decremental deprivation occurs when the public's expectations remain unchanged but the conditions of life

decline. Aspirational deprivation occurs when the public's expectations increase while the conditions of life remain unchanged. Progressive deprivation results from the failure of improving conditions of life to keep pace with increased aspirations. All three patterns of deprivation can lead to feelings of frustration and, ultimately, to aggressive behavior. For Gurr, who is concerned with explaining political violence, they are the source of civil strife. For this dissertation, they serve as the link between economy and electorate.

Each of the three patterns of deprivation -- decremental, aspirational, progressive -- can be used to develop explanatory theories of voting behavior. Aspirational deprivation can result from the repeated incumbent promises to lower unemployment or inflation, promises which the incumbent fails to fulfill. Decremental deprivation and progressive deprivation serve as more useful explanatory theories for economic voting. They focus more on changing performance than on changing aspirations. They also present some interesting schemes for the specification of statistical models.

Measures of unemployment, inflation, and economic growth are often included in statistical models of economic voting. In a nation accustomed to low levels of unemployment or inflation, an increase in either can lead to

feelings of decremental deprivation. Similarly, if the rate of economic growth declines, feelings of progressive deprivation can develop. Assuming that the public associates economic fluctuations with incumbent policies, we would expect increased dissatisfaction with incumbent performance. It is important to distinguish between decremental deprivation and progressive deprivation, because the two explanatory require different statistical model specifications.

Decremental deprivation assumes that the public expects economic performance to remain constant over time. The magnitude of inflation and unemployment that is acceptable is both historically and culturally determined. When the actual rate of inflation or unemployment rises above the public's expectation, frustration is likely to develop. The greater the deviation, the greater the likelihood of widespread dissatisfaction. The statistical model which best reflects the explanatory theory substitutes the deviation of economic indicators for the levels of those indicators. One such model is the deviation of economic indicators from their mean value over some historic period, $X_{it} - E(X_i)$. The level of support for the incumbent, Y_t, then becomes a linear function of those deviations.

Progressive deprivation assumes that the public expectation is one of trend rather than a constant level.

Gross Domestic Product (GDP) is an economic indicator that accords well with the theory of progressive deprivation. The public expectation may be one of continued economic growth. It is not the level of GDP but the trend over time which matters to the electorate. As actual change in GDP falls below the expected change, frustration is likely to develop. The greater the deviation, the greater the likelihood of widespread dissatisfaction. The statistical model that best reflects the explanatory theory employs the deviation of economic indicators from the trend of those indicators. One way of capturing this is to convert the economic series into a rate of change, $(X_{it} - X_{it-1}) / X_{it-1}$, and then take the deviation of the rate of change series from its mean value over some historic period, $X_{it} - E(X_i)$. The level of support for the incumbent, Y_t, then becomes a linear function of those deviations.

Deprivation theory also adds another interesting dimension. Deprivation is relative -- relative with respect to individuals, relative with respect to culture, relative with expect to time (Gurr 1967, 1970). What this implies for theories of economic voting is some form of interaction effects for each of the economic indicators. Not all deviations lead to feelings of relative deprivation. Some changes in the economy may be unrelated to changes in incumbent support. And this may help to explain findings

like Stigler's (1973). Stigler replicated Kramer's aggregate analysis of economic voting in the U.S. and shifted the time series. Kramer's findings were not robust. A certain threshold may be required in order to capture the public's attention. And that threshold may vary across cultures and across time.

The discussion of relative deprivation has thus far been limited to longitudinal studies. The explanatory power of relative deprivation theory is also applicable to pooled cross-sectional studies a là Markus (1988). The explanatory theory that was explicitly stated at the beginning of this section assumes that the deprivation which individuals feel is in part, at least, sociotropic; relative deprivation is equally applicable to both pocketbook and sociotropic theories of economic voting. The deprivation that individuals feel may be of either a personal or a collective nature. The theory also argues that the feelings of relative deprivation result from regional differences in economic performance. The "unfortunate" electors who inhabit areas of economic stasis or decline are apt to develop feelings of relative deprivation. And those feelings of relative deprivation can be decremental, aspirational, or progressive.

This study suggests an addition to Gurr's typology. Differential deprivation occurs when the conditions of life

change at a different rate for some social groups than they do for others. The social groups could be cultural, regional, or sectoral. The key to the concept of differential deprivation is the perception that some groups are worse off relative to others. This perception embodies both an expectation and its lack of realization, resulting in feelings of relative deprivation.

Gurr does not consider the converse of relative deprivation. What this thesis terms relative affluence. Gurr's substantive interest in political violence doesn't lend itself readily to a discussion of relative affluence, except to note that political violence is expected to decline as relative deprivation diminishes. The link between the economy and the electorate does lend itself to a discussion of relative affluence. Not only is reduced frustration expected to accompany the perception of relative affluence, increased support for the incumbent is also expected. In tangible terms, relative deprivation is associated with lost votes for the incumbent -- the result of either abstention (Arcelus and Meltzer 1975) or increased support for opposition parties (Kramer 1971). Relative affluence is associated with increased support for incumbent parties. The concept of relative affluence can be applied to each of the three types of relative deprivation listed above. Relative affluence occurs when the conditions of

life exceed the public's expectations. The converse of decremental deprivation, progressive deprivation, and aspirational deprivation is incremental affluence, progressive affluence, and aspirational affluence respectively. The effects of relative deprivation and relative aspiration are not presumed to be symmetric (Bloom and Price 1975), thus the public may be more willing to punish than to reward.

A Critical Threshold Model of Macroeconomic Influences

A second theoretical premise implicit throughout much of the economic voting literature is that the change in support for political incumbents is inelastic with respect to changing economic conditions. Substantial economic fluctuations result in substantial shifts in incumbent support. Minor economic fluctuations result in minor shifts in incumbent support. Central to this study is the proposition that electorates are not responsive to minor fluctuations in macroeconomic conditions (Kernell and Hibbs 1981)[1]. The phrase significant regional differences in the premises presented at the opening of this chapter reflects the importance of this proposition. The theoretical assumption is that the current state of the economy is but one of a number of potential issues affecting incumbent support in any given election (Budge and Farlie 1983). In

some elections, economic performance is not a campaign issue. In other elections, economic performance dominates the issue space.

Closely related to the proposition that electorates are not responsive to minor fluctuations in the economy is the proposition that the salience of economic conditions as an issue is a function of their deviation from either their long-term level or long-term trend. The greater the deviation, the greater the likelihood that voters will take note and react to the change in economic conditions. Also closely related to the proposition that electorates are not responsive to minor fluctuations in the economy is the proposition that the salience of economic conditions as an issue is a function of the length of time over which the fluctuations occur. Economic fluctuations which persist across successive periods of time increase the likelihood that voters will take note of the changing economic conditions and react accordingly.

The magnitude of the deviations and the duration of those deviations are distinct elements in determining the salience of economic performance. Both are sufficient, though neither is a necessary condition. Short-term fluctuations in macroeconomic conditions are capable of capturing the electorate's attention, assuming they achieve sufficient magnitude. Fluctuations which continue across

successive periods of time can be of lesser magnitude to capture the electorate's attention. The magnitude of change in macroeconomic conditions which is necessary to capture the public's attention is termed critical threshold and is hypothesized as being an exponential function of the duration of economic fluctuations, specifically of the form $e^{(x/t)}$.

The hypothesis that voters possess cumulative memories of economic performance is also central to this study (Fiorina, 1978, 1981). Hibbs and Vasilatos (1981) assume that voter's perceptions of economic performance decay over time in an exponential fashion. The theory underlying this study does not wholly disagree with Hibbs and Vasilatos. Voters' memories of economic performance may decline exponentially. This study advances the hypothesis that if memories of economic conditions do decay exponentially, then the rate of decay differs. The rate of decay being a function of the salience of economic performance. For example, memories of an economic depression are assumed to decay at a much slower rate than the memories of economic growth immediately following a depression.

Lafay (1985) notes that survey respondents tend to overestimate macroeconomic indicators. This study does not dispute Lafay's findings. Voters' evaluations may not be reliable measures for the current state of the economy, not

when asked to estimate the current level of economic indicators like unemployment or the rate of inflation.

A central proposition of this study is that voters are capable of discerning general trends in macroeconomic activity. It is assumed that voters can reliably determine whether the current state of the economy significantly deviates from long-term levels and trends. The ability to discern the actual level of macroeconomic indicators is limited but not non-existent for the average voter. Voters are able to describe the current state of the economy in very general terms, i.e. whether the economy has improved or worsened. It is assumed that voters employ ordinal measures in forming their economic evaluations, which in turn, form the basis for discerning trends in macroeconomic activity and forming evaluations of the current state of the economy.

The critical threshold value for improving economic performance which is sufficient to capture the public's attention is not assumed to be symmetric with the critical threshold value for declining economic performance. The two may be related asymmetrically, with voters more likely to notice deterioration of the economy than improvement (Bloom and Price 1975). In terms of behavior, it reflects the proposition that voters are more likely to punish incumbents for poor economic performance and less likely to reward them for satisfactory economic performance.

Individual Evaluations of the Economy

Central to this study is the premise that information about current economic conditions is obtained primarily through personal experience. Voters evaluate the current state of the economy on how well their local economy is or is not prospering. The alternative to this proposition is that information about current economic conditions are consumed vicariously as a political issue from media reports and elite opinions.

The degree to which experience is a predominant source of information regarding economic conditions determines the degree to which research should be primarily focused on local economic conditions. For nearly all nations, there is wide variance across subnational units in terms of economic conditions.[2] Local economies interact, forming the national economy. Information about the condition of these local economies can come both from experience and from consumption as a political issue via the news media and other elite opinion sources. The theoretical model presented in this study is based on the assumption that information regarding the local economy is derived primarily through personal experience. This is admittedly an *a priori* assumption. Empirical survey evidence on the role of both personal experience and media reports in the formation of economic evaluations is non-existent.

Information about the performance of the national economy also comes from these same two sources -- evaluations of local economic conditions and consumption as a political issue. Weatherford (1983) argues that education plays a substantial role in determining whether survey respondents base their evaluations of the economy on national economic information or personal economic experiences. Well-informed and educated respondents are more likely to base their economic judgments on national indicators, less well-informed respondents on personal economic experiences. The model this study advances is based on the assumption that individual evaluations of the national economy are heavily influenced by individual experiences at the regional level.

Consistent with the proposition that experience is the predominant means of gathering information regarding the state of the economy, the model proposed by this study is based on the hypothesis that the degree to which subnational units are differentially affected by the current economic conditions, they should differ with respect to their aggregate support for the incumbent party. The same is expected to hold true for individual survey respondents. The degree to which individuals and groups are differentially affected, should reflect differences with respect to their support for the incumbent political party.

Deviations from national economic conditions are treated as causal in nature and not as random sampling fluctuations.

Retrospective and prospective evaluations of the economy are both hypothesized as being significant factors in the explanation of individual voting behavior (Lewis-Beck 1989). As noted in the preceding section, this study adopts the proposition that individual voters are cumulating actors. Individuals note the current state of the economy and store it in their memory for future reference. It is the cumulative experiences which form the basis for trends to which individuals compare the current state of the economy. It is also hypothesized that voters forecast the future state of the economy on the basis of cumulative trends and that prospective evaluations of the economy are utilized as party of the individual's decision to support or withhold support from the incumbent political party.

Changes in personal financial conditions are also hypothesized as being salient considerations for individual voters. The degree to which personal financial conditions are a significant factor in the evaluation of economic performance is a function of the degree of responsibility attributed to incumbent policies for changes in personal financial conditions (Feldman 1982).

Political and Social Systems in the Evaluative Process

Another central premise to this study is that marked differences between nations in the significance of macroeconomic conditions for electoral behavior reflect social and political differences between nations. The comparative nature of this research design allows social and political factors to be considered in the analysis. New questions can be addressed. Questions relating to political stability, cleavage structures and political development.

Assuming, as this study does, that information regarding the economy is derived primarily from personal experience, heightens the role of subnational economic conditions in the evaluation of the overall economy. It is hypothesized that a unitary system of government further heightens the role of subnational economic conditions. The central government is responsible to a larger degree for the macroeconomic conditions of its subunits in a unitary system than in a federal system. The relative autonomy of local and regional governments in a federal system gives them added responsibility for macroeconomic conditions. The inclusion of both national and subnational elections in this research design permits the testing of the assumption that unitary political systems heighten the significance of economic conditions for the electorate.

This study offers the hypothesis that parliamentary systems heighten the responsibility of the incumbent political party changing economic conditions. Parliamentary systems which employ party lists for the selection of parliamentary members are assumed to heighten this responsibility even further. These hypotheses stem from two propositions. Parliamentary systems combine the executive and legislative functions of government into one body. The same party or coalition of parties controls both the executive and legislative processes. In a presidential system, one party can control the executive, while another controls the legislature. Attaching responsibility to the respective parties for the current state of the economy is rendered more complicated for the individual voter in a presidential system.

Parliamentary systems add another element of complexity to the model. Parliamentary systems are prone to coalitional forms of government. Presidential systems are not immune to the necessity of coalition formation within their legislatures, but parliamentary systems, with their combination of executive and legislative functions add additional complexities to the relationship between the economy and electoral behavior when coalitions form the basis of governing (see especially Lewis-Beck's complex-coalition hypothesis 1989). The difficulty for the

individual voter is in parceling responsibility for the current state of the economy between members of the coalition. Within the parliamentary system, a voter can switch support from the majority party within the incumbent coalition to another party and remain within that coalition, thus potentially affecting policy outcomes while still supporting the incumbent coalition.

Differences in social structures as well as in political structures are deemed relevant to the explanation of transnational differences in the role afforded economic factors in electoral behavior. The general level of economic development and the evenness of that development, it is hypothesized, are significant factors in the relationship between the state of the economy and electoral behavior. It is further hypothesized that certain economic conditions and patterns sensitize or desensitize large segments of the electorate with regard to macroeconomic conditions as a political issue. The comparative design for this proposal is able to control for transnational differences in economic development and also for intranational differences. Do voters in the periphery respond to economic changes in the same way as voters in the center? Are economic conditions more salient for industrial societies than they are for agrarian societies?

Notes

1. The title of this section and much of the theory underlying it owes much to the work of Kernell and Hibbs (1981). A parenthetic reference to their article "A Critical Threshold Model of Presidential Popularity," would not adequately reflect the effect which their article has had on the intellectual development of this section of the dissertation.

2. The phrase "nearly all nations" may surprise the reader. There are nations sufficiently tiny and homogenous like the Republic of San Marino and the Principality of Liechtenstein where it is reasonable to assume that wide variance in economic conditions does not exist from one "region" of the country to another.

GENERAL RESEARCH DESIGN

Scholars have approached the study of macroeconomic effects on electoral behavior from the level of individual survey respondents and from the level of aggregates. The design adopted for this study separately employs both individual-level and aggregate-level analysis in order to better understand the processes involved. The primary focus of this study is aggregate changes in electoral support in response to changes in the condition of the economy.

Significant portions of the process are regrettably unavailable at the level of aggregates. These include the existence and significance of prospective evaluations, the degree to which personal financial conditions color subjective evaluations of the economy and the like. Individual-level survey analysis will be used to explain the relationships among explanatory variables which cannot be reliably measured at the level of aggregate behavior. Kramer (1983), for example, demonstrates that aggregate time series analysis cannot disentangle the incidence of sociotropic voting from the incidence of pocketbook voting. Election outcomes depend upon economic conditions, but they

provide little insight into the decision calculus underlying individual vote choice (Markus 1988).

This study contains three sections. The first employs individual-level data from the Eurobarometer surveys in order to study the relationship between objective macroeconomic conditions measured at the national and the subnational level and subjective economic perceptions and policy evaluations. The second merges aggregate public opinion polls from France, Germany, the United Kingdom, and Denmark with aggregate economic time series collected at the national level to demonstrate that the causal relationships which have been found in the economic voting literature lack robustness. Far from clear and unambiguous, the statistical significance of national economic indicators in popularity functions may very well be the result of essentially random correlations in the data. The third employs aggregate-level electoral and economic data collected at the subnational level from seven member states of the European Communities. Pooled cross-sectional time series analysis is used to analyze the effects that subnational economic experiences play in shaping electoral support for incumbent political parties.

While each of these three sections tell a slightly different story, the conclusions of each are mutually reinforcing. National economic conditions form an important

backdrop to incumbent support. So, too, do more localized economic experiences.

INDIVIDUAL-LEVEL RESEARCH DESIGN

The Elements of Theory

If economic conditions influence the electorate, a number of conditions must be met and a number of activities must occur. First, individual citizens must be exposed to information about the economy. This information can come from a wide variety of sources. Direct observation, discussions with friends and acquaintances, reports in the press, government documents, etc. Second, the information needs to capture the attention of the electorate. The economy, as an issue, competes with a host of other political and social considerations (Budge and Farlie 1983). Third, the information must be salient enough to provoke the electorate to respond in a systematic manner during the act of voting.

Pocketbook vs. Sociotropic Dimension

Most of the research on the subject of economic voting begins with an explanatory theory based upon the material self-interest (Downs 1957; Kramer 1971). Pocketbook voting theories assume that personal economic considerations have a predominant influence on individual voters' perceptions of economic performance and, consequently, on evaluations of

incumbent performance. As the financial condition of individual voters and their households improve, evaluations of the economy and the incumbent by these same voters are expected to improve, all other things being equal.

Peffley (1984) argues that the simple retrospective voting model presented by Kramer (1971) ignores an important theoretical component. It ignores the degree to which individual voters attach responsibility for changing economic conditions to the actions (or inaction) of the incumbent government. At a minimum, according to Peffley, the simple retrospective voting model requires that individual voters perceive a change in their personal finances, that these same voters attach responsibility for changing personal finances to the incumbent government, and that these same voters base their voting decision largely upon changing personal finances. Peffley focuses on the question of responsibility. Do voters hold the government accountable for changes in their own personal and household financial condition?

Brody and Sniderman (1977) present evidence that voters in the American context do not assign responsibility for personal financial matters to the government. They instead blame themselves for personal financial hardships (see also Schlozman and Verba 1979; Feldman 1982; Kinder and Mebane 1983). Such findings weaken the expected relationship

between personal financial conditions and evaluations of incumbent performance.

While it is intuitively plausible that many voters, if not most, will use their own personal finances as an important tool for measuring economic performance, it is not implausible that voters will also employ other references. The modest effects for pocketbook voting models also support the proposition that voters may employ a different frame of reference for economic evaluations. Instead of asking, "How well am I doing?" before casting their vote, they may instead ask, "How well are we doing?" We being defined as localities, regions, or the nation as a whole.

Kinder and Kiewiet argue that American voters judge economic performance from a collective perspective rather than from an individual perspective (Kinder and Kiewiet 1979, 1981; Kinder and Mebane 1983). This is not to argue, however, that a collective frame of reference is incompatible with Down's rationality hypothesis. Sociotropes, i.e. voters who focus on collective economic conditions rather than personal finances, may be just egoistic as their pocketbook voter counterparts. They may perceive that it is in their best personal interest to have the collective economy prosper.

Pocketbook explanations and sociotropic explanations are both intuitively plausible explanations. Individual-

level survey data permits a clearer distinction between economic evaluations based on personal finances and those based on collective macroeconomic measures. In surveys this is commonly accomplished by asking some variation of the following two questions:

> How does the financial situation of your household now compare with what it was 12 months ago?
>
> How do you think the general economic situation in this country has changed over the last 12 months?

Because of their intuitive plausibility, both pocketbook and sociotropic evaluations are incorporated in the theoretical model underlying the individual-level portion of this study. There is little reason, initially, to presuppose that one or the other is the correct theoretical specification. The two explanations are not mutually exclusive, either. It is not at all unreasonable that some voters are more attentive to their wallets, others to general economic conditions.

Retrospective vs. Prospective Dimension

The discussion thus far has focused on retrospective evaluations of the economic performance. Voters consider how economic conditions have changed over some period of time in the past. Then, based on those retrospective evaluations, the voter arrives at a voting decision. Some analysts propose elaborate lag structures to model the decay

of memory across time (Hibbs and Vasilatos 1981). Others argue that voters are cumulating actors. Memories decay with time, but they remain present, ready to become salient when the correct stimulus is applied (Fiorina 1978a, 1978b, 1981). Many analysts prefer more parsimonious lag structures. While there is general agreement that lag structures are necessary in the statistical specification of the economic voting models, there is little or no agreement on the precise specification of lag structures (Lewis-Beck and Eulau 1985). As a consequence, the reader is sometimes left with the impression that lag specifications are essentially post hoc specifications, i.e. the best fit to the data.

Downs' (1957) theory of voting, while heavily weighted in the direction of retrospective evaluations, is not incompatible with prospective evaluations. Voters may judge incumbent performance not only by how well the economy has or has not flourished under their stewardship but also by whether they expect the prevailing economic conditions to continue in the immediate future. Prospective evaluations, as Lewis-Beck (1988) correctly points out, also accord well with lessons taught in civics classes. Candidates discuss not only their past, but they also make promises. Voters then cast their ballots for the set of promised policies they find most appealing. Survey evidence strongly support

the proposition that voters use prospective expectations in forming their evaluations of the economy and the incumbent. Lewis-Beck (1988) argues that prospective evaluations are derived from short-term retrospective evaluations. Voters look back over the past year or two and then form a prospective judgment. Both the retrospective and prospective evaluations, according to Lewis-Beck, influence incumbent support. Fiorina (1981) argues that voters use a much longer retrospective time frame with which they form a prospective evaluation.

Simple vs. Complex Dimension

In order for the electorate to respond in a non-random manner in the polling booth to changing economic conditions, the linkage between government policies and changing economic conditions needs to be made explicit. The standard economic survey items which are used to separate the incidence of pocketbook voting from sociotropic can be modified to test for that linkage in the following fashion:

> Compared with a year ago, would you say that the government's policies have had a good effect, a bad effect, or that they have not really made much difference with regard to the financial situation of your household?
>
> Compared with a year ago, would you say that the government's policies have had a good effect, a bad effect, or that they have not really made much

difference with regard to the country's general economic situation?

The earlier survey items, which measure the respondent's perception of changing economic conditions are referred to as "simple" evaluations by Lewis-Beck (1988). Those items ask the respondent to make a judgment about a single reference -- personal finances or the general economy. The survey items above ask the respondent to make judgments regarding two distinct references -- personal finances (or the general economy) and government policies. Lewis-Beck refers to the survey items above as "complex" evaluations. Complex evaluations make the linkage between the effects of incumbent policies and vote outcomes explicit.

Affective Dimension

It has been remarked on more than one occasion in this thesis that the economic model of voting presented by Downs (1957) and modified by Kramer (1971) underlies most of the economic voting literature. This model presumes that voters operate with full information, that they weigh all of the options carefully, and that they select a utility maximizing outcome. Human emotions, raw gut-level feelings, do not enter into Downs' or Kramer's equations.

Feldman and Conover (1986) offer a refinement to the logical, utility maximizing voter of Downs. They introduce

an affective element, arguing that it is not enough to know whether or not voters perceive a change in prevailing economic conditions. To adequately link changing economic conditions to vote choice in the individual model, Feldman and Conover argue that we also need to know how voters feel about those changes. Are they worked up? Are they fearful about the future? Or, are they proud? Are they confident about the future?

The Model

The theoretical model underlying the individual-level analysis is presented in **Figure 1** below. All four theoretical elements discussed in the preceding section are found in the theoretical model.

Simple evaluations of the economy from both a pocketbook and sociotropic perspective are linked directly to their respective complex evaluation. It is expected that the complex evaluations will be better predictors of vote choice than will the simple evaluations. Both the simple and the complex evaluations are linked to each of the remaining theoretical elements in order to test this assumption. It is also presumed that complex evaluations will affect both prospective evaluations and the affective element more preponderantly than will the simple evaluations. Objective economic conditions are linked into

each of the evaluative elements and to vote choice in order to control for and estimate both the direct and indirect effects of objective macroeconomic conditions. The objective economic indicators are theoretically specified as exogenous variables. They are the economic conditions prevailing at the time that the surveys are administered or at some determined period of time prior to the surveys.

Prospective evaluations are theoretically assumed to be derived largely from retrospective evaluations of the economy. Thus the temporal sequence becomes first retrospective evaluations, then prospective evaluations. The word largely needs to be emphasized. While the retrospective linkage has much to recommend it, voters may also be responding to the campaign promises of the incumbent and opposition parties when arriving at a prospective evaluation.[1]

The affective element is theoretically assumed to flow from both retrospective and prospective evaluations. The specific affective characteristic employed by this study is anger. A survey item which asks how often the respondent feels angry over economic conditions is included in the surveys (which are described in more detail in the following section). The temporal sequence is altered. First retrospective evaluations, then a prospective evaluation, then the affective evaluation.

The relationships among the evaluative elements is theoretically assumed to be unidirectional. The affective element at time $\underline{t}$, for example, is not expected to influence either retrospective evaluations or prospective evaluations at time $\underline{t}$. Affective evaluations may influence the other evaluative items at some future time, $\underline{t+1}$.

In addition to macroeconomic conditions, voters' perceptions of the economy are theoretically assumed to be filtered through both social and ideological filters. How an individual voter views the economy is expected to be related to whether or not the voter is unemployed. Whether or not a voter belongs to the working class is theoretically expected to influence their perception of the economy and render certain macroeconomic indicators like unemployment more salient (Hibbs 1982c). Unemployment and social class are theoretically specified as exogenous variables. They represent conditions at the time that the surveys are administered. They are linked to each of the evaluative elements and to vote choice. Their inclusion as independent variables in each of the equations permits control and estimation for both direct and indirect effects. In the Western European context, there is consistent evidence that social filters such as membership in the working class exert a powerful direct effect on vote choice (Lewis-Beck 1988).

It has been repeatedly demonstrated that ideology in the Western European context lacks the stability that is has been observed in the American context. Shifts in ideology in longitudinal designs occur across even short time periods. The explanation which receives relatively widespread acceptance is that ideology is highly endogenous with vote choice (Lewis-Beck 1988). In most Western European party systems, the left-right ideological dimension can still be successfully used to distinguish the parties. Ideological divisions remain salient to the voters. Further, the political parties in many Western European nations have been relatively short-lived. The French party system is a case in point. On the right, political parties have tended to be identified with charismatic personalities. As a consequence, as those leaders retire or withdraw from politics, the parties have a tendency to dissolve.[2] Short-term electoral alliances during many Western European elections also add to this tendency to blur the distinction between ideology and party identification among Western European voters. The link between ideology and vote choice is consequently a reciprocal relationship in **Figure 1**.

The theoretical model presented in **Figure 1** underlies the system of equations presented in **Table 1** below. Those eight equations represent a modification of the system of equations presented by Lewis-Beck in his book, Economics and

Elections (1988:91).[3] The system of equations presented by Lewis-Beck are presented in **Table 2** below.

The are several important differences between the system of equations proposed by this study and those proposed by Lewis-Beck.

First, this study employs eight equations instead of three. The simple and the complex retrospective evaluations from both a pocketbook and a sociotropic perspective are specified as separate endogenous variables (X_1-X_4). The model proposed by Lewis-Beck employs only the complex evaluation from a sociotropic perspective (X_4) as an endogenous representative of retrospective evaluations. This model also specifies the affective evaluative element (X_6), i.e. anger, as a separate endogenous equation. This is in accord with the causal sequence described above. Retrospective evaluations, then prospective evaluations, then affective evaluations. Lewis-Beck attempted to include ideology (Z_3) as an endogenous variable but was unsuccessful in developing a suitable instrument for estimation with Two Stage Least Squares (2SLS). He subsequently treated ideology as an exogenous variable (1988:92). This study preserves the endogenous character of ideology rather than treating ideology as exogenous.

Second, this study combines both subjective evaluations of the economy from individual-level survey responses and

objective measures of economic performance from aggregate-level macroeconomic indicators. The level of aggregation includes both the nation and the region.

Third, Lewis-Beck employs several economic perceptions that are excluded from this study including perceptions related to incumbent performance on job prospects, inflation, and unemployment.

The Data

In order to test the proposition that regional economic conditions influence the public's perception of the overall economy and their support for political incumbents, this study begins with a series of questions designed to tap the economic perceptions of survey respondents in five Western European nations. These questions were administered in Eurobarometers 20 and 21 (November 1983 and April 1984), and were part of an earlier research project (see Lewis-Beck, 1988). The five nations included were West Germany, France, Italy, United Kingdom, and Spain.

A battery of questions are administered in each Eurobarometer that measure economic evaluations. One evaluative dimension is represented throughout most of the Eurobarometer series: pocketbook vs. collective. Lewis-Beck added three additional dimensions in Eurobarometers 20 and 21 -- retrospective vs. prospective, simple vs. complex,

and affective. The specific wording of the economic survey items are presented in **Table 3** below.

Some of the survey items were subsequently recoded. The original measure for ideology was measured from 1 to 10 with 1 being extreme left and 10 being extreme right on the tradition left-right dimension. Some of the incumbents in this study were ideologically to the left, others to the right. As a consequence, the effects of ideology were inclined to be suppressed in the original measure. Ideology was subsequently recoded so that 1 reflected very weak ideological identification with the incumbent and 10 reflected very strong ideological identification. Thus, extreme left voters with an extreme left incumbent were coded 10. So were extreme right voters with an extreme right incumbent. Vote choice was recoded from a pseudo-ordinal measure[4] to a dichotomy reflecting incumbent/opposition.

Survey responses for the economic survey items, together with survey items measuring basic social cleavages (working class and unemployment status) and partisanship (left-right ideological self-identification) were combined for all five countries represented. Aggregate economic indicators, measured at both the national and subnational levels, were merged with the survey dataset, yielding a pool of respondents with an overall N of approximately 10,500.

Roughly 2000 respondents were drawn from each nation with approximately one half of those drawn from each Eurobarometer. After listwise deletion of cases with missing values, a sample size of N = 5551 resulted.

The objective macroeconomic indicators utilized by this preliminary study were unemployment and gross domestic product (GDP). Unemployment and GDP were selected, because both were available at the national level and the subnational level. The subnational level of aggregation selected was the equivalent of the French *région administrative* and the German *Land*. The macroeconomic indicators were combined with the individual survey responses on a case by case basis, using the nation and region of each respondent to link the two datasets.

The coding for each of the objective macroeconomic indicators employed in this study are included in **Table 4**.

Unemployment and GDP are measured as both levels and percentage changes. Unemployment is measured monthly in the REGIO time series employed by this study. GDP is measured annually. For unemployment, the question of choosing an appropriate lag becomes an important consideration. The choices for GDP are much more limited.

This study seeks to avoid *post hoc* lag specifications based on bivariate correlations or iteration through alternate model specifications. The theoretical assumption

that drives this study is that economic effects, if present, should make their effects known across successive time periods. The correlations are expected to decline across time in an approximately exponential fashion. Therefore, if unemployment at lag t-1 is expected to have an effect on vote choice at time t, unemployment at t-2 is expected to also have an effect (albeit a reduced effect). The empirical evidence supports this theory. Aggregated correlations (presented in **Table 5** below) between various unemployment measures and vote choice shows a declining effect for unemployment across time.[5] The lags that were selected were as proximate to the surveys as possible. Unemployment was measured in the month prior to each respective Eurobarometer. GDP was the annual measure for the year of each respective Eurobarometer.

Dangerous levels of multicollinearity prevent the inclusion of the full set of national and regional economic measures. High multicollinearity, or highly intercorrelated independent variables, was not unexpected. Unemployment, GDP, prices, etc. are all summary measures for different facets of economic activity taking place in society at any one point in time. We therefore expect unemployment and economic growth to be related. As the economy shrinks, we expect the number of employed persons to be reduced.

Researchers familiar with regression analysis are also familiar with the all too common effects of multicollinearity -- unexpected sign reversals, statistical insignificance, etc. (Berry 1985:37). One solution is to drop one or more of the offending variables. Theoretically, this solution is less than optimum. Multicollinearity refers to high levels of correlation among a set of independent variables for a given sample of data. Multicollinearity is essentially a sample defect. The reference is the sample, not the population. Another commonly proposed solution is to increase the size of the sample, thereby altering the variances and covariances among the set of variables and thereby altering their intercorrelations. An increased sample was unavailable for the purpose of this study. A third solution is also often adopted. The combination of two or more of the independent variables. This is the strategy adopted here. The national and regional measures for each of the macroeconomic indicators were combined into a deviation form. The subnational measure was subtracted from the national measure. This reduces the number of objective macroeconomic indicators from eight to four. This also reduces the levels of multicollinearity significantly, although it does not eliminate multicollinearity entirely. The regional deviations in GDP, for example, are still elevated. It is

this analyst's opinion that it is better to accept the possible effects of multicollinearity than it is to intentionally introduce misspecification into the model and wander away from theory.

The combination of the national and regional measures into deviation form also accords well with theory. The specification directly measures regional disparities in unemployment and economic growth. And regional disparities can form the basis for relative deprivation.

Results

Single Equation Results

Prior to the estimation of the simultaneous equation model presented in **Table 1**, a reduced set of equations was estimated. Three dependent variables were employed which measure retrospective and prospective evaluations of the state of the general economy. Specifically, survey items for the simple retrospective evaluation of the national economy, the complex retrospective evaluation of government effect on the general economy, and the prospective evaluation of the general economy were included. Three basic classes of models were analyzed. One class incorporates only unemployment. The second substitutes GDP for unemployment. The third incorporates both GDP and

unemployment. All independent variables were treated as exogenous.

Dichotomous variables were employed to control for nation specific effects. While it is expected that changing economic conditions affect support for the incumbent government in each of the five nations included in this study, it is not assumed that the mean level perception of the electorates in each of these countries will be equal.[6] The messages which the electorates receive about the economy may very well differ, leading to differences in how those electorates view current economic conditions. The inclusion of dichotomous "dummy" variables controls for and permits the estimation of those unit specific effects.

It should be noted that the current level of economic indicators and change in those indicators from month-to-month are incorporated in each of the models in this study. Both levels and percentage change are included in the model because neither levels nor change by itself gives an adequate representation of the relative deprivation certain localities may be experiencing. Regions which have experienced low levels of unemployment or inflation may be sensitive to small changes, changes which do not make themselves felt in the level of unemployment or inflation. Similarly a rise in unemployment from 1% to 2% in a single

year does not have the same significance as a rise from 10% to 20%. Yet, both represent a 100% increase.

Parameter estimates were obtained with ordinary least squares (OLS).

Two significant facts emerge from these estimates. One, subnational deviations in unemployment and GDP appear to impact significantly on the public's perception, ceterus peribus, of incumbent economic policies. Two, subjective economic evaluations, at the individual level, are extremely noisy. It is encouraging to note that subnational economic conditions make their effects known on subjective evaluations of the economy through all of that noise.

The difference in the current rate of unemployment at the subnational and the national level, presented in **Table 6**, is statistically significant and has the theoretically expected relationship with the dependent variable for two of the three dependent variables. The one exception is the simple retrospective evaluation. It approaches the .10 level of statistical significance. The difference in month-to-month change in unemployment does not even approach statistical significance and has the wrong sign with respect to each of the dependent variables. The dichotomous variables tapping unit specific effects demonstrate that the Italian, British, and Spanish electorates have a more pessimistic outlook on the state of their respective

economies than does the German electorate. The interesting exception is the French electorate. While they are more critical in their retrospective evaluations, they are more optimistic than the German electorate in their prospective evaluations. The social and political filters perform as expected. Being a member of the working class and being unemployed leads to a more pessimistic evaluations. Strong ideological identification with the incumbent has a substantial effect on how respondents evaluate the economy. The size of t-scores for ideology are indeed impressive. The same is true for most of the estimates in **Table 6**. While the traditional measure of explained variance, R^2, is not impressive, the t-scores for most of the substantive variables are large enough to weigh against the presumption that sample size alone accounts for these findings.

GDP is substituted for unemployment as the macroeconomic indicator of interest in **Table 7**. Similar to the findings for unemployment, the difference in the current level of GDP at the subnational and the national level is statistically significant and has the theoretically expected relationship with each of the dependent variables. Month-to-month change in the difference between GDP at the regional and national levels also has a statistically significant effect on all three dependent variables. Unit

specific effects remain powerful. So too do the effects of social and ideological filters.

The inclusion of both unemployment and GDP in the same equation continue to perform as expected when combined within the same model. The results of the combined unemployment/GDP model are presented in **Table 8** below. Regional deviations in both unemployment and GDP continue to have a significant effect upon respondents' evaluation of the economy.

In each of the models presented in this study, the parameter estimates for social cleavages and ideology remain consistent. Membership in the working class gives a very slight bias in the direction of pessimism. Unemployment provides a somewhat stronger bias. Strong ideological identification with the incumbent's political tendance significantly colors survey respondents' economic perceptions in a positive manner.

How much confidence can we have in these results?

The goodness of fit for each of the models appears at first not to measure up to theoretical expectations. This relative lack of fit is not only explainable but theoretically predictable in an individual level model. Aggregation of the indicators would cancel out much of the stochastic error. This is precisely Kirschgässner's (1985) finding. In the German case, when evaluations of change in

the general economy were aggregated, over ninety percent of the variance in the public's evaluation of economic change can be explained by objective economic indicators. The fact that subnational economic indicators emerge at all from the background noise that accompanies the public's perception of economic conditions is reassuring. To have them emerge with a high degree of statistical significance lends persuasive weight to the argument that the public draws upon both national and local economic conditions in evaluating whether the economy is or is not functioning well.

Confidence in the results should be more than just a function of a summary measure like R^2. While such measures provide a rough estimate of model performance, they are not an adequate substitute for an examination of the coefficients themselves -- their signs, their magnitudes, their standard errors. One feature emerges from the analysis above. The coefficients for regional effects, by and large, are statistically and substantively significant. Their standard errors are small enough to weigh against the hypothesis that they are the result or random correlations and/or sample size.

Simultaneous Equation Results

Researchers familiar with regression analysis are familiar with the difficulties that endogenous variables

present. Estimation by OLS results in parameter estimates which are both biased and inconsistent (Pokorny 1987). The recommended strategy when endogenous variables are present is the use of one of the instrumental variable techniques -- two-stage least squares, three-stage least squares, iterated three-stage least squares, etc.

The successful application of any one of the instrumental variable techniques is dependent upon the presence of instruments that are (1) highly correlated with their respective endogenous variables and (2) are uncorrelated with the error term (Hanushek and Jackson 1977:234, Pokorny 1987:304). Monte Carlo simulations presented by Bartels (1990, 1989) demonstrate that the absence of suitable instruments results in estimates which are potentially both biased and inefficient. Bartels (1990:29) further demonstrates that "...even seemingly minor model misspecifications will seriously distort statistical inferences based on instrumental variables estimators."

Suitable instruments do not exist for the endogenous variables employed in this study. Two Stage Least Squares creates instruments by regressing each endogenous variable on the full set of exogenous variables. This the first stage of 2SLS estimation. Estimates of the endogenous variables are then substituted for the endogenous variables themselves and estimation is undertaken with OLS. The

instruments which result from the first stage in this study are not strongly correlated with their respective endogenous variables. 2SLS estimation would result in the introduction of more noise than information. Further, relative meager fits for each of the instruments with the set of exogenous variables indicates that the assumption of no relevant variable excluded is a highly optimistic assumption. Instrumental variable estimation makes no provision for parsimony in its assumptions.[7] As a consequence, OLS -- a more parsimonious statistical model -- is preferred for this study. It must be stressed that resulting estimates are less than optimal. This would, however, also be true for 2SLS estimation.

The parameter estimates for the structural model presented in **Table 9** add additional support to the hypothesis that local deviations from national unemployment have an important independent effect on incumbent support. Regional deviations from national unemployment, when measured as both differences in the level of unemployment and differences in the change in unemployment, have a statistically significant effect on vote choice. Their signs are in the expected direction. When regional unemployment is lower than national unemployment, the likelihood that any individual respondent would vote for the incumbent increases. The standardized parameter estimates

presented in **Table 10** demonstrate that the effects of regional deviations in unemployment are also substantively as well as statistically significant. The standardized coefficients for unemployment are comparable to the standardized coefficient for working class membership. Differences in the level of unemployment (U_1) range from -0.0718 to 0.0269 with a mean of -0.0023. The range of effects, ceterus paribus, for regional deviations in the level of unemployment on the likelihood that a respondent would voter for the incumbent is -0.1181 to +0.0443. The similar range for deviations in one month change in unemployment (U_1) is from -0.0174 to +0.0200 (based on a range for U_1 of -0.0567 to +0.0651 and a mean of -0.0240).

Regional variations in unemployment are considerable. On average, regional unemployment patterns deviate very little from national unemployment. This is reflected in the near zero means for both unemployment measures. But when the regional pattern deviates significantly from the national, an substantial impact can be seen on vote choice. Where regional unemployment levels are higher than national unemployment in the sample studied, the incumbent can lose as much as 12%. The converse is also true. When regional unemployment is lower than national unemployment, the incumbents in this study receive a benefit of as much as 4.5%.

The coefficients for GDP are problematic. While the coefficient for deviations in the level of GDP (G_1) is statistically significant, the sign is in the wrong direction. A positive coefficient implies that a lower level of GDP than the national average results in increased support for the incumbent. GDP is similarly problematic throughout the entire system of equations.

The GDP measures remain intercorrelated with the remaining independent variables at a significantly elevated level. If the GDP measures are each regressed on the remaining independent variables in the vote choice equation, the resulting R^2s are 0.4385 and 0.3316 for G_1 and G_2 respectively. While the intercorrelations do not approach perfect collinearity, they are also far from optimal. It will be recalled that one of the common manifestations of collinearity is sign reversals.[8]

The vote choice equation in **Table 9** employs a dichotomous dependent variable. OLS estimation results in unbiased but inefficient estimates when the dependent variable is dichotomous (Aldrich and Nelson 1986). To correct for the inefficiencies associated with the estimation of a dichotomous dependent variable, probit analysis was undertaken on the vote choice equation. The dependent variable in the best economic policies equation

also contains a dichotomous dependent variable. **Table 11** presents the results of the probit analysis.

A comparable test statistic in probit for the familiar t-score in OLS is the χ^2 ratio. While similar in their interpretation, the probability values for identical t-scores and χ^2-ratios are different.[9] Therefore, probability values are included in **Table 10**. The probit results confirm the OLS estimates. Regional deviations in unemployment, when measured as either levels or change remain statistically significant at the 0.05 level.

The remaining elements in the vote choice equation meet theoretical expectations. The evaluative elements -- complex pocketbook and sociotropic evaluations, prospective evaluations, and affective evaluations -- have a substantial impact on vote choice. As expected, sociotropic evaluations have a larger direct impact than do pocketbook evaluations. The indirect impact of sociotropic evaluations are even more substantial, since prospective evaluations are also largely derived from retrospective sociotropic evaluations.

Ideology (Z_3) is the single most important explanatory variable. This accords with both theory and the literature. The other two filters -- social class (Z_1) and personal unemployment (Z_2) also play a significant role in incumbent evaluations. Personal unemployment, while not statistically

significant at the 0.05 level is significant at the 0.10 level and is in the theoretically expected direction.

The theoretical assumption that ideology and vote choice share bidirectional causality is also supported by the results above. The single most powerful predictor of ideological identification with the incumbent is vote choice. Personal unemployment is statistically significant although the sign is in the wrong direction. The sign associated with membership in the working class is also in the wrong direction.

Regional deviations in unemployment and GDP are less effective as independent predictors of the economic evaluative items than they are as predictors of vote choice. One pattern emerges clearly from the data. Respondents' perceptions of the economy and their own financial well-being are only tenuously linked, if linked at all, with traditional macroeconomic indicators like unemployment and GDP.[10]

Whether or not a respondent is unemployed is the single most important predictor of respondents' perception of change in their own financial well-being (X_1). Ideological identification with the incumbent also plays a substantial role in shaping respondents' simple pocketbook evaluations. Deviations in unemployment and GDP measured as differences (U_2 and G_2) are both statistically significant. The signs

for both coefficients are in the wrong direction. One interesting fact also emerges. Simple retrospective evaluations of financial well-being are extremely noisy. Explained variance as measured by model R^2 is a very disappointing 0.0479. Quite obviously, neither economic indicators nor social and ideological cues determine to any significant degree the perceptions respondents have regarding their changing financial conditions. This is not entirely counter-intuitive, however. No data is available regarding changes in income, etc.

Ideological identification with the incumbent is the best predictor of how respondents perceive changes in the general economy (X_2). Personal unemployment also plays a role, although the impact of personal unemployment is more keenly felt on pocketbook evaluations -- a theoretically predictable outcome. Deviations in regional unemployment are also statistically significant. The sign for the coefficient is in the wrong direction. Differences in regional GDP measured as levels have a statistically significant effect on simple sociotropic perceptions also, and the sign for the regional GDP deviations is in the theoretically anticipated direction. Just as with simple pocketbook evaluations, perceptions of the economy which are unrelated to policy evaluations are extremely noisy. R^2 is a meager 0.1068.

Objective economic evaluations also fare poorly with regard to the complex evaluations linking incumbent policies and changing economic conditions. Not one of the macroeconomic indicators is statistically significant as a predictor of respondents' evaluation of incumbent policies on their personal financial well-being (X_3). The best predictor of the complex retrospective evaluation of personal financial well-being is the simple pocketbook evaluation (X_1). Ideological identification with the incumbent and personal unemployment also have a substantial effect on respondents' pocketbook perceptions. Deviations in regional unemployment measured as both levels and month-to-month change do have a statistically significant effect on respondents' retrospective evaluations of incumbent performance on the general economy. For levels, the coefficient for regional deviations is in the theoretically expected direction. For month-to-month change, the sign of the coefficient is in the wrong direction.

Regional deviations in month-to-month change in unemployment do have a statistically significant effect on future perceptions of the economy (X_5). Prospective evaluations are shaped much more by retrospective evaluations of the economy and personal finances than they are by objective economic indicators. The single most powerful predictor of prospective evaluations is a

respondent's evaluation of incumbent performance on the general economy (X_4). Evaluations of incumbent performance on personal finances (X_3) also plays a large role. So does ideological identification with the incumbent.

The affective element of the simultaneous equation model (X_6) -- whether or not the respondent ever feels angry about economic conditions -- is significantly affected by regional deviations in both unemployment (U_1) and GDP (G_2). Prospective evaluations of incumbent performance on the general economy (X_5) have the largest single impact, followed by retrospective evaluations of a sociotropic nature (X_4), ideological identification with the incumbent, and retrospective evaluations of a pocketbook nature (X_3).

How much confidence can we have in the simultaneous equation results?

The goodness of fit for each of the equations measures up to theoretical expectations and accords well with the literature. The only exceptions are the simple retrospective evaluations (X_1 and X_2). The R^2s for most of the equations range from approximately 0.25 to 0.35.

Goodness of fit rarely approaches 1.00 in a survey model. Imperfect goodness of fit is not only explainable but theoretically predictable. Aggregation should cancel out much of the stochastic error. Some will remain, however, largely the function of measurement error.[11]

Confidence in the results should be more than just a function of a summary measure like R^2. While such measures provide a rough estimate of model performance, it was mentioned earlier they are not an adequate substitute for an examination of the coefficients themselves -- their signs, their magnitudes, their standard errors. One feature emerges from the analysis above. Regional economic conditions have important direct effects on individual vote choice. They also have an effect on powerful effect, ceterus paribus, on several of the evaluative elements. Unemployment appears to play a larger role in the public's perceptions of economic performance. Economic growth, as measured by GDP, plays a less consistent role. Their standard errors for regional deviations are small enough to weigh against the hypothesis that they are simply the result of random correlations and/or sample size. Probit analysis also confirms the effects of regional deviations in unemployment on vote choice and adds a measure of robustness to the findings. The standard errors associated with regional deviations in unemployment are lessened under probit analysis.

The evaluative elements accord well with the existing literature on economic voting behavior. Sociotropic evaluations have a more powerful effect than pocketbook considerations. Prospective evaluations are largely a

function of retrospective evaluations. Ideology is an important perceptual filter. Whether or not a respondent is unemployed also has a powerful effect, by and large, on economic perceptions. It does not, interestingly enough, have a marked effect on vote choice. The effects of membership in the working class are opposite those for personal unemployment. Membership in the working class has a significant effect on vote choice, although its effects on economic perceptions is not at all significant, statistically or substantively. The fact that the remaining elements in the simultaneous equations accord well with both theory and previous research lend additional confidence for the parameter estimates presented above.

Conclusions

It should be recalled at this point that the purpose of the first section of this study is to demonstrate that regional patterns of unemployment and GDP substantially affect both the vote choices of individual survey respondents and the economic perceptions of those same respondents. While regional deviations in GDP significantly affect only ideology in the manner expected, regional deviations in unemployment have a significant impact on vote choice. The impact of regional deviations in unemployment can gain or lose a significant amount of support for

incumbent governments. For the data at hand, estimates range from a loss of approximately 11% to a gain of approximately 5%. Regional deviation in unemployment can also have a substantial impact on survey respondents' perceptions of changing economic conditions.

Individual-level models based on survey responses are often plagued with large amounts of stochastic error. The individual regressions and the system of equations analyzed in this section are no exception. It is important to note that subnational economic conditions make their effects known through all of the stochastic error present. This is reassuring. The high degree of concurrence between the statistical analysis, the underlying analytic theory, and the existing literature on economic voting behavior adds further reassurance that the findings are not simply the result of random correlations and/or sample size.

The findings presented in this section add persuasive weight to the argument that voters draw their perceptions of the economy from both the local and the national experience. They are in no way conclusive. The question remains far from settled regarding the effects of localized economic conditions. From here, the analysis will proceed to analysis of national popularity functions, where the argument will be made that the effects of national economic conditions on incumbent popularity, which have been

demonstrated many times in the existing literature, are not robust with regard to alternative specifications and are largely the result of random correlations. From there, the analysis will proceed to a pooled cross-sectional time series analysis of nine West European nations. The results of that analysis will integrate with the results here to demonstrate that subnational economic experiences play a substantial role in support for incumbent governments in Western Europe.

Notes

1. Chappell and Keech (1985; see also Chappell 1983) build upon Kuklinski and West's (1975) finding that retrospective evaluations are poor indicators of prospective evaluations. Chappell and Keech argue that sophisticated voters would have some sense of feasibility constraints in evaluating economic performance. Voters do not respond to unemployment or economic growth indiscriminately. Instead, sophisticated voters reward incumbents for selecting desirable policies, even when times are bad. Chappell and Keech present evidence consistent with a sophisticated standard of evaluation.

2. This is not always the case. While the parties on the right in France have undergone considerable change throughout the Fifth Republic, the parties on the left have remained more stable. The Parti Communiste Française (PCF) has remained relatively stable in terms of its organization and its program. So, too, have the Radicals (MRG). The Socialist experience has been less stable.

3. In an earlier draft, six equations were proposed -- complex pocketbook, complex sociotropic, prospective, affective, ideology, and vote choice. Subsequent consideration of the theoretical model suggested the addition, first of simple pocketbook and simple sociotropic evaluations, then of best economic policies. The substantive results with respect to variables common to all three theoretical models were comparable.

4. Party choice and best economic policies are coded to reflect individual parties. The numbers assigned to the parties reflect a judgment by the primary investigator as to the left/right ideological identification of the parties. This typology becomes especially controversial when parties like the German Die Grunen (Greens) are included. On certain issue dimensions, ecological parties adopt policies similar to socialist and radical parties. On other dimension, their policies tend to be more conservative. Of course, even traditional "left-wing" parties like the French Parti Socialiste have their more conservative moments. Any simple left/right

dimension is an inaccurate typology for Western European party systems.

5. Unaggregated correlations show a similar pattern. The magnitude of the correlations is reduced. As expected, aggregation cancels out some of the stochastic error present in the unaggregated correlations. Similar patterns also hold between economic conditions and the economic perception items.

6. The dichotomous unit specific effects variables are not included in the estimation of the full set of simultaneous equations below because of high levels of multicollinearity. The inclusion of more than two dichotomous unit specific effects variables caused perfect collinearity to set in. Rather than add two variables on an ad hoc basis, all four variables were removed.

7. The econometric texts cited in this study preface their discussion of instrumental variables with the assumptions of perfect exogeneity for the instruments **and**, as a consequence, for the predetermined variables used to create those instruments.

   Applied studies will rarely, if ever, meet these assumptions. There is more than a theoretical probability that the predetermined variables in most studies are in some small degree endogenous. Bartels' Monte Carlo results (1990:10) demonstrate that a seemingly trivial endogeneity between the instruments and the error term (ρ_{zu} = .10) can have a devastating impact on the efficiency of the estimates.

8. There is a second plausible explanation. Kramer (1983) observed that in the cross-sectional case, regression coefficients may have the incorrect sign in economic voting models. This results from the lack of a baseline in the cross-sectional model for the dependent variable. Although we know what the economy was like at some lag t-k we do not know what the survey respondents' attitudes were at that same time. Without this added dimension, sign reversals are possible.

The popular theory argues that economic changes are linked to changes in incumbent support. This is the model underlying most of the economic voting literature. As unemployment goes up, incumbent support goes down. In a cross-section, dynamic change in vote intention is missing. The incumbent is likely to receive some support in every region. It is, for example, expected that diminished incumbent support will result in regions with economic growth below the national average and increased support in regions with higher economic growth. If most of the respondents in disadvantaged regions happen to have been pro-incumbent supporters at time t-k and most of those pro-incumbent supporters still continue to vote for the incumbent at time t economic growth can have a strong indirect association with vote choice. The tradition vote choice variable, a dichotomous vote for/against the challenger adds to this effect. The marginally pro-incumbent and the strongly pro-incumbent are coded alike. Markus (1988) employs panel data in order to circumvent the Kramer "problem". Panel data permits an important control unavailable in the context of this study -- vote intention at t-k.

The lack of a baseline for the dependent variable can result in sign reversals as Kramer has amply demonstrated. It does not, however, affect the efficiency of the cross-sectional estimates. Thus, we can still draw inferences regarding whether or not one variable has a statistically significant effect on another.

The Kramer "problem" appears less likely as an explanation than multicollinearity among the economic indicators. The GDP measures are the most highly intercorrelated. In the vote choice equation, they are also the only two independent variables whose signs are reversed. The coincidence of these two factors inclines this analyst in the direction of multicollinearity as the most likely explanation.

9. The χ^2-ratios are Wald tests for individual parameters. They are based on both the observed information matrix and the parameter estimates. They are presented by the SAS statistical software package in lieu of t-scores.

10. This is not to say that economic perceptions are entirely unrelated to economic reality. It does call into question the traditional measures of economic performance employed in the economic voting literature -- unemployment, prices, GDP, etc. Economic perceptions may well be driven by a more diffuse feeling that the economy is or is not performing well. That perception may be shaped by a variety of economic indicators ranging from unemployment to interest rates to stock market performance. It may also be shaped predominantly by social and ideological filters. The evidence presented in this study demonstrates that social and ideological filters do play a substantial role in shaping respondents' perceptions of the economy.

11. Aggregated regressions were performed as a test of model robustness. The results are similar to the unaggregated regressions. The goodness of fit measures, as expected, do improve.

Figure 1. Theoretical Model Underlying Individual-Level Analysis.

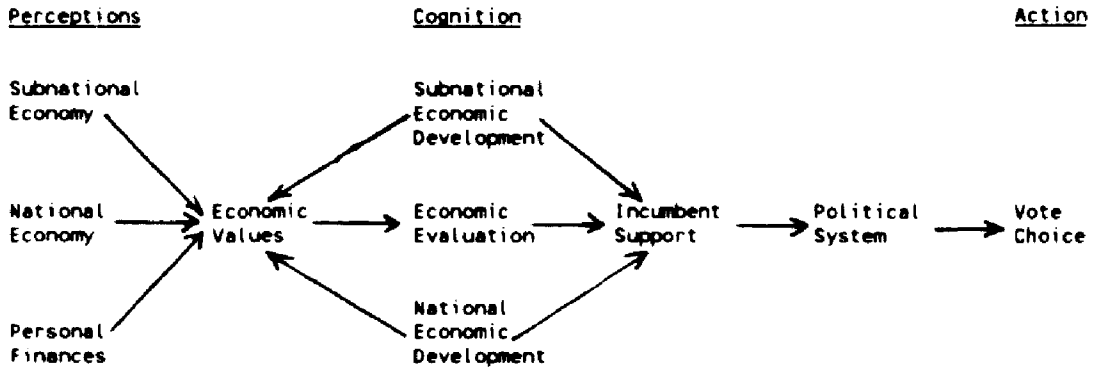

Table 1. System of Equations for Theoretical Model in Figure 1.

(Eq. 1) $X_1 = \alpha_{10} + \beta_{11}U_1 + \beta_{12}U_2 + \beta_{13}G_1 + \beta_{14}G_2 + \beta_{15}Z_1 + \beta_{16}Z_2 + \beta_{17}Z_3 + \epsilon$

(Eq. 2) $X_2 = \alpha_{20} + \beta_{21}U_1 + \beta_{22}U_2 + \beta_{23}G_1 + \beta_{24}G_2 + \beta_{25}Z_1 + \beta_{26}Z_2 + \beta_{27}Z_3 + \epsilon$

(Eq. 3) $X_3 = \alpha_{30} + \beta_{31}U_1 + \beta_{32}U_2 + \beta_{33}G_1 + \beta_{34}G_2 + \beta_{35}Z_1 + \beta_{36}Z_2 + \beta_{37}Z_3 + \beta_{38}X_1 + \epsilon$

(Eq. 4) $X_4 = \alpha_{40} + \beta_{41}U_1 + \beta_{42}U_2 + \beta_{43}G_1 + \beta_{44}G_2 + \beta_{45}Z_1 + \beta_{46}Z_2 + \beta_{47}Z_3 + \beta_{48}X_2 + \epsilon$

(Eq. 5) $X_5 = \alpha_{50} + \beta_{51}U_1 + \beta_{52}U_2 + \beta_{53}G_1 + \beta_{54}G_2 + \beta_{55}Z_1 + \beta_{56}Z_2 + \beta_{57}Z_3 + \beta_{58}X_3 + \beta_{59}X_4 + \epsilon$

(Eq. 6) $X_6 = \alpha_{60} + \beta_{61}U_1 + \beta_{62}U_2 + \beta_{63}G_1 + \beta_{64}G_2 + \beta_{65}Z_1 + \beta_{66}Z_2 + \beta_{67}Z_3 + \beta_{68}X_3 + \beta_{69}X_4 + \beta_{70}X_5 + \epsilon$

(Eq. 7) $Z_3 = \alpha_{80} + \beta_{81}U_1 + \beta_{82}U_2 + \beta_{83}G_1 + \beta_{84}G_2 + \beta_{85}Z_1 + \beta_{86}Z_2 + \epsilon$

(Eq. 8) $Y = \alpha_{90} + \beta_{91}U_1 + \beta_{92}U_2 + \beta_{93}G_1 + \beta_{94}G_2 + \beta_{95}Z_1 + \beta_{96}Z_2 + \beta_{97}Z_3 + \beta_{98}X_3 + \beta_{99}X_4 + \beta_{100}X_5 + \beta_{101}X_6 + \epsilon$

Note:

Y	--	Vote for incumbent government.
U_1	--	Level of unemp.$_{National}$ - level of unemp.$_{Subnational}$.
U_2	--	% change in unemp.$_{National}$ - % change in unemp.$_{Subnational}$.
G_1	--	Level of GDP$_{National}$ - level of GDP$_{Subnational}$.
G_2	--	% change in GDP$_{National}$ - % change in GDP$_{Subnational}$.
Z_1	--	Working class membership.
Z_2	--	Respondent unemployed.
Z_3	--	Ideological identification with incumbent.
X_1	--	Change in personal finances.
X_2	--	Change in general economy.
X_3	--	Government policies on personal finances.
X_4	--	Government policies on general economy.
X_5	--	Government policies on economy in next year.
X_6	--	Ever angry over economic conditions.

Table 2. System of Equations from Lewis-Beck's Economics and Elections.

(Eq. 9) $X_4 = \alpha_{40} + \beta_{41}X_1 + \beta_{42}X_2 + \beta_{43}X_3 + \beta_{44}X_6 + \beta_{45}X_7 + \beta_{46}X_8 + \beta_{47}X_9 + \beta_{48}Z_1 + \beta_{49}Z_2 + \beta_{50}Z_3 + \epsilon$

(Eq. 10) $X_5 = \alpha_{60} + \beta_{61}X_1 + \beta_{62}X_2 + \beta_{63}X_3 + \beta_{64}X_4 + \beta_{65}X_6 + \beta_{66}Z_1 + \beta_{67}Z_2 + \beta_{68}Z_3 + \epsilon$

(Eq. 11) $Y = \alpha_{90} + \beta_{91}X_2 + \beta_{92}X_3 + \beta_{93}X_4 + \beta_{94}X_5 + \beta_{95}X_6 + \beta_{96}Z_1 + \beta_{97}Z_2 + \beta_{98}Z_3 + \epsilon$

Note:

Y	--	Vote for incumbent government.
U_1	--	Level of unemp.$_{National}$ - level of unemp.$_{Subnational}$.
U_2	--	% change in unemp.$_{National}$ - % change in unemp.$_{Subnational}$.
G_1	--	Level of GDP$_{National}$ - level of GDP$_{Subnational}$.
G_2	--	% change in GDP$_{National}$ - % change in GDP$_{Subnational}$.
Z_1	--	Working class membership.
Z_2	--	Respondent unemployed.
Z_3	--	Ideological identification with incumbent.
X_1	--	Change in personal finances.
X_2	--	Change in general economy.
X_3	--	Government policies on personal finances.
X_4	--	Government policies on general economy.
X_5	--	Government policies on economy in next year.
X_6	--	Ever angry over economic conditions.
X_7	--	Government policies on keeping (getting) job.
X_8	--	Government policies on inflation.
X_9	--	Government policies on unemployment.

Table 3. Survey Question Wording for Economic Perceptions.

Question X_1. "How does the financial situation of your household now compare with what it was one year ago?"

1. Got a lot better.
2. Got a little better.
3. Stayed the same.
4. Got a little worse.
5. Got a lot worse.

Question X_2. "How do you think the general economic situation in this country has changed over the last twelve months?"

1. Got a lot better.
2. Got a little better.
3. Stayed the same.
4. Got a little worse.
5. Got a lot worse.

"And now, compared with a year ago, would you say that the government's policies have had, in the following areas, a good effect, a bad effect or [sic] that really they have not made much difference?"

Question X_3. "The financial situation of your household."

1. Good effect. (1)
2. Bad effect. (3)
3. Not much difference. (2)

Question X_4. "The country's general economic situation."

1. Good effect. (1)
2. Bad effect. (3)
3. Not much difference. (2)

Question X_5. "Do you think that, a year from now, the government's policies will have improved the country's general economic situation, will have made it worse or [sic] that they will not have made much difference one way or another?"

1. Improve. (1)
2. Made worse. (3)
3. Not much difference. (2)

Question X_6. "Do you ever feel angry about the way the present government is handling the economy? Does it happen always, often, sometimes, seldom or never?"

1. Always.
2. Often.
3. Sometimes.
4. Seldom.
5. Never.

Note: The figures in parentheses are recoded values used in this study.

Table 4. Codings for Objective Macroeconomic Indicators.

Variable	Description	Definition
U_1	Regional deviations in the level of unemployment t-1.	(Nat. Unemp. / Nat. Unemp.) - (Reg. Unemp. / Reg. Unemp.)
U_2	Regional deviations in the % change in unemployment from time t-1 to time t.	$((U_{Nat.(t)} - U_{Nat.(t-1)}) / U_{Nat.(t-1)}) - ((U_{Reg.(t)} - U_{Reg.(t-1)}) / U_{Reg.(t-1)})$
G_1	Regional deviations in GDP per person in current year.	National GDP per capita - Regional GDP per capita
G_2	Regional deviations in the % change in GDP for the current year.	$((G_{Nat.(t)} - G_{Nat.(t-12)}) / G_{Nat.(t-12)}) - ((G_{Reg.(t)} - G_{Reg.(t-12)}) / G_{Reg.(t-12)})$

Source: The national macroeconomic indicators were drawn from Monthly Indicators, OECD. The subnational economic indicators were drawn from the REGIO database, Eurostat Bureau.

Note: ECUs are parity-priced currency units. ECUs were employed in this study as the unit of measurment for GDP in order to insure comparability of GDP measures across national units.

Table 5. Bivariate Correlations for Vote Choice and Objective Macroeconomic Indicators.

	Vote Choice
$Unemployment_{National(t)}$ - $Unemployment_{Regional(t)}$	0.2327
$Unemployment_{National(t-1)}$ - $Unemployment_{Regional(t-1)}$	0.2294
$Unemployment_{National(t-3)}$ - $Unemployment_{Regional(t-3)}$	0.1911
$Unemployment_{National(t-6)}$ - $Unemployment_{Regional(t-6)}$	0.1543
$Unemployment_{National(t-9)}$ - $Unemployment_{Regional(t-9)}$	0.2204
$\Delta Unemployment_{National(t-1)}$ - $\Delta Unemployment_{Regional(t-1)}$	0.0184
$\Delta Unemployment_{National(t-3)}$ - $\Delta Unemployment_{Regional(t-3)}$	-0.0530
$\Delta Unemployment_{National(t-6)}$ - $\Delta Unemployment_{Regional(t-6)}$	0.0654
$\Delta Unemployment_{National(t-9)}$ - $\Delta Unemployment_{Regional(t-9)}$	-0.0799
$GDP_{National}$ - $GDP_{Regional}$	-0.0880
$\Delta GDP_{National}$ - $\Delta GDP_{Regional}$	-0.0368

Note: ΔUnemployment and ΔGDP refer to the percentage change in unemployment and GDP respectively from time $t-k$ to time t.

Table 6. Parameter Estimates for Unemployment Model.

	X_2	X_4	X_5
Intercept	3.8688 (80.17)	2.5734 (75.00)	2.5238 (75.51)
U_1	-1.1764 (1.66)	-2.9484 (5.84)	-1.9988 (4.06)
U_2	0.1045 (0.51)	-0.0183 (0.12)	0.0722 (0.50)
Z_1	0.0826 (3.09)	0.0371 (1.95)	0.0429 (2.32)
Z_2	0.2751 (5.14)	0.1778 (4.68)	0.1233 (3.33)
Z_3	-0.1371 (24.57)	-0.1114 (28.08)	-0.1072 (27.73)
France	0.6403 (13.24)	0.3074 (8.94)	0.1217 (3.64)
Italy	0.3436 (7.37)	0.1753 (5.29)	-0.1113 (3.45)
UK	0.0940 (2.18)	0.0921 (3.00)	-0.0239 (0.80)
Spain	0.3610 (8.14)	0.2190 (6.94)	-0.2117 (6.89)
R^2	.1302	.1271	.1278
N	7045	7045	7045

Note: Figures in parentheses are t-scores.

Table 7. Parameter Estimates for GDP Model.

	X_2	X_4	X_5
Intercept	3.7814 (82.13)	2.5242 (76.97)	2.4782 (77.64)
G_1	0.00002 (3.30)	0.00002 (4.44)	0.00002 (3.73)
G_2	1.1416 (3.38)	0.7456 (3.10)	0.5271 (2.25)
Z_1	0.0783 (2.93)	0.0324 (1.70)	0.0394 (2.12)
Z_2	0.2801 (5.24)	0.1833 (4.82)	0.1271 (3.43)
Z_3	-0.1373 (24.63)	-0.1111 (27.99)	-0.1071 (27.70)
France	0.7219 (18.19)	0.3545 (12.54)	0.1688 (6.14)
Italy	0.3856 (10.57)	0.1998 (7.69)	-0.0813 (3.22)
UK	0.1670 (4.23)	0.1393 (4.96)	0.0190 (0.70)
Spain	0.3976 (9.95)	0.2348 (8.25)	-0.1921 (6.94)
R^2	.1316	.1253	.1275
N	7045	7045	7045

Note: Figures in parentheses are t-scores.

Table 8. Parameter Estimates for Combined Unemployment and GDP Model.

	X_2	X_4	X_5
Intercept	3.8067 (72.72)	2.5326 (68.03)	2.4974 (68.85)
U_1	-0.6549 (0.82)	-2.7590 (4.83)	-1.6119 (2.90)
U_2	0.2067 (0.97)	0.0280 (0.18)	0.1382 (0.94)
G_1	0.00002 (2.80)	0.00001 (2.03)	0.00001 (2.34)
G_2	1.1551 (3.42)	0.7264 (3.02)	0.5269 (2.25)
Z_1	0.0790 (2.95)	0.0351 (1.84)	0.0410 (2.21)
Z_2	0.2794 (2.95)	0.1804 (4.74)	0.1254 (3.39)
Z_3	-0.1373 (24.62)	-0.1115 (28.12)	-0.1072 (27.75)
France	0.6881 (13.47)	0.3394 (9.34)	0.1415 (4.00)
Italy	0.3540 (7.54)	0.1831 (5.49)	-0.1080 (3.32)
UK	0.1414 (3.08)	0.1231 (3.78)	-0.0037 (0.12)
Spain	0.3770 (8.36)	0.2309 (7.20)	-0.2064 (6.61)
R^2	.1318	.1282	.1287
N	7045	7045	7045

Note: Figures in parentheses are t-scores.

Table 9. Parameter Estimates for System of Equations.

	X_1	X_2	X_3	X_4
Intercept	3.5522 (95.93)	4.1733 (101.85)	1.3619 (38.30)	1.3886 (32.00)
U_1	-0.9048 (1.06)	-0.5474 (0.58)	-0.5258 (1.05)	-2.3440 (3.98)
U_2	1.3406 (8.31)	1.9176 (10.74)	0.0646 (0.68)	0.2635 (2.34)
G_1	-0.000004 (0.50)	0.000018 (2.11)	-0.000002 (0.53)	0.000001 (0.19)
G_2	-0.7067 (2.13)	0.1712 (0.47)	-0.0008 (0.00)	-0.0953 (0.42)
Z_1	0.0689 (2.50)	0.0794 (2.60)	0.0115 (0.71)	0.0212 (1.11)
Z_2	0.6040 (10.76)	0.2505 (4.03)	0.1464 (4.38)	0.1472 (3.79)
Z_3	-0.0460 (8.27)	-0.1384 (22.48)	-0.0350 (10.62)	-0.0688 (17.13)
X_1			0.3229 (40.82)	
X_2				0.3229 (38.48)
R^2	.0479	.1079	.2693	.3111
N	5551	5551	5551	5551

Note: Figures in parentheses are t-scores.

Table 9 -- continued.

	X_5	X_6	Z_3	Y
Intercept	0.9709 (21.06)	4.2278 (52.85)	4.5816 (108.00)	0.5971 (14.75)
U_1	-0.0803 (0.14)	2.5619 (2.76)		1.6455 (4.29)
U_2	-0.3081 (2.91)	-0.1169 (0.66)		0.3073 (4.20)
G_1	0.0000005 (0.10)	0.000011 (1.34)		0.000009 (2.59)
G_2	-0.3490 (1.61)	-0.9400 (2.60)		0.1893 (1.27)
Z_1	0.0286 (1.58)	0.0205 (0.68)	0.0947 (1.59)	-0.0482 (3.87)
Z_2	-0.0206 (0.56)	0.0222 (0.36)	0.4285 (3.55)	-0.0454 (1.78)
Z_3	-0.0597 (15.46)	0.1034 (15.69)		0.0668 (24.05)
X_3	0.1887 (13.68)	-0.2151 (9.18)		-0.0577 (5.93)
X_4	0.3970 (33.36)	-0.3097 (14.22)		-0.0690 (7.54)
X_5		-0.3791 (16.90)		-0.1562 (16.46)
X_6				0.0453 (8.18)
Y			1.9855 (37.96)	
R^2	.3354	.2954	.2067	.3407
N	5551	5551	5551	5551

Note: Figures in parentheses are t-scores.

Table 10. Standardized Coefficients for the System of Equations.

	X_1	X_2	X_3	X_4
Intercept	------	------	------	------
U_1	-0.0158	-0.0084	-0.0137	-0.0504
U_2	0.1193	0.1493	0.0085	0.0288
G_1	-0.0087	0.0356	-0.0081	0.0028
G_2	-0.0341	0.0072	-0.0001	-0.0057
Z_1	0.0331	0.0333	0.0082	0.0125
Z_2	0.1427	0.0518	0.0514	0.0428
Z_3	-0.1086	-0.2859	-0.1230	-0.2000
X_1			0.4804	
X_2				0.4541

Table 10 -- continued.

	X_5	X_6	Z_3	Y
Intercept	------	------	------	------
U_1	-0.0018	0.0353		0.0531
U_2	-0.0350	-0.0082		0.0505
G_1	0.0015	0.0202		0.0377
G_2	-0.0215	-0.0358		0.0169
Z_1	0.0175	0.0078	0.0278	-0.0427
Z_2	-0.0062	0.0041	0.0407	-0.0198
Z_3	-0.1803	0.1925		0.2916
X_3	0.1621	-0.1139		-0.0717
X_4	0.4125	-0.1985		-0.1036
X_5		-0.2338		-0.2259
X_6				0.1063
Y			0.4358	

Table 11. Probit results for the Vote Choice Equation (Eq. 8).

	Coefficient	χ^2	Prob.
Intercept	0.4755	3.96	0.0466
U_1	9.5762	17.30	0.0000
U_2	1.6346	14.44	0.0001
G_1	0.0001	6.20	0.0128
G_2	0.9921	1.22	0.2692
Z_1	-0.2923	15.22	0.0001
Z_2	-0.2698	2.96	0.0854
Z_3	0.3867	470.47	0.0000
X_3	-0.3504	35.56	0.0000
X_4	-0.3738	49.47	0.0000
X_5	-0.8738	238.13	0.0000
X_6	0.2685	65.65	0.0000

AGGREGATE Time series RESEARCH DESIGN

The causal relationship between economic conditions and electoral support appears strong. When the economy worsens, we expect executive approval to weaken. While different researchers of aggregate national time series models have uncovered moderately strong relationships between the economy and presidential or prime ministerial approval, these relationships often fade when the time series is shifted in time or different measures are substituted. This is expected of chance associations, not causal relationships. Alt and Chrystal (1981:731) put the matter succinctly:

> A persistent problem of estimating popularity functions is that of achieving results which are not entirely period-dependent: results which can be readily extended backwards and forwards in time.

Whiteley (1986:57) makes a similar argument:

> Economic effects change over time, and models which purport to show strong and enduring effects have simply failed to estimate the effects correctly.

It is an important premise of this study that this relative lack of robustness in economic voting results because national economic conditions alone are not the

driving force in economic voting behavior. Localized economic experiences are instead hypothesized as important independent forces, especially local and regional disparities in economic performance. To be sure, national economic conditions do affect the localized experience, but they capture only imperfectly what is happening at the regional and local level in modern West European polities. The lack of robustness for national economic conditions is not only explainable in a theoretical model that focuses on localized economic experiences, it is theoretically predictable. The a priori theory posited by this study is that clear causal relationships will not be found when national economic conditions are employed as the sole economic series in the study of incumbent popularity.

This study will employ three different statistical techniques in an attempt to discern the existence (or absence) of any strong causal relationships between national economic conditions and the popularity of the head of government in four West European nations.[1] The initial goal is the detection of causal relationships which are "clear and unambiguous." That is, these causal relationships must be robust -- robust with regard to time periods sampled, alternative lag specifications, and alternative model specifications.[2]

It should be admitted that not all analysts will agree with this definition of causality. Analysts will differ in their a priori expectations for the magnitude of this relationship. Some will expect the link between the economy and electorate to be strong, others weaker. Analysts will also differ in the confidence intervals they assign to making incorrect inferences. Some will be more inclined to err in the direction of the null hypothesis, i.e. no relationship, while others will prefer to err in the direction of the alternative hypothesis. This researcher's reading of the economic voting literature is to conclude that most analysts expect a strong relationship between the economy and electoral behavior. The definition of causality that this study employs, looking for common evidence across three different statistical techniques, is therefore quite rigorous and certainly open to challenge.

Three different statistical techniques are employed in this analysis. The purpose is to balance the strengths and the weaknesses of all three statistical methods.

> The claim is frequently made that since all models are approximations, then all models are in error. While we need not take such an absolute position, it is clearly farsighted for us to recognize that our models may be in error, at least to a small extent, so that we should seek inferential processes which are not sensitive to the more likely errors. (Kmenta and Ramsey 1980:2)

The primary purpose of statistical modelling according to Johnston (1984:6) is "...to perform a marriage of theory and data by means of statistical methods." In this study, each of the three methods has much to recommend them.

The three statistical techniques which will be employed are ordinary least squares (OLS) multiple linear regression, Box-Jenkins transfer function analysis, and vector autoregression (VAR).[3]

OLS possesses many virtues. The coefficients are generally intuitive and easily interpreted. Software is widely available for the analysis of OLS models. Statistical controls for deterministic components like trend terms are easily imposed. With appropriate transformation of the dependent and/or causal series, OLS can accommodate non-linear statistical models. OLS can also accommodate interaction effects among causal series more easily than can dynamic time series techniques like vector autoregression.

The virtues of OLS are offset by an important disadvantage. The assumptions that underlie OLS for the best unbiased, efficient estimates are very difficult to meet. These assumptions pose serious challenges to time series analysts, especially the assumption of no autocorrelation, i.e. that the covariance between any two disturbance terms is zero ($cov[e_t, e_{t-i}] = 0$). The likely result of serial autocorrelation is that parameter estimates

may appear quite stable with small standard error errors when in fact the estimates are quite unreliable. This can lead the researcher to conclude that a causal relationship exists when no causal relationship is present (Wonacott and Wonacott 1979; Ostrom 1990).

Autocorrelation is inherent to most economic series. This stems from the fact that period to period changes (or levels) for economic indicators are not independent events. The level of unemployment in a given unit, for example, is not entirely unrelated to the level of unemployment one period previous. It would strain credulity to the point of breaking to conclude otherwise.

The most serious consequences of autocorrelation can be remedied, assuming that the analyst identifies the specific form of within-series dependencies. The identification of within-series dependencies is more easily stated as an admonition than accomplished. The analyst must use the tools of the Box-Jenkins ARIMA analyst -- the autocorrelation function (ACF) and the partial autocorrelation function (PACF). Their application requires stationary series, the same requirement that applies to Box-Jenkins techniques.

OLS analysts are sometimes suspicious of dynamic time series techniques like Box-Jenkins transfer function analysis and vector autoregression. Assuming that within-

series dependencies are correctly identified and removed from causal series prior to estimation, OLS results should be similar to those from other time series techniques.

> In econometric modelling using time series data, an important benchmark against which to assess the performance of an econometric model is the best-fitting time series model for each endogenous variable: unless an econometric model performs <u>at least as well</u> as a pure time series model, there is clearly scope for improving it. (Anderson and Mizon 1989:8, emphasis added)

The phrase "at least as well" was highlighted in the quotation above to emphasize that the strengths of OLS -- the ability to more readily impose statistical controls for deterministic components and attributes, the ability to control for interaction effects -- leads to the expectation that OLS models <u>ought</u> to outperform pure time series models both at detecting causal relationships and forecasting future observations.

Transfer function analysis is useful for ferreting out causal relationships. The within-series dependencies that plague OLS estimation are filtered out through the process of prewhitening. The goal of transfer function analysis is to filter the causal and dependent series in such a way that all that remains to each series are innovations in the series themselves. Regression analysts are sometimes suspicious of this prewhitening process. It is possible

that prewhitening not only removes within-series dependencies but also disturbs subtle but important causal relationships. Two examples of how this result can happen may help make the basis of these suspicions clear.

In the first example, let us suppose that a time series appears to be non-stationary, i.e. has a non-constant or time-varying mean. This may be the result because the time series truly is nonstationary. It is in effect a random walk. But a random walk is not the only type of process that can generate the appearance of non-stationarity. So can time series that possess periods of local stationarity (Polasek 1989). Incumbent popularity sometimes displays this pattern with each president or prime minister having a different mean level of popularity. The autocorrelation functions for wholly nonstationary series and for locally stationary series will be deceptively similar -- a linear decay in the ACF. With the nonstationary series, differencing is appropriate. Not so for the locally stationary series! The locally stationary series may be better represented with a series of intervention components for the terms of each incumbent. Differencing the series alters the relationship between popularity and some other series in this case, since now changes in popularity are substituted unnecessarily for the level of executive popularity. This can alter the substantive interpretation

of the parameter estimates. Perhaps the phenomenon of theoretical interest is really levels and not change across time periods. Unnecessary first differencing then does potential violence not only to estimates but very real violence to underlying theoretical considerations.

In the second example, a time series is assumed to be stationary. Box-Jenkins modelling assumes that error processes are constant processes. They affect the time series under study in its entirety. Structural change in a process sometimes make this assumption suspect. It is possible, for example, that series may display a seasonal autocorrelation component in its earlier observations and the absence of seasonality in later observations as the result of policy innovations, etc. To apply an autoregressive filter to an entire time series, where only part of the series is afflicted with autoregressive disturbance terms is likely to result in the substitution of one form of within-series dependency for another (Polasek 1989).

Transfer function analysis is generally not theory-driven. The goal is to reduce each series to white noise, i.e. random interventions (with random being defined as free from within-series dependencies). A series may often be transformed into white noise by more than one series of transformations. The locally stationary series, for

example, can generally be converted into white noise by either first order differencing or by the fitting of intervention components. The effect on the ability of the analysts to detect underlying causal relationships will be very different, generally, if differencing is selected. The acceptance of the null hypothesis, no causal relationship, will be heightened appreciably. The suspicions of regression analysts, while perhaps sometimes overstated, are not entirely unfounded. It is possible to disturb underlying causal relationships through the unjudicious prewhitening and prefiltering of time series.

Vector autoregression (VAR) is also a very useful techniques for ferreting out underlying causal relationships between sets of variables. The specifics of VAR modelling are discussed in a subsequent portion of this chapter. VAR trades off quantitative precision for parameter estimates in favor of the ability to distinguish causal relationships, especially among a set of mutually endogenous variables. In order to test more adequately for the existence of causal relationships, analysts are sometimes willing initially to sacrifice quantitative precision. Once the "correct" theoretical model has been defined, the emphasis can then be shifted back to quantitative precision.

It is important to keep in mind that no one statistical technique is the best technique to use in every circumstance.

> ...[T]here is no best forecasting technique or model for all forecasting situations. Rather, it is necessary to weigh the strengths and weaknesses of alternative methods before making a technique selection. (Bails and Peppers 1982:386)

For the purpose of this study, OLS offers the attractive advantages of statistical controls for deterministic components. The coefficients are also much more intuitive. Transfer function analysis offers the ability to easily remove the contaminating effects of within-series dependencies. VAR offers the ability to control for the possible endogeneity that exists among the economic time series and for the possible bidirectional nature of causality between economic conditions and executive popularity. Each offers virtues; each offers weaknesses. An investigative strategy that does not rely upon any one of these techniques but instead looks for evidence of causality common to all three techniques is better able offset the weaknesses of each with the strengths of the others. And, as Anderson and Mizon (1989:8) remind us:

> One of the most persuasive ways to establish the credentials of a model is to demonstrate that it is robust to

minor changes in specification and that it performs at least as well as any other available model.

Ordinary Least Squares

Research into the links between the economy and support for incumbent governments is in agreement on one point. Changes in economic conditions do not instantly result in changes in support for the incumbent government. There is a period of time that elapses between changes in the economy and changes in support for the incumbent. Thus the specification of lag structures in economic voting models is essential. This is true, whether one believes voters learn about the economy primarily from direct experience or whether one believes that they learn about it from reports in the media, etc. In the latter case, economic reports are rarely contemporaneous with economic activity.[4] Government reports on unemployment, inflation, etc. may not be released until several weeks or months have passed. The diffusion of economic perceptions via the news media and political elites takes time and that delay requires specification in time series analysis employing those series as causal variables. Theory similarly leads us to anticipate a delay between changes in economic conditions and the perception of economic change even when the primary means of acquiring economic information is from direct experience. Without repeating the theoretical discussion from the first portion

of this thesis in its entirety, it is reasonable to believe that voters do not attend to every minute economic change. Even, if Fiorina (1978) is correct and voters are essentially cumulating actors, it may take a substantial period of time for enough economic change to accumulate that voters notice and attach responsibility to the incumbent's policies for those changes.

Whether the lag involved in this causal sequence is relatively short, say a month or two, or relatively long, on the order of a year or more, is debatable. Fiorina (1978) argues that voters are essentially cumulating actors in his study of retrospective voting. His preference, therefore, is for longer lags. Hibbs and Vasilatos also favor longer, more elaborate lag structures (1981). Lewis-Beck (1980) prefer shorter lags with a simple one period structure. Lafay (1973, 1977, 1981) substitutes longer lags with a one period structure.

Two different lagged response models are prominent with the existing literature. The **Simple Lagged Response Model** and the **Geometric (Koyck) Lagged Response Model**. The simple lagged response model is by far the more commonly employed lagged effects model. The general form of the model is presented in **Equation 1**, where i is a lag of some predetermined number of months.

$$y_t = \alpha + \beta x_{t-i} + \epsilon \qquad \text{Equation 1}$$

The theory which underlies the simple lagged response model is difficult to justify when the variable of interest (often, unfortunately, latent in the aggregate case) is the public's perceptions of economic change. The simple lag response model implies that economic change punctuates executive popularity after some delay without any buildup or decay. The t-2 lag specification of Lewis-Beck (1980), for example, implies that the electorate's opinion of presidential performance in November is influenced by unemployment and inflation in September. Unemployment is October isn't salient. Nor is unemployment in August. The lack of salience for October is perhaps explained by the time lag involved in reporting economic statistics. The lack of salience for August is more troublesome. Why is the electorate's attention so fixed on one month's indicator and not each of the months in an entire quarter, with memories of those months declining over the quarter? Or half year? Or year? Myopic attention on the part of the electorate can explain why economic conditions nearly contemporaneous with approval ratings matter and those further removed in time (i.e. six months, one year, two years, etc., ago) do not, but voters indeed have tunnel vision if their attention is fixed on any one t-k lag to the exclusion of all others.

The search for parsimony is not a satisfactory explanation for a model which does violence to reality. The search for parsimony is the preference for models which explain the same reality with a fewer number of parameters. For example, nonstationary processes in a transfer function model can sometimes be rendered stationary by modelling stochastic drift with complex series of interventions.[5] The same process can also perhaps be rendered stationary with differencing, eliminating the need for a number of parameter estimates associated with multiple interventions. Parsimony would incline the analyst initially in the direction of differencing.

Analysts who employ simple lagged response models, generally, do not provide an a priori theoretical explanation for that preference. There is one circumstance under which the model would be appropriate. If one assumes (1) that the public receives their information about the economy primarily from reports in the media and (2) that economic indicators are reported at some fixed time period following their measurement, then it is reasonable to assume that support for the incumbent should be lagged by the same fixed time period. If the government reports unemployment one quarter after the surveys are completed, then it becomes reasonable to expect a quarter delay between changes in unemployment and changes in incumbent support. Analysts who

use simple lagged response models do not explicitly define their lag periods as the period of time it takes for economic measures to be published.

The desire to uncover clear and convincing causal relationships weighs against simple lagged response models. It does not exclude them, but they are viewed by this analyst with a greater degree of skepticism than are patterns which are repeated across time. First, single significant lags can occur by chance even between time series free of trend, drift, and autocorrelation. The probability that geometric lagged response models and polynomial distributed lagged response models would result in statistically significant estimates by chance alone, while not 0, are much more remote.

The geometric lagged response model is theoretically more pleasing where the phenomena of interest are perceptual in nature. Instead of assuming the economic conditions briefly punctuate incumbent popularity and are then lost, the geometric lagged response model assumes that economic conditions punctuate incumbent popularity and continue to make themselves felt across successive periods of time with their effects decaying geometrically.

The geometric lagged response model is easier to justify in terms of <u>a priori</u> theory. Instead of presuming that voters have no memory of economic events outside of a

one period window, the geometric lagged model presumes that the public's memory is more sophisticated. Economic conditions are remembered across successive periods of time, the salience of those memories decaying with time (see especially, Hibbs 1981a). Returning to our previous example, incumbent evaluations in November are a function not only of unemployment and inflation in September but also in August, July, June, perhaps even May.

The geometric lagged response model suffers from one serious theoretical defect. The model cannot accommodate a build-up effect. Incumbent approval is punctuated. There is no build-up followed by a decay. Economic conditions gain immediate saliency at some predetermined lag in time and begin immediately to fade.

Statistical estimation of the geometric lagged response model is also problematic. This is a point largely ignored by analysts employing the model. The standard method of estimating the geometric lagged response model is with a Koyck transformation (readers are referred to Gujarati's discussion of the Koyck transformation, 1978:261-8). This transformation converts a distributed lag model (i.e. a model with lagged independent variables) into an autoregressive model (i.e. a model with a lagged dependent variable). The statistical difficulties associated with the Koyck transformation are a direct result of the

autoregressive nature of the model. Ordinary Least Squares assumes that the causal variables are either nonstochastic or distributed independently of the error term. The high degree of serial correlation present in popularity series renders this assumption highly doubtful in practice. The result will be both biased and inconsistent parameter estimates.

There is a lagged response model that better accords with a priori theory and that lacks the statistical traps associated with the Koyck transformation -- the polynomial distributed lagged response model. Polynomial distributed lags can accommodate theoretical models which include both build-up and decay effects. Even multiple cycles of build-up and decay can be specified. The analyst must specify the degree of polynomial necessary for the lagged effects. A second degree polynomial results in lagged effects which are parabolic, first increasing, then decreasing. A fourth degree polynomial results in two such cycles of build-up and decay. The Almon transformation is the common method of specifying polynomial distributed lagged response models (see especially, Monroe 1980). It is especially well suited when the analyst possesses an a priori theory to guide the selection of the proper polynomial for the lagged effects specification.

The Almon transformation is the method of OLS estimation used in this study. Specifically, a second degree Almon lag transformation is used. A priori theory guides this researcher to believe that changes in economic conditions do not suddenly punctuate incumbent popularity after some appropriate period of time. Instead, changing economic conditions increase in salience after an appropriate period of time. This initial increase in salience is the result of the diffusion of economic information. If one assumes that citizens receive their information about the economy principally from direct experience and that citizens are not especially attentive to economic changes, the sudden impact of simple lagged responses and geometric lagged responses becomes more implausible. The gradual build-up of a second degree polynomial accords well with the diffusion of aggregate perceptions of the economy. Initially, just the most attentive citizens take notice of changed economic conditions. Over time, more and more voters become aware of changed economic conditions. With the passage of more time, the salience of those changed economic conditions decline with the decay of memory. The gradual build-up of the second degree Almon transformation also accords well with the a priori theory that voters require either numerous consecutive periods of small economic changes or a small

number of consecutive periods of large economic change in order for economic conditions to have any salience at all.

Three different equations are estimated using OLS. Each incorporates a second degree Almon transformation. A priori theory strongly suggests that the popularity of an administration in one time period is highly correlated with the popularity of that same administration in the time period immediately preceding. Incumbent popularity is not conceived as some kind of a random walk. The Cochran-Orcutt procedure will be employed in the estimation process in order to correct for the autocorrelation associated with time series employed in this study. The three models differ only in the nature of dummy variables that are employed. The general form of these three equations are presented in **Table 12**.

The equations in **Table 12** include either dummy variables or trend terms. These variables control for political effects specific to each administration. Political effects quite naturally have an important effect on electoral behavior. Their exclusion runs the risk of correlating the independent variables with the disturbance terms. It is virtual certainty that different administrations will have a different mix of economic policies and that those different sets of economic policies will have different impacts on economic performance.

Equation 2a includes a dummy variable to distinguish whether the incumbent is a leftist party (or coalition of parties) or a rightist party. This left/right ideological dummy variable controls for the possibility that leftist and rightist parties pursue different economic policies -- leftist parties arguably being more preoccupied with unemployment, rightist parties more preoccupied with inflation. **Equation 2b** includes a vector of dummy variables, one for each incumbent administration. Separate administration dummies allow statistical control for differences in policies and performance of respective administrations. They also control for exogenous events that occur with each administration. **Equation 2c** substitutes a vector of term counters for the administration dummy variables in **Equation 2b**. This allows statistical control not only for differences in policies and performance between administrations but also permits statistical control for the tendency of executive popularity to decline over time.[6] These term counters begin with 1 in the initial period augmented by one for each subsequent quarter in a particular administration.

The VAR analysis below also uses the dummy variables and trend terms in **Table 12** as deterministic components.

While a priori theory leads to an expectation that a second degree polynomial best fits the lagged response of

incumbent popularity to macroeconomic change, a priori theory does not provide a good guide as to the lag period. Since quarterly data is employed in this study, should we expect the salience of economic conditions to grow and then decline across a four quarter period (one year)? An eight quarter period (two years)? Longer?

This study employs an iterative procedure with respect to lag length. Lags for each of the three macroeconomic indicators are considered in turn. The lags range from two quarters to twelve quarters. To avoid an entirely ad hoc specification, the same lag is applied to each of the three macroeconomic indicators simultaneously. Thus, the first iteration is a second degree Almon transformation with a lag period of two quarters for unemployment (U), inflation (P), and interest rates (I). The second iteration changes the lag length to three quarters for unemployment, inflation, and interest.

Because of the high degree of multicollinearity associated with polynomial distributed lagged response models, the individual parameter estimates for each of the lagged variables become unreliable. To compensate for this effect, it is useful to summarize the effects of lagged variables. This is accomplished in this study through the simple addition of the lagged parameter coefficients associated with each macroeconomic indicator. To determine

whether the set of lagged coefficients for each macroeconomic variable have a statistically significant effect, a block F-test is performed.

A number of test statistics have also been proposed to aid the analyst in selecting the appropriate lag length for lagged effects response models. Two commonly employed test statistics include the Akaike Information Criteria (AIC) and the Schwartz Criteria (Akaike 1973; Schwartz 1978). Both the AIC and Schwartz Criteria are a function of the residual sum of squares (RSS) with reductions based on the number of regressors.

$$\text{Akaike} = (RSS + 2k\sigma^2) / n \qquad \text{Equation 3}$$

$$\text{Schwartz} = (RSS + k(\underline{\log}(n))\sigma^2) / n \qquad \text{Equation 4}$$

Equations 3 and **4** present the formulas for the AIC and Schwartz Criteria. "k" is the number of regressors, "n" is the number of observations, and "σ^2" is the square of the standard error of the estimate (SEE). Using either of these criteria, the analyst is advised to select the lag length which minimizes the test statistic.

The goal of this iterative strategy is not an <u>ad hoc</u> identification of the lag period which best fits the data. The goal is instead to discover clear and convincing causal relationships. If a macroeconomic indicator has a true

causal impact on incumbent popularity (in contrast to a random correlation) then evidence of that pattern ought to exist across successive lag lengths. For example, if incumbent popularity is causally related to unemployment at a lag length of 4 quarters, we should be able to see a residual of that effect at lag lengths of five, six, perhaps even seven quarters. A pattern of gradual build-up followed by gradual decay in statistical significance around some specific lag length adds persuasive weight that the relationship is not a chance correlation. To be truly clear and convincing, similar patterns should emerge in the vector autoregression analysis and the transfer function analysis.

The specific procedure which will be followed in this study is as follows:

(1) Iteration through lag lengths ranging from two quarters to twelve quarters for a second degree Almon transformation;

(2) Summarization and analysis of the parameter estimates from step 1, searching for the evidence of causal relationships between changing economic conditions and incumbent support;

(3) Iteration through lag lengths ranging from three quarters to twelve quarters for a vector autoregression analysis;

(4) Summarization and analysis of the results from the VAR analysis, again searching for evidence of causal relationships;

(5) Initial transfer function identification;

(6) Comparison of the results in steps 2, 4, and 5 above, searching for evidence of a clear and consistent relationship between macroeconomic conditions and incumbent support across all three analyses.

(7) If evidence of a clear and convincing relationship is discovered in step 6, then reestimation of that relationship including the complete analysis of parameter estimates and, if appropriate, the estimation of impulse response functions for the VAR model and full transfer function analysis.

Vector Autoregression

Freeman (1983) presents a method for analyzing the causal relationship between time series that does not involve the prewhitening of the causal series. Like transfer function analysis, the Direct Granger method is based on the principle of Granger causality. Granger's definition of causality is based on the assumption that one series X is causally related to a second series Y, if

incorporating past information about series $\underline{X}$ improves the prediction of series $\underline{Y}$ beyond a prediction based solely on past information about series $\underline{Y}$ alone (Freeman 1985; Pierce 1977). Nelson and Schwert's (1982) monte carlo simulations demonstrate that with regard to statistical power, parametric tests based on reduced form econometric models are superior to tests based on cross-correlations between prewhitened residual series (Freeman 1983).

The Direct Granger method of causality is easily implemented as a check on the robustness of transfer function analyses which fail to detect theoretically expected causal relationships between causal and dependent series. Lagged values of both the $\underline{X}$ and the $\underline{Y}$ series are regressed on both $\underline{X}_t$ and $\underline{Y}_t$. If series $\underline{X}$ Granger causes series $\underline{Y}$, then the parameters associated with the lagged values of the $\underline{X}$ series regressed on $\underline{Y}_{t-}$ will be jointly non-zero. Similarly, if series $\underline{Y}$ Granger causes series $\underline{X}$, then parameter estimates for the lagged values of $\underline{Y}$ series regressed on $\underline{X}_t$ will be jointly nonzero. The F test statistic is employed in determining whether those parameter estimates are jointly nonzero. If both F tests are not statistically significant, one can then conclude that a causal relationship between $\underline{X}$ and $\underline{Y}$ is absent. If both F tests are statistically significant, a reciprocal causal relationship is indicated.

Vector autoregression is a multivariate application of Granger causality. Vector autoregression has two attractive virtues. VAR modelling imposes fewer restrictive assumptions upon the researcher. It is not necessary, for example, to distinguish between exogenous and endogenous variables. Unlike the structural equations (SEQ) commonly employed under OLS, VAR models assume that most or all of the stochastic variables are endogenous. Theory guides the researcher with regard to which variables should be included, which variables should be excluded. Once the relevant causal variables are identified, each is tested for Granger causality against all of the remaining variables in the model (Freeman, Williams, and Lin 1989:844-845).[7] VAR models also do not require that the series under study be nonstationary. Differencing and prefiltering are not required. Series can be retained in the same form as used under OLS, preserving the relationships between those series.

Vector autoregression is especially well suited to the task of disentangling the relationship between the national economy and support for incumbent governments. Does a knowledge of the historic patterns for unemployment and inflation aid us in projecting incumbent popularity, given our knowledge of the historic pattern of incumbent popularity itself. Is the direction of causality in one way

-- change in economic conditions causing change in incumbent popularity? Or, perhaps, is the causality bi-directional -- with changes in incumbent popularity affecting economic performance through market reactions and policy innovations? Vector autoregression is especially well-suited to addressing these questions.

Transfer Function Analysis

Transfer function analysis is employed in engineering and operations research to study the dynamic response of systems to changes in input (Box and Jenkins 1970). Transfer function analysis is readily applicable to problems like presidential popularity. We can, for example, assume that unemployment is an input, X, to a system of voter evaluations of the incumbent government. The output of that system, Y, would then be satisfaction with the incumbent government. It will usually be the case that inertia within the system itself will keep a change in X from having an immediate effect on Y. There will instead be a delayed response with Y perhaps coming to equilibrium at a new level.

If we assume that unemployment in France rises this month (or this quarter), then how much will the popularity of the French president and prime minister suffer? Over how

many months? These are questions that transfer function analysis is specifically design to address.[8]

Ordinary Least Squares (OLS) and its cousin, Generalized Least Squares (GLS), offer little help for the analyst interested in dynamic processes, precisely because dynamic processes are inherently non-linear and linear strategies can at best approximate them. Linear regression techniques also have exceedingly restrictive requirements with respect to autocorrelation for the time series under study. Transfer function analysis enables the researcher to identify dynamic models and compensate for autocorrelated error processes (Norpoth, 1986).

Multiple linear regression analysis depends upon theory to specify the exact nature of causal relationships prior to estimation; transfer function analysis is guided by empirical considerations. Theory still guides the researcher with respect to the selection of variables and the plausibility of relationships that may be discovered during the identification process. Still, the method is less theory bound, in principle, than is regression analysis.

The identification of lag structures with linear regression is often less theory bound than most regression analysts care to admit. Lafay (1985) and others admit iterating through various lag structures before centering in

on the most pleasing lag structure to estimate. Transfer function analysis allows the data to guide the analyst when theory is weak.

Transfer function analysis identifies dynamic relationships between variables after the contaminating effects of trend, drift, and autocorrelation are removed. This is accomplished by filtering the series until all within-series dependencies are removed. What then remains are innovations to the series, i.e. changes to the series which were **not** predictable from the internal dynamic of the series themselves but rather the underlying causal processes. These innovations are then correlated between the two series (via a cross-correlation function), with each series leading and lagging the other. Rather than iterating through various lag structures with the expectation of landing upon the correct relationship, the transfer function analyst uses the cross-correlation function (CCF) to furnish valuable clues as to the relationship between dependent and causal series (McCleary and Hay 1980 provide an excellent introduction to the technique of transfer function analysis).

Regression analysts will quickly respond that transfer function analysis is biased in favor of the null hypothesis, H_0 = no causal relationship between X_t and Y_t. This has been discussed previously.

Norpoth (1986) correctly attributes most of the bias to differencing and prewhitening (applying the same error process model to both the causal and dependent series). Differencing and prefiltering arguably remove much of the substantive relationship between the causal and dependent series. Failure to reject the null hypothesis are often attributed to the method itself (Nelson and Schwert 1982).

Nelson and Schwert's (1982) monte carlo study noted that cross-correlations were unreliable in detecting causal relationships when a dataset of fifty observations was used. When the number of observations was increased to one hundred observations, no significant difficulty with reliable detection of causal relationships was noted. Norpoth (1986) points out that both the length of the series and the amount of variation in the causal series influences whether cross-correlations can make themselves heard over noise. The number of observations employed in this analysis are approximate 90 to 100 for each nation. If a strong, causal relationship exists between national economic conditions and incumbent popularity, there should be adequate evidence of that relationship in a transfer function analysis.

Notes

1. Unfortunately, popularity series across approximately 100 consecutive quarters were available only for the Denmark, France, West Germany, and the United Kingdom. This is necessary to generate reliable Box-Jenkins parameter estimates.

2. The length of the distributed lagged response models developed in this study do not permit a reliable test of robustness with regard to time periods. The residual degrees of freedom are too few at the quarterly level to permit a chow test of parameter stability without serious overlap in the time periods studied. Single lagged response models would permit such a test. The discussion below presents the reasons that this author believes that simple lagged response models do violence to the underlying theoretical relationships and are not undertaken.

3. It is somewhat misleading to draw a distinction between OLS and VAR. The initial identification of VAR models can be undertaken with OLS regression software. The analytic strategies and the diagnostics associated with structural equation models (SEQ) and vector autoregression models (VAR) are very different. OLS is used in lieu of SEQ in this thesis in order to distinguish the analytic elements based on a polynomial distributed lag structure and those based on vector autoregression in this thesis.

4. This discussion is related to macroeconomic indicators like unemployment, inflation, etc. There are certain economic indicators like exchange rates for foreign currency, interest rates for mortgages, stock share prices, etc. that either are or can be nearly contemporaneous.

5. This is in fact possible with the French presidential (prime ministerial) popularity series. Zero order and first order intervention components can be specified for presidential and prime ministerial terms. Political events such as the Plan Barre (September, 1976 -- January, 1977) should also be included when they have a

significant impact on popularity. This leads to multiple parameters for multiple interventions. To make matters worse, if the specification of interventions is incorrect, drift and trend can remain to confound subsequent analysis.

6. A linear trend is not the only plausible specification for decay in popularity administrations usually experience. A hyperbolic distribution or even a parabolic distribution (Miller and Mackie 1973) are not implausible. Other authors dismiss the idea of popularity cycles (Whiteley 1980).

   Linear trend terms have been a common specification since Goodhart and Bhansali (1970). For the sake of parsimonious presentation, only linear trend terms were considered.

7. VAR models are fit by regressing one variable against successive lags for that variable and successive lags for each of the remaining variables in the model. Each variable is in turn fit in this manner. Block f-tests are then employed to determine which variables "Granger cause" the variables in the model. VAR modelling is extremely useful for uncovering underlying patterns of endogeneity among a set of variables. The length of the successive lags is derived empirically. Modified likelihood ratio tests are often employed for this purpose (Freeman, Williams, and Lin 1989:845). This study substitutes an iterative strategy, attempting to identify evidence of causality across three statistical techniques.

8. Readers less familiar with transfer function analysis should read the chapter by Norpoth in Berry and Lewis-Beck, New Tools for Social Scientists: Advances and Applications in Research Methods, Beverly Hills, CA: Sage Publications, pp. 241-73.

Table 12. General Equations for OLS Estimation.

Equation 2a	$y = \alpha + \beta_i U + \beta_j P + \beta_k I + \delta_1 Term + \delta_2 Leftist + \epsilon$
Equation 2b	$y = \alpha + \beta_i U + \beta_j P + \beta_k I + \delta_1 Term + \delta_i Dummies + \epsilon$
Equation 2c	$y = \alpha + \beta_i U + \beta_j P + \beta_k I + \delta_1 Term + \delta_i Trends + \epsilon$

Note:

Y	--	Popularity of the French president or prime minister.
U	--	Vector of national unemployment (logged) at time t through time t-i.
P	--	Vector of national inflation at time t through time t-j.
I	--	Vector of national interest rates at time t though time t-k.
Term	--	Term counter for the French president or prime minister. Returns to 1 at the beginning of each term and is incremented by 1 for each month.
Leftist	--	A dummy variable controlling for the left/right ideological identification of the incumbent.
Dummies	--	Vector of dummy variables for each presidential or prime ministerial administration.
Trends	--	Vector of trend terms for each presidential or prime ministerial administration.

AGGREGATE TIME SERIES ANALYSIS

The French Case

Analysis of the French case lagged behind aggregate studies of electorates in the United States, the United Kingdom, and West Germany for more than a decade. In 1981, for example, Lafay lamented that France received almost no attention in the growing number of empirical studies devoted to the economy-electorate linkage. By 1985, Lafay was able to cite more than a dozen different studies of the French case. Most of those studies were published with a period of two years, indicating a sudden intense interest in the French case (see also, Lafay 1991).

Research into the linkage between economy and electorate in France focuses almost exclusively on popularity functions. The popularity of the French president and/or the French prime minister, as measured in public opinion polls, forms the dependent phenomena of interest. Aggregate macroeconomic economic indicators, appropriately lagged, form the core set of covariates. In the French context, a handful of studies have utilized vote functions based on party support in National Assembly

elections (see especially, Rosa and Amson 1976; Lewis-Beck and Bellucci 1982; Lewis-Beck 1985a; Lewis-Beck 1991).

The structure of the French executive presents unique opportunities for research into the linkage between economy and electorate. The French political system combines elements of both presidential and parliamentary systems. Of particular interest is the presence of both a president and a prime minister.

Different analysts have focused exclusively on either the French president (Giraud 1980; Kernell 1980; Lecaillon 1980a; Hibbs 1981; Lecaillon 1982) or the French prime minister (Lafay 1973, 1977; Lecaillon 1980b; Lafay 1981; Lafay, Berdot, and Giraud 1981). Popularity series are available for both the president and the premier from the very beginning of the Fifth Republic. Previous research divides evenly between presidential and prime ministerial focus. Only Lewis-Beck (1980) and Lecaillon (1981) examine the effects of macroeconomic changes on both presidential and prime ministerial popularity in a single study. American scholars, such as Hibbs and Kernell, concentrate on the French president. French scholars, while somewhat more divided, have concerned themselves more with the prime minister, since the prime minister has more direct responsibility for day-to-day policymaking in France than does the more charismatic president (Lafay 1981).

Economic conditions have been found to have a powerful effect on executive popularity in each of these studies. Beyond this rather broad characterization, the studies begin to diverge widely. Some find strong effects for inflation (Lafay 1977; Lewis-Beck 1980; Giraud 1980; Lafay 1981; Lafay, Berdot, and Giraud 1981; Lecaillon 1982). Others for personal income (Lafay 1977; Hibbs 1981; Lafay 1981; Lecaillon 1981). Unemployment is the only macroeconomic indicator which consistently achieves statistical significance at the .05 level or higher in all of the previous studies.

Lewis-Beck (1988)[1] attributes these "chaotic" findings to disagreement with regard to sampling, measurement, specification, estimation, and evaluation. Time series are sometimes monthly (Geraud 1980; Kernell 1980; Lewis-Beck 1980; Lafay, Berdot, and Giraud 1981; Lafay 1985), sometimes quarterly (Lafay 1973; Lafay 1977; Hibbs 1981; Hibbs and Vasilatos 1981; Lecaillon 1980b, 1981, 1982), and sometimes annual (Lecaillon 1980a, 1981). Time periods differ. Lafay's research (1973, 1977, 1981) is centered on the 1960s and 1970s. Hibbs (1981) concentrates on the 1970s. So too does Lafay, Berdot, and Giraud (1981). Lecaillon's attention has been split between the 1970s (1980b, 1981, 1982) and the longer period from the 1960s through the 1970s (1980a, 1981).

Lewis-Beck (1988) notes, "The problems continue." Macroeconomic indicators traditionally employed in the French case -- unemployment, inflation, and personal income -- are measured differently by different analysts. To compound matters, it is not at all uncommon for analysts to exclude measures of personal income (Giraud 1980; Kernell 1980).

Differences in model specification are most pronounced in terms of lag structures. Hibbs (1981) presents a model with a long, elaborated lag structure. Lewis-Beck (1980), in contrast, presents a model with political effects felt within two months of economic change. Lafay (1985), like Lewis-Beck, proposes a simple lag structure, with each economic variable significant at different lags.

Lewis-Beck (1988) is content to attribute the inconsistent findings associated with the French case to differences in measurement, specification, and the like. The analysis presented below accords with Lewis-Beck's observation. The relationships which previous studies of the French case have discovered are not robust. Changes in model specification, time periods, and statistical tests result in diminished model performance. The true causal relationship between the economy and the electorate in the French case remains, as yet, undetermined.

The German Case

Analysis of the economic-electoral linkage in West Germany has been intense. As with France, research into the West German case focuses almost exclusively on popularity functions. Kirchgässner (1974) initiated research into the West German case. He, along with Frey and Schneider, (1978,1979,1980) continues to lead research on the West German economy-electorate linkage. Frey and Schneider include economic voting elements as part of a larger political-economy model that includes the possibility that German cabinets attempt to manipulate the German chancellor's popularity by manipulating economic policies (the familiar "political business cycle").

The German executive resembles the familiar parliamentary prime minister of Great Britain. Unlike the French president, the German president is primarily a ceremonial head of state, selected by the legislature. The German president has none of the important executive powers that the French president wields. Executive authority, at the national level, lies with the German chancellor and cabinet.

What distinguishes German policymaking from British policymaking in both economic and non-economic matters is the federal structure of the German state. The German states (Lander) possess important political powers. They

also have the means to enforce their policy decisions. This has an important impact on the a priori theory underlying economic voting models.

In a unitary system like Great Britain, the cabinet can be certain that its policies will be implemented. The voter can reasonably attach responsibility for macroeconomic performance to the cabinet and the majority party (or parties). Intermediary bodies, like local councils, lack the ability to impede the policy decisions of national incumbents. The politically independent nature of the British civil service removes the bureaucracy as a possible impediment.

In the German case, the intermediary bodies (i.e., the Lander) have the ability to impede the decisions of the German chancellor and the cabinet. Since 1969, the Lander have also been equal participants with the Federal government with respect to regional economic development (Conradt 1989). In matters that affect state interests, state legislation takes precedence over national legislation. The consequences of Germany's federalized structure, in David Conradt's words (1989:201),

> [T]he states have either direct or indirect influence on all national legislation. In only a few policy areas, such as defense and foreign affairs, does the national government not have to consider the views of the

> states in either the making or implementation of policy.

Attaching responsibility for economic performance to the chancellor and cabinet is further complicated in the German case by the existence of parliamentary governments at the state level.[2] This makes the German case similar to the American case with interlocking powers and responsibilities between the national and the state governments. The German case is dissimilar from the American case, because at the national level and within each of the state governments, there is a fusion of the legislative and executive authority.

The a priori expected impact of the German federal system with its interlocking national and state parliaments on the relationship between economic performance and incumbent support is a weakened relationship, weakened in relation to a unitary parliamentary system (like in Great Britain). That same relationship should also be stronger than in the American case. Again, this is an a priori expectation. The American system has a presidential system at both the national and the state levels. State governors, by and large, fulfill the same roles at the state level as the U.S. president at the national level. In the U.S. case, the legislative and executive branches are separate entities. Therefore, it becomes harder to attach

responsibility. Whom do the voters hold accountable for a declining economy -- the chief executive or the legislature? Both play a role in shaping economic policy. And, in the U.S. case the two can be under the control of different political parties.

Economic conditions have been found, generally, to have a powerful effect on executive popularity in Germany. As with the French case, when we move past this rather broad characterization, the studies begin to diverge widely. Most find strong effects for both unemployment and inflation (Frey and Schneider 1978, 1980, 1981; Kirchgässner 1985a). Others have found that the principle economic indicator is either unemployment (Rattinger 1981; Peretz 1981) or inflation (Kirchgassner 1985b). Frey and Schneider have also uncovered significant effects for increases in real wages (1978, 1980, 1981). Other economic indicators, like tax rates and deficits have not generally been found to have a significant effect (Frey and Schneider 1980).

The British Case

Analysis of the economic-electoral linkage in Great Britain has been intense. As with Germany and France, research into the British case focuses almost exclusively on popularity functions. Goodhart and Bhansali (1970) initiated research into the British case. Their work also

stimulated Gerald Kramer and research into the American case. While the statistical models estimated by Goodhart and Bhansali are flawed, their research initiated the economic voting literature.

The British prime minister and cabinet is the model of the modern parliamentary executive. All executive authority lies with the British prime minister and cabinet. Following the "Glorious Revolution" of 1688, the British monarch has been stripped of all executive authority. Queen Anne was the last British monarch to veto legislation in 1707. Queen Victoria was the last British monarch to even attempt to influence politics through the personal selection of the prime minister or to even express a party preference. In Great Britain, Parliament is supreme, and without question, within Parliament it is the prime minister and the cabinet that wield power (Norton 1991).

What distinguishes British policymaking from German policymaking is the unitary nature of the British state. Local and county councils have no independent political authority. All of their authority stems from Parliament. They also have no independent means to enforce their policy decisions. This has an important impact on the <u>a priori</u> theory underlying economic voting models. In Great Britain, the cabinet can be certain that its policies will be implemented. It can also be certain that its policy

preferences will be adopted by Parliament, so long as it retains the confidence of its majority in the Commons. The voter can reasonably attach responsibility for macroeconomic performance to the prime minister, cabinet and majority party (or parties). Intermediary bodies, like local councils, lack the ability to impede the policy decisions of Westminster. The politically independent nature of the British civil service also removes the bureaucracy as a possible impediment.

The a priori expected impact of the British unitary system on the relationship between economic performance and incumbent support is a heightened relationship compared to the French and German systems. That same relationship should also be stronger than in the American case.

Economic conditions in Britain have a mixed effect generally on executive popularity. Some find strong effects for economic conditions on support for British governments (Goodhart and Bhansali 1970; Pissarides 1980; Hibbs and Vasilatos 1981). Others have found that economic indicators unrelated to incumbent support (Miller and Mackie 1973; Whiteley 1980; Chrystal and Alt 1981).

Lewis-Beck (1990:16-7) attributes the inconsistent results in the British case to inconsistent research strategies.

> ...[E]ach study seeks to explain the same thing: government popularity in postwar Britain...[E]ach focuses on the same set of explanatory variables: macroeconomic conditions and the electoral cycle. How, then, have such wildly different conclusions been reached? The answer to this question lies in the varied research choices that were made...[S]amples tend to differ in terms of size, time span, and time unit...[M]easures are usually different...[T]he timing of electoral response (the lag structure) invariably changes. Finally, the same estimation procedures are not always followed. It is small wonder that these researchers find themselves in disagreement.

There is another important reason for inconsistency in the British case. Early studies on the British case, like Goodhart and Bhansali (1970), used regression analysis. This, in and of itself, is no shortcoming. But early analysts ignored the effects of autocorrelation. Goodhart and Bhansali report models with Durbin Watson statistics as low as 0.5, indicating the existence of severe autocorrelation. Whiteley (1980) notes that when those deficiencies are corrected, the relationships between macroeconomic conditions and incumbent support are significantly altered. Statistically significant relationships disappear into statistical insignificance.

The Danish Case

Analyses of the economic-electoral linkage in Scandinavia have been few compared to the research interest

on France, Germany and Great Britain. Analyses that focus on Denmark have been even fewer in number.

The Danish executive is similar to the British executive. Executive authority lies with the prime minister and cabinet. The Danish parliament, the Folketing, is supreme. The prime minister and the cabinet wield executive power. As in Britain, local and county councils have no independent political authority. All of their authority stems from the Folketing. They also have no independent means to enforce their policy decisions.

Danish politics differs from the British case in one important respect. In Britain, with rare exceptions, one party wins a majority of the seats in the legislature. Through party discipline, that majority of seats ensures that the majority party's policies will be written into law and implemented by the civil service. The voter can reasonably attach responsibility for macroeconomic performance to the prime minister, cabinet and majority party (or parties) in Great Britain. Danish elections rarely result in one party with a majority of seats in the legislature. Instead, coalition government and minority government are the rule, stable majority government is the exception. This weakens the <u>a priori</u> expected impact of the Danish unitary system on the relationship between economic performance and incumbent support. Danish voters cannot be

certain at the time of the election which parties will be represented in the cabinet. It sometimes takes weeks of intense bargaining among the parties, especially in coalitions of the center/right, to form a government following an election.

The breadth of ideological variation among Danish political parties and the salience of ideological considerations, especially the salience of left/right ideological identification, also impedes the a priori expected impact of economic conditions on incumbent support. An electorate polarized by ideological divisions is arguably less likely to alter their voting behavior as a result of changing economic conditions. The absence of a strong political parties at the center of the ideological dimension further inclines against a strong relationship between the economy and electoral behavior.

The open nature of the Danish economy is a third factor that weakens a priori expectations. The Danish economy, like the other Scandinavia economies, is based largely on international trade. This makes the Danish economy more subject to changes in the world economy than is true for France, Germany, or Great Britain. This removes much of the responsibility for changing economic conditions from Danish incumbents.

The few studies on Scandinavia find that economic conditions generally have either a weak impact on executive popularity or no effect at all. Madsen (1980) finds a weak association between inflation and the vote share of the incumbent party (or parties) in Denmark. He found no association in Denmark between the level of or change in unemployment and the Danish incumbent's share of the vote. The sign is even in the wrong direction. The same is true for GDP and tax revenues -- insignificant and wrong sign. Madsen also examined the Swedish and Norwegian cases in the same study. No significant effects in Sweden, signs reversed. No significant effects in Norway, although the signs of the parameter estimates are in the correct direction. Frey (1979) uses a vote function that spans 67 years. He finds significant effects for inflation in Denmark and unemployment in Sweden. There is also a hint of a relationship between GDP and incumbent support in Sweden according to Frey. Hibbs and Madsen (1981) employ a koyck lagged effects models to the Swedish case. The strength of their parameter estimates contrast with early studies. Hibbs and Madsen find strong evidence for the existence on an economy-electorate link in Sweden. Miller and Listhaug (1985) come to a similar conclusion regarding the Norwegian case. Their study uses micro-level survey data. They find

a systematic impact of economic performance evaluations on support for Norwegian incumbent governments.

Early studies on Scandinavia, like Madsen (1980), use regression analysis. As with the early studies on the British case, analysts tended to ignore the effects of autocorrelation. This leaves the findings of those studies to be highly suspect.

Executive Popularity

France

Although monthly time series on the popularity of the French president and premier lack the length of equivalent series for the British prime minister and the German chancellor, a monthly series of observations can be assembled for the French president from January 1960 to September 1988 and for the French premier from June 1965 to September 1988.[3]

The popularity of the French president and prime minister are presented in **Figure 2**. It represents the proportion of survey respondents reporting satisfaction with the president and prime minister.[4] The time period of the graphed series is June 1965 to September 1988, beginning late in the first term of Charles de Gaulle and ending with the initial months of François Mitterrand's second term. In all, **Figure 2** represents six different presidential terms

and ten different prime ministerial terms in whole or in part.

Two interest facts emerge immediately from **Figure 2**. First the level of presidential popularity has declined across the French Fifth Republic. With the exception of François Mitterrand's second term, the mean level of support for each subsequent presidential terms has declined. A similar pattern is evident for the popularity of the French prime minister. **Table 13** summarizes the mean level of support for each presidential and prime ministerial term of office. Second, with few exceptions, the proportion of survey respondents who are satisfied with the French president is significantly larger than the proportion of survey respondents who are satisfied with the French prime minister. This is in keeping with Lafay's assertion (1983) the primary responsibility is attached to the French prime minister for day-to-day policymaking.

Lewis Beck (1980, ff. 312) argues that executive popularity in France is an autoregressive process. Theory[5] and empirical evidence guide him to this conclusion. The emppirical evidence is derived from an autocorrelation function (ACF) of presidential popularity. An ACF for the popularity of the French president is presented in **Figure 3**. Correlations at successive lags do decline to insignificance by lag four. The pattern of decline is exponential, <u>i.e.</u>

the pattern of decline associated with an AR(1) error process.

Lewis-Beck consequently estimated his model of presidential popularity with the Cochran-Orcutt (CORC) procedure in order to compensate for the high levels of autocorrelation[6] associated with an AR(1) process. CORC assumes that the error process is AR(1). Autoregressive error processes assume stationarity. Unfortunately, CORC provides no reliable indication that the error process is in fact either stationary or AR(1).

Additional evident that French presidential popularity is best represented by an AR(1) error process is available -- evidence of a non-visual nature. Several unit root tests have been proposed to assist the analyst in distinguishing between stationary AR(1) processes and non-stationary trends and drifts.[7] Unit root tests make the identification of stationarity less subjective (Dickey and Pantula 1987:455). The Dickey-Fuller unit root test is employed to settle the question of stationarity in this study (Fuller 1973; Dickey and Fuller 1976; Dickey, Bell, and Miller 1986). The Dickey-Fuller test confirms that French presidnetial popularity is a stationary AR(1) process ($t_{Dickey\text{-}Fuller}$ = -33.5761). So, too, is the popularity of the French prime minister ($t_{Dickey\text{-}Fuller}$ = -33.5761).

If the analyst makes the wrong assumption at the outset, i.e. whether the popularity series is or is not stationary, spurious correlations with any other time series is the likely result (Granger and Newbold 1974; Phillips 1986; Phillips and Durlauf 1986; Mills 1990). If the other time series is also non-stationary, as is the case of most macroeconomic indicators, the spurious correlations can be quite pronounced. Trends and drifts in the two series which suggest that over time the mean or variance of the series change, tend to inflate the absolute value of the cross-correlations between the two series. Even the signs of the cross-correlations may be reversed (Norpoth 1986).

Germany

A lengthy time series of monthly observations can be assembled for the German case. The time series for the German chancellor stretches back into the early 1950s and continues into the present. The national macroeconomic indicators in this study begin in January 1960. Therefore, chancellor popularity prior to 1960 are excluded from this study.

Figure 4 presents the popularity of the German chancellor is graphic form. It represents the proportion of the electorate expresing satisfaction with the German chancellor. The time period of the graphed series is

January 1960 to June 1983, beginning with the fourth term of Konrad Adenauer and ending with the first few months of Helmut Kohl's second term. Ten different chancellor terms are represented in whole or in part.

An interesting fact emerges from **Figure 4**. The popularity of the German chancellors tend to decline linearly. The smae familiar pattern is generally present for each chancellor. Immediately after entering office or winning reelection, a steady linear erorion in support occurs. This is very different from the French pattern. It reflects an important difference in the nature of the French prime minister and prime ministers in a parliamentary system like Britian and Germany. French prime ministers tend to be relatively unknown figures at the time of their selection by the French president. Their popularity initially begins a gradual rise as the public becomes aware of the new prime minister. Then, as their policies weaken their support, the French prime minister's popularity begins to erode. German chancellors are generally well-known figures before their selection by the Bundestag. Their prominence gains very little in the initial months following their selection. There is not a slow, gradual climb in their popularity as their name recognition increases among the electorate. Instead there is an initial upswing -- the famous "honeymoon" effect -- followed by a linear decay. **Table 14**

summarizes the mean level of support for each term of each German chancellor.

The same theoretical and empirical considerations that led to an initial expectation that French executive popularity is an autoregressive process, lead to the same expectation in Germany. **Figure 5** is an ACF for German chancellor popularity. Correlations at successive lags do decline to insignificance by lag three. The pattern of decline is exponential, i.e. the pattern associated with an AR(1) error process.

A Dickey-Fuller test further confirms that the approval series for the German chancellor is a stationary AR(1) process ($t_{Dickey\text{-}Fuller} = -21.7315$).

Britain

Public opinion on the popularity of British prime ministers stretches back to 1945. The national macroeconomic indicators in this study begin in January, 1960. Therefore, vote intention data prior to January, 1960 are excluded from this study.

The proportion of respondents expressing a preference for the incumbent party (or parties in 1974) is displayed in graphic form in **Figure 6**. The time period of the graphed series is January 1960 to December 1987,[8] beginning with the first term of Harold Macmillan and ending with the first few

months of the third term of Margaret Thatcher. In all, nine different prime ministerial terms are represented in whole or part.

Two interesting facts emerge from **Figure 6**. First, the incumbent British prime minister rarely has the approval of a majority of the survey respondents. Instead, the mean level of popularity for the party of the British prime minister throughout the period of this study is a meager 39.99%. Second, the popularity of the incumbent party does not appear to decay linearly over time as it did in the German case. At times it decays linearly, at time it grows linearly. Miller and Mackie (1973) have argued that the popularity of incumbent parties in Britain follow a parabolic function. The popularity of British incumbents begins to build-up gradually in the initial months of a new administration. Then, as their policies weaken their support, the popularity of the incumbent party begins to fall. This is the famous "honeymoon" effect, familiar to analysts of American politics.

The possibility that incumbent popularity in Britain follows a parabolic function is controversial. Goodhart and Bhansali (1970), for example, prefer dummy terms and linear trends. Whiteley (1980) dismisses the very idea of a political cycle.

Table 15 summarizes the mean level of support for each term of each British prime minister.

The same theoretical and empirical considerations that apply to France and Germany, lead to the expectation that the popularity of the British prime minister is autoregressive. **Figure 7** presents an ACF for the popularity of the incumbent political party. Correlations at successive lags do decline to insignificance by lag 3. The pattern of decline is exponential, the pattern of decline associated with an AR(1) error process.

A Dickey-Fuller test further confirms that the approval series for British executive popularity is a stationary AR(1) process ($t_{Dickey\text{-}Fuller} = -23.6904$).

Denmark

A lengthy time series of monthly observations can also be assembled for Danish incumbent popularity. The time series for vote intention begins in the mid-1950s and continues into the present. The national macroeconomic indicators in this study begin in January, 1960. Therefore, vote intention data prior to January, 1960 are excluded from this study.

The proportion of respondents expressing a preference for the incumbent party (or parties) is displayed in graphic

form in **Figure 8**. The time period of the graphed series is January 1960 to September 1989.[9]

The typical pattern for incumbent popularity in Denmark resembles incumbent popularity in Germany. There is generally a steady linear erosion of support for the incumbent political party (parties).

Table 16 summarizes the mean level of support for each term of each Danish prime minister.

There is an initial expectation of autoregressive error processes for the same reasons mentioned previously in the French, German, and British cases. **Figure 9** presents an ACF for the popularity of the incumbent political party. Correlations at successive lags decline to insignificance by lag 3, and the pattern of decline is exponential, the expected pattern for an AR(1) error process.

A Dickey-Fuller test further confirms that the approval series for Danish executive popularity is a stationary AR(1) process ($t_{Dickey\text{-}Fuller} = -9.6555$).

The Economic Link

France

Different analysts have employed different macroeconomic indicators in an attempt to explain the linkage between the French economy and the French electorate. Unemployment and inflation invariably appear in

the models, although different measures of these indicators are sometimes used.[10] Personal income is sometimes present, sometimes absent. When present, personal income is sometimes defined in terms of real wages. Other macroeconomic variables, such as interest rates, exchange rates, and balance of payments are rarely included at all (Lafay 1985). The rationale for the exclusion of such indicators is that unemployment, prices, and wages are more easily perceived by voters than interest and foreign exchange rates (Lafay 1981). Proponents of pocketbook voting will also point out that interest rates, exchange rates, and balance of payments lack a direct effect on the voter.

Strong theoretical presumptions lead researchers to expect unemployment and executive popularity in France to be negatively related. Those directly experiencing growing unemployment will come to hold the president and prime minister accountable, and, as a result, dissatisfaction with both will increase (Lewis-Beck 1980). Sociotropic considerations will also erode support for the French executives, since increasing unemployment will be associated with failure to handle the economy well. Similar presumptions lead researchers to expect a negative association between inflation and executive approval ratings in France. Personal income (and growth in real wages), on

the other hand, is expected to be positively related to popularity.

Germany

The preceding discussion on the different macroeconomic indicators analysts use to explain the linkage between the French economy and the French electorate also applys to the German case. Unemployment and inflation invariably appear in the models of the German case.

Strong theoretical presumptions lead researchers to expect inflation and chancellor popularity to be negatively related. The German experience with hyperinflation during Weimar presumably left the German electorate sensitive to changes in the rate of inflation. The experience with widespread unemployment during the Great Depression also presumably left the German electorate sensitive to changes in unemployment.

The range of statistical models and statistical techniques is broader in studies of the West German than in the French case.

For popularity functions, French studies are limited primarily to the popularity of the French president and the French premier. In the German case, the popularity of the German chancellor is available. The popularity of each of the political parties is also available monthly via a vote

intention measure from the Allensbach survey firm. Frey and Schneider (1978), for example, combine the popularity for the individual parties into a measure of government lead. Peretz (1981) separately analyses the popularity of each of the dominant parties as well as chancellor popularity, government popularity, and opposition popularity. Kirchgässner (1985c) does away entirely with separate macroeconomic indicators. He instead substitutes a subjective evaluation of the overall economy from the survey firm Infratest GmbH.

Analysis of the French case is limited almost exclusively to ordinary least squares regression. This is not true for the German case. Kirchgässner (1985c) uses direct Granger causality and Box-Jenkins transfer analysis on the German case. So, too, do Norpoth and Yantek (1983).

The existence of statistically significant effects for the economic-electorate link in Germany is still controversial. Kirchgassner along with Frey and Schneider are confident that robust relationships between the economy and the electorate have been demonstrated in Germany. Alt and Chrystal (1981, 1983) remain skeptical. They have even demonstrated that the early analyses of Frey and Schneider were not time invariant. Peretz (1981) discovered a modest relationship between the popularity of the Social Democrats (SPD) and the rate of unemployment. The relationship did

not hold at all for the Christian Democrats (CDU/CSU) or for the chancellor's popularity. Inflation, according to Peretz, had no substantial effect at all. Norpoth and Yantek (1983) also failed to discover any relationship between economic conditions and the popularity of German political parties.

German analysis also differs from French case in another important respect. Micro-level survey data on the German electorate is available. While the analysis of the German case has not made wide use of individual-level survey models, there have been some important analyses using that data (see especially Roth 1973, 1977; Jung 1978; Kaltefleiter 1978; Rattinger 1981).

Rattinger (1981) combined both macro and micro-level analyses in his research design. At the macro-level, he used constituency-level voting data to demonstrate that unemployment may affect the fortunes of German parties in different ways. He discovered an inverse relationship between unemployment and support for both the Christian Democrats and the Free Democrats (FDP). For the Social Democrats, the relationship was reversed. Rattinger hypothesized that this was the result of clientelistic relationship between German political parties and different segments of the German electorate.[11] The Social Democrats, on the whole, are more determined to fight for unemployment

while allowing for comparatively higher rates of unemployment, since their traditional supporters are more likely to be injured by increased unemployment than they are by increased inflation. Interestingly, when Rattinger uses micro-level survey data, his hypothesis is not confirmed. Instead, he discovers the German perceptions of the economy and future expectations are shaped by existing party loyalties. Economic conditions do not, according to Rattinger's conclusion, influence party support. Roth (1977) came to a similar conclusion with individual-level survey data.

Britain

Unemployment and inflation invariably appear in the British models, just as in the French and German cases. Growth in real wages is sometimes present (Whiteley 1980). Other macroeconomic variables, such as exchange rates, the ratio of government revenue and expenditure, and real growth in consumption sometimes appear (see especially, Pissarides 1980).

The range of statistical models and statistical techniques more closely resembles research on the German case than the French case. Whiteley (1985), for example, uses Box-Jenkins transfer analysis. Goodhart and Bhansali

(1970) supplement their regression analysis with cross-spectral analysis.

It has already been mentioned that the existence of statistically significant effects for the economic-electorate link in Britain remains controversial. Pissarides (1980) is confident that robust relationships between the economy and the electorate have been demonstrated. Pissarides' confidence is the result of chow tests performed on seven overlapping time periods. Goodhart and Bhansali (1980), while confident that a causal relationship exists, admit that their results are not time invariant. It is also interesting to note that Goodhart and Bhansali's cross-spectral analysis does not confirm their regression results. The cross-spectral analysis failed to pick up the existence of any relationship at all. Whiteley (1986) comes to a similar result. Statistically significant results in the regression analysis are not confirmed by transfer function analysis. When Whiteley divides the dataset into thirds, stable parameter estimates are absent.

Denmark

Unemployment and inflation invariably appear in statistical models for the Danish case, just as in the previous three cases. Growth in GDP and tax revenues are also frequently present.

The range of statistical models and statistical techniques more closely resembles the French case than it does the German or British cases. The major studies are limited to regression analysis. Whereas analysis on the French case has been limited primarily to popularity functions, analysis of the Danish case has focused on vote functions.

Time Series Data

France

As with Lewis-Beck (1980), this study of incumbent popularity focuses primarily on the French president. The same model of economic effects is also applied to the popularity of the French prime minister, but since the results were largely the same in interpretation for presidential and prime ministerial approval, the discussion is assisted if the focus remains on presidential approval.

The French polling organization, Institut Français d'Opinion Publique (IFOP), routinely asks a national sample ($N \approx 2000$) of the French electorate "Êtes-vous satisfait ou mécontent de _____ comme président (premier ministre) de la République?"[12] The series is not without breaks, however. Prior to 1960, the polling was so infrequent (three times per year) that estimates of missing data are unreliable for the presidential popularity series.

The same is true for prime ministerial popularity prior to 1965. It was not unusual, however, across the 1960s and early 1970s for one or more months to pass without a poll. Most analysts have followed the approach of Lewis-Beck (1980) and averaged across the preceding and subsequent data points to provide an estimate of the missing data. This is also the strategy of this study. The effect of interpolating data points in this way diminishes variance in the popularity series. Stochastic fluctuations, which are many and often pronounced in the French popularity series, are thereby reduced.

The IFOP-France Soir-Journal du Dimanche popularity series was used as the basic executive popularity series for this project. Monthly and quarterly series were constructed for both the French president and prime minister from June, 1965 to September, 1988. September, 1988, was the most recent popularity figures readily available to this researcher at the time of analysis. June, 1965, was the earliest date for which reliable monthly series for the prime minister could be constructed.[13] The resulting datasets contain 280 monthly observations (92 for the quarterly series).

This analysis concentrates on economic variables that are more readily perceived by voters and that more directly

affect them (Lafay, 1981). This includes unemployment (U), inflation (P), and interest rates (I).[14]

The economic indicators for this analysis were all drawn from the OECD series Main Economic Indicators. Unemployment, U_t, is the customary French measure of unemployment -- registered unemployment in thousands. Seasonally adjusted figures were used instead of unadjusted unemployment figures. This was to provide comparability with previous studies. The unemployment series was log transformed in order to reduce the heteroskedasticity associated with the measure. Inflation, P_t, is annualized from the monthly index of consumer prices. Interest rate, I_t, is the call rate.

The economic series were measured monthly in the original OECD series. So were the executive popularity series. The monthly measures were compacted into quarterly series by averaging the three months in each quarter for each series. This was done in order to reduce the statistical noise present in the original monthly time series.[15]

Germany

The German polling organization, Institut fur Demoskopie in Allensbach, routinely asks a national sample ($N \approx 2000$) of the German electorate "Sind Sie im großen und

ganzen mit der Politik von Bundeskanzler _____ einverstanden oder nicht einverstanden?"[16]

The monthly popularity series is interrupted by occasional breaks of a month or more. Missing points were interpolated by averaging across the successive periods on both sides of a break in the series.

The economic indicators for this analysis were all drawn from the OECD series Main Economic Indicators and use the same definitions as the French case. The time series were measured monthly in the original OECD and Allensbach sources. The monthly measures were compacted into quarterly series in order to reduce statistical noise.

Britain

The Gallup's British affiliate, Social Surveys Ltd., routinely asks a national sample ($N \approx 2000$) of the British electorate "If there was a General Election tomorrow, which party would you support?"[17]

Occasional breaks in the popularity series were interpolated by averaging across the successive periods on both sides of a break in the series.[18]

The economic indicators for this analysis were all drawn from the OECD series Main Economic Indicators and use the same definitions as the French and German cases. The

monthly measures were compacted into quarterly series in order to reduce statistical noise.

Denmark

The Gallup polling organization, Galup Merkedsanalyse A/S, routinely asks a national sample (N ≈ 2000) of the Danish electorate "Hvilket parti ville De stemme på, hvis der var folketingsvalg i morgen?"[19]

Occasional breaks in the popularity series were interpolated in the same manner as for France, West Germany, and Great Britain.[20]

The economic indicators for this analysis were all drawn from the OECD series Main Economic Indicators and use the same definitions for unemployment and inflation as the previous cases. Interest rates were measured differently, however. Call rates were unavailable for Denmark. The official discount rate was used instead. The monthly measures were compacted into quarterly series in order to reduce statistical noise.

Statistical Analysis

The French Case

The French case provides an interesting opportunity to test hypotheses regarding the relationship between changing economic conditions and executive popularity. The French executive under the Fifth Republic is dual in nature,

possessing both a president and prime minister. Each possess important powers. Under the first three directly elected presidents, the informal powers of the president were expanded. Throughout most of this period of this study (1965:01 to 1988:03), France could be classiftied more precisely as a presidential system rather than as a parliamentary system. This changed with the National Assembly election of 1986. The socialist president, François Mitterrand, faced a hostile majority in the National Assembly. The informal powers and even some of the formal powers of the president were severely curtailed by the prime minister and the opposition parties in the National Assembly.

The dual nature of the French republic complicates the study of executive popularity in France. Models for both presidential and prime ministerial popularity must be developed and analyzed. The potential for endogeneity between presidential and prime ministerial popularity also complicates model estimation. The visual evidence of endogeneity is striking in **Figure 2**.

The perceptions of survey respondents add an additional degree of complication to the French case. Although the French constitution gives responsibility for economic policymaking to the prime minister and the Council of Ministers, this does not insure that French citizens attach

responsibility for economic conditions solely to the prime minister. The practice in France prior to the second term of François Mitterrand was also different than the formal roles of the French president enumerated in the French Constitution. Rather than serving as an arbiter, the French president played an activist role. Government policies were largely the result of decisions made by the president and the presidential staff. Cohesive party loyalties insured support for the president's policies. Therefore, it is not unreasonable that the French public would attach some degree of responsibility to the French president for the day-to-day function of the French economy.

Ordinary Least Squares Analysis

The dual nature of the executive complicates the study of the French case. Arguments can be made that irrespective of the dependent variable, approval of the president or the premier, term effects for both presidential and prime ministerial terms need to be simultaneously included. Thus for every general equation in **Table 2** there are four separate model specifications -- one for presidential popularity without controls for the premier and one with premier effects, one for prime ministerial popularity without controls for the president and one with presidential controls. In all, twelve separate model specifications were

estimated with OLS for this study. Those specifications are listed in **Table 17**.

Presidential and prime ministerial terms could not be controlled for simultaneously through the use of separate dummy variables or term counters without the introduction of perfect collinearity. To control for these effects simultaneously (albeit imperfectly), a single variable term counter was included. Hence, when dummy variables are included to capture effects specific to each presidential administration, an alternative specification includes the popularity of the French prime minister and a term counter for prime ministerial terms. A separate term counter for both the president and the prime minister is possible because the terms of the French president and the French prime minister are not necessarily concurrent. Presidential practice in the Fifth Republic is a change in prime minister somewhere near the midterm of the presidency. Each directly elected president of the Fifth Republic has had at least two prime ministers in each term of office.

The analysis begins with those equations in **Table 17** that control for the ideological (left/right) identification of the French executives (**Equations 1a - 1d**). This variable is coded 1 for the presidential administrations of François Mitterrand and coded 0 otherwise. Similarly for the French prime minister, the variable is coded 1 for the

administrations of Pierre Mauroy, Laurent Fabius, and Michel Rocard; the variable is coded 0 for the remaining French prime ministers in this study.

Tables 18 through **21** present the results from the Almon transform analysis of **Equations 1a - 1d**. The coefficients for each substantive variable -- unemployment (U), inflation (P), and interest rates (I) -- are the summed parameter estimates. The coefficients for unemployment, for example, sum the separate parameter estimates for the unemployment variables in a second degree Almon transformation of lag length t. The standard errors are calculated from F-tests on those same blocs of variables.

An interesting pattern emerges in **Tables 18** and **19**. There appears to be a strong causal relationship between unemployment and the popularity of the French president when the ideological identification of the French president's party is controlled with a dummy variable (**Table 18**). There is the expected gradual build-up in statistical significance for lagged unemployment parameter estimates between lag lengths of t-3 and t-8 with a gradual decay across the remaining four quarters (t-9 through t-12). When controls for the popularity of the French prime minister and a term counter for the French prime minister are included, however, this apparently strong causal relationship between unemployment and the popularity of the French president

disappears (**Table 19**).[21] No vestige of the relationship remains.

A strong causal relationship also appears to exist between unemployment and the popularity of the French prime minister (**Table 20**). The anticipated pattern of gradual build-up and decay for unemployment effects is again present. The relationship between unemployment and support for the French prime minister is also robust with respect to the inclusion of controls for the French president (**Table 21**). The localized drop in the Akaike Information Criteria statistic for a lag length of t-9 and an examination of the summarized parameter estimates and the F-test for that same lag length strongly suggest that the popularity of the French prime minister is causally related to unemployment nine quarters previous with a gradual build-up and decay in the salience of unemployment in the adjacent quarters.

The remaining economic indicators, inflation and interest rates, do not exhibit any clear and convincing patterns of relationship with the popularity of either the French president or prime minister once controls are imposed for the ideological identification. The only exception is the hint of a causal relationship between the rate of interest and the popularity of the French president. The evidence of that relationship persists after controls are imposed for the French premier.

Tables 22 through **25** present the results of substituting administration dummy variables for the left/right identification variables above.

Similar patterns emerge in the relationship between incumbent popularity and unemployment. A strong association between unemployment and presidential popularity in **Table 22** disappears once again when controls for the French prime minister are imposed (**Table 23**). Evidence of a strong, robust causal relationship between the French prime minister and unemployment appears to exist, again somewhere around lag length t-9. The results in **Tables 24** and **25** also suggest that interest rates may be causally related to the popularity of the French prime minister. The signs of the parameter estimates for interest rates are not stable, mitigating against a clear and convincing relationship. The summarized parameter estimates for inflation are significant with respect to prime ministerial popularity, but the direction of the summarized parameters is in the wrong direction.

The results of substituting administration trend terms for administration dummy variables are presented in **Tables 26** through **29**.

The same familiar pattern emerges for presidential popularity. Without controls for the popularity of the prime minister, a strong relationship between presidential

popularity and unemployment nine quarters previous emerges. When controls for the popularity of the prime minister are imposed, the strong relationship between presidential popularity and unemployment disappears. A disturbing result also occurs when the focus shifts from presidential popularity to prime ministerial popularity. There is little evidence of a causal relationship between prime ministerial popularity and unemployment when trend terms are substituted for administration dummy variables. Only one lag length, t-9, achieves statistical significance. Although the other lag lengths do not achieve statistical significance at the $p \leq 0.05$ level, their pattern is reassuring. The summary coefficients do show the familiar and theoretically expected pattern of build-up and decay. That pattern of build-up and decay is also centered about the familiar lag length of t-9. Unfortunately, when controls are imposed for presidential popularity, the signs of the summary coefficients reverse direction.

The OLS results strongly suggest the existence of one causal relationship between economic conditions and executive popularity in France. The results strongly suggest a causal relationship exists between satisfaction with the French prime minister at time t and the logged value of unemployment at time t-9. This relationship appears relatively robust with respect to alternative model

specifications. The causal evidence for unemployment accords well with the existing literature. Unemployment is the one variable which consistently achieves statistical significance in studies of the French case. The evidence in this study is not entirely uncontroverted. When trend terms for each of the prime ministerial administrations are included and controls for the popularity of the French president are included the causal relationship changes from an inverse relationship to a direct relationship. Such a finding does not accord with *a priori* theory. The nine quarter lag between unemployment and executive popularity is also slightly longer than anticipated. Most studies find more contemporaneous effects between unemployment and incumbent popularity in France. Before a final decision can be made, evidence from both vector autoregression and transfer function analysis need to be considered.

Vector Autoregression Analysis

It should be recalled from the previous discussion of OLS results that the dual nature of the French executive necessitates that models for both the French president and the French prime minister be examined. Twelve separate VAR models were estimated in this study. VAR modelling does not rely upon the explicit specification of dependent variables. Each stochastic variable in a model is treated in turn as a

dependent variable during model identification. The only variables which are not treated in turn as both dependent and causal are deterministic variables -- trend terms, dummy variables, etc. **Table 30** lists the twelve equations for the VAR analysis.

The VAR analysis begins with the equations controlling for the ideological identification of the French president and premier (**Equations 2a - 2d**). The results of the OLS analysis are not supported. The results of the VAR analysis for left/right ideological identification are presented in **Table 31**. The figures in **Table 31** represent the probability (from an F-test) that the history of a particular variable "Granger causes" the popularity of the French president or the French prime minister.

The popularity of the French president does not appear to be related to unemployment nine quarters previous when the popularity of the prime minister is excluded from analysis (column [3]). The results instead suggest that there is no causal relationship between unemployment and presidential approval unless both presidential and prime ministerial approval are included (columns [1] and [2]). The the shorter lags appear to be causal. This is more believable. Similar results occur when prime ministerial popularity is considered alone (column [4]). Again, the causal relationship disappears unless both presidential

andprime ministerial model are included in the same VAR model. This contrasts with the OLS model, where the simultaneous inclusion of both presidential and prime ministerial popularity led to the opposite finding -- no causal relationship evidenced.

Short lag lengths for inflation appear causally related to presidential approval and interest rates to prime ministerial approval. The nature of these relationships is similar to findings above for unemployment. Short lag lengths predominate, and those effects disappear when presidential and prime ministerial approval are separately analyzed (columns [3] and [4]).

The results for the VAR analysis when dummy variables are included to capture effects specific to presidential or prime ministerial administrations are presented in **Tables 32** and **33**.

The results for administration effects dummy variables are very similar to the findings for left/right ideological identification controls in **Table 31**. Shorter lag lengths for unemployment continue to predominate as long as both presidential popularity and prime ministerial popularity are simultaneously included. The same is true for the relationships between inflation and presidential popularity and between interest rates and prime ministerial popularity. The shorter lag lengths prevail so long as the popularity of

both French executives is included in the VAR estimation. The separate analysis of either presidential or prime ministerial popularity results in no hint of a causal relationship.

Tables 34 and **35** presents the VAR results from the substitution of administration trend terms for administration dummies. The same familiar pattern emerges. Both presidential and prime ministerial approval must be included for evidence of any causal relationship to emerge. The evidence that does emerge indicates that shorter lag lengths for unemployment and inflation affect presidential popularity and shorter lag lengths of unemployment and interest rates affect prime ministerial popularity.

It is also interesting to note that popularity of the French president is causally unrelated to the popularity of the French prime minister. The same is true, if we reverse the direction of causality. The popularity of the French president and prime minister appear to be exogenous. This interesting finding is present in each of the VAR analyses with administration specific effects. This was an unexpected finding. It also does not accord with the OLS findings, where endogenity is clearly demonstrated.

A common theme emerges from the VAR analysis. Presidential popularity does appear to be causally related to unemployment. When presidential popularity is examined

in the absence of prime ministerial, there is no evidence of a causal relationship. When the popularity of both the president and prime minister are included, the shorter lag lengths for both unemployment and interest rates appear to be causally related to presidential popularity. The same patterns emerges for the popularity of the French prime minister. Unemployment and interest rates appear causally related with prime ministerial popularity at relatively short lag lengths, provided that the popularity of both the president and the prime minister are included in the VAR estimation.

The VAR analysis does not accord well with the OLS analysis. In the OLS findings, the longer lag lengths predominate. Also, the causal relationships appear only when presidential popularity and prime ministerial popularity are separately analyzed. Their simulataneous inclusion causes the apparent causal relationships between executive popularity and economic conditions to disappear.

Transfer Function Analysis

Each of the causal series employed by this analysis was tested for nonstationarity. This was done both visually and with a Dickey-Fuller test. The only nonstationary series was unemployment. This was theoretically anticipated, since the measure of unemployment (unemployment in 1000s) is

trended upward. When measured in thousands, even a constant percentage of unemployed persons will result in a trended series as the population (and consequently the workforce) grows. The results of the Dickey-Fuller tests are presented in **Table 36** below.

Once the question of stationarity was resolved, each of the causal series was prewhitened. The error processes for each of the variables employed in this analysis are presented in **Table 37**.[22] Inflation possesses the simplest error process -- AR(1). Interest rates and seasonally adjusted unemployment both possess a MA(1) component in addition to an AR(1) component. The unemployment series was nonstationary due to growth in the French workforce across the twenty year period of time studied. The unemployment series was first order differenced. The parameter estimates for each of the French time series are presented in **Table 37**.

The cross-correlations between presidential popularity and the economic variables for this study are presented in **Tables 38** through **40**. Twenty lags in both directions are included. However, we are more interested in the positive lags (Norpoth, 1986).[23] If we are correct in our assumption that the macroeconomic variables are the causal series ($\underline{X}$) and presidential popularity is the dependent series ($\underline{Y}$), the correlations between the causal series and the lagged

popularity series, $\rho_{yx}^{(-k)}$, should be zero. If, on the other hand, there is feedback from popularity to macroeconomic conditions (i.e. endogeneity), then one or more of the negative lags should also be statistically significant. Theoretically, the expected direction for the correlations between presidential popularity and the macroeconomic conditions included in this study is negative. As unemployment, inflation, or interest rates increase, it is expected that the popularity of the French president will decrease.

Each of the cross-correlations is devoid of any clear and unambiguous relationship between causal and dependent series. There are single lags which are statistically significant at the .05 level of significance. No patterns of buildup or decay are evident. This is true for the popularity of both the president and the prime minister.

Most of the statistically significantly lags are negative lags. Significant negative lags indicate that economic conditions may be causally related to incumbent popularity in France with incumbent popularity as the causal series. They indicate the possible presence of a political business cycle in France (Nordhaus 1975). Much of the VAR analysis was excluded from the discussion above. It is important to note that a complete VAR analysis examining each of the economic series as an endogenous series also

supports the hypothesis that incumbent popularity has a causal impact on macroeconomic conditions in France. Further analysis on this point is outside the confines of this dissertation. This remains a point of interest that this analyst intends to explore more fully at a later date.

Statistically significant positive lags with the sign in the correct direction exist are present in both of the unemployment CCFs. Both of the CCFs for the unemployment series possess a statistically significant lag at k-8. It will be recalled that single statistically significant spikes are generally suspect in transfer function analysis. The analyst is generally looking for dynamic patterns in the CCF demonstrating either build-up or decay. There is a faint suggestion of such a pattern in the CCF for presidential popularity and unemployment.

The significance of lag k-8 accords well with the results from the OLS analysis. In the absence of the OLS analysis, the significant lags at k-8 might well be ignored. The identification of similar lagged effects with OLS modelling does lend some persuasive weight to the existence of a causal relationship, one which approaches the criteria "clear and unambigous."

Executive Popularity and the National Economy

The initial goal was to identify a "clear and unambiguous" causal relationship between economic conditions and executive popularity. Once causal relationships were identified, the goal then changes to quantitative precision. Each of the theoretical model specifications was subsequently reestimated with an Almon distributed lag, vector autoregression, and transfer function analysis based on the evidence presented above.

Instead of summary estimates, **Tables 41 - 43** and **44 - 46** present the individual parameter estimates for a second degree Almon lagged response model with a lag length of 9 quarters. **Tables 41 - 43** present the results for the popularity of the French president, **Tables 44 - 46** for the French prime minister. The dynamic pattern of build-up and decline is evident in the parameter estimates for each of the lagged economic indicators. Presidential popularity appears to be influenced by both the level of unemployment and interest rates five to eight quarters previous until controls are added for prime ministerial popularity (columns [b] in **Tables 41 - 43**). There is also a hint of a causal relationship between presidential popularity and inflation one to four quarters previous. That relationship also disappears entirely when controls are imposed on presidential popularity for the popularity of the prime

minister. The relationship between prime ministerial popularity and lagged macroeconomic conditions is much more robust. The same dynamic patterns of build-up and decay are present in prime ministerial popularity as were present in presidential popularity. Prime ministerial popularity appears to be causally related to unemployment five to eight quarters previous, inflation one to four quarters previous, and interest rates five to eight quarters previous. The causal relationships are relatively unaffected when controls for the popularity of the president are included (columns [b] in **Tables 44 - 46**). The only exception is when administration trend terms are substituted for administration dummy variables (**Table 46**).

The reestimation of the vector autoregression analysis for a lag length of nine quarters includes the impulse response functions for presidential and prime ministerial popularity. Impulse response functions measure the change in one variable for a one standard deviation change in a second variable across successive time periods. The impulse response functions in **Tables 47 - 49** are orthogonalized responses. The response of presidential popularity to unemployment, for example, has all of the effects for inflation, interest rates, and prime ministerial popularity removed.[24]

The impulse response functions add additional evidence that national macroeconomic conditions in France are causally related to the popularity of both the president and the prime minister. These results are from a VAR that includes both presidential and prime ministerial popularity as mutally endogenous variables, effectively controlling for the effect of each upon the other. Increases in the level of unemployment lead to decreased popularity for the president and the prime minister after a period of eight to nine quarters.

Final evidence for the existence of a causal relationship between executive popularity and unemployment in France is presented in **Table 50**. **Table 50** includes the results for a zero order transfer function on the undifferenced executive popularity series. A zero order transfer function on an undifferenced dependent series assumes a single significant spike. This is precisely the expectation that the cross-correlation functions yielded.

The existence of a causal relationship between the current level of incumbent popularity and the level of unemployment eight quarters previous is confirmed in **Table 50**. The popularity of both the president and the prime minister appear to be adversely affected by increased level of unemployment two years previous.

Germany

If we limit our analysis to the national level, the German case lacks the complexity of the French case. The single German executive greatly reduces the number of model specifications that must be examined. There is no need to test separately for the popularity of the German president and the German chancellor. The German president is the head of state and not the head of government.

Ordinary Least Squares Analysis

Separate dummy terms or trend terms need to be included to control for administration-specific effects. The same theoretical justification applies to the German case that applied to the French case. The single German executive reduces the number of equations from twelve in the French case to three in the German case. **Table 51** presents those three equations.

As with the French case, the analysis of German data begins with those equations in **Table 51** that control for whether the German chancellor is from a leftist party (SPD) or a rightist party (CDU/CSU). This variable is coded 1 for the administrations of Willy Brandt and Helmut Schmidt and coded 0 otherwise.

Table 52 presents the results from the Almon transform analysis of **Equation 1a**, which controls for the ideological identification of the German chancellor.

Table 52 suggests that a relationship between executive popularity and all three macroeconomic indicators might exist when the ideological identification of the German chancellor's party is controlled with a dummy variable. There is a gradual build-up in statistical significance for lagged interest rate parameter estimates between lag lengths of t-1 and t-4 with a gradual decay across the remaining eight quarters (t-5 through t-12). A similar pattern of increasing statistical significance followed by a slow decay is present in the unemployment parameter estimates also, although the build-up and decay is centered around lag t-6. Statistical significance is not achieved until the very tail (lags t-11 and t-12). The pattern for the inflation parameter estimates is even less reassuring. There is no pattern of build-up followed by decay. Instead, the pattern is constant build-up with statistical significance at lags t-10 through t-12. The absence of any localized drop in the Akaike Information Criteria or the Schwartz statistics inclines against any of these relationships being a robust, causal relationship.

Table 53 presents the results of substituting administration dummy variables for the left/right identification variable.

A similar pattern for the interest rate series emerges when administration dummy variables are substituted for left/right ideological identification. Interest rates, lagged by four to six quarters, appear to be causally related to chancellor approval levels. The expected pattern of gradual build-up and decay is not clearly demonstrated however. Interestingly, the relationships between unemployment and chancellor popularity in **Table 52** disappears. The same result applies to the inflation series.

The results of substituting administration trend terms for administration dummy variables are presented in **Table 54.**

A familiar pattern again emerges in **Table 54.** Interest rates, lagged by four to six quarters, appear to be causally related to chancellor approval levels. There is also a faint indication of causal relationships between chancellor popularity and both the unemployment and inflation series. The patterns are similar to those present in **Table 52.**

The OLS results consistently suggest the existence of one causal relationship between economic conditions and executive popularity in Germany. The results hint at a

causal relationship between satisfaction with the German chancellor at time t and interest rates somewhere between lags t-4 and t-6. This relationship appears to be relatively robust with respect to alternative model specifications. It lacks the strength of the causal relationship between unemployment and executive popularity in France. Evidence from both vector autoregression and transfer function analysis needs to be considered before a declarative judgment can be made on the existence of a causal relationship between interest rates and executive popularity in Germany.

Vector Autoregression Analysis

Three separate VAR models are estimated in this study. VAR modelling, it should be recalled from the discussion of the French case, does not rely upon the explicit specification of dependent variables. Each stochastic variable in a model is treated in turn as a dependent variable during model identification. The only variables which are not treated in turn as both dependent and causal are deterministic variables -- trend terms, dummy variables, etc. The three equations for the VAR analysis are listed in **Table 55.**

Returning our attention to the equations which control for the ideological identification of the German

chancellor's political party, the results of the OLS analysis find little support. The results of the VAR analysis for left/right ideological identification are presented in **Table 56**. The figures in **Table 56** represent the probability (from an F-test) that the history of a particular variable "Granger causes" the popularity of the German chancellor.

The popularity of the German chancellor does not appear to be related to interest rates four to six quarters previous in the VAR estimates as it was in the OLS estimates. This is true when any of the three controls for administration-specific effects are employed. There is a suggestion of significant effects for interest rates at the longer lag lengths of t-10 through t-12 when administration dummy variables are included.

The VAR estimates in **Table 56** do suggest the possibility of causal relationships between both unemployment and inflation and chancellor popularity. The estimates for the logged unemployment series show fairly consistent results when dummy variables for ideological identification or for administrations are included. The results alter significantly when administration trend terms are instead employed. The shorter lag lengths are no longer yield statistically significant results. The longer lag lengths (t-8 through t-11) tend towards statistical

significance, a familiar pattern from the OLS results above. The inflation series presents somewhat more problematic results. Depending on the type of administration specific controls imposed, the significance of the parameter estimates change significantly. There is an overall pattern of statistical significance across all three controls for moderate lag lengths (t-4 through t-11).

Transfer Function Analysis

Each of the causal series employed by this analysis was tested for nonstationarity. This was done both visually and with a Dickey-Fuller test. The only nonstationary series is unemployment. This is theoretically anticipated, since the measure of unemployment (unemployment in 1000s) is trended upward. This will be true for most any society with an increasing birthrate. When measured in thousands, even a constant percentage of unemployed persons will result in a trended series as the population (and consequently the workforce) grows. The results of the Dickey-Fuller tests are presented in **Table 57** below.

Once the question of stationarity is resolved, each of the causal series can be prewhitened. The error processes for each of the variables employed in this analysis are presented in **Table 58**. Chancellor approval possesses the simplest error process -- AR(1). Inflation is also an AR(1)

error process, although this is a seasonal AR(1) process. Current inflation rates are related to the rate of inflation one year previous. The logged unemployment series also possess an AR(1) error process after first order differencing. Interest rates possesses a complicated error process. The error components presented in **Table 58** are the most parsimonious components available for the interest rate series. A number of possible models were examined. Intervention components were also fit to the data to control for OPEC inspired shocks in the early and late 1970s. To achieve white noise, a complex series of regular and seasonal moving average error components were required. **Table 58** presents the univariate ARIMA parameter estimates.

The cross-correlations between presidential popularity and the economic variables for this study are presented in **Table 59**. Twenty lags in both directions are included. As with the French case, we are more interested in the positive lags. Theoretically, the expected direction for the correlations between chancellor popularity and the macroeconomic conditions included in this study is negative. As unemployment, inflation, or interest rates increase, it is expected that the popularity of the German chancellor will decrease.

There is a clear and unambiguous pattern of build-up followed by decay in **Table 59**. Chancellor popularity and

inflation appear to be causally related. There are in fact two such patterns of build-up and decay present in the cross-correlations between chancellor approval series and the inflation series. One is centered at lag k-2 and the other at k-5, strongly suggesting that chancellor popularity is inversely related to inflation approximately six and fifteen months previous. No patterns of buildup or decay are evident for either the unemployment series or the interest rate series.

This evidence for a causal relationship accords well with the VAR analysis and also reasonably well with the OLS analysis above. It also accords well with the literature, which suggests that German voters are sensitive in the extreme to changes in the rate of inflation.

Executive Popularity and the National Economy

The initial goal of identifying a "clear and unambiguous" causal relationship appears complete with the identification of an association between inflation and executive popularity in Germany two to five quarters removed, the focus then turns to the second goal. The focus then shifts to quantitative precision. Each of the theoretical model specifications was subsequently reestimated with an Almon distributed lag, vector autoregression, and transfer function analysis based on the

results above. Because the cross-correlations suggest the existence of a causal relationship between these series at two different lag lengths (inflation lagged at t-2 and t-5), the OLS and VAR models were reestimated twice -- once with a lag length of two on the economic series and once with a lag length of five on those same series.

Instead of summary estimates, **Tables 60** and **61** present the individual parameter estimates for a second degree Almon lagged response model with a lag length of 2 and 5 quarters respectively. The dynamic pattern of build-up and decline is not evident in the parameter estimates for the lagged economic indicators with a lag length of two quarters (**Table 60**). At five quarters (**Table 61**), there is evidence of build-up and decay for the interest rate series parameter estimates.

The parameter estimates for a lag length of two quarters (**Table 60**) possess pleasing qualities for the inflation estimates. The parameter estimates inflation are all in the expected direction. The also approach or exceed the 0.05 level of statistical significance for a two-tailed test by the second quarter. The other two economic series do not possess consistent evidence of a causal relationship.

The parameter estimates for a lag length of five quarters (**Table 61**) also possess pleasing qualities for one of the economic series. Unfortunately, that series is not

inflation, as it was above. Instead, the significant series becomes interest rates. There is a fairly consistent pattern of build-up and decay in the effects of interest rates on chancellor popularity evident in **Table 60**. The effects approach or exceed statistically significant at the 0.05 level (two-tailed) at lags t-3 and t-4.

The reestimation of the vector autoregression analysis for a lag length of five quarters includes the impulse response functions for each of the three economic series. Impulse response functions, it should be recalled, measure the change in one variable for a one standard deviation change in a second variable across successive time periods. The impulse response functions in **Table 62** are orthogonalized responses. The response of chancellor popularity to unemployment, has all of the effects for inflation and interest rates removed.

The impulse response functions add additional evidence that national macroeconomic conditions in Germany are causally related to the chancellor popularity. The results indicate that current chancellor popularity is causally related to interest rates approximately one year previous. The relationship is almost a one to one relationship. A one standard deviation increase in interest rates leads to a one standard deviation decline in popularity four or five quarters later, with a gradual build-up and decay in

salience over time. The impulse functions are consistently in the correct direction for interest rates, a feature lacking for both unemployment and inflation. This adds additional persuasive weight that a causal relationship rather than a chance association has been discovered. The relationship between interest rates and chancellor popularity in **Table 62** meets the definition of "clear and unambiguous". Additional support for this relationship also appears in the OLS analysis above.

Although a causal relationship between inflation and chancellor popularity is not readily apparent in **Table 62** above, the strength of the relationship evident in the cross-correlation required that additional analysis be performed on the inflation series. Transfer function analysis was subsequently performed.

A priori theory suggests that a zero order transfer function on the differenced popularity series was the best initial specification. A zero order transfer function on a differenced series results in effects that build-up and then decay. Two intervention components were suggested by the cross-correlations in **Table 59** above -- k-2 and k-5. That model specification was attempted and failed to result in acceptable parameter estimates. Each of the intervention components was then tried separately. Following the traditional Box-Jenkins estimation strategy (McCleary and

Hay 1980; Norpoth 1986), a first order transfer function on the undifferenced chancellor popularity function was attempted. This results in a step function, a permanent shift in chancellor popularity in this case. Again, the parameter estimates were unacceptable. Zero order transfer functions on the undifferenced series were then attempted. Zero order transfer functions on undifferenced series result in single period spikes. Zero order transfer functions on the undifferenced chancellor approval series did result in acceptable parameter estimates. **Table 63** presents those parameter estimates.

The parameter estimates appear to be pleasing by traditional statistical standards. The parameters estimates are each in the theoretically expected direction. The effects of inflation become statistically significant by lag t-5 and highly significant by lag t-6. However, the parameter estimates do not tell the entire story. In this case, they are in fact deceptive.

Transfer function analysis requires more than just acceptable parameter estimates. It also requires that the residuals be free of any within-series correlations. Moreover, it also requires that those residuals be uncorrelated with the prewhitened causal variable. The residuals from the chancellor popularity series could be transformed into white noise through the addition of an

AR(1) noise component. The resulting white noise series was **not** uncorrelated with the prewhitened inflation series. Thus, the transfer model in **Table 63** was rejected. No other plausible ARIMA model existed for the inflation series, and the transfer function analysis thus ended.

Britain

The British case, like the German, lacks the complexity of the French case. The British system is a parliamentary form of government headed by a prime minister and cabinet. This simplifies the analysis and reduces the number of model specifications that must be examined.

Ordinary Least Squares Analysis

Separate dummy terms or trend terms arguably need to be included to control for administration-specific effects. The word arguably needs to be stressed, because of the controversial nature of including trend counters and polynomial terms to capture election cycles in the British case. While the use of trend counters may be controversial, the same theoretical justification applies to the British case that applied to the French and German cases for the inclusion of dummy variables. The inclusion of all three specifications -- left/right ideological identification, administration dummy variables, and administration trend

terms -- avoids ad hoc specifications for the countries under study and permits greater comparability.

The single British executive reduces the number of equations from twelve in the French case to three. **Table 64** presents those three equations.

The analysis of British data begins with the equations in **Table 64** that control for whether the British prime minister is from a leftist party (Labour) or a rightist party (Tories). This variable is coded 1 for the administrations of Harold Wilson and James Callaghan and coded 0 otherwise.

Table 65 presents the results from the Almon transform analysis of **Equation 1a**, which controls for the ideological identification of the British prime minister.

Table 65 suggests that relationship between executive popularity and the three macroeconomic indicators is nonexistent when the ideological identification of the British prime minister's party is controlled. The expected pattern of build-up followed by decay for the macroeconomic conditions is absent. The only variable which achieves statistical significance is unemployment. However, the sign is in the wrong direction. The sign implies a direct relationship between unemployment and support for the incumbent political party. Since it is highly doubtful that voters would be inclined to reward an incumbent party for

increased unemployment, this result is treated as either a chance or spurious association. If, the British electorate is either insensitive to changes in national unemployment (a dubious supposition) or either does not hold the incumbent party responsible for increased levels of unemployment or is attentive to other more pressing issues, then it is possible that incumbent support could remain unchanged or even perhaps increase at the same time that unemployment increases (the possibility of simultaneous decrease is also possible). Inflation generally has the correct sign, but the effects are statistically insignificant at all lag lengths. Interest rate parameter estimates have the correct sign for the shorter lag lengths (with only one exception. At the longer lag lengths, the sign for interest rate reverses.

Table 66 presents the results of substituting administration dummy variables for the left/right identification variable.

A different pattern for unemployment emerges when administration dummy variables are substituted for left/right ideological identification. The unemployment parameter estimates have the correct signs, but instead of being significant at longer lag lengths, unemployment remains statistically insignificant throughout. Inflation generally has the correct sign throughout, but once again

the effects do reach acceptable levels of statistical significance. Interest rates resemble inflation. At most lag lengths, the block of parameter estimates for interest rates are in the correct direct but are statistically insignificant. There is a hint of a causal relationship between interest rates and the popularity of the incumbent party at a lag length of six quarters. The level of significance is less than 0.05 (one-tailed). There is also a pattern of build-up and decline around the lag length of six quarters.

The results of substituting administration trend terms for administration dummy variables are presented in **Table 67.**

The possibility of a causal relationship between interest rates and incumbent popularity is enhanced in **Table 67.** Interest rates, lagged by six to seven quarters, appear to be causally related to approval for the incumbent majority in the House of Commons. Significant lag lengths are also present for unemployment and inflation. The signs for both series are in the wrong direction.

The OLS estimates for the French and German cases consistently evidenced a causal relationship between the macroeconomy and incumbent popularity. The OLS estimates for the British case evidence a relationship that can at best be referred to as meager. Further analysis with vector

autoregression and transfer function analysis is necessary to determine whether a clear and unambiguous relationship exists.

Vector Autoregression Analysis

As was true in the German case, three separate VAR models were estimated. Those three equations are listed in **Table 68**.

The figures in **Table 69** represent the probability (from an F-test) that the history of a particular variable "Granger causes" the popularity of the incumbent party.

The OLS results are not at all confirmed by the VAR estimates. The popularity of the British prime minister's party does not appear to be related to interest rates six to quarters previous as it was in the OLS estimates. This is true when any of the three controls for administration-specific effects are employed. Unemployment also appears to be causally unrelated to incumbent popularity. Inflation suddenly appears to have a powerful effect on incumbent popularity in when any of the administration-specific controls are imposed.

Transfer Function Analysis

Each of the causal series employed by this analysis was tested for nonstationarity before the analysis of cross-correlation functions. This was done both visually and with

a Dickey-Fuller test. The only nonstationary series was unemployment. This was theoretically anticipated, just as it was in the French and German cases since the measure of unemployment was the same. The results of the Dickey-Fuller tests are presented in **Table 70** below.

The question of stationarity resolved, each of the causal series was prewhitened. **Table 71** presents the univariate ARIMA estimates for each of the variables employed in this analysis. Incumbent approval and interest rates possess the simplest error process -- AR(1). Inflation is also an AR(1) error process, although there is also an annual AR(1) process. The logged unemployment series also possess an AR(1) error process after first order differencing.

The cross-correlations between presidential popularity and the economic variables for this study are presented in **Table 72**. Twenty lags in both directions are included. As with the French and German cases, we are more interested in the positive lags.

Once again, the candidates for a causal relationship change. There is evidence of a relationship between incumbent popularity and both unemployment and interest rates in **Table 72**. Both are centered at the shorter lags (approximately k-2 to k-6).

There is no evidence of a "clear and unambiguous" relationship between incumbent popularity and national economic conditions in the study presented here. Depending on the technique employed (and the administration-specific controls imposed), there is evidence for significant effects for interest rates at medium lag lengths, for inflation at virtually all lag lengths, and for both unemployment and interest rates at short lag lengths. This lack of robustness is more characteristic of chance associations than it is of causal relationships.

Executive Popularity and the National Economy

The evidence for a "clear and unambiguous" causal relationship appears limited in the British case. This inclines against the need to proceed to the second goal -- quantitative precision.

The cross-correlation evidence from **Table 73** does indicate that a strong causal relationship might exist between unemployment and incumbent popularity in Britain. This also accords with the French cross-correlation evidence. Therefore, each of the theoretical model specifications was subsequently reestimated with an Almon distributed lag, vector autoregression, and transfer function analysis. The Almon distributed lag and vector autoregression analyses were fixed at a lag length of three

quarters, the most significant lag length evidenced in the cross-correlations.

Instead of summary estimates, **Table 74** presents the individual parameter estimates for a second degree Almon lagged response model with a lag length of three quarters. The dynamic pattern of build-up and decline is not evident in the parameter estimates for lagged economic indicators. The parameter estimates for the unemployment series do not confirm the findings from the cross-correlation function in **Table 73**. The unemployment series appears causally unrelated to incumbent popularity. Inflation appears causally related with significant coefficients and signs in the correct direction, but this is true only when administration dummy variables control for administration-specific effects. When the control changes to left/right ideological identification or administration trend terms, the strong association between inflation and incumbent popularity disappears.

The magnitude of changes that take place in British estimates as different specifications for administration-specific effects are applied add persuasive weight to the argument that a causal relationship between economic conditions and the national support for the majority party in the House of Commons is absent in Britain. If a strong relationship existed, greater stability in the economic

parameter estimates would be evidenced, especially as economic conditions and administration-specific effects like election cycles should be weakly correlated.

The reestimation of the vector autoregression analysis for a lag length of three quarters also provides little support for the cross-correlation findings in **Table 72**. The impulse response functions in **Table 74**, as with the French and German case, measure the change in one variable for a one standard deviation change in a second variable across successive time periods.

The impulse response functions add additional evidence that national economic conditions is not causally related to popularity of the political incumbent in Britain. The results indicate that the current popularity of the Commons majority is causally related to interest rates. The relationship is almost a one to one relationship initially. A one standard deviation increase in interest rates leads to a one standard deviation decline in popularity for the following four or five quarters. A gradual build-up and decay in salience over time for changes in interest rates is also evidenced. There is also hint at a relationship between interest rates and incumbent popularity in the cross-correlation estimates presented in **Table 72**. The OLS estimates provide no hint at all of this relationship. The powerful association between unemployment and incumbent

popularity present in **Table 72** is absent the in the impulse functions in **Table 74**.

The transfer function estimates in **Table 75** are the final results of the search for a clear and unambiguous causal relationship in the British case.

A priori theory suggests that a zero order transfer function on the differenced popularity series was the best initial specification. A zero order transfer function on a differenced series results in effects that build-up and then decay. That model specification was attempted and failed to result in acceptable parameter estimates. Each of the intervention components was then tried separately. Following the traditional Box-Jenkins estimation strategy (McCleary and Hay 1980; Norpoth 1986), a first order transfer function on the undifferenced incumbent popularity series was attempted. The parameter estimates were again unacceptable. A zero order transfer function on the undifferenced vote intention series was then attempted. The zero order transfer functions on the undifferenced vote intention series also failed to result in acceptable parameter estimates. **Table 75** presents those parameter estimates.

The parameter estimates are not pleasing by traditional statistical standards. The parameter estimate associated with the transfer component does not even approach

statistical significance. The MA(1) error component is significant, but the sign of this parameter is in the wrong direction. No other plausible ARIMA models existed for the unemployment or vote intention series. The transfer function analysis thus ended.

Denmark

The Danish case, like the German and British cases, lacks the complexity of the French case. The Danish system is a parliamentary form of government headed by a prime minister and cabinet. This simplifies the analysis and reduces the number of model specifications that must be examined.

Ordinary Least Squares Analysis

Separate dummy terms or trend terms need to be included to control for administration-specific effects. The theoretical justification is the same as in French, German, and British cases.

The single Danish executive reduces the number of equations from twelve in the French case to three. **Table 76** presents those three equations.

The analysis of British data begins with the equations in **Table 76** that control for whether the Danish prime minister is from a leftist party or a rightist party.

Table 77 presents the results from the Almon transform analysis of **Equation 1a**, which controls for the ideological identification of the Danish prime minister.

Table 77 suggests the total absence of a causal relationship between incumbent popularity and the three macroeconomic indicators when the ideological identification of the Danish prime minister's party is controlled. Statistical significance is generally lacking, and when it is present, the signs are in the wrong direction.

Tables 78 and **79** also show a complete absence of a causal relationship between economic conditions and the vote intentions of the Danish electorate. There is not even a hint of a "clear and unambiguous" causal relationship in the theoretically expected direction.

Vector Autoregression Analysis

Three separate VAR models were estimated. **Table 80** lists those three equations.

The figures in **Table 81** represent the probability (from an F-test) that the history of a particular variable "Granger causes" support for the Danish incumbents.

The OLS results are not at all confirmed by the VAR estimates. The popularity of the Danish prime minister appears to be related to both unemployment and interest

rates. This is true for each of the three administration-specific effects controls.

Transfer Function Analysis

Each of the causal series employed by this analysis is tested for nonstationarity both visually and with a Dickey-Fuller test. The only nonstationary series, as in the previous three cases, is unemployment. This was once again theoretically anticipated, since the measure of unemployment used in all four cases was the same. The results of the Dickey-Fuller tests are presented in **Table 82**.

The question of stationarity resolved, each of the causal series was prewhitened. **Table 83** presents the univariate ARIMA estimates for each of the variables employed in this analysis. Incumbent support possesses the simplest error process -- AR(1). Unemployment ia also an AR(1) error process. First order differencing of the unemployment series was required first, however, in order to achieve stationarity. Interest rates is an AR(1) error process with an additional MA(1) component. Inflation possesses only a semi-annual AR(1) seasonal component.

The cross-correlations between presidential popularity and the economic variables for this study are presented in **Table 84**. Twenty lags in both directions are included. As

with the previous cases, our interest is with the positive lags.

There are no candidates for a causal relationship among the cross-correlations. The significant positive lags all have the wrong sign.

Conclusions

France

Analysis of the French case proceeded from the a priori presumption that a clear and unambiguous causal relationship between macroeconomic conditions and executive popularity would not be discovered in the French case. The results of the analytic strategy employed above provide strong evidence that a causal relationship exists between the level of unemployment eight to nine quarters previous and the percentage of respondents expressing approval for the French president and prime minister. This relationship is especially robust for the French prime minister.

This study employed three different statistical techniques and three alternative model specifications in testing the robustness of these findings. Similar causal relationships are present in an Almon polynomial distributed lag response model and the transfer function analysis, lending persuasive weight to the argument that these

associations are truly causal relationships and not mere chance associations.

The robustness of these findings were a surprise. Relatively robust causal relationships can be discovered at the national level. The initial hypothesis of no clear and unambigous relationship at the national level is therefore rejected in the French case. This does not mean, however, that regional indicators would not improve both the explanatory and the predictive capacity of French economic voting models.

Germany

Analysis of the German case, like the French case, proceeded from the a priori presumption that a clear and unambiguous causal relationship between macroeconomic conditions and executive popularity would not be discovered. The results of the analytic strategy employed above provide ample evidence that a causal relationship exists between the level of interest rates four or five quarters previous and the percentage of respondents expressing approval for the German chancellor.

This analysis employed three different statistical techniques and three alternative model specifications in testing the robustness of these findings. Similar causal relationships are present in an Almon polynomial distributed

lag response model and transfer function analysis, lending some persuasive weight to the argument that these associations are truly causal relationships and not mere chance associations.

It must be admitted that the German case is much more ambiguous than the French case. Results from the Almon distributed lag were suggestive of a possible relationship between inflation and chancellor approval. Transfer function analysis appeared to confirm that relationship in the initial model identification stage, but the resulting transfer function model failed to produce acceptable results. The relationship between interest rates and chancellor popularity, consistent in the Almon distributed lag results and powerfully indicated in the VAR results, do not make themselves felt in the transfer function analysis.

These findings were also a surprise. There is no need to proceed to regional economic experiences to find robust causal relationships between economic condition and chancellor approval. They can be discovered at the national level in Germany. The initial hypothesis of no clear and unambiguous relationship at the national level is once again rejected. As with the French case, this does not imply that German popularity functions could not be improved through the inclusion of regional economic indicators. Although there is evidence of a causal relationship in the German

case, that evidence is not unambiguous and could be either strengthened or weakened through the inclusion of regional economic indicators.

Britain

Analysis of the British case, like the two preceding cases, proceeded from the a priori presumption that a clear and unambiguous causal relationship between macroeconomic conditions and executive popularity would not be discovered. The results of the analytic strategy employed above provide ample evidence that a causal relationship that is "clear and unambiguous" is absent in the British case.

This analysis employed three different statistical techniques and three alternative model specifications in testing the robustness of these findings. Different associations are present between the series, depending on the specific technique used. This is a finding consistent with even the very earliest studies of the British case (Goodhart and Bhansali 1970; Whiteley 1980, 1985).

The British findings meet the initial theoretical expectations of this study. Robust causal relationships were absent. The need to proceed to regional economic experiences to find robust causal relationships is therefore clearly indicated in the British case.

Denmark

Analysis of the Danish case, like the three preceding cases, proceeded from the *a priori* presumption that a clear and unambiguous causal relationship between macroeconomic conditions and executive popularity would not be discovered. The results of the analytic strategy employed above provide ample evidence that a causal relationship that is "clear and unambiguous" is absent in the Danish case.

The only technique that hints at a relationship is vector autoregression and those results are not confirmed by either the OLS analysis or the cross-correlation functions. Each of the three statistical techniques tells a very different picture, indicative of chance associations, not strong, causal relationships. The results from the Danish case do not even approach "clear and convincing". Therefore, reestimation of the results to achieve numerical precision did not occur.

These findings, like the British findings, were not a surprise. There is ample precedence from the statistical literature for the lack of a causal relationship in the Danish case. The need to proceed to regional economic experiences to find robust causal relationships is clearly supported.

Notes

1. The work of Lewis-Beck (1980) is central to the study of the French case. It was the first analytic study of the link between the economy and the French electorate to be published in the English language. It is also representative of the subsequent work. While this analysis may seem overly critical of Lewis-Beck's work, the same criticisms can be levelled against any of the other studies cited here. Since the present author is most familiar with the work of Lewis-Beck, his work serves as a convenient reference.

2. The German Basic Law does not stipulate that Lander governments must be unicameral parliamentary bodies. Article 28, Paragraph 1 stipulates that they must "...conform to the principles of republican, democratic and social government based on the rule of law." In practice, this has meant unicameral legislatures with a Ministerprasident and cabinet that are responsible to the legislature. Bavaria is the only exception. Bavaria has a bicameral legislature. The lower chamber is popularly elected and the upper chamber represents important social and economic interests (Dalton 1989).

3. The French IFOP popularity polls used in this study were provided by Professor Michael S. Lewis-Beck. Professor Lewis-Beck also offered counsel and advice which was instrumental to this project and which is gratefully acknowledge.

4. Respondent answers to the IFOP polls fall into one of five categories: "très satisfait", "plutôt satisfait", "plutôt mécontent", "très mécontent", and "se ne pronouncer pas oui ou non." Most analysts collapse the first two categories into "satisfaits" and the second two categories into "mécontents". In keeping with this practice, reference to satisfaction and "satisfaits" refers to both "très satisfait" and "plutôt satisfait".

5. Goodhart and Bhansali (1970:85) claim that the popularity of British parties and their leaders follow an AR(1) process. Hibbs (1974:286-9) also characterizes American presidential popularity as an AR(1) process.

6. Kmenta (1981:269-92) provides an excellent treatment of the Cochran-Orcutt procedure.

7. Ostrom and Simon present an excellent discussion of spurious correlations and the detection of nonstationarity. The discussion that follows owes much to their presentation.

8. The series ends in 1987 because the full set of macroeconomic series ended for Britain at that time.

9. The series ends in September 1989 because the full set of OECD macroeconomic series ended at that time.

10. Two different measures of French unemployment are readily available. The percentage of the active workforce unemployed and seeking employment is the first; the number of unemployed workers registered for unemployment benefits (in 1000s) is the second. Unemployment in France, in contrast with the United States, is typically reported in thousands and not as a percentage of the active workforce. There is a preference, therefore, for using unemployment in thousands in models of executive popularity in France.

11. The reader should consult Hibbs (1977) for a fuller discussion of the "clientele" hypothesis. Rattinger draws upon the study by Hibbs for the theoretical underpinnings to his own study.

12. IFOP polls were published in the daily newspaper France Soir prior to January, 1983, and subsequently, in the weekly newspaper Journal du Dimanche. An alternative set of polls, the SOFRES-Figaro series, is available. Because the IFOP popularity data is a longer time series and is also based on a larger sample (N $\approx$ 1000 for SOFRES-Figaro series), most analysts prefer the IFOP popularity series (Lafay, 1981).

    The English translation of the IFPO survey question is, "Are you satisfied or dissatisfied with Mr.

_____ as President of the Republic (Prime Minister)?"

Respondent answers to the IFOP polls fall into one of five categories: "très satisfait", "plutôt satisfait", "plutôt mécontent", "très mécontent", and "se ne prononcer pas oui ou no". Most analysts collapse the first two categories into "satisfaits" and the second two categories into "mécontents". In keeping with this practice, reference to satisfaction and "satisfaits" in this study refers to both "très satisfait" and "plutôt satisfait".

13. Reliable monthly series for the French president can be constructed as far back as January, 1960. It was decided for the purpose of analysis to begin both series at the same point in time. The earlier presidential approval ratings were consequently excluded.

14. The rate of wages (W) in manufacturing was initially included. Wages were excluded from the analysis due to high levels of multicollinearity associated with the inclusion of unemployment, inflation, and wages in the same model.

15. French unemployment, for example, when measured monthly has seasonal components at the quarterly and the annual level. These multiple seasonal error processes confound the estimation of transfer function analysis for many computer software packages. They also lead to a less than parsimonious model. Norpoth follows a similar procedure in his transfer function analysis of American presidential popularity (Norpoth 1986:220).

16. The results from the Allensbach surveys are printed in the Allensbach Jahrbücher series (Jahrbuch der öffentlichen Meinung, Allensbach am Bodensee: Verlag fur Demoskopie). The published series contain dozens of other opinion polls in addition to the Chancellor popularity series.

The English translation of the Allensbach survey question is, "Are you satisfied or dissatisfied with the policies of _____ as Chancellor?"

The Allensbach opinion polls are not based on probability samples. The are based instead on quota samples. A series of polls that undertaken by Infratest GmbH, München, are based on a stratified cluster sample. Kirchgässner compared these two polls on a common measure and found no significant biases. The Allensbach series were available to this researcher in the U.S. and were therefore employed.

17. The results from the Gallup surveys from 1945 to 1987 are reprinted by F.W.S. Criag in British Electoral Facts: 1832-1987, Dartmouth, UK: Parliamentary Research Services.

    The use of vote intention also serves another useful purpose in this study. The only available Danish series is also from the Gallup organization. That series of polls is also a vote intention series. The British and Danish therefore employ comparable series, just as do the German and French data.

18. Few months have passed without a poll in the Gallup series. From 1948 to present, in at least eleven months out of the year there is a survey. Most years have surveys in all twelve months.

19. The Danish Gallup series were provided by Dan Larsen, University of Århus, School of Journalism.

    The English translation is, "If an election were held for the Folketing tomorrow, which party would you support?"

20. As with the British case, the Gallup series for Denmark contains very few months without a survey.

21. Rather than continuously repeat the phrase, "controls for the popularity of the French prime minister and a term counter for the French prime minister," the phrase, "controls for the prime minister," will be used instead. Similarly, when the dependent time series is the popularity of the French prime minister, the phrase, "controls for the French president" refers to the

inclusion of presidential popularity and a term counter for the presidency to control for the dual nature of the French executive.

22. It is customary to employ a shorthand notation for describing error processes in ARIMA modelling. (P,D,Q) $(p,d,q)_k$ describes both non-seasonal and seasonal (k) components in the following order -- autoregressive, integrated, and moving average.

23. The lags of a CCF, k, represent the correlation between the dependent series at time t and the causal series at time t-k. Specifically, the correlation coefficients of a CCF represent $\rho_{yx}^{(-k)}$. The representation of leads in the causal series by negative lag numbers and lags in the causal series by positive lag numbers is somewhat counter-intuitive.

24. The orthogonalization of the individual components in the models presented in this study depend upon Choleski factorization. The analyst must specify the order that variables enter the equation, since a different factorization is possible for each ordering of the variables. The analyst will usually impose a "semi-structural" interpretation on the model, presuming that in any single time period one variable proceeds another. For the purposes of this study, the "semi-structural" interpretation is (1) interest rates, (2) inflation, (3) unemployment, (4) presidential popularity, (5) prime ministerial popularity. Additional orders were also tested -- reversing the orderings of interest rates and inflation, reversing the ordering of presidential and prime ministerial popularity. No significant differences resulted.

Figure 2. Popularity of the French President and Prime Minister.

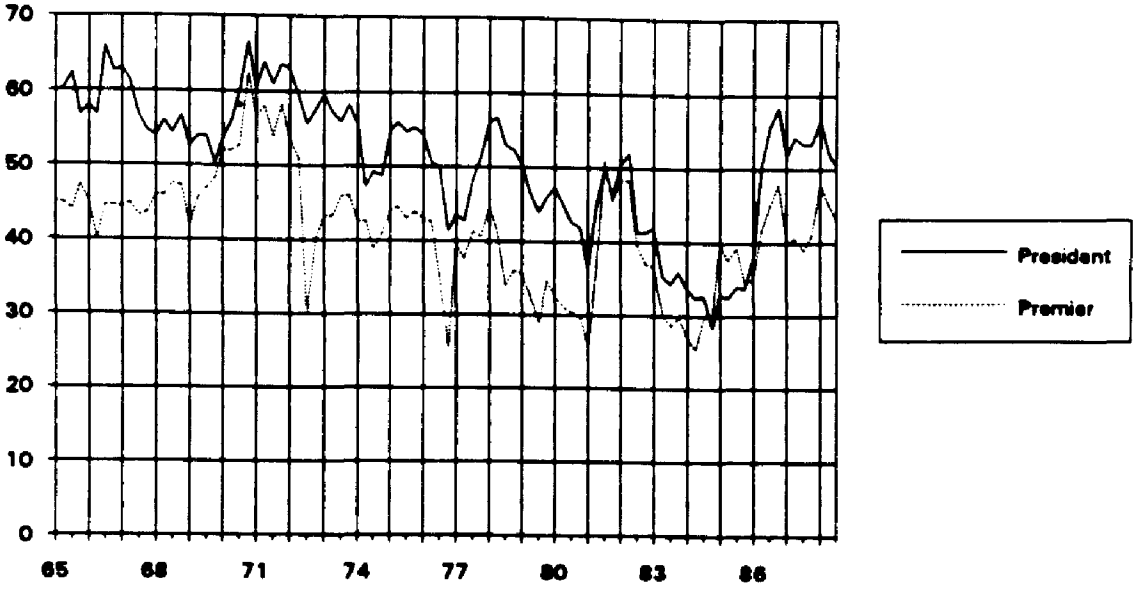

Table 13. Mean Popularity Levels for French Presidents and Prime Ministers in Figure 2.

Executive	From	To	Party	Popularity
President				
Charles de Gaulle	1958:04	1965:04	Gaullist	59.3
Charles de Gaulle	1965:04	1969:02	Gaullist	57.9
Georges Pompidou	1969:02	1974:02	Gaullist	57.8
Valéry Gicard d'Estaing	1974:02	1981:02	Parti Républicain	48.7
François Mitterrand	1981:02	1988:02	Parti Socialiste	43.0
Premier				
Georges Pompidou	1962:02	1966:01	Gaullist	45.3
Georges Pompidou	1966:01	1967:02	Gaullist	43.9
Georges Pompidou	1967:02	1968:03	Gaullist	45.3
Maurice Couve de Murville	1968:03	1969:03	Gaullist	45.7
Jacques Chaban-Delmas	1969:02	1972:03	Gaullist	53.8
Pierre Messmer	1972:03	1973:02	Gaullist	39.3
Pierre Messmer	1973:02	1974:02	Gaullist	44.1
Jacques Chirac	1974:02	1976:03	Gaullist	41.9
Raymond Barre	1976:03	1978:02	Union pour la Démocratie Française	38.3
Raymond Barre	1978:02	1981:02	Union pour la Démocratie Française	32.3
Pierre Mauroy	1981:02	1984:03	Parti Socialiste	33.2
Laurent Fabius	1984:03	1986:02	Parti Socialiste	35.1
Jacques Chirac	1986:02	1988:02	Gaullist	42.4

Figure 3. ACF for French Presidential Popularity

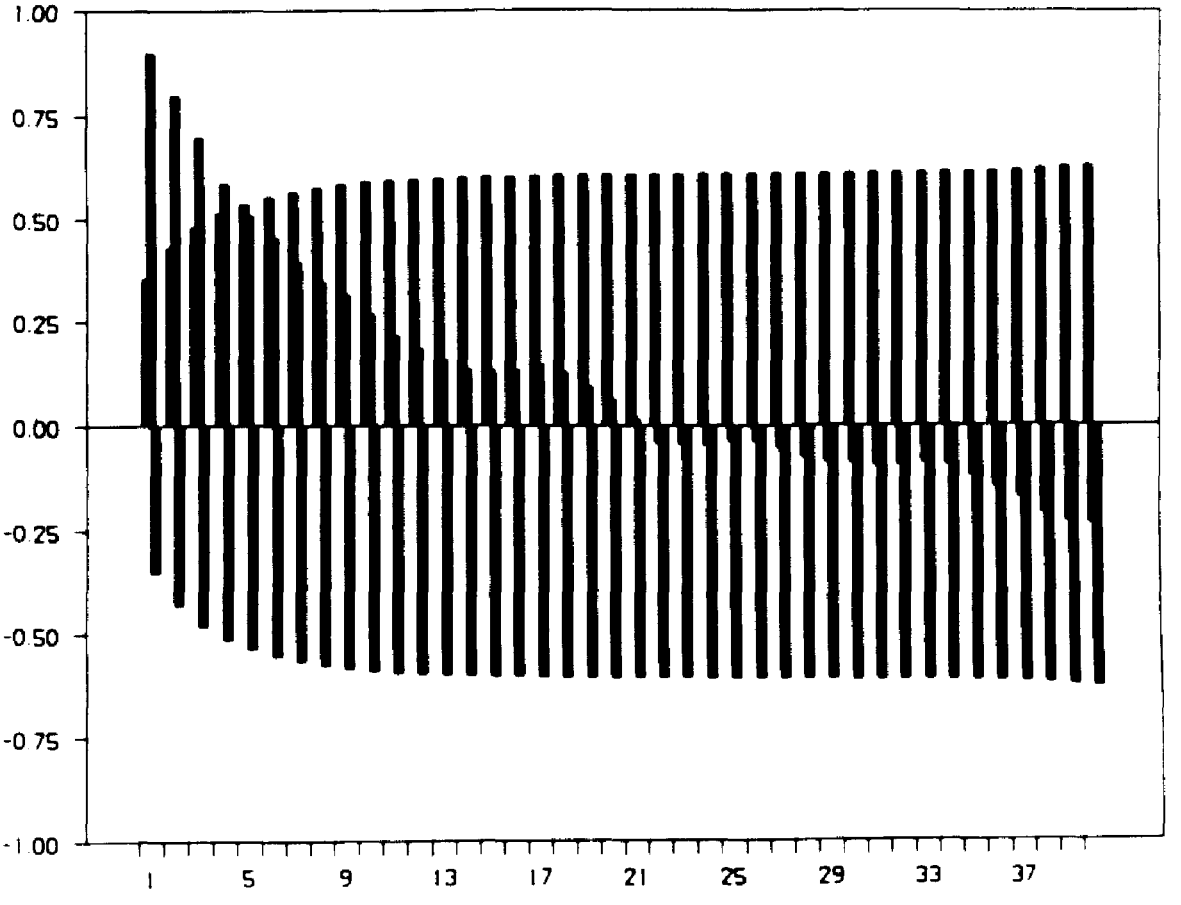

Figure 4. Popularity of the German Chancellor.

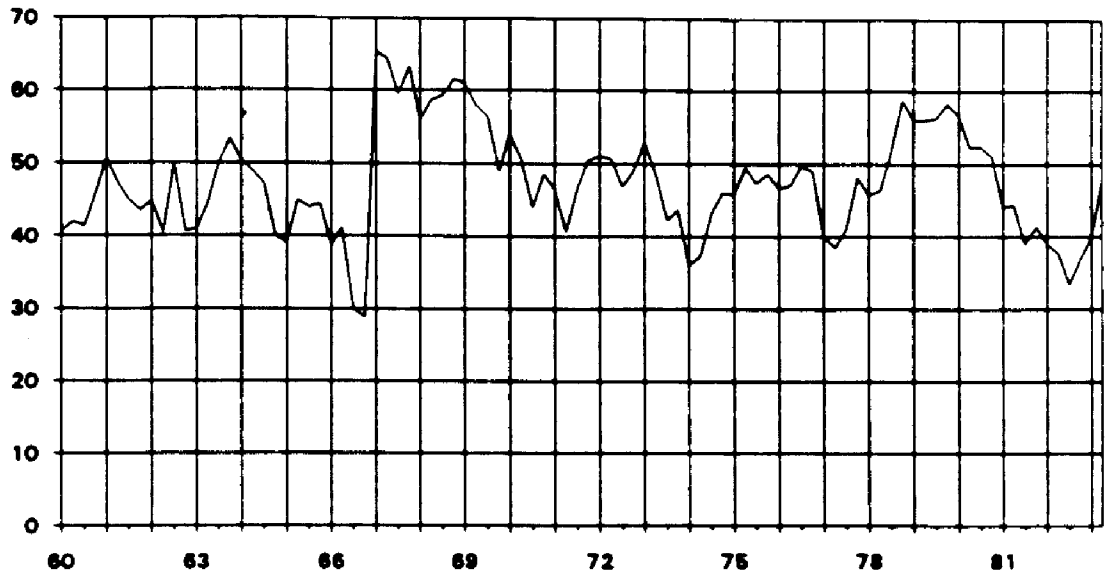

Table 14. Mean Popularity Levels for German Chancellors in Figure 4.

Chancellor	From	To	Coalition	Popularity
Konrad Adenauer	1957:03	1961:04	CDU/CSU Majority	44.5
Konrad Adenauer	1961:04	1962:04	CDU/CSU,FDP	43.9
Konrad Adenauer	1962:04	1965:04	CDU/CSU,FDP	45.3
Ludwig Erhard	1965:04	1966:04	CDU/CSU,FDP	36.6
Georg Kiesinger	1966:04	1969:09	CDU/CSU,SPD	57.7
Willy Brandt	1969:03	1972:04	SPD,FDP	48.3
Willy Brandt	1972:04	1974:02	SPD,FDP	44.3
Helmut Schmidt	1974:02	1976:04	SPD,FDP	46.4
Helmut Schmidt	1976:04	1980:04	SPD,FDP	50.5
Helmut Schmidt	1980:04	1982:04	SPD,FDP	41.2
Helmut Kohl	1982:04	1983:01	CDU/CSU,FDP	41.2
Helmut Kohl	1983:01	1987:01	CDU/CSU,FDP	....

Figure 5. ACF for German Chancellor Popularity

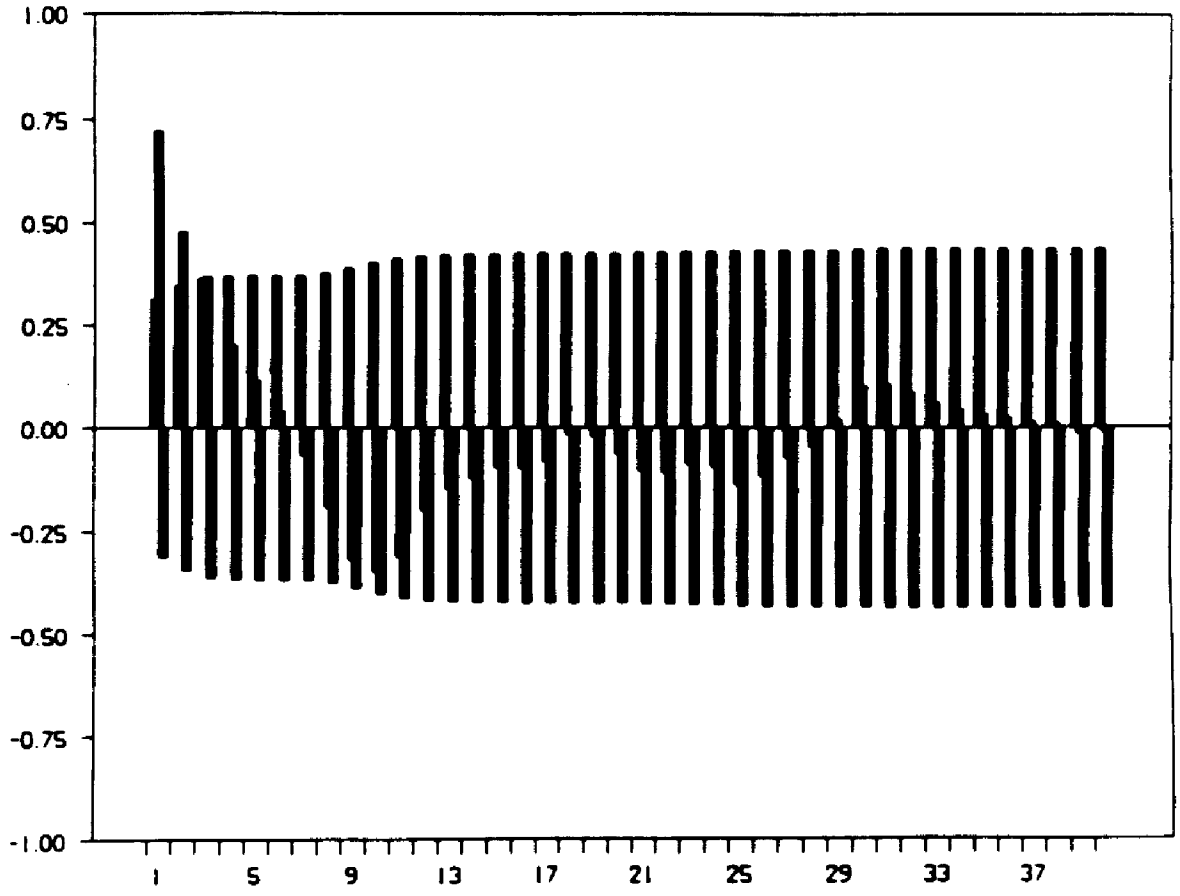

Figure 6. Popularity of the British Prime Minister.

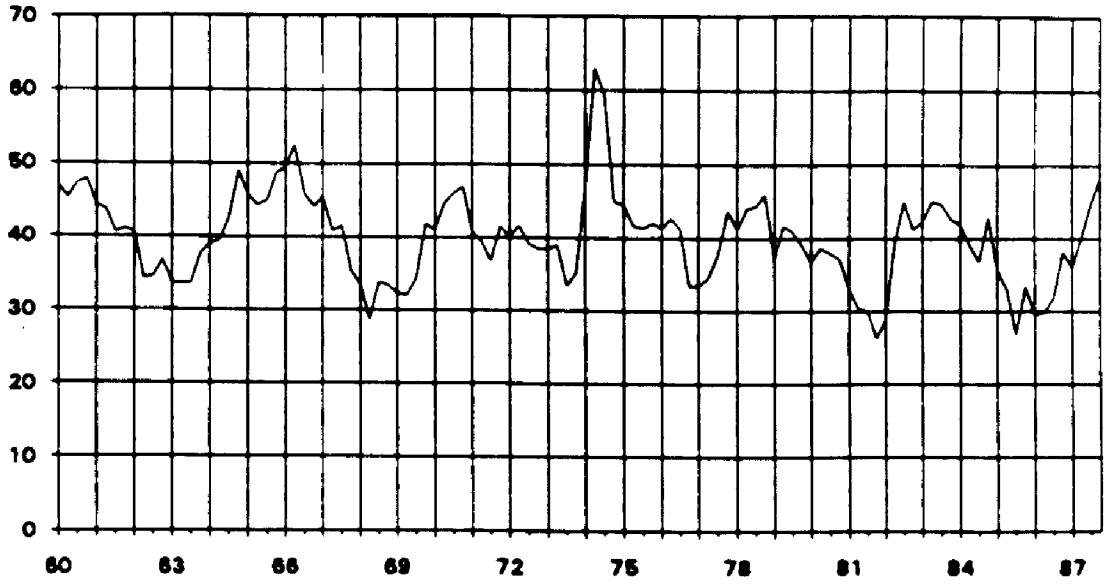

Table 15. Mean Popularity Levels for British Prime Ministers in Figure 6.

Prime Minister	From	To	Party	Popularity
Harold Macmillan	1959:04	1964:02	Tories	40.1
Sir Alec Douglas-Home	1964:02	1964:04	Tories	39.7
Harold Wilson	1964:04	1966:01	Labour	47.1
Harold Wilson	1966:02	1970:02	Labour	38.9
Edward Heath	1970:02	1974:01	Tories	40.6
Harold Wilson	1974:01	1974:04	Labour	56.5
Harold Wilson	1974:04	1976:02	Labour	42.6
James Callaghan	1976:02	1979:02	Labour	40.1
Margaret Thatcher	1979:02	1983:02	Tories	37.3
Margaret Thatcher	1983:02	1987:02	Tories	36.9

Note: The second third Wilson government (1974:01 - 1974:04) was a minority government. The Callaghan government (1974:04 - 1979:02) became a minority government following successive bye-election losses.

Figure 7. ACF for British Prime Minister Popularity.

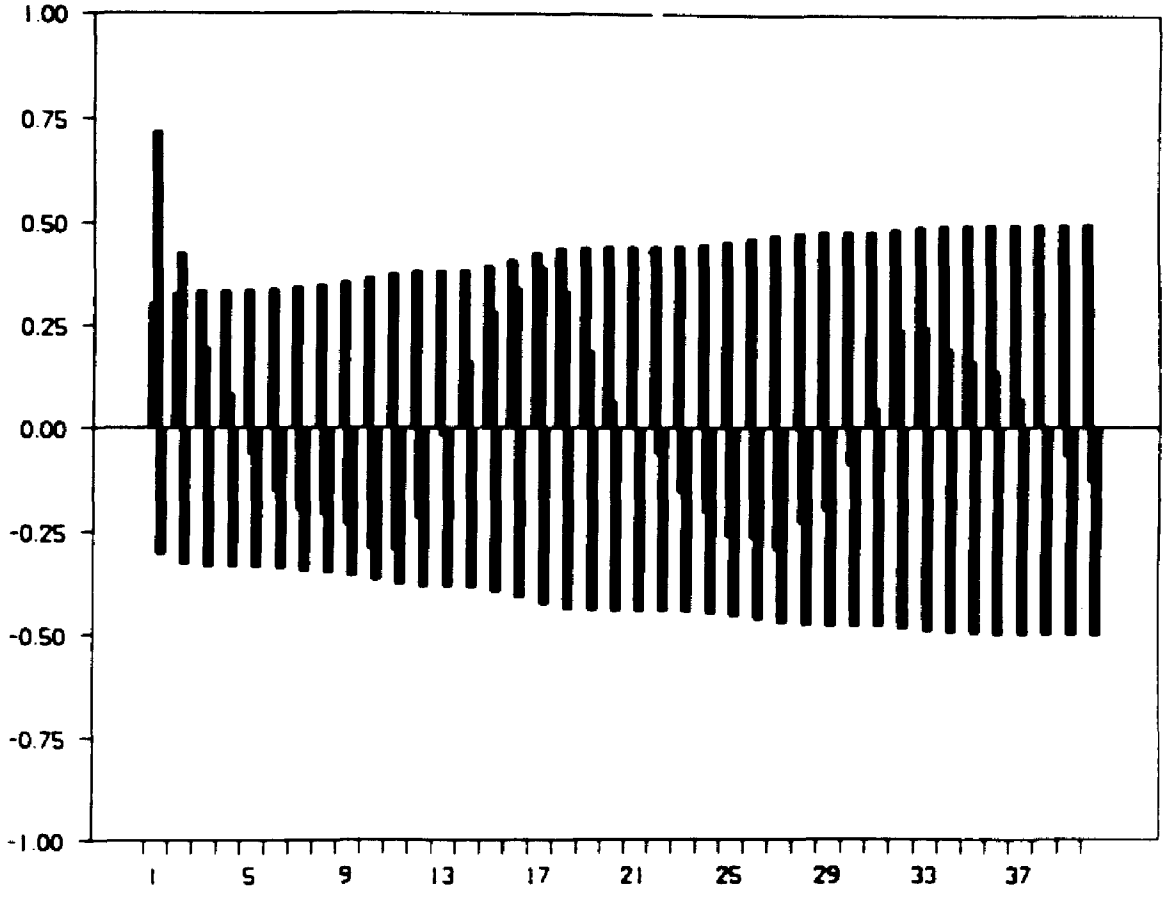

Figure 8. Popularity of the Danish Prime Minister.

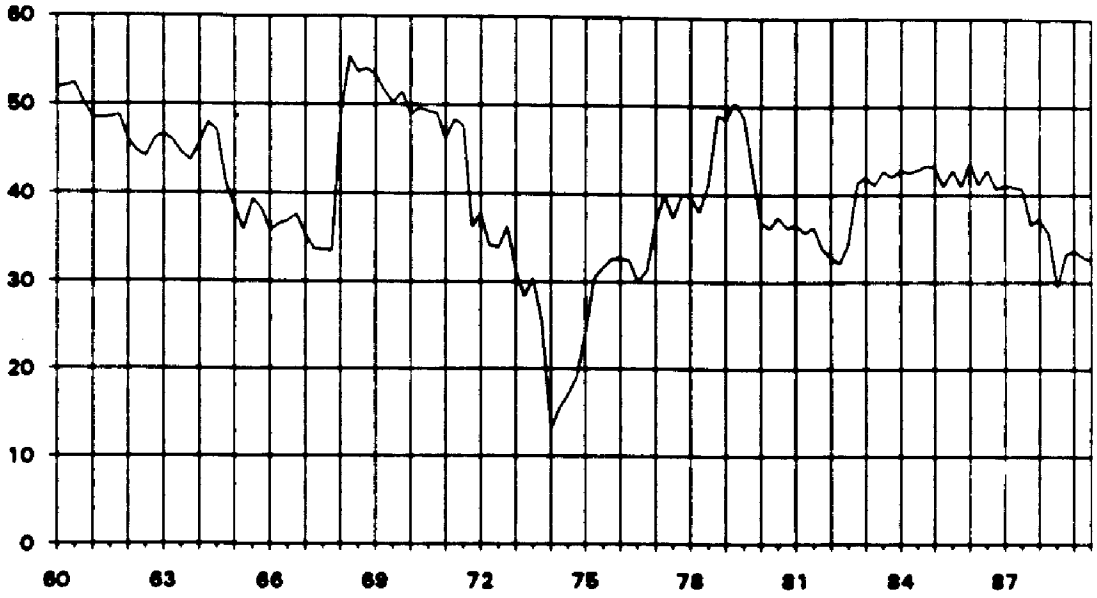

Table 16. Mean Popularity Levels for Danish Prime Ministers in Figure 8.

Prime Minister	From	To	Coalition	Popularity
Viggo Kampmann	1960:01	1960:04	SD,RV,R	51.6
Viggo Kampmann	1960:04	1962:03	SD,RV	47.4
Jens Otto Krag	1962:03	1964:03	SD,RV	45.3
Jens Otto Krag	1964:03	1966:03	SD	37.8
Jens Otto Krag	1966:03	1968:01	SD	37.0
Hilmar Baunsgaard	1968:01	1971:03	RV,K,V	50.5
Jens Otto Krag	1971:03	1972:03	SD	35.6
Anker Jorgensen	1972:03	1973:04	SD	30.4
Poul Hartling	1973:04	1975:01	V	19.1
Anker Jorgensen	1975:01	1977:02	SD	31.4
Anker Jorgensen	1977:02	1978:03	SD	39.0
Anker Jorgensen	1978:03	1979:04	SD	46.8
Anker Jorgensen	1979:04	1981:04	SD	36.9
Anker Jorgensen	1981:04	1982:03	SD	33.1
Poul Schluter	1982:03	1984:01	K,V,CD,KF	40.6
Poul Schluter	1984:01	1987:03	K,V,CD,KF	42.1
Poul Schluter	1987:03	1989:02	K,V,RV	34.9

Note: The only majority governments were Viggo Kampmann (1960:01 - 1960:04) and Hilmer Baunsgaard (1968:01 - 1971:03).

Party Abbreviations:

K	--	Conservatives
V	--	Liberals
RV	--	Radical Liberals
CD	--	Center Democrats
KF	--	Christian People's Party
SD	--	Social Democrats
R	--	Justice (Single Tax) Party

Figure 9. ACF for Danish Prime Minister Popularity.

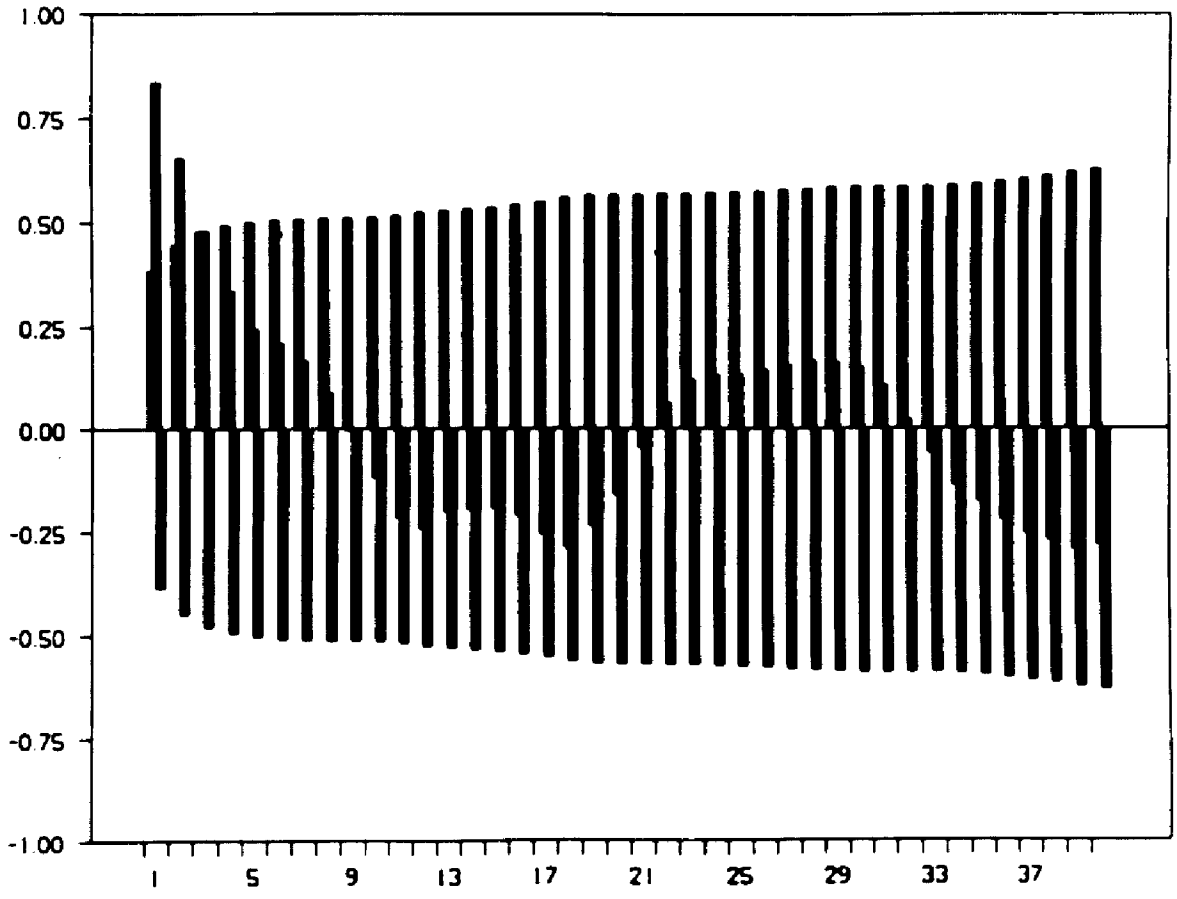

Table 17. Theoretical Specifications for Almon Polynomial Distributed Lagged Response Model.

(Eq. 1a)	$Y_1 = \alpha + \beta Y_{1\,(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta L_1 + \beta T_1 + \epsilon$
(Eq. 1b)	$Y_1 = \alpha + \beta Y_{1\,(t-1)} + \beta Y_2 + \beta U_i + \beta P_i + \beta I_i + \beta L_1 + \beta L_2 + \beta T_1 + \beta T_2 + \epsilon$
(Eq. 1c)	$Y_2 = \alpha + \beta Y_{2\,(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta L_2 + \beta T_2 + \epsilon$
(Eq. 1d)	$Y_2 = \alpha + \beta Y_{2\,(t-1)} + \beta Y_1 + \beta U_i + \beta P_i + \beta I_i + \beta L_2 + \beta L_1 + \beta T_2 + \beta T_1 + \epsilon$
(Eq. 1e)	$Y_1 = \alpha + \beta Y_{1\,(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta PR_1 + \beta T_1 + \epsilon$
(Eq. 1f)	$Y_1 = \alpha + \beta Y_{1\,(t-1)} + \beta Y_2 + \beta U_i + \beta P_i + \beta I_i + \beta PR_1 + \beta T_1 + \beta T_2 + \epsilon$
(Eq. 1g)	$Y_2 = \alpha + \beta Y_{2\,(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta L_2 + \beta PM_1 + \epsilon$
(Eq. 1h)	$Y_2 = \alpha + \beta Y_{2\,(t-1)} + \beta Y_1 + \beta U_i + \beta P_i + \beta I_i + \beta PM_1 + \beta T_2 + \beta T_1 + \epsilon$
(Eq. 1i)	$Y_1 = \alpha + \beta Y_{1\,(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta PR_2 + \beta T_1 + \epsilon$
(Eq. 1j)	$Y_1 = \alpha + \beta Y_{1\,(t-1)} + \beta Y_2 + \beta U_i + \beta P_i + \beta I_i + \beta PR_2 + \beta T_1 + \beta T_2 + \epsilon$
(Eq. 1l)	$Y_2 = \alpha + \beta Y_{2\,(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta L_2 + \beta PM_2 + \epsilon$
(Eq. 1m)	$Y_2 = \alpha + \beta Y_{2\,(t-1)} + \beta Y_1 + \beta U_i + \beta P_i + \beta I_i + \beta PM_2 + \beta T_2 + \beta T_1 + \epsilon$

Note:

Y_1	--	Percentage of respondents satisfied with French President.
Y_2	--	Percentage of respondents satisfied with French Prime Minister.
U_i	--	Vector of lagged unemployment measured in thousands (logged). Lags included for t-1 to t-i.
P_i	--	Vector of lagged inflation rate. Lags included for t-1 to t-i.
I_i	--	Vector of lagged interest rate. Lags included for t-1 to t-i.
L_1	--	Dummy variable for leftist president (1 = leftist president).
L_2	--	Dummy variable for leftist prime minister (1 = leftist prime minister).
PR_1	--	Vector of dummy variables for separate presidential administrations.
PR_2	--	Vector of trend terms for separate presidential administrations.
PM_1	--	Vector of dummy variables for separate prime ministerial administrations.
PM_2	--	Vector of trend terms for separate prime ministerial administrations.
T_1	--	Term counter variable for presidential administrations.
T_2	--	Term counter variable for prime ministerial administrations.

Table 18. Almon Polynomial Distributed Lagged Response Model for Presidential. Approval. Dummy Control for Ideological Identification.

Lag	Akaike	Schwartz	U	P	I
2	16.8049	22.0836	-22.7644 [0.0898]	-0.5251 [0.5712]	-0.2097 [0.6460]
3	16.3909	22.4286	-18.3223 [0.0382]	-0.1559 [0.9256]	-0.1701 [0.7241]
4	18.7996	26.6254	-18.7957 [0.0409]	-2.1747 [0.3803]	-0.4347 [0.4813]
5	18.9287	27.6155	-24.3868 [0.0074]	-2.8860 [0.3539]	-0.9655 [0.1716]
6	19.9501	29.8677	-26.5626 [0.0034]	-3.1823 [0.3636]	-1.0051 [0.2026]
7	20.6845	31.6788	-29.2363 [0.0010]	-2.6314 [0.4982]	-1.2936 [0.1564]
8	21.5618	33.6943	-30.4784 [0.0005]	-3.1264 [0.4621]	-1.3779 [0.1850]
9	21.5475	34.2826	-32.7075 [0.0001]	0.3555 [0.9323]	-2.6597 [0.0128]
10	22.4913	36.3669	-27.4171 [0.0004]	2.7939 [0.5150]	-3.1877 [0.0052]
11	21.3724	35.0654	-23.1572 [0.0004]	6.6128 [0.0994]	-4.6366 [0.0000]
12	20.2184	33.6141	-17.9737 [0.0016]	8.9605 [0.0233]	-5.6295 [0.0000]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 19. Almon Polynomial Distributed Lagged Response Model for Presidential Approval. Dummy Control for Ideological Identification. Controls for Prime Ministerial Approval.

Lag	Akaike	Schwartz	U	P	I
2	7.8043	10.7708	-13.2099 [0.1592]	0.0685 [0.9151]	-0.0575 [0.8536]
3	8.0424	11.4908	-6.5212 [0.2890]	0.9666 [0.3969]	-0.3890 [0.2273]
4	9.2481	13.6124	-4.9433 [0.4440]	-0.8801 [0.5967]	-0.3136 [0.4412]
5	9.6142	14.5216	-6.6447 [0.3145]	0.6873 [0.7492]	-0.8515 [0.0762]
6	10.2923	15.9021	-8.2372 [0.2124]	0.3392 [0.8863]	-0.9058 [01003]
7	10.8878	17.1624	-9.3741 [0.1600]	0.4712 [0.8607]	-0.8605 [0.2168]
8	11.3517	18.2157	-8.4938 [0.2027]	-0.5894 [0.8442]	-0.5624 [0.4888]
9	11.9079	19.4163	-98.5685 [0.1434]	0.4240 [0.8917]	-1.0134 [0.2482]
10	12.1534	20.1043	-9.0626 [0.1155]	2.9640 [0.4243]	-1.7212 [0.0563]
11	11.4952	19.2657	-7.9238 [0.0923]	6.3446 [0.0275]	-3.0690 [0.0006]
12	11.0411	18.7262	-5.7513 [0.1673]	8.2589 [0.0047]	-3.7267 [0.0001]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 20. Almon Polynomial Distributed Lagged Response Model for Prime Ministerial Approval. Dummy Control for Ideological Identification.

Lag	Akaike	Schwartz	U	P	I
2	28.4330	37.3642	-25.6853 [0.1608]	-1.5715 [0.1748]	-0.5004 [0.4060]
3	28.2861	38.7054	-25.6996 [0.0187]	-3.0826 [0.0557]	-0.0109 [0.9842]
4	27.8233	39.4054	-27.6332 [0.0084]	-4.4039 [0.0278]	-0.2341 [0.7010]
5	27.4600	40.0620	-33.5464 [0.0012]	-7.2155 [0.0019]	0.0046 [0.9944]
6	28.8584	43.2044	-36.1027 [0.0003]	-6.7406 [0.0065]	-0.1724 [0.8057]
7	30.0118	45.9638	-39.9474 [0.0000]	-6.6855 [0.0100]	-0.5000 [0.5129]
8	30.5750	47.7791	-42.8538 [0.0000]	-6.0455 [0.0215]	-0.9671 [0.2251]
9	28.9718	46.0950	-43.8538 [0.0000]	-3.3171 [0.2001]	-1.9265 [0.0192]
10	34.3084	55.4743	-34.3265 [0.0000]	-1.8083 [0.5251]	-1.7233 [0.0637]
11	34.7350	56.9891	-27.6665 [0.0001]	-0.2881 [0.9219]	-1.9593 [0.0415]
12	35.7233	59.3918	-23.5357 [0.0002]	1.2532 [0.6821]	-2.6265 [0.0085]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 21. Almon Polynomial Distributed Lagged Response Model for Prime Ministerial Approval. Dummy Control for Ideological Identification. Controls for Presidential Approval.

Lag	Akaike	Schwartz	U	P	I
2	13.0785	18.0498	-1.3753 [0.9134]	-0.6708 [0.4320]	-0.2429 [0.5507]
3	14.1063	20.1546	-6.7258 [0.3922]	-1.7118 [0.2391]	0.1719 [0.6711]
4	14.4214	21.2270	-9.0863 [0.2334]	-1.9277 [0.3103]	0.0151 [0.9739]
5	14.6209	22.0839	-11.8712 [0.1125]	-4.9391 [0.0307]	0.4598 [0.3786]
6	15.6692	24.2095	-14.0283 [0.0503]	-4.3177 [0.0802]	0.1837 [0.7566]
7	15.9985	25.2185	-17.0536 [0.0166]	-3.0919 [0.2492]	-0.4006 [0.5800]
8	16.2354	26.0524	-20.3718 [0.0019]	-2.0759 [0.4433]	-0.7953 [0.3057]
9	16.2107	26.4321	-21.5120 [0.0009]	0.8065 [0.7845]	-1.6108 [0.0683]
10	18.3814	30.4068	-13.8074 [0.0377]	2.7997 [0.4319]	-1.4958 [0.1633]
11	19.2565	32.2735	-11.1779 [0.0717]	2.5573 [0.5063]	-1.2048 [0.3224]
12	20.2434	34.3338	-11.5315 [0.0407]	2.7602 [0.4997]	1.3172 [0.3205]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 22. Almon Polynomial Distributed Lagged Response Model for Presidential. Approval. Dummy Controls for Presidential Administrations.

Lag	Akaike	Schwartz	U	P	I
2	17.4824	23.7513	-27.1861 [0.0609]	-0.6767 [0.4792]	-0.2818 [0.5470]
3	16.8633	23.7610	-20.8020 [0.0240]	-0.3872 [0.8192]	-0.2304 [0.6399]
4	19.4572	28.2853	-21.1035 [0.0277]	-2.9592 [0.2602]	-0.4715 [0.4493]
5	19.6858	29.4022	-25.8538 [0.0068]	-3.2590 [0.3175]	-0.9955 [0.1672]
6	20.6154	31.5280	-28.5644 [0.0025]	-3.3462 [0.3456]	-1.1279 [0.1617]
7	21.4006	33.4195	-31.4066 [0.0007]	-2.6621 [0.4970]	-1.4511 [0.1232]
8	22.2711	35.4309	-32.8998 [0.0004]	-3.1523 [0.4622]	-1.5370 [0.1492]
9	22.2384	35.9721	-34.9471 [0.0001]	0.2256 [0.9579]	-2.7704 [0.0113]
10	23.3127	38.2787	-29.1763 [0.0004]	2.6290 [0.5530]	3.2561 [0.0053]
11	22.0402	36.6832	-24.8722 [0.0003]	6.2701 [0.1345]	-4.7160 [0.0000]
12	20.2004	34.0381	-21.1078 [0.0002]	8.1639 [0.0375]	-5.7957 [0.0000]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 23. Almon Polynomial Distributed Lagged Response Model for Presidential Approval. Dummy Controls for Presidential Administrations. Controls for Prime Ministerial Approval.

Lag	Akaike	Schwartz	U	P	I
2	8.9811	12.5842	-15.4174 [0.1423]	-0.1016 [0.8825]	-0.0721 [0.8303]
3	9.3659	13.5628	-9.2123 [0.1801]	0.3282 [0.7919]	-0.3052 [0.3939]
4	10.7224	15.9738	-6.9789 [0.3323]	-1.3919 [0.4713]	-0.2419 [0.5934]
5	10.9750	16.7588	-7.6040 [0.2992]	0.4902 [0.8415]	-0.8247 [0.1226]
6	11.9118	18.5880	-9.3041 [0.2140]	-0.3935 [0.8829]	-0.7212 [0.2490]
7	12.4825	19.8564	-9.2217 [0.2276]	-0.9052 [0.7644]	-0.3949 [0.6221]
8	12.8833	20.8482	-8.3961 [0.2734]	-2.6703 [0.4317]	0.1009 [0.9131]
9	13.6272	22.3938	-10.3394 [0.1750]	-2.4635 [0.4944]	-0.2154 [0.8298]
10	14.1032	23.5002	-10.5374 [0.1341]	-1.3793 [0.7097]	-0.7447 [0.4809]
11	13.9663	23.5671	-10.0387 [0.1167]	1.2433 [0.7349]	-1.8499 [0.0892]
12	13.5708	23.1644	-8.0082 [0.1742]	3.0014 [0.4114]	-2.7147 [0.0149]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 24. Almon Polynomial Distributed Lagged Response Model for Prime Ministerial Approval. Dummy Controls for Prime Ministerial Administrations.

Lag	Akaike	Schwartz	U	P	I
2	21.8912	31.5677	-16.8174 [0.2886]	-0.9480 [0.3605]	-0.1347 [0.7954]
3	21.3834	31.7684	-14.7252 [0.1726]	0.3956 [0.8388]	0.2385 [0.6661]
4	23.9098	36.4501	-15.3261 [0.1557]	-0.1011 [0.9748]	-0.0757 [0.9158]
5	24.6570	38.4467	-21.7778 [0.0581]	-4.6094 [0.3006]	0.1982 [0.8198]
6	26.2949	41.8243	-24.1783 [0.0178]	0.7544 [0.8565]	-1.4380 [0.0784]
7	26.1525	42.3397	-29.1295 [0.0027]	1.3347 [0.7486]	2.4997 [0.0113]
8	24.7865	40.7678	-32.8395 [0.0000]	2.4180 [0.5021]	-2.3553 [0.0008]
9	21.4030	35.7075	-30.1553 [0.0000]	7.2232 [0.0466]	-4.2396 [0.0000]
10	23.2784	39.3398	-21.7596 [0.0005]	10.7032 [0.0060]	4.5932 [0.0000]
11	23.0220	39.3647	-15.4583 [0.0081]	13.2331 [0.0020]	-4.9846 [0.0000]
12	23.3744	40.3971	-7.7720 [0.1851]	18.1358 [0.0002]	-6.0681 [0.0000]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 25. Almon Polynomial Distributed Lagged Response Model for Prime Ministerial Approval. Dummy Controls for Prime Ministerial Administrations. Controls for Presidential Approval.

Lag	Akaike	Schwartz	U	P	I
2	10.1880	15.0907	-1.6093 [0.8907]	-0.3938 [0.6358]	-0.2633 [0.4775]
3	10.9900	16.7243	-1.7471 [0.7759]	-0.9164 [0.4768]	0.0838 [0.7783]
4	11.1198	17.3242	-2.2795 [0.7031]	0.1053 [0.9497]	-0.0598 [0.8596]
5	12.0079	19.0976	-3.0195 [0.6158]	-0.6158 [0.7535]	0.1484 [0.6940]
6	12.5581	20.3406	-4.9913 [0.4200]	-0.0756 [0.9724]	-0.0913 [0.8434]
7	12.5591	20.6759	-9.2697 [0.1322]	-0.4569 [0.8307]	-0.7892 [0.1856]
8	11.2226	18.7474	-13.8042 [0.0167]	1.2566 [0.5335]	-1.5361 [0.0119]
9	11.2221	18.9892	-12.3197 [0.0334]	4.3858 [0.0604]	-1.8872 [0.0047]
10	13.1062	22.4508	-4.3252 [0.4728]	7.6460 [0.0109]	-1.9050 [0.0193]
11	13.1062	23.9417	-0.2342 [0.9688]	9.1788 [0.0098]	-1.8542 [0.0464]
12	13.8253	23.9009	2.8169 [0.6175]	11.3192 [0.0042]	-2.2170 [0.0311]

Notes: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 26. Almon Polynomial Distributed Lagged Response Model for Presidential. Approval. Trend Terms for Presidential Administrations.

Lag	Akaike	Schwartz	U	P	I
2	16.1332	21.5635	-18.1835 [0.1764]	-0.4073 [0.6497]	-0.1639 [0.7140]
3	16.0329	22.2681	-10.7087 [0.2328]	0.0213 [0.9896]	0.0704 [0.8852]
4	18.4762	26.5166	-12.1697 [0.2046]	-1.3745 [0.6036]	-0.1457 [0.8154]
5	18.8336	27.8061	-17.9397 [0.0676]	-2.3522 [0.4494]	-0.5828 [0.4127]
6	19.9807	30.2381	-21.0140 [0.0344]	-2.2401 [0.5280]	-0.7603 [0.3551]
7	20.6999	32.0164	-22.8781 [0.0195]	-1.6604 [0.6792]	-1.1015 [0.2522]
8	21.6592	34.1544	-24.0229 [0.0133]	-2.8002 [0.5281]	-1.0018 [0.3487]
9	21.8074	34.9878	-26.8553 [0.0034]	0.4166 [0.9225]	-2.3665 [0.0267]
10	22.6958	36.9836	-20.1159 [0.0201]	2.5927 [0.5673]	-2.7507 [0.0181]
11	21.7791	35.9924	-15.6570 [0.0379]	5.4387 [0.2064]	4.0068 [0.0004]
12	20.3848	34.1213	-10.2210 [0.1113]	7.8971 [0.0550]	-5.1251 [0.0000]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 27. Almon Polynomial Distributed Lagged Response Model for Presidential Approval. Trend Terms for Presidential Administrations. Controls for Prime Ministerial Approval.

Lag	Akaike	Schwartz	U	P	I
2	8.8803	12.2558	-10.7889 [0.2772]	0.1729 [0.7950]	0.0114 [0.9726]
3	9.2033	13.1493	-5.3594 [0.4223]	1.0824 [0.3729]	-0.1950 [0.5898]
4	10.5078	15.4666	-4.0981 [0.5682]	0.4815 [0.8005]	-0.2736 [0.5461]
5	10.5511	15.9367	-3.9778 [0.5914]	2.5445 [0.2599]	-0.9108 [0.0732]
6	11.4726	17.7256	-5.3614 [0.4825]	1.8669 [0.4718]	-0.8653 [0.1545]
7	12.1516	19.1545	-6.6388 [0.3849]	1.7685 [0.5566]	-0.8378 [0.2741]
8	12.6109	20.2362	-6.5894 [0.3868]	0.6678 [0.8421]	-0.6333 [0.4537]
9	13.2270	21.5671	-7.7699 [0.3064]	0.7913 [0.8217]	-0.9229 [0.3106]
10	13.5675	22.4436	-7.7988 [0.2571]	1.6829 [0.6420]	-1.4760 [0.1306]
11	13.2959	22.2837	-6.4130 [0.3039]	3.6436 [0.3076]	-2.4190 [0.0146]
12	12.8017	21.7123	-3.2853 [0.5561]	4.8278 [0.1766]	-3.0695 [0.0021]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 28. Almon Polynomial Distributed Lagged Response Model for Prime Ministerial Approval. Trend Terms for Prime Ministerial Administrations.

Lag	Akaike	Schwartz	U	P	I
2	18.0164	25.6160	-13.6181 [0.3594]	-1.2759 [0.1841]	0.1272 [0.7946]
3	18.2972	26.8432	-7.4771 [0.4002]	-1.4805 [0.3030]	0.3359 [0.4342]
4	20.0196	30.1752	-9.0125 [0.3225]	-2.6865 [0.1656]	0.2211 [0.6550]
5	20.9965	32.4032	-14.0362 [0.1484]	-4.3441 [0.0724]	0.2311 [0.6797]
6	22.2789	35.1039	-14.8554 [0.1280]	-3.4751 [0.1946]	0.0109 [0.9869]
7	23.3081	37.4086	-15.0159 [0.1236]	-2.7190 [0.3407]	-0.4285 [0.5999]
8	23.1618	37.7908	-16.3230 [0.0692]	-1.0568 [0.6920]	-0.9682 [0.2262]
9	21.1137	34.9626	-16.4033 [0.0363]	1.4095 [0.5771]	-1.9877 [0.0135]
10	21.9585	36.8510	-8.7651 [0.1749]	3.8657 [0.1185]	-2.5224 [0.0029]
11	20.8117	35.3533	-6.0801 [0.2295]	5.3718 [0.0195]	-3.1171 [0.0001]
12	21.5262	36.9747	-2.3758 [0.6173]	5.7151 [0.0193]	-3.3357 [0.0001]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 29. Almon Polynomial Distributed Lagged Response Model for Prime Ministerial Approval. Trend Terms for Prime Ministerial Administrations. Controls for Presidential Approval.

Lag	Akaike	Schwartz	U	P	I
2	9.0985	13.3003	4.2755 [0.6936]	-1.2161 [0.0768]	0.1937 [0.5759]
3	9.3605	14.0772	2.7997 [0.6525]	-1.9758 [0.0475]	0.5530 [0.0659]
4	9.8900	15.2441	2.1994 [0.7227]	-1.9751 [0.1244]	0.5013 [0.1349]
5	10.2968	16.2172	0.9536 [0.8881]	-3.2554 [0.0465]	0.7979 [0.0434]
6	10.9404	17.5623	2.0971 [0.7936]	-2.2688 [0.2209]	0.6561 [0.1604]
7	11.3066	18.4606	4.3448 [0.5485]	-1.4488 [0.4851]	0.3298 [0.5705]
8	11.1920	18.5533	4.2476 [0.5476]	-0.0564 [0.9793]	-0.0468 [0.9374]
9	11.3202	19.0245	8.1571 [0.2704]	2.3639 [0.3482]	-0.5445 [0.4278]
10	11.8611	20.1824	14.0672 [0.0413]	3.7938 [0.1834]	-0.3651 [0.6468]
11	12.5299	21.5624	13.6454 [0.0351]	2.8458 [0.3316]	-0.0999 [0.9102]
12	13.2121	22.9723	12.4852 [0.0488]	1.8904 [0.5436]	0.0619 [0.9485]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 30. Theoretical Specifications for Vector Autoregression Analysis.

(Eq. 2a) $Y_1 = \alpha + \beta Y_1 + \beta U_i + \beta P_i + \beta I_i + \beta L_1 + \beta T_1 + \epsilon$

(Eq. 2b) $Y_1 = \alpha + \beta Y_1 + \beta Y_2 + \beta U_i + \beta P_i + \beta I_i + \beta L_1 + \beta L_2 + \beta T_1 + \beta T_2 + \epsilon$

(Eq. 2c) $Y_2 = \alpha + \beta Y_2 + \beta U_i + \beta P_i + \beta I_i + \beta L_2 + \beta T_2 + \epsilon$

(Eq. 2d) $Y_2 = \alpha + \beta Y_2 + \beta Y_1 + \beta U_i + \beta P_i + \beta I_i + \beta L_2 + \beta L_1 + \beta T_2 + \beta T_1 + \epsilon$

(Eq. 2e) $Y_1 = \alpha + \beta Y_1 + \beta U_i + \beta P_i + \beta I_i + \beta PR_1 + \beta T_1 + \epsilon$

(Eq. 2f) $Y_1 = \alpha + \beta Y_1 + \beta Y_2 + \beta U_i + \beta P_i + \beta I_i + \beta PR_1 + \beta T_1 + \beta T_2 + \epsilon$

(Eq. 2g) $Y_2 = \alpha + \beta Y_2 + \beta U_i + \beta P_i + \beta I_i + \beta L_2 + \beta PM_1 + \epsilon$

(Eq. 2h) $Y_2 = \alpha + \beta Y_2 + \beta Y_1 + \beta U_i + \beta P_i + \beta I_i + \beta PM_1 + \beta T_2 + \beta T_1 + \epsilon$

(Eq. 2i) $Y_1 = \alpha + \beta Y_1 + \beta U_i + \beta P_i + \beta I_i + \beta PR_2 + \epsilon$

(Eq. 2j) $Y_1 = \alpha + \beta Y_1 + \beta Y_2 + \beta U_i + \beta P_i + \beta I_i + \beta PR_2 + \beta T_2 + \epsilon$

(Eq. 2k) $Y_2 = \alpha + \beta Y_2 + \beta U_i + \beta P_i + \beta I_i + \beta L_2 + \beta PM_2 + \epsilon$

(Eq. 2l) $Y_2 = \alpha + \beta Y_2 + \beta Y_1 + \beta U_i + \beta P_i + \beta I_i + \beta PM_2 + \beta T_1 + \epsilon$

Note:
- Y_1 -- Percentage of respondents satisfied with French President.
- Y_2 -- Percentage of respondents satisfied with French Prime Minister.
- U_i -- Vector of lagged unemployment measured in thousands (logged). Lags included for t-1 to t-i.
- P_i -- Vector of lagged inflation rate. Lags included for t-1 to t-i.
- I_i -- Vector of lagged interest rate. Lags included for t-1 to t-i.
- L_1 -- Dummy variable for leftist president (1 = leftist president).
- L_2 -- Dummy variable for leftist prime minister (1 = leftist prime minister).
- PR_1 -- Vector of dummy variables for separate presidential administrations.
- PR_2 -- Vector of trend terms for separate presidential administrations.
- PM_1 -- Vector of dummy variables for separate prime ministerial administrations.
- PM_2 -- Vector of trend terms for separate prime ministerial administrations.
- T_1 -- Term counter variable for presidential administrations.
- T_2 -- Term counter variable for prime ministerial administrations.

Table 31. Vector Autoregression Analysis. Dummy Control for Ideological Identification.

Lag	President (1)	Premier (2)	President (3)	Premier (4)
Unemployment				
3	0.3222	0.1410	0.8534	0.5333
4	0.1897	0.0901	0.9136	0.5336
5	0.0367	0.0219	0.8575	0.5691
6	0.0243	0.0085	0.8684	0.4903
7	0.3263	0.1822	0.9677	0.7231
8	0.3223	0.1990	0.9327	0.8315
9	0.4550	0.3555	0.9260	0.8311
10	0.4948	0.3804	0.5855	0.6014
11	0.4776	0.3612	0.9102	0.7854
12	0.4419	0.2923	0.9443	0.8584
Inflation				
3	0.0200	0.2230	0.1535	0.8138
4	0.0246	0.2261	0.1933	0.8685
5	0.0551	0.2358	0.3368	0.8992
6	0.0883	0.3847	0.2868	0.9428
7	0.0920	0.3764	0.3440	0.9855
8	0.2131	0.5301	0.3777	0.9148
9	0.2489	0.7905	0.1702	0.8891
10	0.1579	0.6025	0.1867	0.8756
11	0.2101	0.6307	0.2677	0.9184
12	0.7799	0.9615	0.2784	0.5479
Interest Rates				
3	0.6292	0.4071	0.3005	0.2674
4	0.3212	0.0216	0.5180	0.1229
5	0.2639	0.0233	0.6025	0.2662
6	0.1270	0.0165	0.7447	0.3020
7	0.1900	0.0505	0.6170	0.3740
8	0.3792	0.1883	0.3115	0.3406
9	0.4828	0.3225	0.4497	0.5923
10	0.6452	0.1929	0.3155	0.2426
11	0.5043	0.2147	0.4933	0.3669
12	0.7423	0.3418	0.5785	0.3474

Note: Columns (1) and (2) present results from presidential and prime ministerial popularity in the same model. Columns (3) and (4) present results from their separate inclusion.

Table 32. Vector Autoregression Analysis. Dummy Controls for Presidential Administrations.

	Lag	President (1)	Premier (2)	President (3)
Unemployment				
	3	0.1981	0.0732	0.9335
	4	0.1907	0.0899	0.9568
	5	0.0631	0.0307	0.9148
	6	0.0260	0.0185	0.8300
	7	0.2057	0.1802	0.8920
	8	0.2805	0.2308	0.9638
	9	0.4779	0.3364	0.9108
	10	0.5811	0.4196	0.8563
	11	0.6018	0.4697	0.9362
	12	0.4463	0.2500	0.9089
Inflation				
	3	0.0304	0.2288	0.1492
	4	0.0337	0.2409	0.1858
	5	0.0712	0.2523	0.3359
	6	0.0756	0.3403	0.2990
	7	0.0918	0.3665	0.3822
	8	0.2459	0.5967	0.4461
	9	0.2756	0.8412	0.2493
	10	0.2952	0.8312	0.2192
	11	0.2951	0.7682	0.2860
	12	0.7504	0.9352	0.2825
Interest Rates				
	3	0.6301	0.3880	0.3249
	4	0.3437	0.0370	0.5641
	5	0.2961	0.0394	0.6477
	6	0.1876	0.0405	0.8345
	7	0.2173	0.0876	0.6047
	8	0.4099	0.2578	0.3629
	9	0.5991	0.4556	0.5015
	10	0.8866	0.3027	0.4104
	11	0.8403	0.2946	0.6347
	12	0.9090	0.4026	0.7475

Note: Columns (1) and (2) present results from presidential and prime ministerial popularity in the same model. Columns (3) and (4) present results from their separate inclusion.

Table 33. Vector Autoregression Analysis. Dummy Controls for Prime Ministerial Administrations.

	Lag	President (1)	Premier (2)	Premier (3)
Unemployment				
	3	0.2627	0.1356	0.5422
	4	0.1958	0.1065	0.5660
	5	0.0362	0.0151	0.5349
	6	0.0208	0.0078	0.4790
	7	0.2992	0.1960	0.6584
	8	0.2957	0.1606	0.6409
	9	0.4680	0.2494	0.4593
	10	0.1806	0.1027	0.4755
	11	0.3576	0.2258	0.6696
	12	0.4087	0.2497	0.7094
Inflation				
	3	0.0661	0.2208	0.8544
	4	0.0827	0.2590	0.7677
	5	0.0929	0.2619	0.8506
	6	0.1922	0.3886	0.9647
	7	0.1382	0.3399	0.9106
	8	0.2595	0.5997	0.9351
	9	0.2162	0.6963	0.9706
	10	0.2645	0.7687	0.9750
	11	0.4125	0.8635	0.9933
	12	0.7400	0.9246	0.8994
Interest Rates				
	3	0.3762	0.5778	0.1332
	4	0.3611	0.0563	0.0228
	5	0.1991	0.0277	0.0283
	6	0.1324	0.0241	0.1533
	7	0.0643	0.0734	0.2587
	8	0.1238	0.1526	0.3333
	9	0.2193	0.2742	0.5166
	10	0.6219	0.3496	0.0791
	11	0.7463	0.4248	0.1473
	12	0.4120	0.2472	0.2119

Note: Columns (1) and (2) present results from presidential and prime ministerial popularity in the same model. Columns (3) and (4) present results from their separate inclusion.

Table 34. Vector Autoregression Analysis. Trend Terms for Presidential Administrations.

	Lag	President (1)	Premier (2)	President (3)
Unemployment				
	3	0.1894	0.1230	0.8003
	4	0.1582	0.0817	0.8547
	5	0.0472	0.0243	0.7514
	6	0.0177	0.0110	0.7586
	7	0.2434	0.1400	0.9222
	8	0.3176	0.2249	0.9553
	9	0.4110	0.3169	0.9163
	10	0.5315	0.3290	0.8173
	11	0.4167	0.2497	0.9584
	12	0.2384	0.1259	0.9199
Inflation				
	3	0.0509	0.2578	0.1800
	4	0.0401	0.2392	0.1751
	5	0.0790	0.2279	0.3313
	6	0.1211	0.3518	0.4473
	7	0.1121	0.2902	0.5791
	8	0.3977	0.5759	0.6091
	9	0.3592	0.8005	0.2873
	10	0.4006	0.8418	0.3532
	11	0.6152	0.9361	0.4899
	12	0.9099	0.9815	0.3949
Interest Rates				
	3	0.6822	0.4679	0.2624
	4	0.3037	0.0269	0.4544
	5	0.2250	0.0366	0.5862
	6	0.1790	0.0311	0.7610
	7	0.0963	0.0337	0.5968
	8	0.2018	0.1696	0.4021
	9	0.1976	0.1723	0.5645
	10	0.3181	0.0635	0.3941
	11	0.1520	0.0346	0.5523
	12	0.3989	0.1151	0.6469

Note: Columns (1) and (2) present results from presidential and prime ministerial popularity in the same model. Columns (3) and (4) present results from their separate inclusion.

Table 35. Vector Autoregression Analysis. Trend Terms for Prime Ministerial Administrations.

	Lag	President (1)	Premier (2)	Premier (3)
Unemployment				
	3	0.1921	0.0432	0.2381
	4	0.1313	0.0508	0.4058
	5	0.0540	0.0343	0.6467
	6	0.0153	0.0065	0.5212
	7	0.1939	0.2022	0.8992
	8	0.2283	0.2156	0.9124
	9	0.2799	0.2121	0.7882
	10	0.3899	0.2296	0.7968
	11	0.4838	0.4016	0.9353
	12	0.5916	0.4466	0.9419
Inflation				
	3	0.0451	0.4787	0.9819
	4	0.0583	0.5833	0.9574
	5	0.1135	0.5728	0.9548
	6	0.2423	0.6709	0.9694
	7	0.1581	0.4780	0.9336
	8	0.3362	0.7735	0.9298
	9	0.1590	0.8263	0.9551
	10	0.2507	0.8737	0.9818
	11	0.5577	0.9606	0.9889
	12	0.9520	0.9970	0.6999
Interest Rates				
	3	0.3794	0.7638	0.4954
	4	0.5439	0.1354	0.0684
	5	0.4336	0.0716	0.0452
	6	0.4369	0.0978	0.1130
	7	0.1521	0.0894	0.1499
	8	0.0810	0.0695	0.1109
	9	0.1766	0.1636	0.1622
	10	0.5848	0.2014	0.0090
	11	0.5893	0.2088	0.0163
	12	0.5823	0.1618	0.0077

Note: Columns (1) and (2) present results from presidential and prime ministerial popularity in the same model. Columns (3) and (4) present results from their separate inclusion.

Table 36. Dickey-Fuller Tests for Nonstationarity.

Variable	Dickey-Fuller
PopPR	-14.4559
PopPM	-33.5761
U	-0.6065
P	-99.2202
I	-6.5268

Note: PopPR -- Presidential Popularity Series.
PopPM -- Prime Ministerial Popularity Series.
U -- Unemployment Series (Logged).
P -- Inflation Series.
I -- Interest Rate Series.

Table 37. Univariate ARIMA Estimates.

Variable	Parameter	Estimate	SE
PopPR	Constant	43.9307	11.30
	AR(1)	0.8997	18.38
PopPM	Constant	40.7197	15.00
	AR(1)	0.7919	11.57
U	Constant	0.0306	3.54
	AR(1)	0.3374	3.27
	MA(1)	0.8020	10.70
P	Constant	1.9910	6.17
	AR(1)	0.8116	12.20
I	Constant	9.8207	8.53
	AR(1)	0.8506	14.15
	MA(1)	0.4881	4.63

Note: PopPR -- Presidential Popularity Series.
PopPM -- Prime Ministerial Popularity Series.
U -- Unemployment Series (Logged).
P -- Inflation Series.
I -- Interest Rate Series.

Table 38. Cross Correlation Function Estimates. Unemployment.

Lag	President	SE	Premier	SE
-20	-0.0829	0.65	-0.0189	0.15
-19	0.0463	0.37	0.1449	1.14
-18	0.1246	0.99	0.0444	0.35
-17	-0.0658	0.53	-0.0818	0.65
-16	0.2543	2.05	0.2571	2.07
-15	0.0104	0.09	0.0798	0.65
-14	0.0438	0.36	0.1248	1.02
-13	0.2079	1.71	0.0987	0.81
-12	-0.0356	0.30	-0.0402	0.33
-11	0.1152	0.96	-0.0006	0.01
-10	0.0499	0.42	0.0890	0.75
-9	-0.0973	0.83	-0.1814	1.54
-8	0.0080	0.07	-0.1279	1.09
-7	0.0565	0.49	0.1192	1.03
-6	-0.0142	0.12	-0.0101	0.09
-5	-0.0418	0.36	0.1230	1.07
-4	-0.0587	0.51	-0.0439	0.39
-3	0.0584	0.52	-0.1304	1.15
-2	-0.0919	0.82	0.1138	1.01
-1	-0.0019	0.02	-0.0227	0.20
0	-0.0143	0.13	0.0345	0.31
1	0.0748	0.67	0.0643	0.58
2	0.2659	2.36	0.1245	1.11
3	0.0044	0.04	0.1053	0.93
4	-0.0913	0.80	-0.0991	0.87
5	0.0682	0.59	-0.0187	0.16
6	-0.2030	1.76	-0.1609	1.39
7	0.0770	0.66	0.0460	0.40
8	-0.3363	2.87	-0.4018	3.43
9	-0.0678	0.58	-0.0317	0.27
10	-0.0261	0.22	-0.0847	0.71
11	-0.0103	0.09	0.0639	0.53
12	0.2488	2.07	0.0883	0.73
13	-0.0275	0.23	0.0334	0.28
14	-0.0787	0.64	-0.0786	0.64
15	0.0758	0.62	0.0827	0.67
16	-0.0810	0.65	-0.0440	0.35
17	-0.1284	1.03	-0.0518	0.41
18	0.0403	0.32	-0.0167	0.13
19	0.0307	0.24	-0.0078	0.06
20	-0.0696	0.54	-0.1808	1.41

Table 39. Cross Correlation Function Estimates. Inflation.

Lag	President	SE	Premier	SE
-20	-0.0056	0.04	0.0566	0.44
-19	0.0062	0.05	-0.1253	0.99
-18	0.0142	0.11	0.0637	0.51
-17	-0.0680	0.54	-0.0109	0.09
-16	0.1058	0.85	0.1437	1.16
-15	-0.0250	0.20	-0.0228	0.18
-14	0.1739	1.42	0.0806	0.66
-13	0.2000	1.65	0.1046	0.86
-12	0.0882	0.73	0.1445	1.20
-11	0.0005	0.00	-0.1097	0.92
-10	0.0324	0.27	0.1542	1.30
-9	0.0406	0.34	-0.0138	0.12
-8	0.0717	0.61	0.0573	0.49
-7	0.0368	0.32	-0.0451	0.39
-6	0.0778	0.67	0.0209	0.18
-5	-0.0378	0.33	0.0224	0.20
-4	-0.0437	0.38	-0.1712	1.50
-3	0.1128	1.00	-0.0496	0.44
-2	-0.1959	1.74	-0.0780	0.69
-1	0.0588	0.53	0.1103	0.99
0	-0.0177	0.16	-0.0600	0.54
1	-0.1805	1.61	-0.0908	0.81
2	-0.0766	0.68	-0.0470	0.42
3	0.0354	0.31	0.0093	0.08
4	-0.1501	1.32	-0.0197	0.17
5	0.0061	0.05	-0.1473	1.28
6	0.0413	0.36	0.1540	1.33
7	-0.0042	0.04	-0.0271	0.23
8	-0.0428	0.37	0.0157	0.13
9	0.0300	0.25	0.0761	0.65
10	-0.1889	1.59	-0.2328	1.96
11	0.1182	0.99	-0.1493	1.25
12	0.0031	0.03	0.0780	0.65
13	-0.0237	0.20	-0.0046	0.04
14	-0.0648	0.53	0.0243	0.20
15	-0.0337	0.27	-0.0580	0.47
16	0.0877	0.71	-0.0506	0.41
17	-0.1598	1.28	-0.1081	0.86
18	-0.0081	0.06	-0.0980	0.78
19	0.0624	0.49	0.0680	0.53
20	0.0529	0.41	0.0201	0.16

Table 40. Cross Correlation Function Estimates. Interest Rates.

Lag	President	SE	Premier	SE
-20	-0.0688	0.53	-0.0135	0.11
-19	0.0353	0.28	-0.1018	0.80
-18	-0.1864	1.48	-0.1472	1.17
-17	0.0036	0.03	0.0894	0.72
-16	0.0740	0.60	-0.0463	0.37
-15	0.0876	0.71	0.0870	0.71
-14	0.0469	0.38	-0.0558	0.46
-13	0.1448	1.19	0.1671	1.38
-12	-0.0058	0.05	-0.0509	0.42
-11	0.0430	0.36	0.0077	0.06
-10	0.0023	0.02	0.1126	0.95
-9	-0.0048	0.04	0.0494	0.42
-8	0.0701	0.60	-0.0253	0.22
-7	-0.1074	0.92	-0.0899	0.77
-6	0.2235	1.94	0.0485	0.42
-5	-0.1549	1.35	-0.2855	2.49
-4	0.0180	0.16	-0.1319	1.16
-3	-0.0406	0.36	0.0030	0.03
-2	-0.1088	0.97	-0.0541	0.48
-1	-0.2927	2.62	-0.2815	2.52
0	0.0763	0.69	0.0548	0.49
1	-0.0608	0.54	0.1729	1.55
2	-0.1670	1.48	-0.0829	0.74
3	0.0313	0.28	0.0237	0.21
4	0.0474	0.42	0.0542	0.48
5	-0.1567	1.37	-0.0750	0.65
6	0.0857	0.74	0.1591	1.38
7	0.0360	0.31	-0.0274	0.24
8	0.0639	0.55	0.0742	0.63
9	-0.0603	0.51	-0.0893	0.76
10	-0.0630	0.53	-0.0102	0.09
11	-0.1521	1.27	-0.1951	1.63
12	-0.2164	1.80	-0.1080	0.90
13	-0.0697	0.58	-0.1281	1.06
14	-0.0438	0.36	0.1442	1.18
15	-0.0156	0.13	-0.0602	0.49
16	-0.0144	0.12	-0.0802	0.65
17	0.1412	1.13	0.1465	1.17
18	-0.0499	0.40	-0.0957	0.76
19	0.0318	0.25	-0.0073	0.06
20	0.1666	1.30	0.1074	0.84

Table 41. Almon Polynomial Distributed Lagged Response Model. Presidential Popularity. Dummy Controls for Ideological Identification.

	President (a)	T-score	President (b)	T-score
Intercept	118.4812	5.57	53.6400	2.73
U	16.7558	3.15	5.2573	1.25
U(t-1)	8.7664	2.76	2.8679	1.18
U(t-2)	2.3167	1.09	0.9242	0.60
U(t-3)	-2.5930	-1.20	-0.5734	0.35
U(t-4)	-5.9629	-2.44	-1.6251	0.85
U(t-5)	-7.7930	-3.17	-2.2309	1.12
U(t-6)	-8.0832	-3.74	-2.3908	1.34
U(t-7)	-6.8335	-3.47	-2.1048	1.35
U(t-8)	-4.0440	-1.44	-1.3728	0.67
U(t-9)	0.2854	0.06	-0.1949	0.05
P	-1.4028	-1.55	0.1967	0.28
P(t-1)	-1.2729	-1.81	0.1704	0.31
P(t-2)	-1.0942	-1.62	0.1442	0.28
P(t-3)	-0.8666	-1.19	0.1181	0.22
P(t-4)	-0.5901	-0.78	0.0919	0.16
P(t-5)	-0.2648	-0.36	0.0659	0.12
P(t-6)	0.1094	0.16	0.0399	0.07
P(t-7)	0.5324	0.87	0.0139	0.03
P(t-8)	1.0043	1.55	-0.0120	0.02
P(t-9)	1.5251	1.72	-0.0379	0.05
I	0.1101	0.30	-0.2522	0.91
I(t-1)	0.0043	0.02	-0.2213	1.13
I(t-2)	-0.0922	-0.46	-0.1934	1.27
I(t-3)	-0.1795	-0.99	-0.1684	1.20
I(t-4)	-0.2574	-1.46	-0.1464	1.04
I(t-5)	-0.3260	-1.93	-0.1273	0.92
I(t-6)	-0.3854	-2.49	-0.1112	0.85
I(t-7)	-0.4354	-2.90	-0.0981	0.77
I(t-8)	-0.4761	-2.51	-0.0879	0.57
I(t-9)	-0.5076	-1.77	-0.0807	0.37

Table 41 -- continued.

	President (a)	T-score	President (b)	T-score
LeftPR	9.8390	0.38	6.3405	0.97
LeftPM			-8.3991	-3.00
PopPM			0.4937	5.80
TermPR	0.0178	0.38	-0.0335	0.70
TermPM			-0.0102	0.16
Rho	0.7151	9.14	0.6869	7.19
R-Square	0.8612		0.9283	
Adj. R2	0.8363		0.9115	
SEE	3.6001		2.6466	

Note:
- U -- Unemployment Series (Logged).
- P -- Inflation Series.
- I -- Interest Rate Series.
- LeftPR -- Ideological Identification of Presidential Administrations.
- LeftPM -- Ideological Identification of Prime Ministerial Administrations.
- PopPM -- Prime Ministerial Popularity Series.
- TermPR -- Term Counter for Presidential Administrations.
- TermPM -- Term Counter for Prime Ministerial Administrations.

Table 42. Almon Polynomial Distributed Lagged Response Model. Presidential Popularity. Dummy Controls for Presidential Administrations.

	President (a)	T-score	President (b)	T-score
Intercept	131.4049	3.69	52.7467	1.60
U	16.1090	2.81	4.5781	0.96
U(t-1)	8.3891	2.37	2.7650	0.94
U(t-2)	2.1346	0.89	1.2254	0.63
U(t-3)	-2.6543	-1.16	-0.4080	0.02
U(t-4)	-5.9778	-2.40	-1.0336	0.49
U(t-5)	-7.8358	-3.16	-1.7530	0.82
U(t-6)	-8.2283	-3.77	-2.1989	1.13
U(t-7)	-7.1554	-3.48	-2.3715	1.31
U(t-8)	-4.6170	-1.56	-2.2706	0.93
U(t-9)	-0.6131	-0.12	-1.8964	0.47
P	-1.3146	-1.43	0.2034	0.27
P(t-1)	-1.2349	-1.74	-0.0017	0.03
P(t-2)	-1.0949	-1.61	-0.1658	0.28
P(t-3)	-0.8946	-1.22	-0.2886	0.46
P(t-4)	-0.6340	-0.82	-0.3704	0.57
P(t-5)	-0.3131	-0.41	-0.4110	0.65
P(t-6)	0.0681	0.10	-0.4105	0.71
P(t-7)	0.5095	0.82	-0.3689	0.70
P(t-8)	1.0113	1.54	-0.2861	0.52
P(t-9)	1.5734	1.75	-0.1622	0.22
I	0.0871	0.23	-0.1857	0.61
I(t-1)	-0.0137	-0.05	-0.1379	0.62
I(t-2)	-0.1065	-0.51	-0.0970	0.55
I(t-3)	-0.1912	-1.02	-0.0631	0.39
I(t-4)	-0.2678	-1.48	-0.0361	0.23
I(t-5)	-0.3363	-1.95	-0.0161	0.10
I(t-6)	-0.3967	-2.53	-0.0030	0.02
I(t-7)	-0.4491	-2.96	0.0031	0.02
I(t-8)	-0.4933	-2.57	0.0023	0.01
I(t-9)	-0.5294	-1.83	-0.0055	0.02

Table 42 -- continued.

	President (a)	T-score	President (b)	T-score
Pompidou	5.3847	0.82	1.0221	0.19
Destaing	9.2746	0.93	3.3329	0.41
Mitterrand	22.3913	1.42	0.7503	0.06
PopPM			0.5682	6.74
TermPR	0.0508	0.82	0.0624	1.26
TermPM			0.1120	-1.73
Rho	0.7134	8.35	0.7803	9.62
R-Square	0.8631		0.9199	
Adj. R2	0.8336		0.8995	
SEE	3.6302		2.8209	

Notes:
U -- Unemployment Series (Logged).
P -- Inflation Series.
I -- Interest Rate Series.
Pompidou -- Dummy Variable for Pompidou Administration.
Destaing -- Dummy Variable for d'Estaing Administration.
Mitterrand -- Dummy Variable for Mitterrand Administration.
PopPM -- Prime Ministerial Popularity Series.
TermPR -- Term Counter for Presidential Administrations.
TermPM -- Term Counter for Prime Ministerial Administrations.

Table 43. Almon Polynomial Distributed Lagged Response Model. Presidential Popularity. Trend Terms for Presidential Administrations.

	President (a)	T-Score	President (b)	T-Score
Intercept	95.5854	5.11	51.8343	2.96
U	15.2144	2.78	3.7120	0.82
U(t-1)	8.1432	2.51	2.6783	0.79
U(t-2)	2.4267	1.14	1.7123	0.47
U(t-3)	-1.9352	0.88	1.7498	0.14
U(t-4)	-4.9423	1.95	2.0489	0.50
U(t-5)	-6.5948	2.55	2.1304	0.72
U(t-6)	-6.8925	2.95	1.9603	0.90
U(t-7)	-5.8356	2.65	1.8530	0.94
U(t-8)	-3.4240	1.12	2.4893	0.58
U(t-9)	0.3424	0.07	4.0717	0.21
P	-1.1070	1.16	0.5382	0.69
P(t-1)	-1.0399	1.36	0.4562	0.70
P(t-2)	-0.9202	1.26	0.3749	0.60
P(t-3)	-0.7477	0.98	0.2945	0.46
P(t-4)	-0.5226	0.67	0.2149	0.33
P(t-5)	-0.2448	0.33	0.1360	0.22
P(t-6)	0.0856	0.13	0.0579	0.10
P(t-7)	0.4688	0.77	-0.0194	0.04
P(t-8)	0.9045	1.39	-0.0959	0.18
P(t-9)	1.3930	1.55	-0.1716	0.23
I	0.0821	0.22	-0.4148	1.36
I(t-1)	-0.0017	0.01	-0.3175	1.45
I(t-2)	-0.0799	0.39	-0.2359	1.38
I(t-3)	-0.1526	0.83	-0.1700	1.10
I(t-4)	-0.2198	1.21	-0.1199	0.79
I(t-5)	-0.2815	1.61	-0.0854	0.58
I(t-6)	-0.3377	2.11	-0.0667	0.49
I(t-7)	-0.3884	2.52	-0.0637	0.48
I(t-8)	-0.4335	2.26	-0.0764	0.48
I(t-9)	-0.4731	1.63	-0.1049	0.45

Table 43 -- continued.

	President (a)	T-Score	President (b)	T-Score
Pompidou	0.0120	0.14	0.0674	0.90
d'Estaing	-0.1106	1.53	-0.0070	0.09
Mitterrand	0.0459	0.77	0.0747	1.53
PopPM			0.5336	6.82
TermPM			-0.0719	1.15
Rho	0.7581	9.52	0.7870	9.57
R Square	0.8627		0.9204	
Adj. R2	0.8356		0.8933	
SEE	3.6082		2.7894	

Note:
U -- Unemployment Series (Logged).
P -- Inflation Series.
I -- Interest Rate Series.
Pompidou -- Trend Term for Pompidou Administration.
Destaing -- Trend Term for d'Estaing Administration.
Mitterrand -- Trend Term for Mitterrand Administration.
PopPM -- Prime Ministerial Popularity Series.
TermPR -- Term Counter for Presidential Administrations.
TermPM -- Term Counter for Prime Ministerial Administrations.

Table 44. Almon Polynomial Distributed Lagged Response Model. Prime Ministerial Popularity. Dummy Controls for Ideological Identification.

	Premier (a)	T-score	Premier (b)	T-score
Intercept	82.6496	8.78	38.1426	2.01
U	25.9289	5.18	12.3083	3.01
U(t-1)	13.4788	4.91	5.8985	2.62
U(t-2)	3.5016	2.10	0.8391	0.62
U(t-3)	-4.0026	2.05	-2.8698	1.85
U(t-4)	-9.0340	3.74	-5.2282	2.71
U(t-5)	-11.5924	4.64	-6.2363	3.08
U(t-6)	-11.6778	5.39	-5.8939	3.32
U(t-7)	-9.2903	5.31	-4.2011	2.98
U(t-8)	-4.4299	1.90	-1.1578	0.66
U(t-9)	2.9034	0.68	3.2359	1.01
P	-3.6286	3.71	-2.5363	3.43
P(t-1)	-3.4933	5.40	-2.1584	4.06
P(t-2)	-3.1934	6.26	-1.7432	3.61
P(t-3)	-2.7288	5.25	-1.2908	2.50
P(t-4)	-2.0995	3.79	-0.8012	1.46
P(t-5)	-1.3056	2.38	-0.2743	0.51
P(t-6)	-0.3470	0.69	0.2898	0.58
P(t-7)	0.7763	1.59	0.8911	1.94
P(t-8)	2.0641	3.25	1.5297	2.92
P(t-9)	3.5167	3.58	2.2055	2.92
I	1.1487	3.68	0.7311	2.59
I(t-1)	0.8010	4.18	0.4691	2.41
I(t-2)	0.4887	3.65	0.2411	1.62
I(t-3)	0.2111	1.55	0.0469	0.34
I(t-4)	-0.0319	0.21	-0.1134	0.81
I(t-5)	-0.2404	1.53	-0.2398	1.74
I(t-6)	-0.4142	2.85	-0.3323	2.59
I(t-7)	-0.5535	4.01	-0.3910	3.18
I(t-8)	-0.6581	3.72	-0.4157	2.79
I(t-9)	-0.7282	2.60	-0.4066	1.83

Table 44 -- continued.

	Premier (a)	T-score	Premier (b)	T-score
LeftPR			6.5006	1.01
LeftPM	0.7175	0.25	1.5886	0.50
PopPR			0.6412	5.52
TermPR			-0.0694	1.44
TermPM	0.0320	0.52	0.1243	1.90
Rho	0.4507	4.36	0.4131	3.41
R-Square	0.7838		0.8870	
Adj. R2	0.7451		0.8605	
SEE	4.1745		3.0880	

Note: U -- Unemployment Series (Logged).
P -- Inflation Series.
I -- Interest Rate Series.
LeftPR -- Ideological Identification of Presidential Administrations.
LeftPM -- Ideological Identification of Prime Ministerial Administrations.
PopPM -- Prime Ministerial Popularity Series.
TermPR -- Term Counter for Presidential Administrations.
TermPM -- Term Counter for Prime Ministerial Administrations.

Table 45. Almon Polynomial Distributed Lagged Response Model. Prime Ministerial Popularity. Dummy Controls for Prime Ministerial Administrations.

	Premier (a)	T-score	Premier (b)	T-score
Intercept	52.7661	3.86	16.1311	0.76
U	21.8693	5.22	8.3611	2.53
U(t-1)	10.8383	4.27	3.9549	2.07
U(t-2)	2.1427	1.26	0.5041	0.45
U(t-3)	-4.2174	2.50	-1.9910	1.76
U(t-4)	-8.2420	4.35	-3.5306	2.53
U(t-5)	-9.9312	5.16	-4.1146	2.71
U(t-6)	-9.2849	5.34	-3.7431	2.60
U(t-7)	-6.3032	3.80	-2.4160	1.83
U(t-8)	-0.9860	0.43	-0.1333	0.08
U(t-9)	6.6667	1.75	3.1049	1.24
P	-1.8131	2.06	-0.9170	1.51
P(t-1)	-1.4696	2.18	-0.8304	1.80
P(t-2)	-1.0710	1.72	-0.6778	1.63
P(t-3)	-0.6172	0.95	-0.4594	1.08
P(t-4)	-0.1084	0.16	-0.1750	0.40
P(t-5)	0.4556	0.71	0.1753	0.42
P(t-6)	1.0747	1.87	0.5915	1.60
P(t-7)	1.7488	3.50	1.0737	3.26
P(t-8)	2.4781	4.61	1.6217	4.34
P(t-9)	3.2625	4.16	2.2357	4.04
I	0.2139	0.68	0.3868	1.85
I(t-1)	0.0564	0.25	0.2242	1.54
I(t-2)	-0.0930	0.55	0.0797	0.72
I(t-3)	-0.2342	1.56	-0.0467	0.47
I(t-4)	-0.3672	2.49	-0.1550	1.58
I(t-5)	-0.4920	3.50	-0.2452	2.55
I(t-6)	-0.6087	4.81	-0.3172	3.48
I(t-7)	-0.7172	6.01	-0.3711	4.02
I(t-8)	-0.8176	5.38	-0.4069	3.45
I(t-9)	-0.9097	3.85	-0.4246	2.44

Table 45 -- continued.

	Premier (a)	T-score	Premier (b)	T-score
Delmas	9.5275	2.63	0.2986	0.05
Messmer	-6.4781	1.52	-3.2235	0.67
Chirac1	-7.9787	1.50	-9.3693	1.77
Barre	-12.5525	2.31	-5.8564	1.15
Mauroy	1.7598	0.27	-2.6577	0.59
Fabius	-1.1337	0.23	12.8016	1.47
Chirac2	2.0236	0.53	9.4445	0.72
PopPR			0.7303	7.37
TermPR			-0.2242	1.00
TermPM	-0.0650	1.23	0.1981	0.80
Rho	0.2515	1.84	0.0925	0.63
R-Square	0.8609		0.9305	
Adj. R2	0.8198		0.9069	
SEE	3.5097		2.5229	

Note:
- U -- Unemployment Series (Logged).
- P -- Inflation Series.
- I -- Interest Rate Series.
- Delmas -- Dummy Variable for Delmas Administration.
- Messmer -- Dummy Variable for Messmer Administration.
- Chirac1 -- Dummy Variable for Chirac Administration (1st).
- Barre -- Dummy Variable for Barre Administration.
- Mauroy -- Dummy Variable for Mauroy Administration.
- Fabius -- Dummy Variable for Fabius Administration.
- Chirac2 -- Dummy Variable for Chirac Administration (2nd).
- PopPM -- Prime Ministerial Popularity Series.
- TermPM -- Term Counter for Prime Ministerial Administrations.

Table 46. Almon Polynomial Distributed Lagged Response Model. Prime Ministerial Popularity. Trend Terms for Prime Ministerial Administrations.

	Premier (a)	T-Score	Premier (b)	T-Score
Intercept	49.4169	5.49	-15.3466	1.26
U	11.4543	2.36	-3.1186	0.69
U(t-1)	5.3991	1.98	-2.7988	1.06
U(t-2)	0.6638	0.44	-2.3203	1.54
U(t-3)	-2.7515	1.77	-1.6833	1.18
U(t-4)	-4.8470	2.40	-0.8876	0.50
U(t-5)	-5.6224	2.53	0.0667	0.03
U(t-6)	-5.0780	2.43	1.1795	0.62
U(t-7)	-3.2137	1.77	2.4510	1.37
U(t-8)	-0.0294	0.01	3.8812	1.83
U(t-9)	4.4748	1.30	5.4699	1.67
P	-2.6388	3.13	-1.2452	1.81
P(t-1)	-2.2383	3.68	-0.8851	1.63
P(t-2)	-1.7970	3.40	-0.5543	1.11
P(t-3)	-1.3148	2.45	-0.2598	0.50
P(t-4)	-0.7919	1.45	0.0192	0.04
P(t-5)	-0.2281	0.44	0.2620	0.55
P(t-6)	0.3764	0.83	0.4755	1.15
P(t-7)	1.0218	2.52	0.6597	1.77
P(t-8)	1.7080	3.33	0.8145	1.84
P(t-9)	2.4350	2.98	0.9401	1.41
I	0.7599	2.72	0.6346	2.50
I(t-1)	0.5340	3.08	0.4439	2.67
I(t-2)	0.3237	2.72	0.2763	2.35
I(t-3)	0.1290	1.10	0.1318	1.23
I(t-4)	-0.0501	0.38	0.0103	0.09
I(t-5)	-0.2136	1.55	-0.0881	0.76
I(t-6)	-0.3614	2.75	-0.1634	1.48
I(t-7)	-0.4937	3.90	-0.2157	1.97
I(t-8)	-0.6103	3.92	-0.2449	1.78
I(t-9)	-0.7113	3.01	-0.2510	1.22

Table 46 -- continued.

	Premier (a)	T-Score	Premier (b)	T-Score
Delmas	0.5346	5.10	0.5046	5.91
Messmer	0.0363	0.20	-0.0640	0.30
Chirac1	0.2605	1.37	0.5431	3.38
Barre	-0.1825	2.33	-0.2069	1.93
Mauroy	-0.2193	1.90	-0.1933	2.25
Fabius	-0.3634	1.98	0.0530	0.36
Chirac2	0.0625	0.37	-0.1677	0.86
PopPR			0.7407	7.89
TermPR			0.0254	0.45
Rho	0.3280	2.48	0.6010	5.20
R Square	0.8595		0.9281	
Adj. R2	0.8210		0.9054	
SEE	3.4985		2.5434	

Note:

U	--	Unemployment Series (Logged).
P	--	Inflation Series.
I	--	Interest Rate Series.
Delmas	--	Trend Term for Delmas Administration.
Messmer	--	Trend Term for Messmer Administration.
Chirac1	--	Trend Term for Chirac Administration (1st).
Barre	--	Trend Term for Barre Administration.
Mauroy	--	Trend Term for Mauroy Administration.
Fabius	--	Trend Term for Fabius Administration.
Chirac2	--	Trend Term for Chirac Administration (2nd).
PopPR	--	Presidential Popularity Series.
TermPR	--	Term Counter for Presidential Administrations.

Table 47. Impulse Response Functions. Dummy Controls for Presidential and Prime Ministerial Ideological Identification.

Period	President U	President P	President I	Premier U	Premier P	Premier I
President -- Leftist						
1	0.1164	-0.4993	0.0500	0.4046	-0.6560	-0.6560
2	0.3740	-0.8338	-0.0707	0.4659	-1.0849	-1.0849
3	0.9081	-0.7278	-0.3669	0.5122	-0.8162	-0.8162
4	0.6897	-0.1225	-0.1704	0.4643	-0.6579	-0.6579
5	0.5456	-0.1237	-0.2475	-0.0258	-0.0804	-0.0804
6	0.5562	0.3868	-0.6436	-0.0087	0.1511	0.1512
7	0.3247	0.3780	-0.5326	-0.0021	0.7352	0.7352
8	0.4587	0.2741	-0.5621	-0.1031	0.5515	0.5515
9	-0.0724	0.0658	-0.3393	-0.6900	0.4490	0.4490
10	-0.3900	-0.0039	-0.8456	-0.9004	0.2558	0.2558
11	-0.2484	-0.5847	-1.1314	-0.4599	-0.5403	-0.5403
12	-0.3289	-0.3837	-0.9683	-0.1741	-0.5455	-0.5455
Premier -- Leftist						
1	-0.0124	-0.7388	0.2797	0.7250	-0.9793	-0.0636
2	0.1129	-1.2404	0.4925	0.7022	-1.6425	0.7364
3	0.6579	-1.2130	0.2689	0.4848	-1.4047	0.1958
4	0.4953	-0.6197	0.1996	0.4346	-1.0777	0.2111
5	0.4115	-0.6333	-0.1310	-0.1023	-0.3998	0.1899
6	0.3699	-0.1422	-0.6859	-0.2658	-0.1542	-0.2993
7	0.0515	-0.0813	-0.5967	-0.2374	0.3863	0.1198
8	0.2954	-0.1046	-0.4186	-0.3222	0.2942	-0.1350
9	-0.2173	-0.1124	0.0955	-0.7034	0.5337	0.0159
10	-0.5811	-0.1158	-0.2721	-0.8232	0.5027	-0.5319
11	-0.3795	-0.5493	-0.6296	-0.3860	-0.0793	-0.6896
12	-0.3463	-0.1533	-0.8190	-0.0189	0.0192	-1.1352

Note: The figures presented above are the orthogonal responses of presidential and prime ministerial popularity to a one standard deviation increase in unemployment (U), inflation (P), or interest rates (I).

Table 48. Impulse Response Functions. Dummy Controls for Presidential and Prime Ministerial Administrations.

Period	President U	President P	President I	Premier U	Premier P	Premier I
President -- Dummies						
1	0.1341	-0.4662	0.0349	0.6965	-0.7003	-0.2030
2	0.2330	-0.8663	-0.1858	0.7578	-0.8136	0.4152
3	0.5758	-0.8801	-0.6924	0.4764	-0.7204	-0.2705
4	0.2697	-0.3662	-0.7137	0.3708	-0.7717	-0.2976
5	0.2044	-0.3722	-0.7396	0.0678	-0.0507	-0.3407
6	0.3555	0.2193	-0.8388	-0.0275	-0.0942	-0.6769
7	0.2727	0.2765	-0.4338	-0.1639	0.3941	-0.3327
8	0.7166	0.3653	-0.2167	-0.2848	0.3221	-0.4733
9	0.4365	0.2895	0.1313	-0.4740	0.4909	-0.0529
10	0.2412	0.0551	-0.5030	-0.2932	0.7154	-0.2040
11	0.2934	-0.6825	-0.9279	0.0398	-0.1883	-0.0359
12	0.0317	-0.5651	-0.8305	0.2352	-0.4169	-0.0503
Premier -- Dummies						
1	0.2713	-0.2701	-0.3807	0.7800	-0.2142	-0.3770
2	0.3034	-0.2056	-0.6396	0.6587	-0.4273	-0.0741
3	0.5982	-0.0536	-0.7046	0.3648	-0.4353	-0.3243
4	0.2617	0.5231	-0.6319	0.4465	-0.0806	-0.2635
5	0.2723	0.2881	-0.3385	0.1010	0.3505	-0.1404
6	0.5036	0.6575	-0.4283	0.0788	0.5847	-0.5058
7	0.1400	0.4128	-0.3393	0.1738	0.6956	-0.3153
8	0.5708	0.4834	-0.1317	0.1714	0.5682	-0.5995
9	0.1444	0.2517	0.2700	-0.2237	0.5590	-0.1301
10	0.2612	0.3694	-0.4947	0.1869	0.4406	-0.3472
11	0.4776	-0.1691	-0.6479	0.5884	-0.4792	-0.1494
12	0.4905	0.1893	-0.6557	0.8531	-0.2703	-0.3629

Note: The figures presented above are the orthogonal responses of presidential and prime ministerial popularity to a one standard deviation increase in unemployment (U), inflation (P), or interest rates (I).

Table 49. Impulse Response Functions. Trend Terms for Presidential and Prime Ministerial Administrations.

Period	President U	President P	President I	Premier U	Premier P	Premier I
President -- Trends						
1	0.1279	-0.4114	0.1222	0.3599	-0.9326	-0.0115
2	0.2831	-0.7678	-0.0121	0.4519	-1.1058	0.4630
3	0.6355	-0.7003	-0.4885	0.3647	-0.8911	-0.2660
4	0.3277	-0.1977	-0.5629	0.2462	-0.7445	-0.3665
5	0.2734	-0.3182	-0.7600	-0.1844	-0.1668	-0.2975
6	0.4311	0.1709	-1.1435	-0.0699	0.0398	-0.7823
7	0.4310	0.2941	-0.9100	-0.0720	0.4267	-0.4914
8	0.8405	0.3100	-0.7332	-0.0965	0.4276	-0.6058
9	0.5627	0.2293	-0.3283	-0.4049	0.3929	-0.1107
10	0.3056	0.0045	-0.8202	-0.4366	0.3746	-0.3262
11	0.4943	-0.5372	-1.1559	0.0275	-0.3861	-0.3197
12	0.3727	-0.3422	-1.0505	0.2334	-0.5207	-0.3493
Premier -- Trends						
1	-0.1334	-0.5985	-0.0411	-0.4563	-0.6239	-0.2422
2	-0.2711	-0.4414	-0.2500	-0.2931	-0.6451	0.1117
3	0.0485	-0.3041	-0.6173	-0.1122	-0.7798	-0.3313
4	-0.7102	0.6094	-0.8025	-0.3925	-0.0545	-0.1307
5	-0.6279	0.3474	-0.7294	-0.2833	0.2373	-0.2881
6	-0.2111	0.4558	-0.8102	-0.3267	0.3023	-0.7452
7	-0.5936	-0.0166	-0.4052	-0.4675	0.4164	-0.0866
8	0.0345	-0.0858	0.1082	0.2920	0.4239	-0.4076
9	-0.2155	-0.3737	0.4963	-0.5781	0.5607	-0.2589
10	-0.4459	-0.5545	0.0332	-0.2585	0.1963	-0.2504
11	-0.0613	-0.7692	-0.0177	0.6753	-0.6067	0.0963
12	0.0912	-0.1839	-0.1857	0.5774	-0.2747	-0.0316

Note: The figures presented above are the orthogonal responses of presidential and prime ministerial popularity to a one standard deviation increase in unemployment (U), inflation (P), or interest rates (I).

Table 50. Transfer Function Estimates. Zero Order Transfer Function of Differenced Unemployment Series at Lag t-9.

	Parameter	Estimate	SE
President			
	Constant	50.0101	11.17
	AR(1)	0.9087	19.52
	Omega(0)	-35.6478	3.19
Premier			
	Constant	42.5469	15.51
	AR(1)	0.8028	11.94
	Omega(0)	-46.6812	3.10

Table 51. Theoretical Specifications for Almon Polynomial Distributed Lagged Response Model.

(Eq. 1a) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta L + \beta T + \epsilon$$

(Eq. 1b) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta PM_1 + \beta T + \epsilon$$

(Eq. 1c) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta PM_2 + \epsilon$$

Note:

Y	--	Percentage of respondents satisfied with German chancellor.
U_i	--	Vector of lagged unemployment measured in thousands (logged). Lags included for t-1 to t-i.
P_i	--	Vector of lagged inflation rate. Lags included for t-1 to t-i.
I_i	--	Vector of lagged interest rate. Lags included for t-1 to t-i.
L	--	Dummy variable for leftist chancellor (1 = leftist chancellor).
PM_1	--	Vector of dummy variables for separate chancellor administrations.
PM_2	--	Vector of trend terms for separate chancellor administrations.
T	--	Term counter variable for chancellor administrations.

Table 52. Almon Polynomial Distributed Lagged Response Model for Chancellor Approval. Dummy Control for Ideological Identification.

Lag	Akaike	Schwartz	U	P	I
2	33.4872	44.0060	6.8385	-1.8102	-0.3526
			[0.2844]	[0.0724]	[0.5591]
3	36.5300	49.9860	-0.8386	-1.6394	-0.9921
			[0.8738]	[0.4560]	[0.1553]
4	32.2644	45.6953	-6.6164	0.8089	-2.3976
			[0.1831]	[0.8192]	[0.0024]
5	38.3957	56.0163	-6.2249	-3.1392	-2.0213
			[0.2043]	[0.4750]	[0.0231]
6	41.0663	61.4811	-8.8140	-4.7937	-1.7707
			[0.0702]	[0.3141]	[0.0714]
7	42.6948	65.3883	-7.7045	-8.3721	-1.4816
			[0.0819]	[0.1043]	[0.1391]
8	44.0922	68.9021	-7.4647	-10.8483	-1.0647
			[0.0696]	[0.0655]	[0.3049]
9	47.4051	75.4230	-6.1924	-11.6795	-1.0732
			[0.1018]	[0.0725]	[0.3138]
10	48.4885	78.4024	-5.9333	-14.1985	-1.1784
			[0.0801]	[0.0337]	[0.2765]
11	49.5520	81.2991	-6.3636	-19.6078	-0.9168
			[0.0370]	[0.0053]	[0.3942]
12	49.8597	82.8943	-6.9765	-25.5435	-0.4487
			[0.0133]	[0.0007]	[0.6889]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 53. Almon Polynomial Distributed Lagged Response Model for Chancellor Approval. Dummy Control for Chancellor Administrations.

Lag	Akaike	Schwartz	U	P	I
2	22.5083	31.5383	9.5524	-1.4620	-0.2451
			[0.0655]	[0.0596]	[0.6059]
3	22.9544	33.2404	9.7530	-1.2803	-0.5522
			[0.0545]	[0.4930]	[0.3389]
4	23.7978	35.4530	-0.6163	1.7727	-1.8787
			[0.8735]	[0.5270]	[0.0021]
5	27.5619	42.0870	-1.4282	1.1815	-1.8271
			[0.7151]	[0.7542]	[0.0086]
6	29.0342	45.3071	-3.4615	-2.0478	-1.4305
			[0.3837]	[0.6187]	[0.0662]
7	31.0702	49.4246	-2.8033	-5.6671	-1.2342
			[0.4728]	[0.2312]	[0.1601]
8	30.8551	49.9309	0.4896	-7.7619	0.2180
			[0.9336]	[0.3230]	[0.8795]
9	34.2288	56.2489	0.8345	-5.2258	-0.0079
			[0.8944]	[0.5802]	[0.9962]
10	34.0340	56.7108	-2.8179	-10.3077	-1.3258
			[0.3844]	[0.1007]	[0.1860]
11	37.2053	62.7814	-0.3839	-7.2488	-1.7168
			[0.9137]	[0.3565]	[0.1643]
12	36.2705	61.9110	1.1981	-8.9592	-2.2891
			[0.7046]	[0.2566]	[0.0619]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 54. Almon Polynomial Distributed Lagged Response Model for Chancellor Approval. Trend Terms for Chancellor Administrations.

Lag	Akaike	Schwartz	U	P	I
2	25.0782	34.6106	3.1002	-1.6911	-0.4098
			[0.5727]	[0.0521]	[0.4301]
3	26.2933	37.5669	1.1264	-1.6903	-0.7646
			[0.8077]	[0.3826]	[0.2004]
4	25.0820	36.9185	-5.8969	1.8909	-2.2123
			[0.1527]	[0.5342]	[0.0010]
5	28.4006	42.8973	-6.1971	2.0061	-2.2772
			[0.1424]	[0.6253]	[0.0038]
6	30.0439	46.4190	-8.9135	-1.7952	-1.8808
			[0.0234]	[0.6717]	[0.0160]
7	32.2567	50.8462	-7.3693	-5.6079	-1.4386
			[0.0485]	[0.2566]	[0.1016]
8	33.3428	53.5041	-7.6026	-6.1808	-1.0683
			[0.0368]	[0.2742]	[0.2593]
9	36.6326	59.7309	-6.7226	-6.6782	-0.1238
			[0.0612]	[0.2678]	[0.2142]
10	36.3486	60.1286	-6.1368	-9.4976	-1.5730
			[0.0455]	[0.1043]	[0.1007]
11	38.4063	64.3683	-4.9880	-11.5915	-1.5003
			[0.0680]	[0.0688]	[0.1362]
12	38.1590	64.7194	-4.7132	-13.7509	-1.5410
			[0.0472]	[0.0414]	[0.1424]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 55. Theoretical Specifications for Vector Autoregression Analysis.

(Eq. 2a) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta L + \beta T + \epsilon$$

(Eq. 2b) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta PM_1 + \beta T + \epsilon$$

(Eq. 2c) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta PM_2 + \epsilon$$

Notes:

Y	--	Percentage of respondents satisfied with German chancellor.
U_i	--	Vector of lagged unemployment measured in thousands (logged). Lags included for t-1 to t-i.
P_i	--	Vector of lagged inflation rate. Lags included for t-1 to t-i.
I_i	--	Vector of lagged interest rate. Lags included for t-1 to t-i.
L	--	Dummy variable for leftist chancellor (1 = leftist chancellor).
PM_1	--	Vector of dummy variables for separate chancellor administrations.
PM_2	--	Vector of trend terms for separate chancellor administrations.
T	--	Term counter variable for chancellor administrations.

Table 56. Vector Autoregression Analysis. Dummy Control for Ideological Identification.

Lag	U	P	I
Ideological Identification			
3	0.0043	0.9548	0.3537
4	0.0037	0.1443	0.5609
5	0.0337	0.0052	0.7730
6	0.0981	0.0100	0.7325
7	0.1169	0.0142	0.4975
8	0.0031	0.0580	0.1372
9	0.0028	0.2610	0.2240
10	0.0323	0.0501	0.3727
11	0.0894	0.0742	0.6256
12	0.0424	0.0564	0.3745
Dummy Variables for Chancellors			
3	0.0070	0.8451	0.2328
4	0.0125	0.0283	0.4131
5	0.0131	0.0045	0.5735
6	0.1239	0.0074	0.1836
7	0.0606	0.0082	0.2059
8	0.0007	0.0509	0.0669
9	0.0002	0.1929	0.0475
10	0.0136	0.0237	0.0122
11	0.0027	0.1013	0.0048
12	0.0128	0.1207	0.0009
Trend Terms for Chancellors			
3	0.0412	0.9391	0.1242
4	0.0291	0.0336	0.2270
5	0.2109	0.0039	0.3240
6	0.5510	0.0077	0.0367
7	0.6242	0.0092	0.0745
8	0.0518	0.0378	0.0760
9	0.0347	0.1508	0.1304
10	0.0676	0.0132	0.1593
11	0.0770	0.0282	0.3131
12	0.1653	0.0601	0.1397

Table 57. Dickey-Fuller Tests for Nonstationarity.

Variable	Dickey-Fuller
PopPM	-21.7315
U	0.2556
P	-60.2158
I	-7.6483

Note: PopPM -- Prime Ministerial Popularity Series.
U -- Unemployment Series (Logged).
P -- Inflation Series.
I -- Interest Rate Series.

Table 58. Univariate ARIMA Estimates.

Variable	Parameter	Estimate	SE
PopPM	Constant	48.0942	21.98
	AR(1)	0.7214	9.22
U	Constant	0.0333	1.04
	AR(1)	0.6513	7.53
P	Constant	1.0887	6.63
	AR(1)$_{t-4}$	0.6219	7.27
I	Constant	4.8879	5.36
	AR(1)	0.3766	3.16
	MA(1)	0.7600	10.96
	MA(2)	0.8503	12.03
	MA(1)$_{t-3}$	0.8253	7.21
	MA(2)$_{t-3}$	0.4961	4.28

Note: PopPM -- Prime Ministerial Popularity Series.
U -- Unemployment Series (Logged).
P -- Inflation Series.
I -- Interest Rate Series.

Table 59. Cross Correlation Function Estimates.

Lag	U	SE	P	SE	I	SE
-20	-0.0087	0.07	0.0475	0.37	-0.1841	1.44
-19	-0.0457	0.36	0.0043	0.03	-0.0065	0.05
-18	-0.0711	0.56	0.0305	0.24	0.3001	2.38
-17	0.0613	0.49	0.1034	0.83	-0.1599	1.27
-16	-0.0054	0.04	0.1033	0.83	0.0206	0.17
-15	-0.0559	0.45	0.1258	1.02	-0.0141	0.11
-14	0.0339	0.28	0.0306	0.25	-0.1504	1.23
-13	0.1205	0.99	-0.0255	0.21	-0.0181	0.15
-12	0.0896	0.74	0.1014	0.84	-0.1894	1.57
-11	-0.0067	0.06	0.0696	0.58	0.2286	1.91
-10	0.0732	0.62	0.1227	1.03	0.2426	2.04
-9	-0.0884	0.75	0.2048	1.74	-0.0993	0.84
-8	-0.1062	0.91	-0.0292	0.25	-0.0510	0.44
-7	0.0595	0.51	0.1324	1.14	0.0234	0.20
-6	-0.0740	0.64	0.0687	0.59	0.1842	1.60
-5	-0.0935	0.82	-0.0085	0.07	0.0207	0.18
-4	-0.0460	0.40	0.3384	1.97	0.0929	0.82
-3	-0.1246	1.10	0.2053	1.81	0.1552	1.37
-2	-0.1965	1.75	0.1374	1.22	0.0554	0.49
-1	-0.2035	1.82	0.1042	0.93	0.0257	0.23
0	0.1962	1.77	-0.0738	0.66	-0.1427	1.28
1	-0.0185	0.17	-0.1213	1.09	-0.1217	1.09
2	0.1389	1.23	-0.2356	2.09	-0.0468	0.42
3	0.4230	3.73	-0.1686	1.48	-0.1037	0.92
4	-0.2278	2.00	-0.2167	1.90	-0.0731	0.64
5	-0.0990	0.87	-0.2656	2.32	-0.1195	1.04
6	0.2403	2.08	-0.1122	0.97	-0.0801	0.69
7	0.0430	0.37	-0.0794	0.68	0.0200	0.17
8	0.0043	0.04	-0.0390	0.33	0.1479	1.26
9	-0.0978	0.83	-0.1288	1.09	-0.0519	0.44
10	0.0066	0.06	-0.1307	1.10	-0.0677	0.57
11	0.0056	0.05	-0.0797	0.67	-0.0424	0.36
12	-0.1114	0.93	-0.1675	1.39	0.1322	1.10
13	0.0949	0.78	-0.0456	0.38	0.1113	0.92
14	-0.0149	0.12	-0.0633	0.52	-0.1238	1.01
15	-0.1669	1.36	-0.0962	0.78	-0.1464	1.19
16	-0.0075	0.06	-0.0408	0.33	-0.0409	0.33
17	-0.0227	0.18	-0.0822	0.66	-0.0163	0.13
18	0.0955	0.76	-0.0382	0.30	-0.1199	0.95
19	0.0826	0.65	0.0494	0.39	-0.0210	0.17
20	-0.0056	0.04	0.0760	0.59	0.0548	0.43

Table 60. Almon Polynomial Distributed Lagged Response Model. Chancellor Popularity. Dummy Controls for Ideological Identification.

	Chancellor (a)	SE	Chancellor (b)	SE	Chancellor (c)	SE
Intercept	49.0984	3.38	20.2984	0.97	46.3388	3.29
U	8.4851	1.25	5.5339	0.96	8.2456	1.22
U(t-1)	-13.6360	1.60	-11.3769	1.69	-12.0199	1.41
U(t-2)	6.8385	1.08	9.9661	1.85	5.3324	0.83
P	-1.4161	1.32	-1.3262	1.52	-1.4118	1.30
P(t-1)	-1.2147	1.38	-1.1892	1.66	-1.3342	1.49
P(t-2)	-1.8102	1.83	-1.5887	1.94	-1.9792	1.97
I	-0.1841	0.30	0.2255	0.44	0.0043	0.01
I(t-1)	-0.3949	0.63	-0.1769	0.34	-0.3575	0.56
I(t-2)	-0.3526	0.59	-0.3583	0.71	-0.3929	0.65
TermPM	-0.0159	0.64	-0.0111	0.45		
Leftist	-1.0997	0.31				
Kiesinger			26.6497	5.51	0.2491	1.49
Brandt			14.4794	2.81	0.0407	0.37
Schmidt			10.9419	2.60	0.1564	0.94
Kohl			1.3347	0.25	0.1031	0.11
Rho	0.7123	6.83	0.8411	10.84	0.6779	5.92
R-Square	0.5933		0.7221		0.6069	
Adj. R2	0.5205		0.6570		0.5222	
SEE	5.4258		4.5892		5.4159	

Note:
- U -- Unemployment Series (Logged).
- P -- Inflation Series.
- I -- Interest Rate Series.
- Kiesinger -- Dummy Variable (column b) or Trend Term (column c) for Kiesinger Administration.
- Brandt -- Dummy Variable (column b) or Trend Term (column c) for Brandt Administration.
- Schmidt -- Dummy Variable (column b) or Trend Term (column c) for Schmidt Administration.
- Kohl -- Dummy Variable (column b) or Trend Term (column c) for Kohl Administration.
- TermPM -- Term Counter for Chancellor Administrations.
- Leftist -- Left/Right Ideological Identification of Chancellor's Party.

Table 61. Almon Polynomial Distributed Lagged Response Model. Chancellor Popularity. Dummy Controls for Chancellor Administrations.

	Chancellor (a)	SE	Chancellor (b)	SE	Chancellor (c)	SE
Intercept	53.6887	4.15	30.8373	2.10	51.6663	4.56
U	3.8423	0.84	1.3184	0.32	3.8874	0.88
U(t-1)	4.1061	2.43	2.9743	1.95	4.4481	2.82
U(t-2)	3.1055	1.00	3.1614	1.15	3.4810	1.15
U(t-3)	0.8406	0.27	1.8798	0.69	0.9863	0.33
U(t-4)	-2.6887	1.68	-0.8705	0.57	-3.0362	1.97
U(t-5)	-7.4823	1.62	-5.0896	1.21	-8.5864	1.91
						0.04
P	-0.2573	0.22	-0.4559	0.45	-0.0464	0.35
P(t-1)	-0.4498	0.38	-0.3149	0.29	-0.4220	0.51
P(t-2)	-0.6131	0.45	-0.2483	0.19	-0.7117	0.65
P(t-3)	-0.7471	0.54	-0.2560	0.19	-0.9153	0.87
P(t-4)	-0.8518	0.72	-0.3382	0.30	-1.0328	0.96
P(t-5)	-0.9272	0.84	-0.4949	0.50	-1.0644	
						0.96
I	0.1961	0.37	0.4039	0.85	0.5032	0.36
I(t-1)	-0.2076	0.85	-0.0828	0.36	-0.0794	1.54
I(t-2)	-0.4690	1.52	-0.3975	1.43	-0.4559	1.98
I(t-3)	-0.5881	1.83	-0.5401	1.88	-0.6263	2.32
I(t-4)	-0.5649	2.17	-0.5107	2.14	-0.5905	0.72
I(t-5)	-0.3993	0.82	-0.3093	0.70	-0.3487	
TermPM	-0.0146	0.63	0.0101	0.43		
Leftist	-1.2684	0.38				
						2.31
Kiesinger			19.7824	4.65	0.3540	0.10
Brandt			8.6785	2.01	0.0106	0.74
Schmidt			7.7697	1.91	0.1203	0.66
Kohl			3.1740	0.62	0.5935	
						4.95
Rho	0.6616	6.30	0.6814	6.18	0.5793	
R-Square	0.6107		0.7124		0.6360	
Adj. R2	0.5410		0.6450		0.5577	
SEE	5.3085		4.6687		5.2114	

Table 62. Impulse Response Functions for Chancellor Popularity.

Period	U	P	I
Ideological Identification			
1	0.0982	-0.0186	-0.3331
2	0.1263	0.5211	-0.3726
3	1.1118	0.1182	-0.2873
4	2.2981	0.2096	-0.9255
5	0.4773	-0.0235	-1.3051
6	0.0133	-0.4614	-0.7884
7	0.1243	-0.0801	-0.7718
8	-0.4780	0.2370	-0.9913
9	-0.0854	-0.0305	-0.6952
10	-0.1001	-0.4943	-0.6331
11	-0.2875	-0.3713	-0.5310
12	-0.2444	0.0561	-0.1753
Administration Dummy Variables			
1	0.1618	0.2242	-0.3370
2	0.0656	0.6634	-0.3126
3	0.6668	-0.0076	-0.3111
4	1.4091	0.0531	-0.9570
5	-0.0862	-0.2315	-1.1462
6	-0.4156	-0.7322	-0.7812
7	-0.3625	-0.2727	-0.9195
8	-0.7959	-0.1009	-1.2433
9	-0.3913	-0.3440	-0.6761
10	-0.2889	-0.6376	-0.4487
11	-0.2404	-0.3689	-0.1896
12	-0.0499	0.1527	-0.4765
Administration Trend Terms			
1	0.0733	0.1515	-0.3426
2	0.1272	0.7189	-0.2704
3	0.9656	0.2718	-0.1522
4	1.9670	0.5740	-0.8217
5	0.3146	0.4967	-1.1962
6	-0.1740	-0.0490	-0.6490
7	-0.0971	0.2226	-0.9249
8	-0.6335	0.2649	-1.5432
9	-0.3172	-0.3193	-1.1448
10	-0.3421	-0.9603	-1.0068
11	-0.5440	-0.8849	-0.6648
12	-0.5533	-0.5502	0.0981

Table 63. Transfer Function Estimates. Zero Order Transfer Function of Inflation.

Parameter	Estimate	SE
Constant	55.8093	14.72
AR(1)	0.6582	2.09
$Omega(0)_{t-2}$	-2.0498	1.26
$Omega(0)_{t-3}$	-1.3241	1.85
$Omega(0)_{t-4}$	-1.9357	2.10
$Omega(0)_{t-5}$	-2.0425	7.71

Table 64. Theoretical Specifications for Almon Polynomial Distributed Lagged Response Model.

(Eq. 1a) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta L + \beta T + \epsilon$$

(Eq. 1b) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta PM_1 + \beta T + \epsilon$$

(Eq. 1c) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta PM_2 + \epsilon$$

Note:

Y	--	Percentage of respondents satisfied with British prime minister.
U_i	--	Vector of lagged unemployment measured in thousands (logged). Lags included for t-1 to t-i.
P_i	--	Vector of lagged inflation rate. Lags included for t-1 to t-i.
I_i	--	Vector of lagged interest rate. Lags included for t-1 to t-i.
L	--	Dummy variable for leftist prime minister (1 = leftist prime minister).
PM_1	--	Vector of dummy variables for separate prime minister administrations.
PM_2	--	Vector of trend terms for separate prime minister administrations.
T	--	Term counter variable for prime minister administrations.

Table 65. Almon Polynomial Distributed Lagged Response Model for Prime Minister Approval. Dummy Control for Ideological Identification.

Lag	Akaike	Schwartz	U	P	I
2	19.8232	25.8422	-1.4954	0.2172	-0.2671
			[0.8970]	[0.5478]	[0.5078]
3	19.8606	26.9593	-0.0734	-0.3964	0.7160
			[0.9925]	[0.5703]	[0.1479]
4	20.6309	28.9927	-0.2328	-0.1834	-0.1415
			[0.9749]	[0.8454]	[0.8111]
5	21.2312	30.7467	0.9519	-0.2033	-0.4638
			[0.8917]	[0.8505]	[0.4837]
6	21.2225	31.5538	0.8690	0.2440	-0.7998
			[0.8911]	[0.8338]	[0.2593]
7	20.5472	31.2685	2.2408	-0.3012	-0.6763
			[0.6934]	[0.8039]	[0.3629]
8	21.8123	33.8878	5.5332	-0.7008	-0.2514
			[0.2855]	[0.5890]	[0.7516]
9	22.9281	36.2879	10.2181	-1.3732	0.2300
			[0.0343]	[0.3248]	[0.7905]
10	24.4910	39.4148	11.3610	-1.2281	0.4171
			[0.0156]	[0.4107]	[0.6691]
11	23.9957	39.2066	14.3206	-2.0710	1.5323
			[0.0007]	[0.1431]	[0.1290]
12	25.6471	42.4865	12.3327	-2.1951	1.9598
			[0.0031]	[0.1524]	[0.0882]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 66. Almon Polynomial Distributed Lagged Response Model for Prime Minister Approval. Dummy Control for Prime Minister Administrations.

Lag	Akaike	Schwartz	U	P	I
2	15.6576	21.4220	-5.5030	-0.1445	-0.5598
			[0.6365]	[0.6673]	[0.1501]
3	15.5117	21.9765	-9.3549	-1.5268	0.3172
			[0.2146]	[0.0232]	[0.4905]
4	15.8170	23.0958	-10.3945	-1.1379	-0.6444
			[0.1546]	[0.1805]	[0.2263]
5	16.8363	25.2408	-8.9396	-1.0667	-0.9643
			[0.2378]	[0.2900]	[0.1128]
6	18.2114	27.9439	-6.1714	-0.2347	-1.2391
			[0.4328]	[0.8446]	[0.0678]
7	19.2828	30.2043	-2.9753	-0.3971	-1.0161
			[0.7134]	[0.7844]	[0.1838]
8	20.7146	33.0510	-0.1127	-0.1189	-0.7402
			[0.9892]	[0.9445]	[0.3690]
9	21.6021	35.0435	0.3657	-1.0646	-0.2616
			[0.9671]	[0.5761]	[0.7631]
10	22.8515	37.6308	-2.5393	-1.4755	-0.2548
			[0.7931]	[0.4681]	[0.7929]
11	21.3914	35.7101	-5.2655	-2.9551	0.5618
			[0.5890]	[0.1371]	[0.5773]
12	23.8206	40.2637	-13.1739	-3.9884	1.0320
			[0.2507]	[0.0718]	[0.3935]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 67. Almon Polynomial Distributed Lagged Response Model for Prime Minister Approval. Trend Terms for Prime Minister Administrations.

Lag	Akaike	Schwartz	U	P	I
2	19.1505	25.7972	-3.8842	-0.3872	-0.3552
			[0.7248]	[0.2613]	[0.3733]
3	18.9278	26.4492	-6.9287	-0.8508	0.7253
			[0.4007]	[0.2817]	[0.1541]
4	21.0093	30.3002	0.0427	0.5619	-0.4203
			[0.9957]	[0.5781]	[0.5014]
5	21.7437	32.2346	2.7347	1.5828	-0.9616
			[0.7165]	[0.1751]	[0.1775]
6	20.8989	2.6678	4.9759	2.6678	-1.4585
			[0.4638]	[0.0253]	[0.0472]
7	20.7196	32.1517	6.3174	2.9589	-1.5164
			[0.3078]	[0.0241]	[0.0509]
8	21.2380	33.5937	10.5814	3.6665	-1.1198
			[0.0547]	[0.0090]	[0.1493]
9	22.3122	35.9056	14.3198	3.7650	-0.4810
			[0.0046]	[0.0088]	[0.5432]
10	23.5621	38.5113	13.8253	4.0128	-0.3214
			[0.0049]	[0.0056]	[0.7113]
11	23.7711	39.4053	16.0055	3.5048	0.5851
			[0.0013]	[0.0156]	[0.5395]
12	25.2794	42.4489	11.2795	3.9973	0.8243
			[0.0257]	[0.0081]	[0.4358]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 68. Theoretical Specifications for Vector Autoregression Analysis.

(Eq. 2a) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta L + \beta T + \epsilon$$

(Eq. 2b) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta PM_1 + \beta T + \epsilon$$

(Eq. 2c) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta PM_2 + \epsilon$$

Notes:

Y	--	Percentage of respondents satisfied with British prime minister.
U_i	--	Vector of lagged unemployment measured in thousands (logged). Lags included for $\underline{t-1}$ to $\underline{t-i}$.
P_i	--	Vector of lagged inflation rate. Lags included for $\underline{t-1}$ to $\underline{t-i}$.
I_i	--	Vector of lagged interest rate. Lags included for $\underline{t-1}$ to $\underline{t-i}$.
L	--	Dummy variable for leftist prime minister (1 = leftist prime minister).
PM_1	--	Vector of dummy variables for separate prime minister administrations.
PM_2	--	Vector of trend terms for separate prime minister administrations.
T	--	Term counter variable for prime minister administrations.

Table 69. Vector Autoregression Analysis. Dummy Control for Ideological Identification.

Lag	U	P	I
Ideological Identification			
3	0.9524	0.1328	0.3107
4	0.8582	0.1340	0.4549
5	0.7352	0.0357	0.3366
6	0.8670	0.0062	0.3078
7	0.9327	0.0059	0.3278
8	0.9342	0.0080	0.4662
9	0.1535	0.0120	0.4221
10	0.4415	0.0116	0.4335
11	0.3438	0.0255	0.8726
12	0.3967	0.0332	0.8261
Dummy Variables for Prime Ministers			
3	0.9510	0.0093	0.5606
4	0.7413	0.0289	0.4394
5	0.6274	0.0356	0.6295
6	0.8177	0.0100	0.3620
7	0.9077	0.0070	0.4523
8	0.9185	0.0182	0.3850
9	0.1636	0.0258	0.2795
10	0.3694	0.0241	0.3781
11	0.3390	0.0575	0.7026
12	0.3440	0.0873	0.7074
Trend Terms for Prime Ministers			
3	0.9079	0.0461	0.3606
4	0.8807	0.0969	0.4787
5	0.7805	0.0195	0.4010
6	0.8848	0.0040	0.3717
7	0.9499	0.0059	0.4798
8	0.9446	0.0084	0.5834
9	0.1167	0.0111	0.5701
10	0.3247	0.0106	0.5006
11	0.3174	0.0222	0.9091
12	0.3403	0.0369	0.8152

Table 70. Dickey-Fuller Tests for Nonstationarity.

Variable	Dickey-Fuller
PopPM	-23.6904
U	-36.2847
P	-1.2317
I	-8.5803

Note: PopPM -- Prime Ministerial Popularity Series.
U -- Unemployment Series (Logged).
P -- Inflation Series.
I -- Interest Rate Series.

Table 71. Univariate ARIMA Estimates.

Variable	Parameter	Estimate	SE
PopPM	Constant	38.7631	23.84
	AR(1)	0.7180	9.89
U	Constant	0.0306	1.11
	AR(1)	0.3374	9.98
P	Constant	2.4151	4.09
	AR(1)	0.5192	5.34
	AR(1)t-4	0.5088	5.18
I	Constant	9.2976	6.74
	AR(1)	0.8979	19.44

Note: PopPM -- Prime Ministerial Popularity Series.
U -- Unemployment Series (Logged).
P -- Inflation Series.
I -- Interest Rate Series.

Table 72. Cross Correlation Function Estimates.

Lag	U	SE	P	SE	I	SE
-20	0.0310	0.25	0.1747	1.43	-0.0903	0.74
-19	-0.0087	0.07	-0.0074	0.06	-0.0315	0.26
-18	-0.0045	0.04	0.0910	0.76	0.1578	1.31
-17	0.0760	0.64	-0.0124	0.10	0.0572	0.48
-16	-0.1482	1.25	-0.0115	0.10	0.0038	0.03
-15	-0.0439	0.37	-0.0471	0.40	0.0904	0.77
-14	-0.0843	0.72	-0.0605	0.52	-0.0983	0.84
-13	0.0741	0.64	-0.1608	1.38	-0.2394	2.06
-12	-0.0858	0.74	0.1351	1.17	-0.1767	1.53
-11	0.0588	0.51	0.0559	0.49	0.0143	0.12
-10	-0.0458	0.40	0.1531	1.34	0.1919	1.68
-9	0.0185	0.16	-0.1374	1.21	0.2399	2.12
-8	0.0373	0.33	-0.0760	0.68	-0.0415	0.37
-7	-0.0149	0.13	-0.1287	1.15	-0.0221	0.20
-6	0.1166	1.05	0.0340	0.31	0.0279	0.25
-5	0.0574	0.52	0.0650	0.59	0.1744	1.58
-4	0.1432	1.30	0.3682	3.35	-0.0649	0.59
-3	0.0424	0.39	0.2798	2.56	0.0415	0.38
-2	-0.0974	0.90	-0.0454	0.42	-0.0175	0.16
-1	-0.1638	1.52	-0.0956	0.89	0.1572	1.46
0	0.0741	0.69	-0.0294	0.27	-0.1920	1.79
1	0.0537	0.50	-0.0225	0.21	-0.1286	1.19
2	-0.0676	0.62	0.0860	0.79	-0.1107	1.02
3	-0.2378	2.18	0.0035	0.03	0.2270	2.08
4	-0.0796	0.73	0.0503	0.46	-0.1719	1.57
5	-0.1941	1.76	0.0586	0.53	-0.0660	0.60
6	-0.1519	1.37	-0.0385	0.35	-0.0784	0.71
7	0.0529	0.47	-0.1439	1.29	0.0681	0.61
8	0.0215	0.19	-0.1374	1.22	-0.0021	0.02
9	0.0829	0.73	-0.0770	0.68	-0.0931	0.82
10	0.1450	1.27	-0.0086	0.08	-0.0717	0.63
11	0.0277	0.24	-0.0417	0.36	0.0475	0.41
12	0.2001	1.73	0.1805	1.56	0.0210	0.18
13	-0.0181	0.16	0.0745	0.64	-0.0121	0.10
14	-0.0429	0.37	0.1675	1.43	0.0346	0.30
15	0.1166	0.99	0.0244	0.21	0.0420	0.36
16	-0.0470	0.40	0.1230	1.04	0.0602	0.51
17	-0.0228	0.19	-0.1557	1.30	0.0830	0.69
18	-0.0613	0.51	0.0567	0.47	-0.0771	0.64
19	-0.8910	0.73	-0.2117	1.75	0.0162	0.13
20	-0.0912	0.75	-0.0178	0.15	-0.0303	0.25

Table 73. Almon Polynomial Distributed Lagged Response Model. Prime Minister Popularity. Dummy Controls for Ideological Identification.

	PM	SE	PM	SE	PM	SE
Intercept	24.9518	0.88	163.1235	4.72	155.7941	2.83
U	6.7387	0.66	-3.5909	-0.39	-9.0750	0.83
U(t-1)	-3.6028	-0.44	-6.0101	-0.81	0.2818	0.04
U(t-2)	-4.4052	-0.52	-5.9486	-0.78	0.7480	0.09
U(t-3)	4.3318	0.45	-3.4063	-0.36	-7.6766	0.79
P	-0.2226	-0.55	-0.8420	-2.24	-0.2858	0.70
P(t-1)	-0.1677	-0.44	-0.7903	-2.26	-0.2712	0.69
P(t-2)	-0.1692	-0.45	-0.7640	-2.18	-0.3446	0.85
P(t-3)	-0.2272	-0.58	-0.7629	-2.01	-0.5062	1.15
I	-0.4644	-1.26	-0.6813	-2.01	-0.5240	1.48
I(t-1)	-0.5222	-1.91	-0.6463	-2.58	-0.6145	2.29
I(t-2)	-0.0966	-0.35	-0.2351	-0.92	-0.1486	0.54
I(t-3)	0.8126	2.16	0.5523	1.55	0.8739	2.35
TermPM	-0.1354	-2.16	0.0484	0.72		
Leftist	5.3071	1.65				
Heath			9.8163	2.15	-0.4213	3.55
Wilson			32.6463	5.09	0.2158	0.99
Callaghan			28.8391	3.80	-0.0627	0.45
Thatcher			37.0488	3.78	0.1876	1.29
Rho	0.8080	10.33	0.6256	5.99	0.9045	16.77
R-Square	0.6297		0.7305		0.7305	
Adj. R2	0.5688		0.6728		0.6728	
SEE	4.0722		3.5475		3.5475	

Note:
- U -- Unemployment Series (Logged).
- P -- Inflation Series.
- I -- Interest Rate Series.
- Heath -- Dummy Variable (column b) or Trend Term (column c) for Heath Administration.
- Wilson -- Dummy Variable (column b) or Trend Term (column c) for Wilson Administration.
- Callaghan -- Dummy Variable (column b) or Trend Term (column c) for Callaghan Administration.
- Thatcher -- Dummy Variable (column b) or Trend Term (column c) for Thatcher Administration.
- TermPM -- Term Counter for Prime Minister Administrations.
- Leftist -- Left/Right Ideological Identification of Prime Minister's Party.

Table 74. Impulse Response Functions for Prime Minister Popularity.

Period	U	P	I
Ideological Identification			
1	0.6505	0.4423	-0.8718
2	0.9400	0.3865	-1.2128
3	0.0516	0.4526	-1.2833
4	-0.5002	0.0656	-0.7478
5	-0.6425	-0.1078	-0.3251
6	-0.5023	-0.1579	-0.1073
7	-0.3300	-0.1636	-0.1015
8	-0.1758	-0.1770	-0.1578
9	-0.0256	-0.1920	-0.2029
10	0.1144	-0.1859	-0.2196
11	0.2122	-0.1557	-0.2067
12	0.2487	-0.1129	-0.1642
Administration Dummy Variables			
1	0.3240	-0.4418	-1.0709
2	0.3333	-0.8973	-1.4127
3	-0.1514	-0.8134	-1.4135
4	-0.4032	-0.9312	-0.9071
5	-0.3273	-0.4237	-0.5248
6	-0.2664	-0.0918	-0.0531
7	-0.2083	0.1364	0.1902
8	-0.1411	0.1664	0.3483
9	-0.0363	0.1800	0.3184
10	0.0559	0.1732	0.2269
11	0.1050	0.1348	0.1091
12	0.1202	0.0629	0.0240
Administration Trend Terms			
1	0.3240	-0.4418	-1.0709
2	0.3333	-0.8973	-1.4173
3	-0.1514	-0.8134	-1.4135
4	-0.4032	-0.9312	-0.9071
5	-0.3273	-0.4237	-0.5248
6	-0.2664	-0.0918	-0.0531
7	-0.2083	0.1364	0.1902
8	-0.1411	0.1664	0.3483
9	-0.0361	0.1800	0.3184
10	0.0559	0.1732	0.2269
11	0.1050	0.1348	0.1091
12	0.1202	0.0629	0.0240

Table 75. Transfer Function Estimates. Zero Order Transfer Function of Unemployment.

Parameter	Estimate	SE
Constant	39.5735	26.71
AR(1)	0.7737	10.59
$MA(1)_{t-3}$	-0.2639	-2.23
$Omega(0)_{t-3}$	-14.1150	-1.44

Table 76. Theoretical Specifications for Almon Polynomial Distributed Lagged Response Model.

(Eq. 1a) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta L + \beta T + \epsilon$$

(Eq. 1b) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta PM_1 + \beta T + \epsilon$$

(Eq. 1c) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta PM_2 + \epsilon$$

Note:

Y	--	Percentage of respondents satisfied with Danish prime minister.
U_i	--	Vector of lagged unemployment measured in thousands (logged). Lags included for t-1 to t-i.
P_i	--	Vector of lagged inflation rate. Lags included for t-1 to t-i.
I_i	--	Vector of lagged interest rate. Lags included for t-1 to t-i.
L	--	Dummy variable for leftist prime minister (1 = leftist prime minister).
PM_1	--	Vector of dummy variables for separate prime minister administrations.
PM_2	--	Vector of trend terms for separate prime minister administrations.
T	--	Term counter variable for prime minister administrations.

Table 77. Almon Polynomial Distributed Lagged Response Model for Prime Minister Approval. Dummy Control for Ideological Identification.

Lag	Akaike	Schwartz	U	P	I
2	6.1881	8.3651	9.5719	-0.2361	1.5305
			[0.2496]	[0.3996]	[0.0154]
3	6.8621	9.6477	12.2282	-0.4511	0.6439
			[0.0660]	[0.5324]	[0.3323]
4	7.4964	10.8873	3.9008	1.1039	1.3574
			[0.5790]	[0.3638]	[0.0702]
5	8.1878	12.2206	4.9927	2.6575	1.5109
			[0.4953]	[0.1400]	[0.0682]
6	8.5630	13.0819	6.4681	2.0894	1.3269
			[0.3563]	[0.3845]	[0.1661]
7	9.0314	14.0779	-4.0578	1.5626	0.4345
			[0.6599]	[0.6164]	[0.7116]
8	10.7446	17.0448	-6.7170	5.0088	-0.6677
			[0.5339]	[0.2220]	[0.6511]
9	9.8854	15.9257	10.3610	9.1248	-0.5303
			[0.0029]	[0.0037]	[0.6608]
10	12.8895	21.0520	7.6741	8.7624	-0.9860
			[0.0509]	[0.0246]	[0.5355]
11	13.5022	22.3241	7.8246	10.7833	-2.0253
			[0.0616]	[0.0222]	[0.2855]
12	13.1610	22.0005	5.1351	8.4892	-0.8615
			[0.2780]	[0.1414]	[0.7077]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 78. Almon Polynomial Distributed Lagged Response Model for Prime Minister Approval. Dummy Control for Prime Minister Administrations.

Lag	Akaike	Schwartz	U	P	I
2	5.7922	7.9695	8.1606	-0.2119	1.5591
			[0.3051]	[0.4305]	[0.0106]
3	6.7326	9.6109	9.2982	-0.5956	0.5782
			[0.1664]	[0.4063]	[0.3798]
4	7.1090	10.4633	-0.0494	1.0586	1.2461
			[0.9943]	[0.3726]	[0.0902]
5	7.9772	12.0482	-2.5461	2.6195	1.5318
			[0.7608]	[0.1426]	[0.0650]
6	8.5253	13.1634	-0.1587	2.5525	1.4008
			[0.9849]	[0.2951]	[0.1461]
7	9.2203	14.5112	-5.9233	2.6405	0.4269
			[0.5406]	[0.4530]	[0.7178]
8	9.9375	15.9033	-17.3084	7.1788	-0.3866
			[0.1352]	[0.0795]	[0.7857]
9	9.3229	15.1412	8.4848	9.5914	-0.2427
			[0.0112]	[0.0009]	[0.8269]
10	11.6293	19.1357	4.9222	9.6886	-0.5840
			[0.1610]	[0.0042]	[0.6717]
11	10.9705	18.2641	3.7311	12.3570	-1.5050
			[0.2561]	[0.0014]	[0.3210]
12	10.6453	17.9104	3.2927	11.9704	-1.2578
			[0.3397]	[0.0133]	[0.4976]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 79. Almon Polynomial Distributed Lagged Response Model for Prime Minister Approval. Trend Terms for Prime Minister Administrations.

Lag	Akaike	Schwartz	U	P	I
2	6.4775	8.7563	6.0052	-0.2067	1.2829
			[0.4523]	[0.4698]	[0.0352]
3	7.3721	10.3647	6.2913	-0.5145	0.2434
			[0.3049]	[0.4956]	[0.7170]
4	8.2405	11.9680	0.2371	0.5467	0.7488
			[0.9728]	[0.6649]	[0.3291]
5	9.1647	13.6787	1.3733	0.7510	1.1207
			[0.8724]	[0.6731]	[0.1978]
6	9.6342	14.7183	4.6094	0.3931	0.8428
			[0.6032]	[0.8717]	[0.3973]
7	9.9273	15.4743	0.7222	1.2508	-0.1988
			[0.9435]	[0.7234]	[0.8692]
8	10.9312	17.3408	12.3916	9.1949	-1.6245
			[0.0060]	[0.0045]	[0.1677]
9	9.8230	15.8253	10.0119	9.1203	-0.7023
			[0.0024]	[0.0018]	[0.5362]
10	11.8950	19.4277	7.0879	9.6682	-1.0439
			[0.0358]	[0.0041]	[0.4497]
11	11.8721	19.6289	6.2367	11.2480	-1.6919
			[0.0694]	[0.0044]	[0.2969]
12	11.5233	19.2628	3.8266	9.1483	-0.6329
			[0.3383]	[0.0496]	[0.7444]

Note: Numbers inside brackets are the probabilities that the block of lagged variables has an effect different than zero on the dependent variable.

Table 80. Theoretical Specifications for Vector Autoregression Analysis.

(Eq. 2a) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta L + \beta T + \epsilon$$

(Eq. 2b) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta PM_1 + \beta T + \epsilon$$

(Eq. 2c) $$Y = \alpha + \beta Y_{(t-1)} + \beta U_i + \beta P_i + \beta I_i + \beta PM_2 + \epsilon$$

Note:

Y	--	Percentage of respondents satisfied with Danish prime minister.
U_i	--	Vector of lagged unemployment measured in thousands (logged). Lags included for t-1 to t-i.
P_i	--	Vector of lagged inflation rate. Lags included for t-1 to t-i.
I_i	--	Vector of lagged interest rate. Lags included for t-1 to t-i.
L	--	Dummy variable for leftist prime minister (1 = leftist prime minister).
PM_1	--	Vector of dummy variables for separate prime minister administrations.
PM_2	--	Vector of trend terms for separate prime minister administrations.
T	--	Term counter variable for prime minister administrations.

Table 81. Vector Autoregression Analysis. Dummy Control for Ideological Identification.

Lag	U	P	I
Ideological Identification			
3	0.0231	0.2405	0.0357
4	0.0396	0.1863	0.0089
5	0.0041	0.2728	0.0345
6	0.0078	0.2753	0.0880
7	0.0265	0.0862	0.2405
8	0.0215	0.3812	0.0459
9	0.0542	0.4491	0.0239
10	0.2107	0.3511	0.0281
11	0.1603	0.2677	0.0466
12	0.1186	0.4886	0.2641
Dummy Variables for Prime Ministers			
3	0.0172	0.4329	0.0650
4	0.0000	0.2523	0.0321
5	0.0000	0.0383	0.0436
6	0.0000	0.0950	0.0561
7	0.0000	0.1001	0.0276
8	0.0002	0.0651	0.0461
9	0.0143	0.0742	0.0172
10	0.1496	0.0858	0.0190
11	0.1762	0.1983	0.0590
12	0.0870	0.1941	0.1756
Trend Terms for Prime Ministers			
3	0.0916	0.1840	0.0043
4	0.1886	0.1198	0.0025
5	0.0300	0.1472	0.0106
6	0.0366	0.2578	0.0310
7	0.0603	0.3426	0.0177
8	0.0199	0.4185	0.0251
9	0.0777	0.4621	0.0363
10	0.1836	0.6593	0.1092
11	0.3858	0.0834	0.0854
12	0.1966	0.1637	0.3105

Table 82. Dickey-Fuller Tests for Nonstationarity.

Variable	Dickey-Fuller
PopPM	-10.1179
U	-1.1210
P	-94.2710
I	-7.5169

Note: PopPM -- Prime Ministerial Popularity Series.
U -- Unemployment Series (Logged).
P -- Inflation Series.
I -- Interest Rate Series.

Table 83. Univariate ARIMA Estimates.

Variable	Parameter	Estimate	SE
PopPM	Constant	39.0969	18.18
	AR(1)	0.8417	17.61
U	Constant	0.0082	0.74
	AR(1)	0.5383	6.70
P	Constant	1.8532	8.67
	AR(1)t-2	0.2932	2.41
I	Constant	8.1044	7.21
	AR(1)	0.9088	15.54
	MA(1)	0.2685	2.01

Notes: PopPM -- Prime Ministerial Popularity Series.
U -- Unemployment Series (Logged).
P -- Inflation Series.
I -- Interest Rate Series.

Table 84. Cross Correlation Function Estimates.

Lag	U	SE	P	SE	I	SE
-20	0.1707	1.11	-0.0317	0.21	-0.0215	0.14
-19	0.0026	0.02	-0.0205	0.13	0.0506	0.33
-18	0.1197	0.79	-0.0748	0.50	-0.1181	0.78
-17	0.0942	0.63	0.0732	0.49	0.0721	0.48
-16	-0.0429	0.29	0.0764	0.52	-0.0621	0.42
-15	-0.1296	0.89	0.0080	0.06	-0.0655	0.45
-14	0.0159	0.11	-0.0322	0.22	-0.0721	0.50
-13	0.0197	0.14	0.0440	0.31	0.1202	0.84
-12	-0.0176	0.12	-0.1803	1.28	0.0948	0.67
-11	0.0646	0.46	-0.1088	0.78	0.0885	0.63
-10	0.0627	0.45	0.0852	0.61	0.1401	1.01
-9	-0.0583	0.45	0.2013	1.47	-0.0098	0.07
-8	0.0332	0.24	-0.1396	1.03	-0.1355	1.00
-7	0.1464	1.09	-0.0222	0.16	-0.0145	0.11
-6	-0.0987	0.74	0.1553	1.16	0.1324	0.99
-5	0.1455	1.10	-0.1530	1.16	0.0747	0.56
-4	0.2757	2.10	0.0141	0.11	0.3045	2.32
-3	-0.0472	0.36	0.2924	2.25	0.2448	1.88
-2	-0.1691	1.31	-0.0029	0.02	-0.0393	0.30
-1	0.2329	1.82	-0.1339	1.04	-0.2341	1.83
0	-0.2259	1.78	-0.0469	0.37	-0.2369	1.87
1	-0.2372	1.85	-0.0880	0.69	-0.2207	1.72
2	-0.0589	0.46	-0.2329	1.80	0.0738	0.57
3	0.0245	0.19	-0.0263	0.20	-0.1779	1.37
4	0.1725	1.31	0.2450	1.87	0.1861	1.42
5	0.1434	1.08	0.1110	0.84	0.0336	0.25
6	0.0540	0.40	0.0721	0.54	-0.0283	0.21
7	-0.0208	0.15	0.2016	1.50	-0.1338	0.99
8	-0.1303	0.96	0.0229	0.17	0.0040	0.03
9	-0.0204	0.15	-0.1396	1.02	-0.1801	1.31
10	0.0750	0.54	0.1233	0.89	0.2883	2.08
11	0.2426	1.73	0.2056	1.46	0.0390	0.28
12	0.0606	0.43	0.0495	0.35	0.1555	1.10
13	-0.0099	0.07	0.1194	0.84	-0.0712	0.50
14	-0.0473	0.33	0.0529	0.37	-0.0204	0.14
15	-0.2103	1.44	-0.0954	0.65	-0.0586	0.40
16	-0.2229	1.51	0.0256	0.17	0.0167	0.11
17	0.0942	0.62	0.1439	0.97	-0.0485	0.33
18	0.1135	0.75	0.0947	0.63	0.1943	1.29
19	0.0147	0.10	0.0811	0.53	0.1850	1.21
20	0.1373	0.89	0.1486	0.96	0.0329	0.21

POOLED CROSS-SECTIONAL DESIGN

Among the hundreds of published studies which attempt to demonstrate that voters' economic perceptions influence their voting behavior (Hibbs and Fassbender 1981, Eulau and Lewis-Beck 1985), only a handful consider macroeconomic fluctuations at a subnational level of aggregation. Madsen (1980), for example, suggests that regional variations may explain the weakness of national level political-economy models in Norway. He does not follow up with any regional data analysis, however. Some studies have utilized regional level data, although the results are somewhat mixed.

Bellucci (1985) performs a cross-sectional analysis in which the units were Italian regions. While studying the effect of changing economic conditions on support for the two major Italian parties, i.e. the Christian Democrats (DC) and the Communists (PCI), Bellucci discovers a puzzling relationship between the national unemployment rate and support for the DC. Increased unemployment is associated with increased support for the incumbent DC governments. Switching from national unemployment to regional unemployment does not fully unravel Bellucci's puzzle, but it did mark a departure from the customary reliance upon

national economic conditions in economic voting behavior. The explanation, according to Belluci, for regional patterns of unemployment having a direct relationship with incumbent support in Italy is the regional support patterns for the DC. The DC draws its heaviest support from rural, economically underdeveloped regions -- regions with higher than average unemployment.

Lancaster and Lewis-Beck (1986) lend support to the argument that localized economic conditions affect voters' perceptions of how the economy is faring. They are interested in the relationship between changing personal financial conditions in Spain and the support for regional parties and regional economic policies. What they discovered is that personal financial considerations provide little or no explanation for how the average Spaniard votes. Collective economic judgments do, however, shape the perceptions of Spanish voters. Economic hardships provide an important causal explanation for Spanish voters who abandon the national parties and support instead a regional political party (1986:669).

Peltzman (1987) casts doubt on the causal significance of local economic conditions. According to his analysis, voters penalize or reward candidates from the U.S. President's party according to national performance on inflation and growth. The inclusion of local growth rates

and local deviations from national growth appear to be far less effective components. Peltzman interprets these findings as suggesting that voters view local deviations from the national pattern as idiosyncratic and apparently outside the anyone's control. Only with respect to local matters that governors can control -- like the state budget -- did voters penalize incumbents. Even if we accept these results it can be argued that in many countries with more interventionist governments, the responsibility for "idiosyncracies" might not be so lightly cast aside. In addition, other indicators, such as unemployment, might be demonstrated to have more of an effect.

Marsh and Mitchell (1991) examine the effects of regional economic conditions on support for the incumbent party (parties) in Ireland. They use a pooled cross-sectional research design. To minimize the effects of constituency boundary changes across the five elections in their study, Marsh and Mitchell aggregate the forty-eight Irish constituencies into twenty-two electoral units. Marsh and Mitchell find powerful effects for regional unemployment on incumbent vote shares in Ireland. The effects noted by Marsh and Mitchell are robust against alternative model specifications.

More generally, it might be expected that subnational indicators of economic performance would matter more than

national indicators because they come closer to tapping voters' personal economic fortunes. It is, however, far from certain how important personal experiences are. The extensive discussion within the literature on pocketbook versus sociotropic voting (Kinder and Kiewiet 1983) is testimony to the uncertainty. Do voters base their choice on their own economic fortunes and expectations or on the fortunes of a wider community? Kinder and Kiewiet equate the wider community explicitly with the national community, although they do not explain why.[1] Thus, it can be suggested that if voting is sociotropic, as many argue, the choice of the most effective indicators is not obvious. If it is pocketbook considerations which matter, then the effects are essentially individual, arguably subnational and not national economic performance indicators will usually serve as better predictors.

This study uses the recent electoral history of seven West European nations to contrast the impact of the national economy and localized economic experience in shaping the economic perceptions which may ultimately drive electoral behavior. It also presents an enhanced version of relative deprivation theory to explain the familiar linkage between incumbent support and economic conditions.

Why Voters Rebel

The central theoretical premise of the economic voting literature is that voters respond to deteriorating economic conditions by withholding support from the incumbent political party or parties. The articulation of the explanatory theory underlying the statistical models has proceeded in an incremental fashion.

Kramer (1971) begins with Downs' (1957) rationality hypothesis. An elector's vote in an election represents a choice between alternative governing teams. Kramer modifies Downs' argument into a simple decision rule: if the recent past performance of the incumbent is satisfactory, the voter votes to retain the incumbent. While Kramer's discussion is in terms of national performance, his model can explain both national and regional-based perceptions of economic performance. A further development is proposed here, one which builds upon the existing theoretical framework of the economic voting literature using the theoretical concept of relative deprivation presented by Gurr (1967, 1970). The specific premises proposed are the following:

> Significant[2] regional differences in economic conditions cause voters in disaffected regions to develop feelings of relative deprivation.
>
> Feelings of relative deprivation lead to reduced support for the incumbent party or parties.

The theoretical conclusion then becomes:

> Significant regional differences in economic conditions lead to reduced support for the incumbent party or parties.

The foundation of Gurr's theory is the concept of relative deprivation. Gurr defines relative deprivation (1970:23-30) as the perceived difference between goods and conditions of life the public receives and the goods and conditions of life they believe they are entitled to. It is the psychological conflict between what is and what ought to be. Gurr defines three common patterns of deprivation (1970:46-56). Decremental deprivation occurs when the public's expectations remain unchanged but the conditions of life decline. Aspirational deprivation occurs when the public's expectations increase while the conditions of life remain unchanged. Progressive deprivation results from the failure of improving conditions of life to keep pace with increased aspirations. All three patterns of deprivation can lead to feelings of frustration and, ultimately, to aggressive behavior. For Gurr, who is concerned with explaining political violence, they are the source of civil strife. For this study, relative deprivation is the link between economy and electorate.

Each of the three patterns of deprivation -- decremental, aspirational, progressive -- can be used to

develop explanatory theories of voting behavior. Aspirational deprivation can result from the repeated incumbent promises to lower unemployment or inflation, promises which the incumbent fails to fulfill. Decremental deprivation and progressive deprivation serve as more useful explanatory theories for economic voting. They focus more on changing performance than on changing aspirations. They also present some interesting schemes for the specification of statistical models.

Measures of unemployment, inflation, and economic growth are often included in statistical models of economic voting. In a nation accustomed to low levels of unemployment or inflation, an increase in either can lead to feelings of decremental deprivation. Assuming that the public associates deteriorating economic conditions with the incumbent's economic policies, it then becomes reasonable to expect a decline in public support for the incumbent. Similarly, if the rate of economic growth declines, feelings of progressive deprivation can develop. Again, assuming that the public associates the reduced economic growth rate with incumbent policies, we would expect increased dissatisfaction with incumbent performance. It is important to distinguish between decremental deprivation and progressive deprivation, because the two explanatory require different statistical model specifications.

Decremental deprivation assumes that the public expects economic performance to remain constant over time. The magnitude of inflation and unemployment that is acceptable is both historically and culturally determined. When the actual rate of inflation or unemployment rises above the public's expectation, frustration is likely to develop. The greater the deviation, the greater the likelihood of widespread dissatisfaction. The statistical model which best reflects the explanatory theory substitutes the deviation of economic indicators for the levels of those indicators. One such model is the deviation of economic indicators from their mean value over some historic period, $X_{it} - E(X_i)$. The level of support for the incumbent, Y_t, then becomes a linear function of those deviations.

Progressive deprivation assumes that the public expectation is one of trend rather than a constant level. Gross Domestic Product (GDP) is an economic indicator that accords well with the theory of progressive deprivation. The public expectation may be one of continued economic growth. It is not the level of GDP but the trend over time which matters to the electorate. As actual change in GDP falls below the expected change, frustration is likely to develop. The greater the deviation, the greater the likelihood of widespread dissatisfaction. The statistical model that best reflects the explanatory theory employs the

deviation of economic indicators from the trend of those indicators. One way of capturing this is to convert the economic series into a rate of change, $(X_{it} - X_{it-1}) / X_{it-1}$, and then take the deviation of the rate of change series from its mean value over some historic period, $X_{it} - E(X_i)$. The level of support for the incumbent, Y_t, then becomes a linear function of those deviations.

Deprivation theory also adds another interesting dimension. Relative deprivation is very much relative -- relative with respect to individuals, relative with respect to culture, relative with expect to time (Gurr 1967, 1970). What this implies for theories of economic voting is some form of interaction effects for each of the economic indicators. Not all deviations lead to feelings of relative deprivation.[3] Some changes in the economy may be unrelated to changes in incumbent support. This may help to explain findings like Stigler's (1973). Stigler replicated Kramer's aggregate analysis of economic voting in the U.S. and shifted the time series. Kramer's findings were not robust. A certain threshold may be required in order to capture the public's attention. And that threshold may vary across cultures and across time.

The discussion of relative deprivation has thus far been limited to longitudinal studies. The explanatory power of relative deprivation theory is also applicable to pooled

cross-sectional studies a là Markus (1988). The explanatory theory that was explicitly stated at the beginning of this section assumes that the deprivation which individuals feel is, at least in part, sociotropic. Relative deprivation is equally applicable to both pocketbook and sociotropic theories of economic voting. The deprivation that individuals feel may be of either a personal or a collective nature. The theory also argues that the feelings of relative deprivation result from regional differences in economic performance. The "unfortunate" electors who inhabit areas of economic stasis or decline are apt to develop feelings of relative deprivation. And those feelings of relative deprivation can be decremental, aspirational, or progressive.

This suggests an addition to Gurr's typology of relative deprivation in the form of differential deprivation. Differential deprivation occurs when the conditions of life change at a different rate for some social groups than they do for others. The social groups could be cultural, regional, or sectoral. The key to the concept of differential deprivation is the perception that some groups are becoming worse off relative to others. This perception embodies both an expectation and its lack of realization, resulting in feelings of relative deprivation.

Relative deprivation theory provides a framework of explanations for a variety of economic changes resulting in anti-incumbent behavior. There are good reasons to expect regional effects.

Notes

1. Kramer suggests that it would be almost meaningless to use the term sociotropic in any other way, arguing that sectoral and regional references would make the distinction between self-interest and collective-interest "almost meaningless" (1983:106). Kramer's argument is less than convincing, especially as it relates to regions. The distinction between pocketbook voting and sociotropic voting attempts to separate evaluations of the economy based on personal financial considerations, e.g. what has happened to my paycheck, from evaluations based on collective economic performance, e.g. what has happened to the general level of incomes in my region (nation, sector, etc.).

2. The term significant allows for threshold effects. This study does not theoretically presume that all economic fluctuations, no matter how minute, result in changing electoral support. Economic fluctuations may need to be of a certain magnitude or duration to capture the electorate's attention (Kernell and Hibbs 1981).

3. Gurr does not consider the converse of relative deprivation: what this study terms relative affluence. His substantive interest in political violence doesn't lend itself readily to a discussion of relative affluence, except to note that political violence is expected to decline as relative deprivation diminishes. The linkage between the economy and the electorate does lend itself to such a discussion. Not only is reduced frustration expected to accompany the perception of relative affluence, increased support for the incumbent is also expected. In tangible terms, relative deprivation is associated with lost votes for the incumbent -- the result of either abstention (Arcelus and Meltzer 1975) or increased support for opposition parties (Kramer 1971). Relative affluence is associated with increased support for incumbent parties. The concept of relative affluence can be applied to each of the types of relative deprivation discussed above. Relative affluence occurs when the conditions of life exceed the public's expectations. The converse of decremental deprivation, progressive deprivation, and aspirational deprivation is incremental affluence, progressive affluence, and aspirational affluence respectively. The effects of

relative deprivation and relative aspiration are not presumed to be symmetric (Bloom and Price 1975), with the public more willing to punish than to reward.

POOLED CROSS-SECTIONAL ANALYSIS

This portion of the study employs a simple vote function to analyze electoral change. The general form of the function is presented in Equation 1, where the vote share received by the incumbent (V_i) is a function of the "normal" vote share (Converse 1966) historically received by the incumbent (V_n) and macroeconomic fluctuations ($\underline{E}$).

$$V_i = f(V_n, E) \qquad [1]$$

which allows us to rewrite the function as

$$V_s = E \qquad [1a]$$

where (V_s) is the change in the vote share received by the incumbent and (E) is can be both the level and change in economic indicators.

Which economic features should be included when operationalizing the macroeconomic component of Equation 1? Unemployment, inflation, and economic growth are all widely used in vote functions. The likely result of including them all is dangerously high levels of multicollinearity. The

Phillips Curve, familiar from macroeconomic theory, informs us that unemployment and inflation generally share a strong indirect relationship. Economic growth and unemployment share a similar relationship.

Lewis-Beck (1988) points out that the relative importance of different macroeconomic indicators is constantly debated in the political economy literature. Lewis-Beck's European survey-based models suggest that voters respond more to global evaluations of economic performance than to specific macroeconomic indicators. His findings also suggest that voters attach varying weights to specific economic indicators from one election to the next. In one election, inflation may figure prominently in their overall economic evaluation. In the next election, unemployment may be more salient. These findings suggest that whatever is used taps something more general than simply unemployment or inflation. All are indicative of the general economic environment, but an appropriate indicator should be something the electorate perceives to be important.

The Data

The macroeconomic indicators employed by this study were obtained from Eurostat Bureau, the statistical office of the European Communities (EC). These figures have the

advantage that harmonized definitions for macroeconomic indicators are employed wherever possible, thus helping to ensure cross-national comparability.

Eurostat Bureau maintains a massive dataset known as REGIO. This dataset contains regional measures on important demographic and economic items. The data is aggregated at four different levels from the nation down to units smaller than American states. This study employs indicators at this lowest level, corresponding to the French <u>département</u> and the German <u>Wahlkreise</u>.

An important limitation on the REGIO dataset is the voluntary nature of data submission by the EC member nations. Some nations, like France, Germany, and Britain are far more forthcoming with these regional indicators than are other nations like Greece and Portugal. The REGIO dataset is typically four to five years behind in the publication of regional statistics. For some countries, like Portugal and Greece, data is either much further behind or is unavailable from the REGIO dataset.

The imcomplete nature of the REGIO dataset complicated the analysis in this thesis. It was originally planned to include all of the member nations of the EC in this study. The unavailability of even basic macroeconomic series at a level below the nation for several nations required their exclusion. Portugal and Greece were dropped due to the

unavailability of regional indicators at all. Ireland was dropped because of a lack of regional indicators at the lowest level, equivalent to Irish counties. Luxembourg was dropped because of the unavailability of data at a level below the nation. Germany was dropped because of the manner in which the Eurostat bureau aggregates the German Wahlkreise. Economic data was available at the Regierungsbezirke (provincial) level, but election statistics were available at only the Wahlkreise or Lander level. The Lander level was a much higher level of aggregation (12 units) than the measures employed in the remaining countries, necessitating the exclusion of Germany from the final analysis.

There is one addition point about the REGIO dataset which needs to be addressed. The REGIO dataset has only recently began to collect a relatively complete set of regional macroeconomic indicators. This, unfortunately, leaves a time series that is not very long. Specifically, for the countries in this study, the macroeconomic series cover the period from approximately 1979 to 1985. The specific time periods covered do vary from nation to nation. This has the effect to limiting the analysis to one or two elections for the countries included in this study. Belgium is limited to a single election. So is Spain. Italy has one cross-section each for the Chamber of Deputies and the

Senate of the Republic. Britain, Denmark, France, and the Netherlands have two cross-sections each for their lower chambers. A single French cross-section at the presidential level is also included.

The voting statistics were compiled, generally, either from statistical yearbooks published by the appropriate agencies in each respective country or from the American Enterprise Institute (AEI) "...at the Polls" series, edited by Richard Scammon. The AEI series publish election returns for several of the nations in this study. These election returns are compiled by A.E.I. from the official reports of the appropriate agencies or in some cases from a principle newspaper in the respective country, like Le Monde for French election returns.

Country-Specific Observations

Seven different nations are represented in the pooled cross-sectional analysis presented below. Before proceeding to that analysis, there are some country-specific observations which should be addressed. These observations relate specifically to institutional, party, and electoral influences that may mediate the theoretically expected relationship between economic and electoral change. Each of the seven nations will be addressed separately. Any

country-specific concerns over data collection, etc. will also be addressed.

Belgium

Belgium is undergoing a transformation. Since the early 1960s, Belgians have been transforming the unitary state created by the revolution of 1830 and the constitution of 1831 into a federal state. Deep cultural divisions have resulted in a "crisis of regime". This "crisis" has afflicted Belgium throughout its history, sometimes latent, sometimes emergent. In recent decades, the Belgian "crisis" has come to the surface, altering the nature of Belgian politics (Mabille and Lorwin 1979).

The most fundamental underlying cleavage in Belgium is language. Belgium is divided almost equally between native speakers of French and Flemish (a dialect of Dutch). There is also a significant German-speaking minority in the East half of the country.

The wide linguistic barrier in Belgium, with languages that are very dissimilar (French being a Romance language, Flemish a Germanic language), has separated the two linguistic communities. The Belgian linguistic cleavage is what Flanagan (1973:64) terms a segmental cleavage. Stein Rokkan (1990:139) uses the Dutch term verzuiling to describe cleavages that result in a segmented pluralistic society.

The English meaning of the Dutch term verzuiling is column. This describes the way in which the linguistic cleavage divides Belgium into separate societies, with each developing its own social, cultural, and political elements. Francophone Belgians and Flemish Belgians tend, for example, to attend separate schools at the primary, secondary, and university level. They have their own newspapers, television stations, radio stations, periodicals, etc. They have their own political parties, associations, etc. Contact between the two communities comes primarily at the very top, among leaders of political parties, social organizations, and the like.

The linguistic cleavage in Belgium also coincides with other important social cleavages. Economic growth has see-sawed back and forth over time in Belgium between Flanders (the Flemish-speaking territory in the North) and Wallonia (the French-speaking territory in the South). Agrarian interests predominated in Flanders in the past, industrial interests in Wallonia. This has changed in the last half century, with Flanders showing a marked increase in industrialization, rising economic growth, and per capita income higher than in Wallonia. During that same time, the industrial economy in Wallonia has stagnated. The regional disparities in economic growth and development have become marked in recent decades and a source of irritation between

the Flemish and French-speaking communities (Fitzmaurice 1988). The religious cleavage in Belgium resembles the religious cleavage in France. Flemish-speaking Flanders is predominantly Catholic; French-speaking Wallonia is generally anti-clerical in orientation (Mabille and Lorwin 1988).

The segmented nature of Belgian social interaction has had a marked impact on the Belgian party system. The Belgian party system is characterized by two important dimensions. The traditional left-right dimension common throughout most of West Europe and a linguistic dimension. There are four major blocs of parties in Belgium -- the Catholic Christian-democratic parties, the socialist parties, the liberal parties, and what the Belgians term community parties. The ideological divisions among the Christian democratic, socialist, and liberal parties follow the continental pattern. The so-called community parties are nationalist in nature, representing the interests of particular linguistic groups. Excluding the community parties, Belgian parties are generally split into two distinct organizations. Within some Belgian parties, the differences are so extreme on a number of issues that the Flemish and French "wings" of the parties are essentially separate parties (Mabille and Lorwin 1979).

Compromise in both coalition formation and policymaking have been the norm in Belgium. Coalition governments are the rule in Belgium.[1] Belgian policymaking has followed an essentially consociational style, with leaders of parties and important interest groups in each linguistic community bargaining in a cooperative and conciliatory manner with similar groups in the other two linguistic communities. The style of politics is very different from majoritarian policymaking. It aims instead at consensus. This makes policymaking less bold and innovative. It also reduces tensions among segmented groups (for a general discussion of consociational policymaking, see Lijphart 1975).

Consociational policymaking practices impede the a priori expectation that regional disparities in economic conditions affect electoral behavior in Belgium. Belgian cabinets have oscillated between center-left and center-right. The Christian Social Party is common to all coalitions. The key, however, is that even when the socialists or the liberals are excluded from the cabinet, they are not treated like the opposition in majoritarian-oriented political systems. Their opinions on policy matters are considered and every effort is made to accommodate conflicting interests. This makes it very difficult for voters to attach responsibility to incumbents for adverse policies, since the opposition (in the

majoritarian sense of the term) has a significant role in shaping those policies. Contrast this with the British model, where the responsibility or policymaking clearly fall on the majority party.

Unfortunately, only one election could be accommodated for Belgium. Macroeconomic indicators were unavailable in the EC's REGIO database to compile two or more elections. Therefore, only cross-sectional variation is analyzed for Belgium. The election is the October 1985 election. Electoral results were aggregated at the level of the Belgian Arrondissement.

The incumbent government at the October 1985 election was a center-right coalition of the Social Christians and the Liberals. The elections were provoked by a dispute between the Flemish and French-speaking Social Christians over eduction policies in the language regions. The center-right coalition retained its majority, adding two seats to its total.

Denmark

Denmark lacks the linguistic cleavage that has plagued Belgian politics for more than a century. With the exception of a small German minority in the southern-most section of the country (and also in Greenland and the Færoes), Denmark has no significant minorities. The Danish

population is relatively homogenous. Regional differences are slight (Fitzmaurice 1979). The lack of significant regional differences in social, cultural, and economic matters weighs heavily against the a priori hypothesis that differences in regional economic experiences affects electoral behavior. The "regional effects" hypothesis expects that significant regional differences exist and that the electorate perceives those differences.

Denmark is a constitutional monarchy. As in the other constitutional monarchies in this study, the Danish monarch wields no executive authority at all. Denmark is a unitary state with a unicameral legislature named the Folketing. Executive power is vested in a prime minister and cabinet. Both are responsible to the legislature. The failure of the prime minister and government to survive a vote of confidence results in either early elections or a caretaker government.

Two factors about the Danish party system are important to this study. First, the Danish party system is characterized by a large number of parties. Eight to eleven parties are usually represented in the Folketing. The result is that no single party receives a majority of seats. Danish cabinets are invariably either a coalition of two, three, or four parties or a minority government. The lack of a single majority party weakens the expected relationship

between economic performance and incumbent support in the Danish context. Danish voters cannot be certain at the time of the election which parties will be represented in the cabinet. It sometimes takes weeks of intense bargaining among the parties, especially in coalitions of the center/right, to form a government following an election.

Minimal-sized winning coalitions and minority governments necessitate that Danish policymaking involves a great deal of bargaining between coalition partners. Coalition cabinets quite often contain disparate parties, heightening the volatility of cabinet membership and increasing the need for bargaining among cabinet parties. Fitzmaurice (1979:29) describes the volatile nature of Danish cabinets:

> Governments mostly are minority governments which have to cobble together package deals on measures and negotiate their way forward from issue to issue, perhaps basing themselves on a core of allies, but always ready to drop off or add some parties according to circumstance.

The Social Democratic party has been the dominant coalition partner in post WWII Denmark and has governed as a minority government on a number of occasions. The Social Democrats have been forced to moderate their policies repeatedly in order to retain the confidence of the Folketing. This softens their responsibility for policy

failures. The Social Democrats can plausibly point to the recalcitrance of their coalition partners. The continual nature of divided government in Denmark further weakens the a priori expectation that regional economic disparities influence the Danish electorate. Not only must the electorate perceive economic disparity, the electorate must also hold the incumbent responsible for those disparities.

The salience of left/right ideological identification, also impedes a priori expectations in the Danish case. An electorate that is polarized by ideological divisions is arguably less likely to alter their voting behavior as a result of changing economic conditions. The absence of strong political parties at the center of the ideological dimension in Denmark further inclines against a strong relationship between the economy and electoral behavior.

The open nature of the Danish economy is a additional factor that weakens a priori expectations. The Danish economy is based largely on international trade. Danish economic performance is therefore strongly tied to world market conditions. Regional disparities and sectoral disparities in economic performance can be the result of changing world market conditions and not just the policy choices of Danish incumbents.

The electoral data for Denmark in this study is aggregated at the level of the individual Åmter (county).

Two elections are represented -- December 1981 and January 1984. The Social Democrats were a minority government in December 1981 with Anker Jørgensen as prime minister. This was the Social Democrats' fourth successive government -- three as a minority government, one as a coalition -- and Anker Jørgensen's fourth successive term as prime minister. They remained a minority government following the election but lost its support in the Folketing in August 1982. A center-right coalition of four parties led by Poul Schlüter and the Conservative Party was able to win the confidence of the Folketing. This center-right coalition was the incumbent in the January 1984 election and remains the current incumbent.[2]

France

The French case has already been subject to discussion in previous sections of this thesis. There is an important point regarding the French case that needs mention. The influence of regionalization on the French political system.

France has had significant regional differences in terms of ethnicity, language, and culture throughout its history -- Bretons to the west, descendents of the original celtic settlers in France, Basques to the south along the Pyrenees border with Spain and Andorra, Corsicans in the Mediterranean, Languedocians on the South East. Ehrmann

(1983) correctly points out that in spite of ethnic diversity, France has demonstrated a high level of national unity. French citizens have had an easier time assimilating their diversity than have their neighbors in Belgium and Switzerland. But Ehrmann (1983:2) also makes another important point:

> Yet Frenchmen often refer to the place of their origin or of residence as mon pays (my country), one of the many indications that in modern France a variety of minicultures has survived. Only in recent times has a newly awakened regional nationalism entered the political arena...

Regional nationalism in France has been growing in what has been a unitary state. French monarchs developed a centralized, bureaucratic political system. Successive French regimes and administrations have continued the centralized, bureaucratic nature of the French state. Napoleon, for example, reformed the bureaucracy, but the unitary nature of the state and the isolated nature of the French civil service remained unchanged. Each département was supervised by a prefect, appointed by the government in Paris, to ensure that the central governments' laws and regulations were enforced. The prefect had the authority to nullify summarily the decisions of local councils that conflicted with national laws and policies.

The election of a Socialist, François Mitterrand, and a socialist majority in the National Assembly in 1981 signaled a change in French administrative policy. The party manifesto for the 1981 elections made decentralization a priority. The promotion of regional identities were also encouraged (Manifeste du Parti Socialiste, 24 January 1981).[3]

The socialists have created regional councils in order to provide limited decentralization. The powers and authorities of these regional councils do not approach either a federal or a confederal structure. France remains a unitary state with the possibility of limited self-government for regional units. These reforms have stimulated regional identification. The old pre-Napoléonic regional identifications have once again become strong. The existence of strong regional identifications in France impacts on the a priori assumption underlying this study. Strong regional identifications imply that residents are concerned about their region vis-á-vis other regions of the country. Thus, the theoretical expectation that regional economic disparities in France affect electoral behavior is heightened.

Three French elections are represented in this study -- the 1981 election for President of the French Republic and the 1981 and 1986 National Assembly elections. All

three elections are pooled together. The presidential election and the legislative elections are also analyzed separately. Election returns were aggregated at the level of the French _département_. The election returns for the National Assembly in 1981 and for the French President are for the first round. Oversea _départements_ were excluded.

The incumbent president in 1981 was Valéry Giscard d'Estaing. The president's party, _Parti Républicain_, was part of the majority coalition in the National Assembly. Other members of the coalition included the Gaullist _Rassemblement pour la République_ and the electoral group _Union pour Democratie Française_.[4] For the 1986 National Assembly election, the _Parti Socialiste_ was a majority party incumbent.

Italy

Ethnic differences do not complicated matters in Italy to the degree that they complicate the politics of other West European nations. Italy does possess a small German-speaking population in the Tyrolean Alps, and that ethnic minority has attempted to retain its cultural identity. It has also fostered regional parties. The issue of ethnicity has not been nearly as conflictual in Italy as elsewhere in West Europe.

Regional distinctions do have tremendous salience in Italian politics. The distinction is based on economic development, however, not ethnicity or language. The south of Italy and Sicily, the Cassa per il Mezzogiorno, are economically backward compared to the rest of Italy. Their social relationships are more traditional, in some respects even feudal (Sassoon 1986). Italy south of Rome is where Italy's largest party, the Christian Democrats (DC) draw much of their support.

The politics of Italy has been undergoing important transformations in the last decade. Prior to the 1981, the DC headed every postwar coalition in Italy. Thirty-six years of uninterrupted control of the office of prime minister. This ended when the Republican Party leader (supported by the Italian Socialist Party), Spadolini, became prime minister. A second feature of Italian politics, virulent anticommunism, became muted by the mid-1970s. More important to this study, greater authority was devolved onto provincial and regional councils in Italy.

The Italian constitution specifically provided since its inception that regional policymaking would be implemented by the central government. The central government did not act with haste in devolving power on the regional units. In the mid-1970s, disagreements among the major Italian political parties left the DC dependent upon

the support of the Italian Communist Party (PCI) to get many of its policies approved by the legislature. One of the prices that the PCI extracted for this cooperation was greater devolution to the regional, provincial, and communal assemblies, especially with regard to funding. Regional devolution, the PCI correctly understood, increased the influence of communist-controlled councils. Communist counsellors would be less dependent upon Rome for the necessary financial resources to fund their social welfare programs (Sassoon 1991).[5]

The existence of important regional distinctions in Italy combined with attempts to give regions greater influence over economic and political matters in Italy, like in France, heightens the a priori expectation that regional economic deviations will be apparent to the electorate and, consequently, will affect electoral support for incumbents.

Two features of Italian politics mitigate against the expectation that economic conditions influence electoral behavior in Italy.

First, and perhaps most important, is the nature of coalition government in Italy. Italian elections and cabinets have been marked by continuity. While Italian governments may fall every ten to twelve months, the same parties tend to be represented in important ministerial positions. The DC, for example, has been a major force in

every postwar cabinet. Cabinets generally involve the same four or five parties in the same ministerial positions. This allows the parties to develop clientele relationships with citizens and interest groups (Wilson 1990).

Second, the choice of prime minister typically follows weeks of intense, secret bargaining after an election. The policies and priorities of the new government also require intense bargaining among coalition parties. These factors, combined with the continuity in cabinet membership gives Italian voters little ability to sanction a government with a questionable record performance (Wilson 1990).

Only one general election is represented in this study for Italy -- the general election of June 1983. Election results were aggregated at the provincial level for the Chamber of Deputies and at the regional level for the Senate. The results for both chambers were analyzed as a pool and as separate elections.

The incumbent cabinet at the time of the June 1983 election contained four parties -- the Christian Democrats, the Italian Socialist Party, the Social Democrats, and the Liberal Party. A five party coalition (the Republican Party was included along with the previous four parties) replaced the old coalition. Bettino Craxi of the Italian Socialist Party became prime minister.

The Netherlands

The Netherlands, like Belgium, can best be characterized as a system of segmented pluralism. In the Netherlands, religion and not language has served as a divisive issue, separating the Dutch into three distinct and largely separate communities -- Calvinist, Roman Catholic, and anti-clerical.

Dutch politics typifies the consociational pattern of policymaking. The goal of Dutch policymaking is the inclusion of all concerned parties. Bargaining is continuous among the major political parties with the goal of reaching consensus. Lijphart (1975) describes Dutch politics as the "politics of accommodation". The ultimate goal of the policymaking process is to reduce conflict. The consequence for the analysis of economic voting is that the intense bargaining that Dutch politics is subject to in policymaking and cabinet formation impacts on the linkage between economic change and electoral support for incumbents in the Netherlands, diminishing the expectation that economic performance significantly effects public support for Dutch incumbents. Policies can rarely be attributed to any single party or set of parties. Policies can rarely be attributed even solely to the incumbent, since major parties outside the cabinet are regularly consulted and their objections are seriously considered and accommodated.

The Dutch party system is also characterized, like the Danish system, by a large number of political parties. Ten or more parties represented in the lower chamber, the Dutch Tweede Kamer, is not at all uncommon. It is in fact the rule in Dutch politics. The bargaining over cabinet membership following a general election can quite literally take months. Dutch electors generally cannot forecast cabinet membership at the time of the general election, further weakening the a priori relationship between economic performance and electoral behavior. The rationality of strategic voting in a system characterized by high levels of accommodation is questionable. Voters are simply not offered a clear choice in terms of policy alternatives.

Two Dutch elections are represented in this study -- May 1981 and September 1982. Electoral results were aggregated at the C.O.R.O.P. level. The lack of districts in the Netherlands is an interesting electoral fact. There is one electoral constituency in the Netherlands. Members of the Tweede Kamer are chosen on the basis of party list proportional representation (PR). There is no minimal threshold for representation in the Tweede Kamer, which contributes to the fractionalized nature of the Dutch party system.

The incumbent coalition at the May 1981 election was a center-right coalition of Christian-Democrats and Liberals

with Andreas van Agt as prime minister. Following the May 1981 election, a center-left coalition of Christian-Democrats, Labour, and Democrats '66 was formed with Andreas van Agt as prime minister. Following the September 1982 election, Ruud Lubbers replaced van Agt as prime minister in a center-right coalition of Christian Democrats and Liberals.

Spain

Regional identities have been a particularly cankerous for Spain. Spain is a land of three languages and long-held regional attachments. The accommodation of ethnic differences in Spain have occasionally been marred by violence, especially in the Basque region of the country.

General Francisco Franco attempted unsuccessfully to suppress the Basque and Catalán ethnic identification by outlawing the public use of their languages. The result was conflict and violence.

The transition to democracy in Spain has been accompanied by a devolution of power to regional councils. This is a return to the limited political and economic autonomy Spanish provinces possessed in pre-Franco Spain.

Strong regional identifications make themselves manifest in the numerous regional parties present in the Spanish party system. Lancaster and Lewis-Beck (1989:30)

describe the Spanish party system as a series of "subsystems".

> Spain has a series of party "subsystems" rather than a single, coherent national party system. Each of Spain's key political and ethnic regions has parties that compete at the national level and/or the newly revised autonomous community level.

Lancaster and Lewis-Beck (1989) have demonstrated that economic perceptions influence the likelihood that a Spanish voter will cast a vote for a regional party.

An interesting feature of the regional cleavages in Spain is that the economic relationships are counter-intuitive. In most West European nations, the regions with significant regional parties tend to be economically backward. Their economies are peripheral in nature. It is the economic backwardness that in part stimulates regional grievances. This relationship is reversed in Spain. The Basque and Catálan regions are not economically backward. They are instead the most prosperous regions in Spain (Marsal and Rioz 1985; Coverdale 1985). They are also the regions which have experienced the greatest economic growth.

Strong regional identifications are expected to affect the <u>a priori</u> assumptions of this study in Spain in the same manner as the French case. It is theoretically anticipated that the strong regional traditions in Spain heighten the probability that regional economic disparities are causally

related to electoral support for political incumbents. The findings of Lancaster and Lewis-Beck (1989, 1986) also leave the analyst more confident that a causal relationship exists between the economy and electorate in Spain.

The analysis of the Spanish case in this study is limited to only one election -- the general election of October 1982. Election returns were aggregated at the level of the Spanish provincie. The North African provincies, Cueta and Melilla, were excluded because of the inavailability of macroeconomic indicators for those units in the EC data.

The October 1982 election resulted in a complete Socialist victory over the center-right Union of the Democratic Center (UCD). Fragmentation and internal squabbling with the resulted in massive defections within the UCD prior to the election. The right-wing Popular Alliance gained some seats, but the Socialist Party won an absolute majority of seats. Philipe Gonzales became prime minister.

Great Britain

Important considerations in the British case were discussed previously in this thesis. The majoritarian character of British policymaking and the relatively

uncomplicated party system in Britain both contribute to the a priori assumptions underlying this study.

Britain has important regional differences. England, Scotland, and Wales have distinctive cultures, traditions, and languages. Even within England itself, there are important regional differences. Yorkshire and Cornwall have cultures and traditions distinct from the rest of England. The pronunciation of the English language in Yorkshire and Cornwall is even different enough to baffle fellow English citizens.

Significant regional differences in the economy are also apparent in England (Norton 1991). Economic growth in the Southeast has outpaced the rest of the country. Unemployment in the North is much higher than in the South.

Great Britain presents few complications for the a priori assumption that regional economic deviations causally impact on the electorate's voting behavior. During the time frame of this study, Britain was governed by a single party with a large majority. Britain has a unitary system with a strong tradition of collective responsibility for government ministers. Responsibility for government policies and performance can clearly be attached to the incumbent government. There is also considerable regional variation in economic conditions. All of these factors strongly support the expectation that the British electorate reacts

to regional variations in economic experiences in the process of voting.

Two British general elections are included in this study -- June 1983 and June 1987. Election results are aggregated at the county level. Only English counties are represented in this study. Substantial changes between 1983 and 1987 in the local authority boundaries in Scotland and county boundaries in Wales prevented the inclusion of those two regions.

The Conservative Party was the incumbent political party at the time of both elections in this study. Margaret Thatcher was the prime minister on both occasions.

Analysis and Results

Models of economic voting are usually either cross-sectional or time-serial in nature. Individual-level survey analyses which study the effects of objective economic fluctuations on subjective evaluations of the economy and support for the incumbent rely upon the cross-sectional design. Vote functions and popularity functions which employ aggregate indicators have traditionally been time-serial designs. To analyze both time and space at the same time in the study of economic voting remains unusual, because the inclusion of both time and space in the same model increases the likelihood that the familiar Gauss-

Markov assumptions of constant variance and uncorrelated errors will be violated (Markus 1988).

The previous chapter acknowledges that variation across time is limited in this study. In time, as the EC continues to collect regional economic indicators, variation across time for each of the nations in this study will increase. It may also be possible to collect the necessary regional economic indicators from the statistical offices of the one or more nations in this study. Unfortunately, that data is unavailable in the statistical yearbooks and reports routinely published by these countries.[6]

Method of Analysis

The analysis in this section proceeds with an examination of bivariate correlations of electoral support for the incumbent with unemployment and GDP. Electoral support is operationalized in the following two ways: (1) as the percentage of the vote received by the incumbent party (parties) and (2) as the additive change in the share of the vote received by incumbent since the most recent previous election. Unemployment and GDP are operationalized in a number of ways -- (1) as regional levels of unemployment and GDP at successive lags, (2) as the percentage change in regional levels of unemployment and GDP across successive lags, (3) as regional deviations from the national level of

unemployment and GDP at successive lags, (4) as regional deviations from the percentage change in the national levels of unemployment and GDP across successive lags, (5) as the ratio of the regional level to the national level of unemployment and GDP at successive lags, (6) as the ratio of the regional percentage change to the national percentage change in the levels of unemployment and GDP across successive lags.

It is important to use both the levels of macroeconomic indicators and the change in those indicators across time. An unemployment level of 7% may not at first sight appear symptomatic of economic dislocation. However, if unemployment was only 3.5% in the previous year, the doubling to 7% may be noticable to the electorate and may lead to a drop in support for the incumbent party (or parties). Similarly, a 100% increase in unemployment is arguably less salient when the level rises from 1% to 2% unemployment, than it is when unemployment rises from 8% to 16%.

Regional deviations from national figures and the ratio of subnational figures to national figures for the macroeconomic indicators allow us to measure the degree to which regional disparities are salient to the electorate. The level and percentage change of regional economic indicators without reference to national economic conditions

do not as readily tap perceived regional differences. Instead, regional figures that do not directly reference national conditions provide an enhanced measure of the national measures for testing whether or not economic conditions in general affect electoral behavior. By applying the national figures rather than regional measures, more statistical error is incorporated into the model. But the regional figures, absent a direct comparison to the national figure or to some other salient reference do not readily lend themselves to testing for the effects of regional disparities.

The distinction between deviations and ratios is also important. The transformations do not capture exactly the same information. If regional unemployment is 10% and national unemployment is 5%, the deviation measure does not emphasize the regional disparity to the same degree that the ratio measure emphasizes it. This point becomes apparent if national regional unemployment is instead 25% and national unemployment is 20%. In both cases, the deviations are the same, 5%, but the ratios are very different, 2 and 1.25. It is also possible, under the correct circumstances that the deviation measure better captures the salience of regional disparities than does the ratio measure.

The number of operationalizations for the economic indicators above also permits tests for robustness in this

study. It is the author's firm conviction that true causal relationships of the type posited by the economic voting literature should be robust against alternative model specifications that apply alternative operationalizations.

The two forms of operationalization for the dependent variable also require a brief discussion.

The vote share of the incumbent political party is the most common operationalization of incumbent support in vote functions used in the economic voting literature. Kramer (1983) has pointed out that this operationalization is fraught with the possibility of spurious relationships. Bellucci's (1985) finding for example that the share of the vote received by the Christian Democrats (DC) in Italy is directly related to the level of regional unemployment is a case in point. This relationship is spurious because no controls were imposed for previous regional voting patterns. DC support is highest in southern Italy. Southern Italy also has the highest levels of unemployment in the country and the least affluence. Therefore, we should theoretically expect that a simple bivariate correlation coefficient for DC vote share and Italian unemployment will have a positive sign. This is the opposite of what <u>a priori</u> economic voting theory tells us to expect -- incumbents receive a smaller vote share in regions with high unemployment.

Pooled cross-sectional models can evade the "Kramer problem" by combining both cross-sectional and time-serial analysis. Well-designed cross-sectional models can also evade the "Kramer problem" by one of four ways -- (1) control for the share of the vote the incumbent received in the previous election, (2) control for the level of support the incumbent customarily receives, (3) reoperationalize the dependent variable so that it measures the change in support for the incumbent from the previous election (electoral swing), or (4) reoperationalize the dependent variable so that it measures the deviation in support for the incumbent from its customary share of the vote.

Bivariate Correlations

Table 85 presents bivariate correlation coefficients (Pearson r^2s) for the level of regional unemployment on both the share of the vote the incumbent received and the change in the share of the vote the incumbent received in the previous election. All seven nations are represented in **Table 85**. Separate analyses for the French president and National Assembly and for the Italian Chamber of Deputies and Senate are also presented in **Table 85**. Lagged values include the period coterminus with the election (t) and periods one month, two months, three months, six months, nine months, twelve months, and twenty-four months previous

to the election. The remaining bivariate correlation analysis tables present the data in the same format. The only exception is the tables that focus on GDP rather than unemployment. GDP was measured annually instead of monthly. Therefore, the lag periods are 1 year and two years prior to the elections.

One caution is in order in interpreting the bivariate correlations. When the dependent variable is defined as the share of the vote received by the incumbent, it is possible that spurious relationships exist. The previous vote share of the incumbent party is not controlled. Therefore, the magnitude of the correlations is more important than the direction of the correlations. The direction of the association may reflect the fact that regions with higher unemployment or lower per capita GDP than average may support the incumbent at a higher than average level, resulting in reversed signs.

The level of regional unemployment is highly correlated with the incumbent's share of the vote in Belgium, Denmark, France, Italy, Spain, and the United Kingdom. The signs are in the incorrect direction for Denmark and Italy. This result was anticipated in Italy from the previous research by Bellucci (1985). This reflects the regional party support pattern for the largest Italian party, the Christian

Democrats. The result was not theoretically anticipated in Denmark.

The Danish result implies that support for the incumbent increased in 1981 and again in 1984 in regions with higher than average unemployment and decreased in regions with lower than average unemployment. The regional support hypothesis from the Italian case is also not applicable, since the incumbent government changed from a Social Democrat minority cabinet to a four party center-right coalition cabinet. While there are regional support patterns for Danish parties -- the Social Democrats being principally urban working-class in support, the bourgeois parties being principally urban middle class and small town in support -- for the regional support hypothesis to work, the pattern of unemployment would have had to change structurally from 1981 to 1984. In 1981, unemployment would have had to be higher in urban Denmark, lower in rural Denmark. In 1984 the unemployment pattern would have had to reverse, with higher unemployment in rural Denmark, lower unemployment in urban Denmark. There is no evidence that such a structural change in unemployment occurred in Denmark between 1981 and 1984.

Table 85 presents additional evidence against the regional party support hypothesis. Recall that the regional party support hypothesis explains spurious results when

incumbent support is operationalized as the share of the vote. When incumbent is reoperationalized to change in the incumbent's share of the vote, the spurious relationship disappears. The missing variable -- support for the incumbent in the previous election -- is incorporated into the dependent variable. We therefore expect signs to be in the correct direction when the dependent variable is measured as change in the incumbent's share of the vote, even if the sign is reversed when the dependent variable measures the incumbent's share of the vote.

The Italian case in **Table 85** displays this pattern. For incumbent vote share, the sign is in the wrong direction. For change in incumbent vote share, the sign is generally in the correct direction -- negative -- implying that rising unemployment leads to a drop in support for Italian incumbents.

The results for the change in vote share operationalization in **Table 85** are less pleasing. The level of regional unemployment is highly correlated with electoral swing in Belgium, Denmark, the Netherlands, Spain, and the United Kingdom. That association is in the incorrect direction in Belgium and Denmark. This does not imply that increases in unemployment in those countries are associated with increased incumbent support. It instead implies that there is no causal relationship between the level of

regional unemployment and incumbent support in Belgium and Denmark. Changes in unemployment are not a salient enough issue to alter the voting behavior of Belgians and Danes. The French correlations are extremely weak, suggesting that the regional level of unemployment does not affect the electoral behavior of the French either. The level of regional unemployment does appear to influence Italian Senate elections. It is curious that the same result does not hold for Italian Chamber of Deputies elections, weakening confidence in a causal relationship for Senate elections. The only salient difference between Senate and Chamber of Deputies elections is the size of the constituencies (Sassoon 1986). The correlation coefficients for the Netherlands, Spain, and the United Kingdom are much more pleasing. The Dutch coefficients suggest that regional levels of unemployment are related to change in the incumbent's share of the vote. Although the signs were in the wrong direction and far from significant for incumbent vote share, they are in the correct direction for electoral swing. The magnitudes of the coefficients also increase appreciably. The most pleasing coefficients belong to Spain and the United Kingdom, with strong associations in the correct direction for both incumbent vote share and electoral swing.

Table 86 presents the results of reoperationalizing regional unemployment from levels to percentage change. One feature of **Table 86** is immediately apparent. The direction and magnitude of the correlation coefficients are much more time variant. Signs oscillate from positive to negative and back to positive (or the opposite) for many of the nations. The magnitudes of the coefficients wander up and down across successive lags. The sign changes are more disquieting than inconsistent magnitudes, since the magnitudes can reflect temporary swings in economic conditions. The sign changes, however, are consistent with the absence of a causal relationship.

The Italian correlation coefficients for incumbent vote share and percentage change in unemployment are especially pleasing. They are consistently in the correct direction and modest in magnitude. Unfortunately, when electoral swing is substituted for incumbent vote share, the pleasing coefficients for Italy evaporate.

The most pleasing coefficients once again belong to Spain and the United Kingdom. The magnitude of the Spanish coefficients are only marginal (at their best), but they are consistently in the correct direction. The British coefficients are pleasing in both magnitude and direction.

Table 87 substitutes regional GDP for regional unemployment. Both the level of regional GDP and percentage change in regional GDP are presented in **Table 87**.

Regional GDP works well in both the Danish and the British cases. In both cases, the coefficients are generally in the correct direction. The magnitude of the Danish coefficients is impressive, especially for percentage change in GDP (economic growth). The magnitude of the British coefficients are more modest, especially for percentage change in GDP, but they do suggest the presence of a causal relationship. The Italian coefficients appear problematic, because the signs are reversed for incumbent share of the vote. This, again, is a spurious result. Regions of stronger than average support for the incumbent Italian Christian Democrats are also regions that are economically underdeveloped. The signs correct themselves when the dependent series becomes change in the incumbent share of the vote. The French coefficients for the pool and the National Assembly hint at a relationship, but only for incumbent vote share and with the wrong sign.

These three initial tables (**85 - 87**) do not directly capture the disparities between the economic conditions each region faces and national economic conditions. This was discussed earlier. Correlation coefficients for the regional deviation in unemployment ($U_{national} - U_{regional}$) is

presented in **Table 88**. **Table 89** presents the ratio for the level of regional unemployment to national unemployment ($U_{regional}$ / $U_{national}$). Corresponding tables for percentage change in unemployment are presented in **Tables 90** and **91** respectively. Theoretically, the relationship between regional deviations in unemployment and incumbent support should be positive. Regions with lower than average unemployment result in larger deviations, since regional unemployment is subtracted from national unemployment. The opposite is true for the ratio measure however. Regions with greater than average unemployment result in larger ratios.

Tables 88 - 91 confirm that a strong association exists between regional disparities in unemployment (measured as both levels and percentage change) and electoral support for the incumbent in both the United Kingdom and Spain. This result is true for both the vote share of the incumbent and change in the incumbent's share of the vote. The Spanish results are somewhat less impressive than the British results, although they generally support the hypothesis that regional economic experiences causally affect Spanish voting behavior. The Italian Senate election results in **Tables 88** and **89** also support the hypothesis that regional economic experiences affect the support the Italian electorate affords incumbent parties.

A comparison of **Tables 88** and **89** with **Tables 90** and **91** indicates that the level of unemployment is more highly correlated with electoral support for the incumbent than is percentage change in unemployment across time. This same pattern is present in **Tables 88** and **89**. This implies that electorates are much more sensitive to the level of unemployment than they are the growth in unemployment.

Tables 92 and **93** substitute GDP for unemployment. Regional deviations in GDP are represented in **Table 92**, regional ratios in **Table 93**. Regional deviations in GDP should be negatively correlated with incumbent electoral support, since a higher deviation implies that a region has a lower than average level of (or growth in) GDP. The ratio of regional GDP to national GDP should be positively correlated with incumbent support.

The United Kingdom is the only nation in this study where both deviations and ratios of GDP, measured as both levels and percentage change, meet theoretical expectations. With one exception, the GDP measures have respectable correlations in the correct direction with both measures of incumbent support. The single exception is percentage change in GDP (economic growth) from two years pervious to the election.

The Italian coefficients are also reasonably well-behaved. With few exceptions, the Italian correlation

coefficients have the correct sign and respectable magnitudes when incumbent support is defined as electoral swing. Consistent with the previous discussion, when incumbent support is defined as incumbent vote share, the coefficients have the wrong sign, a spurious result of the Italian Christian Democratic party's strong support in economically underdeveloped regions.

Before proceeding to an analysis of the regression coefficients, a brief summary of the correlation coefficients is appropriate.

The United Kingdom correlation coefficients are generally the largest in magnitude and are generally in the theoretically anticipated direction. This indicates not only the presence of a possible causal relationship but also that such a relationship is robust against alternative model specifications. The United Kingdom coefficients are by far the most pleasing set of regional correlations in this study.

The unemployment coefficients for Spain have respectable magnitudes and are also generally in the correct direction. The same is true for the level of GDP in Italy.

The results for Belgium, Denmark, France, and the Netherlands are more disappointing. The Belgian, Danish, and Dutch cases are complicated by the existence of open economies dependent upon international trade. The Belgian

and Dutch cases are also complicated by the existence of deep social divisions that segment their populations. The existence of strong causal relationships between economic conditions and incumbent support was not expected a priori. Previous empirical research also weighed heavily against the existence of such relationships in Denmark.

The French case is much more disappointing. A strong causal relationship was expected. There are occasional hints of such a relationship in the data presented above, but there is also evidence against such a relationship.

All of the findings in the regional analysis of this thesis must be tempered with the fact the there is very little longitudinal variation in this study. The window of available data from the EC permitted the inclusion of only one or two elections for each nation. These results are therefore in the nature of a pilot study. As more data becomes available from the EC and more elections are added to the dataset, more definitive assertions will become possible.

Multivariate Regression Analysis

The application of multiple linear regression permits control for spurious effects in the bivariate correlation estimates above. The partisan distribution of each region can be controlled at the same time that causal effects

between economic conditions and electoral support are estimated.

The inclusion of a separate variable for the incumbent's previous vote history has an important advantage over simply reoperationalizing the dependent variable to capture change in electoral support. It is possible that regions with an extreme level of incumbent support, either high or low, will show less volatility (i.e. smaller change in incumbent support) in subsequent elections. Greater volatility is expected in regions of marginal incumbent support. Down's (1957) premises regarding the psychic costs of supporting a candidate support this a priori theoretical presumption. Rationality in how parties and candidates expend scarce resources also adds plausibility to this argument. Incumbents are likely to expend comparatively greater resources in districts that may swing for or against the incumbent that they are in either "sure bet" or "unwinnable" districts. Opposition parties are also likely to expend greater resources in the marginal districts. Ambitious candidates for office are more likely to be attracted to marginal districts than they are to unwinnable districts.

The multiple regression analysis in this study uses two basic model specifications.

$$V_{share} = \alpha + \beta V_{t-1} + \beta \text{Economy} + \epsilon \qquad [2a]$$

$$V_{change} = \alpha + \beta \text{Economy} + \epsilon \qquad [2b]$$

The dependent variables in **Equations 2a** and **2b** are operationalized the same way as in the bivariate correlations presented earlier. They are, respectively, the incumbent's share of the vote and the change in that vote share from the previous election (electoral swing). V_{t-1} in **Equation 2a** is the incumbent's share of the vote in the previous election. This is an imperfect measure of the "normal" vote that the incumbent party can reasonably expect to win (see especially Converse 1966 for a discussion of "normal" vote shares).[7] Economy in **Equations 2a** and **2b** is one of the macroeconomic indicators employed in the bivariate correlation analysis. ϵ is the stochastic error term.

Both **Equation 2a** and **2b** contain the same information. V_{t-1} in **Equation 2a** is incorporated directly into **Equation 2b**, even though it is not specified as a parameter to be estimated. Instead of being a free parameter, the parameter estimate for V_{t-1} is instead fixed at 1.0 and incorporated into the dependent variable [$V_{change} = V_{share} - (1.0 * V_{t-1})$]. **Equation 2a** is therefore a more flexible model specification, freeing the parameter estimate for V_{t-1}.

Before proceeding to the regression results, it is useful to examine the patterns of volatility (or continuity) across the West European elections in this study. **Table 94** presents bivariate correlations between the share of the vote the incumbent received with the seats awarded to the incumbent, the incumbent's share of the vote in the previous election, and the change in the incumbent's vote share from the previous election.

Most of the West European systems in this study showed a remarkable degree of continuity in incumbent support. Belgium, the French presidency, the Italian Chamber of Deputies and Senate, and the United Kingdom all show correlations in excess of 0.90 for incumbent vote share and previous vote share. Denmark also shows a high level of continuity, with a correlation approaching 0.70. The French National Assembly, the Netherlands, and Spain showed much greater volatility. Spanish volatility results from the virtual disappearance of the incumbent, Union of the Democratic Center (UCD), by the time of the October 1982 election. French National Assembly volatility reflects the victory of the Socialist Party and its emergence as a majority party.

There are some interesting patterns among the bivariate correlations for incumbent share of the vote and change in that vote share. A large positive correlation indicates

that the incumbent received an increase in votes in regions with higher than average incumbent support and/or lost votes in the opposition's strongholds. A correlation of approximately 0.00 indicates that support was gained and lost uniformly throughout the country. A negative correlation indicates that the incumbent lost support in its strongholds and/or made inroads into the opposition's strongholds.

The correlation coefficients for Belgium and for both the Italian Chamber of Deputies and Senate are very modest -- between 0.10 and 0.25. These coefficients indicate that what little electoral volatility there was, was distributed fairly evenly across the country. The correlation coefficients for Denmark, the Netherlands, Spain, and the UK are much larger and in the positive direction. They indicate that the volatility was greatest in districts that were less marginal. Vote shares increased in regions with high incumbent support and/or declined in regions with low incumbent support. For the Spanish case, this indicates that the Socialist's won their victory by increasing their support in their strongholds while the right-wing parties factionalized and disintegrated.

The French coefficients show an interesting pattern. The French National Assembly has a positive correlation and the French Presidency has a negative correlation. The

positive correlation reflects the ability of the Socialists to retain strength in the strongholds and increase strength in marginal districts. The magnitude of the correlation (0.569) compared to the Danish and Dutch cases (0.740 and 0.972 respectively) reflects the loss of support for the Socialist Party that occurred between 1981 and 1986. The Socialist Party lost its majority in 1986, although the loss of support was relatively uniform across the country. Hence, the correlation between current vote share to previous vote share remained high (0.962). The negative correlation for the French presidency probably reflects the abstention by the Gaullists on the second round of the presidential election. The incumbent Valéry Giscard d'Estaing lost support in districts with large Gaullist electorates.

The multiple regression analysis began with ordinary least squares (OLS). Each of the bivariate correlations in **Tables 85 - 93** were reestimated with OLS. The share of the incumbent's vote in the previous election was added to the equations for incumbent vote share, in accordance with **Equation 2a** above.

Pooled cross-sectional models are subject to the same pitfalls that plague time series analysis, since they explicitly combine cross-sectional and longitudinal analysis. The time domain in this study is very limited.

Only one or two time periods were available for each nation. France is the only exception, with one presidential and two National Assembly elections in the national pool. While it is unlikely that the models will be seriously compromised by serial autocorrelation, pooled diagnostics are used in this study to check complications caused by the pooled cross-sectional design.

The time period selected for economic indicators in the regression analysis was the period coterminus with the election itself. For measures that reflect change instead of levels, the period selected was from the election to t-1. This was done to avoid a post hoc specification for each nation. The correlation coefficients in **Tables 85** and **93** showed little variation across time for the important macroeconomic specifications -- level of unemployment, deviation in the level of unemployment, and ratio of regional to national unemployment. There was not significant evidence of decay in effects across time. An examination of the intercorrelations among the macroeconomic indicators at successive lags showed that unemployment and GDP, at the regional level, display a high degree of serial correlation (on the order of 0.95). Therefore, with the relatively small window of time, incorporating time t, t-1, t-2, etc. would result in essentially the same findings.

Table 95 presents the regression coefficients for regional unemployment. Two facts emerge immediately from **Table 95**.

First, there is a great deal of continuity in incumbent support in most of the West European nations included in this study. This is reflected in the statistical significance of the previous incumbent vote share variable. It is also reflected in the relatively high proportion of variance explained by the vote share models (i.e. high model R^2s).

Second, the level of regional unemployment has a powerful independent effect on Spanish and British voters. The signs are in the right direction for regional unemployment and the standard errors are small for those parameter estimates. In fact, 96% of the variance in British elections can be explained by the incumbent's previous vote share and the level of regional unemployment according to the results in **Table 95**. Should the reader believe that this is due sole to continuity in voting, regional unemployment alone produces an R^2 of 0.527. The beta weights for previous vote share and regional unemployment in the British case are 0.8872 and 0.1274 respectively.

The French pool and the French National Assembly also appear to have a possible causal relationship between

regional unemployment and incumbent support. When the dependent series is operationalized as incumbent vote share, regional unemployment has an independent effect on the dependent variable. The proportion of explained variance (R^2) is far from impressive. A more important concern, however, is that the French results are not robust against reoperationalizing the dependent variable. When electoral swing is substituted for incumbent vote share, the statistical significance of the regional unemployment estimate declines precipitously. Associations with series measured as levels are prone to weaken when differenced series are substituted. But the associations in the French case do not just weaken, they disappear almost entirely. This weighs against the existence of a strong, causal relationship in the French case.

The Danish parameter estimate for regional unemployment is statistically significant for both dependent series. However, the sign is in the wrong direction. The implication, mentioned earlier, is that regional unemployment and incumbent popularity are unrelated in Denmark.

Table 96 confirms the observation in the bivariate correlation analysis that levels of unemployment are more salient to West European electorates than is percentage growth (or decline) in unemployment across successive

periods of time. The parameter estimate for change in unemployment in Britain is statistically significant only when the dependent series is electoral swing. As in the French case above, the lack of robustness inclines against a finding in favor of a causal relationship. The reason that unemployment measured as change is less salient than unemployment measured as levels is probably the result of constrained time serial variance. If unemployment was increasing or decreasing at a relatively even rate across each of the nations in this study during the time frame of this study, variance on the change measure may be small compared to variance on the level measure.

Table 97 substitutes the regional level of GDP for the regional level of unemployment in **Table 95**. The findings, not surprisingly, closely resemble the bivariate correlations from **Table 97**. The United Kingdom and Denmark show a substantial effect for regional levels of GDP on incumbent electoral support. The level of GDP is an important predictor in Denmark and the United Kingdom, even when previous support for the incumbent is controlled. The beta weights for previous vote share and the level of regional per capita GDP are 0.940 and 0.070 in the United Kingdom. The same figures for Denmark are 0.710 and 0.455 respectively. A bivariate regression of regional GDP per

capita on incumbent vote share results in an R^2 of 0.267 in Britain and 0.172 in Denmark.

Regional economic growth (percentage change in GDP) is substituted for regional GDP per capita in **Table 98**. Economic growth in Denmark has a highly significant impact on incumbent support. This is true for both measures of incumbent support.

The British electorate does not appear to be motivated by economic growth as it is to the level of economic development. The results for the level of regional GDP are not confirmed with the regional economic growth measure.

There is a hint also that the French electorate may be motivated by regional economic growth. Regional economic growth is marginally significant when the dependent series is incumbent vote share. This relationship weakens when change in incumbent vote share is substituted as the dependent series. This accords with expectations for substituting a differenced series for a series measured as levels. The nature of a possible relationship between GDP and the level of incumbent support in France merits additional attention.

Table 99 confirms that regional deviations from the level of national unemployment are salient determinants of electoral support for Spanish and British incumbents. In both Spain and the United Kingdom the parameter estimate for

regional deviation in the level of unemployment is highly significant. The same finding holds when the ratio of regional unemployment to the level of national unemployment are substituted for the deviation measure. The results for the ratio substitution are presented in **Table 100**. The level of regional unemployment generally and regional disparities in the level of unemployment in particular have a significant effect ceterus paribus on incumbent electoral support in Spain and the United Kingdom. These findings are robust against alternative operationalization of the of the incumbent vote share series and the unemployment series. This provides additional confidence that the association is in fact a causal relationship in the Spanish and the British cases.

The results of transforming unemployment from regional levels to percentage change in unemployment across time confirms the previous results in the bivariate correlation discussion above. **Tables 101** and **102** present the regression estimates for the regional deviations and ratios of the percentage change in unemployment. Generally, the percentage change measure, which captures the growth or decline in unemployment does not work as well as a predictor of incumbent support as does the level of unemployment. This implies that electorates are less sensitive to small changes in unemployment across successive time periods than

they are to absolute levels of unemployment. Caution is in order, though, since the same result will be obtained if all the regions in a given nation experience the same growth or decline in unemployment across the few years of this study.

Regional disparities in the level of GDP are presented in **Tables 103** and **104**. These confirm the results from **Tables 97** and **98** as they relate to the United Kingdom. The level of GDP appears to be a salient determinent of incumbent support in the United Kingdom. Regional deviations in the level of GDP approach statistical significance at the 0.05 level when incumbent support is measured as incumbent vote share. When incumbent support is measured as the change in the incumbent vote share, regional deviations in GDP exceed the 0.05 level and approach the 0.01 level. This pattern repeats itself when ratios are substituted for deviations.

The Danish findings from **Tables 105** and **106** are not present when attention shifts from regional levels to regional disparities in the level of GDP in **Tables 97** and **98**. This is indeed a curious finding. It appears, at first glance to disconfirm the presence of a causal relationship. And it does just that in terms of regional disparities in the level of GDP driving electoral behavior. But it does not disconfirm the presence of a causal relationship between the level of GDP and incumbent support at the national

level. Recall that absent a reference to a baseline, national or otherwise, regional economic indicators only inadequately capture regional inequities. The a priori theory underlying this study assumes that it is regional disparities that fuel feelings of relative deprivation and therefore result in diminished incumbent support. Regional measures that do not reference a baseline like national conditions act as improved general indicators, not as measures of relative inequalities. The earlier finding that the level of regional GDP and the change in regional GDP across time have an effect upon the electoral support of Danish incumbents is compatible with the hypothesis that general levels of GDP do matter to the Danish electorate. This is in fact plausible, considering the small size of Denmark relative to other West European nations and the relative homogeneity of the Danish population. This possibility merits further attention as more data becomes available on the Danish case.

There is also a strong suggestion in **Tables 103** and **104** that the French electorate is sensitive to regional disparities in the level of GDP. Although the statistical significance of the parameters is often in excess of the 0.05 level, the magnitudes of the coefficients and their proximity to acceptable levels of significance indicate that an increased number of elections might result in a finding

that regional disparities in GDP do affect the electoral support of French incumbents.

This pattern in the French case is repeated in **Tables 105** and **106**, where regional disparities for the percentage change in GDP are substituted for regional disparities in the level of GDP. Again, there is evidence, primarily from the pooled case, that the French electorate is sensitive to regional disparities in economic growth. A similar pattern, interestingly enough emerges for the Italian pooled case for regional deviations. The pooled parameter estimate for regional deviations is almost significant at the 0.05 level, while the same relationship is absent in the cases of the Italian Chamber of Deputies and the Italian Senate. Unlike the French case, this relationship in the Italian pool also disappears when ratios are substituted for regional deviations.

The British results also weigh against the British electorate's attention being focused upon regional disparities in economic growth. As with unemployment, the British electorate appears to be more sensitive to regional disparities in the levels of macroeconomic indicators that it is to regional disparities in the increase or decline of those same indicators. This, again, may be an artifact of constrained across-time variance.

Without entertaining other estimation techniques, there is no satisfactory way to know whether OLS is an appropriate estimation strategy for the pooled design (Stimson 1985). To test for the existence of between-unit effects, Least Squares with Dummy Variables (LSDV) was used to reestimate a sample of the regressions above. The residual variances under OLS and LSDV were virtually identical in the sampled regressions. The adjusted R^2 for the LSDV models were generally lower than the adjusted R^2s for OLS. The virtually identical residual variances for OLS and LSDV preclude any benefit from an error component estimation. LSDV did not significantly improve upon OLS. Autocorrelation, as measured by both a pooled autocorrelation function (ACF) and a pooled Q statistic, is present under both OLS and LSDV in the sampled regressions when incumbent share of the vote is employed as the dependent variable. Reestimation with GLS-ARMA corrects for the autocorrelation. However, the OLS and GLS-ARMA results are nearly identical. GLS-ARMA estimates do generally result in improved standard errors. This becomes an issue for those few cases where there statistical significance of macroeconomic parameter estimates is borderline and there is more than one election represented in the national pool. This concerns primarily the French case. The differences in the parameter estimates themselves between OLD and GLS-ARMA

estimates are trivial for the sampled regressions. The small degree of autocorrelation present in these pools (ρ approximately 0.03 for the French case), with none exceeding a ρ of 0.10 and only the Danish case exceeding 0.05, allows OLS estimates to be employed confidently.

Conclusion

Models of voter behavior incorporating macroeconomic fluctuations have traditionally focused on national economic conditions, usually without any effort to justify that particular approach. This analysis suggests that there are grounds for suspecting that local conditions may have independent effects on the electoral support for incumbent parties. Moreover, drawing on Gurr's concept of relative deprivation, this study hypothesizes that differences between national and local conditions can themselves be important predictors of electoral behavior. To test the proposition that local economic conditions are causally related to the incumbent's electoral support, this study combined constituency level voting data and regional economic indicators from Eurostat Bureau in a pooled cross-sectional design.

The results strongly suggest that the British public's perception of economic conditions and their support for the incumbent government is influenced by local economic

fluctuations. Furthermore, there is strong support for the hypothesis that differences between local and national conditions, measured in terms of unemployment and GDP, are a significant force. A similar relationship is found between regional disparities in unemployment and incumbent support in the Spanish case. Both of these findings hold up extremely well under alternative operationalizations of both the dependent variable and the macroeconomic series, adding additional persuasive weight that these effects are causal and not just chance associations.

There is also some suggestion that other West European electorates are also sensitive to changing macroeconomic conditions. For example, there is considerable evidence that the Danish electorate is sensitive to the general level of GDP. There is also sporadic evidence for causal relationships in France and Italy.

The importance of these findings are considerable.

First, and most vitally, it demonstrates that the conventional focus on national indicators in political economy models may have been misplaced. In the past, our attention has been captured exclusively by national economic conditions; this study demonstrates that in some settings the public responds to local economic conditions in national elections and it is ready to hold national political officeholders accountable for them. These results thus

reinforce those of Belluci (1985), Lancaster and Lewis-Beck (1986), and Marsh and Mitchell (1991), while being at odds with those of Peltzman (1987). This inconsistency seems to be part and parcel of political economy and cannot be resolved here. Only further research can do that, but these findings do open up the field for further investigation and emphasize the need for it.

Second, the results suggest that the tendency to see local and national electoral contests in different perspectives can be misleading. The explanation for local variations in incumbent performance may be composed of the same elements that serve to explain the national swing. While many studies of elections to subnational bodies -- local elections -- have emphasized the importance of national level factors (Rallings and Thrasher 1990), this study suggests that it is time the focus was inverted and the role of local conditions be emphasized in national elections.

Notes

1. Since universal adult male suffrage was introduced in 1919, the has been a majority party in control of the government for only one four year period, 1950-4.

2. There has been a slight adjustment in the coalition over time. It has subsequently coalesced into three center-right parties. Poul Schlüter has remained prime minister throughout these successive governments.

3. Propositions 54-57 specifically address the issues of decentralization and regional identity.

4. President Giscard d'Estaing's political party, the Parti Republicain is a member of the Union pour Democratie Française.

5. The reader should not assume that the reforms in Italy approach imparting a federal structure on Italy. The reforms have been more far-reaching in Italy than in France, but Italy still remains essentially a unitary system. While Italian regions do have the ability now to finance their efforts through taxation, the amount of revenue generated is not sufficient. Regional councils are still dependent upon Rome for financial resources.

6. Planned future research projects will attempt to collect the requisite regional economic series across a twenty to thirty year time period. The collection of the data is facilitated by personal contact with the appropriate agencies in each nation. The collection of that data is beyond the resources of this thesis.

7. Marsh and Mitchell (1991) test both the share of the vote that the incumbent received in the previous election and the mean for the incumbent vote share across several successive elections. They find that the previous vote share performs better in the Irish case. Both measures will result in similar results if continuity in vote share across successive elections is high. Where the electorate is more volatile, the mean measure will

inadequately capture that volatility and consequently explain less variation in the dependent series. Previous vote share is also advantageous for those cases, like the United Kingdom, with substantial constituency boundary changes.

Table 85. Correlations for the Level of Regional Unemployment.

Nation	t	t-1	t-2	t-3	t-6	t-9	t-12	t-24
Incumbent Vote Share								
B	-0.486	-0.508	-0.454	-0.467	-0.506	-0.444	-0.447	-0.489
D	0.537	0.399	0.381	0.678	0.560	0.471	0.577	0.784
F	-0.360	-0.364	-0.369	-0.359	-0.379	-0.425	-0.459	-0.436
F_1	-0.256	-0.259	-0.256	-0.244	-0.243	-0.228	-0.317	-0.290
F_2	0.032	0.039	0.041	0.038	0.038	0.003	-0.032	-0.031
I	0.316	0.328	0.336	0.346	0.335	0.331	0.308	0.292
I_1	0.385	0.396	0.404	0.414	0.402	0.397	0.373	0.356
I_2	0.157	0.173	0.185	0.200	0.187	0.183	0.161	0.146
N	0.009	0.003	-0.010	-0.026	-0.002	0.010	0.013	-0.007
S	-0.602	-0.612	-0.581	-0.605	-0.564	-0.567	-0.587	-0.486
U	-0.730	-0.731	-0.731	-0.736	-0.740	-0.711	-0.660	-0.662
Change in Incumbent Vote Share								
B	0.282	0.284	0.227	0.160	0.240	0.126	-0.002	0.021
D	0.588	0.439	0.449	0.752	0.621	0.518	0.610	0.861
F	-0.080	-0.086	-0.083	-0.087	-0.099	-0.117	-0.113	-0.100
F_1	-0.046	-0.052	-0.046	-0.050	-0.058	-0.072	-0.074	-0.061
F_2	0.030	0.022	0.015	-0.001	-0.031	0.023	0.099	0.111
I	-0.096	-0.092	-0.093	-0.088	-0.092	-0.088	-0.085	-0.088
I_1	0.102	0.111	0.115	0.128	0.114	0.105	0.102	0.110
I_2	-0.382	-0.382	-0.385	-0.384	-0.378	-0.366	-0.351	-0.363
N	-0.174	-0.177	-0.179	-0.184	-0.176	-0.171	-0.174	-0.145
S	-0.398	-0.402	-0.383	-0.400	-0.384	-0.383	-0.388	-0.288
U	-0.505	-0.506	-0.508	-0.507	-0.490	-0.499	-0.441	-0.350

Note:

B	--	Belgium.
D	--	Denmark.
F	--	France.
F_1	--	F (National Assembly only).
F_2	--	F (President only).
I	--	Italy.
I_1	--	I (Chamber of Deputies only).
I_2	--	I (Senate of the Republic only).
N	--	Netherlands.
S	--	Spain.
U	--	United Kingdom.

Table 86. Correlations for Percentage Change in the Level of Regional Unemployment.

Nation	t-1	t-2	t-3	t-6	t-9	t-12	t-24
Incumbent Vote Share							
B	0.536	-0.154	-0.069	0.101	-0.407	-0.214	-0.158
D	0.778	0.810	-0.604	0.210	0.475	-0.580	-0.774
F	0.129	0.226	-0.019	0.187	0.383	0.546	0.451
F_1	0.113	0.090	-0.128	0.015	-0.079	0.387	0.301
F_2	-0.225	-0.090	-0.016	0.047	0.163	0.251	0.163
I	-0.449	-0.405	-0.339	-0.206	-0.354	-0.102	0.155
I_1	-0.492	-0.431	-0.364	-0.197	-0.323	-0.100	0.161
I_2	-0.403	-0.398	-0.330	-0.253	-0.442	-0.119	0.139
N	0.119	0.129	0.129	0.114	0.050	0.026	0.017
S	-0.099	-0.323	-0.141	-0.199	-0.093	0.048	-0.046
U	-0.339	-0.251	-0.353	-0.207	-0.159	-0.140	0.011
Change in Incumbent Vote Share							
B	-0.233	0.254	0.551	0.343	0.665	0.636	0.612
D	0.880	0.799	-0.731	0.181	0.479	-0.559	-0.903
F	0.115	0.046	0.066	0.133	0.142	0.151	0.100
F_1	0.094	-0.007	0.041	0.099	0.094	0.131	0.080
F_2	0.213	0.147	0.245	0.228	0.011	-0.208	-0.167
I	0.076	0.077	0.071	0.087	-0.013	0.046	0.069
I_1	-0.165	-0.136	-0.067	0.030	-0.156	-0.058	-0.002
I_2	0.408	0.336	0.190	0.086	0.254	0.167	0.164
N	0.050	0.006	-0.017	0.067	0.155	0.136	-0.084
S	-0.068	-0.216	-0.062	-0.069	-0.028	0.066	-0.078
U	-0.231	-0.127	-0.254	-0.282	-0.070	-0.080	-0.191

Note: National Abbreviations are the same as in **Table 85.**

Table 87. Correlations for both the Level of GDP and Percentage Change in the Level of Regional GDP.

	Level of GDP			Change in GDP	
Nation	t	t-1	t-2	t-1	t-2
Incumbent Vote Share					
B	0.049	0.044	0.043	0.392	0.123
D	0.415	0.390	0.188	0.560	0.794
F	-0.366	-0.375	-0.394	0.137	0.218
F_1	-0.300	-0.305	-0.317	0.114	0.157
F_2	0.000	0.010	0.020	-0.088	-0.096
I	-0.432	-0.418	-0.391	0.188	-0.059
I_1	-0.518	-0.499	-0.487	0.207	-0.048
I_2	-0.243	-0.242	-0.191	0.166	-0.096
N	-0.023	-0.014	-0.008	-0.031	-0.049
S	-0.490	-0.500	-0.418	-0.064	-0.393
U	-0.517	0.500	0.363	0.419	0.091
Change in Incumbent Vote Share					
B	-0.112	-0.110	-0.091	-0.290	-0.372
D	0.621	0.597	0.395	0.686	0.913
F	-0.008	-0.015	-0.016	0.079	0.029
F_1	0.024	0.018	0.022	0.078	-0.010
F_2	0.157	0.156	0.142	0.020	0.065
I	0.227	0.210	0.231	0.013	-0.083
I_1	0.061	0.026	0.045	0.329	0.158
I_2	0.418	0.424	0.410	-0.374	-0.042
N	-0.004	0.010	0.015	-0.092	-0.065
S	-0.416	-0.421	-0.374	-0.080	-0.290
U	0.380	0.380	0.345	0.154	-0.114

Note: National Abbreviations are the same as in **Table 85.**

Table 88. Correlations for Regional Deviations in the Level of Unemployment.

Nation	t	t-1	t-2	t-3	t-6	t-9	t-12	t-24
Incumbent Vote Share								
B	0.486	0.508	0.454	0.467	0.506	0.444	0.447	0.489
D	-0.237	-0.236	-0.221	-0.253	-0.221	-0.221	-0.249	-0.275
F	0.106	0.110	0.105	0.109	0.117	0.118	0.124	0.109
F_1	0.040	0.043	0.034	0.040	0.054	0.056	0.110	0.076
F_2	-0.032	-0.039	-0.041	-0.038	-0.038	-0.003	0.032	0.031
I	-0.316	-0.328	-0.336	-0.346	-0.335	-0.331	-0.308	-0.292
I_1	-0.385	-0.396	-0.404	-0.414	-0.402	-0.397	-0.373	-0.356
I_2	-0.157	-0.173	-0.185	-0.200	-0.187	-0.183	-0.161	-0.146
N	0.012	0.020	0.034	0.050	0.024	0.009	0.007	0.019
S	0.602	0.612	0.581	0.605	0.564	0.567	0.587	0.486
U	0.735	0.737	0.739	0.740	0.740	0.711	0.689	0.741
Change in Incumbent Vote Share								
B	-0.282	-0.284	-0.227	-0.160	-0.240	-0.126	0.002	-0.021
D	-0.194	-0.229	-0.244	-0.170	-0.175	-0.193	-0.174	-0.090
F	0.040	0.048	0.042	0.049	0.060	0.071	0.066	0.049
F_1	0.028	0.036	0.028	0.034	0.046	0.062	0.069	0.050
F_2	-0.030	-0.022	-0.015	0.001	0.031	-0.023	-0.099	-0.111
I	0.096	0.092	0.093	0.088	0.092	0.088	0.085	0.088
I_1	-0.102	-0.111	-0.115	-0.128	-0.114	-0.105	-0.102	-0.110
I_2	0.382	0.382	0.385	0.384	0.378	0.366	0.351	0.363
N	0.094	0.098	0.103	0.110	0.102	0.097	0.090	0.091
S	0.398	0.402	0.383	0.400	0.384	0.383	0.388	0.288
U	0.492	0.493	0.493	0.483	0.491	0.506	0.505	0.471

Note: National Abbreviations are the same as in **Table 85.**

Table 89. Correlations for Regional Deviations of the Percentage Change in the Level of Unemployment.

Nation	t	t-1	t-2	t-3	t-6	t-9	t-12	t-24
Incumbent Vote Share								
B	-0.486	-0.508	-0.454	-0.467	-0.506	-0.444	-0.447	-0.489
D	0.227	0.232	0.216	0.237	0.209	0.211	0.237	0.261
F	-0.079	-0.083	-0.076	-0.084	-0.091	-0.093	-0.083	-0.075
F_1	-0.009	-0.013	-0.002	-0.013	-0.031	-0.038	-0.089	-0.057
F_2	0.032	0.039	0.041	0.038	0.038	0.003	-0.032	-0.031
I	0.316	0.328	0.336	0.346	0.345	0.331	0.308	0.292
I_1	0.385	0.396	0.404	0.414	0.402	0.397	0.373	0.356
I_2	0.157	0.173	0.185	0.200	0.187	0.183	0.161	0.146
N	-0.059	-0.068	-0.079	-0.090	-0.069	-0.059	-0.061	-0.042
S	-0.602	-0.612	-0.581	-0.605	-0.564	-0.567	-0.587	-0.486
U	-0.739	-0.740	-0.743	-0.743	-0.739	-0.709	-0.677	-0.732
Change in Incumbent Vote Share								
B	0.282	0.284	0.227	0.160	0.240	0.126	-0.002	0.021
D	0.200	0.232	0.246	0.189	0.184	0.197	0.187	0.142
F	-0.038	-0.046	-0.039	-0.046	-0.060	-0.068	-0.061	-0.042
F_1	-0.029	-0.037	-0.028	-0.035	-0.049	-0.066	-0.077	-0.053
F_2	0.030	0.022	0.015	0.001	0.031	0.023	0.099	0.111
I	-0.096	-0.092	-0.093	-0.088	-0.092	-0.088	-0.085	-0.088
I_1	0.102	0.111	0.115	0.128	0.114	0.105	0.102	0.110
I_2	-0.382	-0.382	-0.385	-0.384	-0.387	-0.366	-0.351	-0.363
N	-0.116	-0.119	-0.121	-0.124	-0.123	-0.121	-0.116	-0.103
S	-0.398	-0.402	-0.383	-0.400	-0.384	-0.383	-0.388	-0.288
U	-0.492	-0.492	-0.493	-0.481	-0.491	-0.506	-0.507	0.473

Note: National Abbreviations are the same as in **Table 85**.

Table 90. Correlations for the Ratio of the Level of Regional Unemployment to National Unemployment.

Nation	t-1	t-2	t-3	t-6	t-9	t-12	t-24
Incumbent Vote Share							
B	-0.536	0.154	0.069	-0.101	0.407	0.214	0.158
D	-0.096	-0.197	-0.082	-0.011	-0.089	0.236	0.122
F	-0.062	0.020	-0.060	-0.100	-0.079	-0.259	-0.209
F_1	-0.084	0.042	-0.070	-0.144	-0.114	-0.249	-0.166
F_2	0.225	0.090	0.016	-0.047	-0.163	-0.251	-0.163
I	0.449	0.405	0.339	0.206	0.354	0.102	-0.155
I_1	0.492	0.431	0.364	0.197	0.323	0.100	-0.161
I_2	0.403	0.398	0.330	0.253	0.442	0.119	-0.139
N	-0.122	-0.147	-0.165	-0.112	-0.063	-0.047	0.000
S	0.099	0.323	0.141	0.199	0.093	-0.048	0.046
U	0.339	0.275	0.353	0.332	0.221	0.206	-0.004
Change in Incumbent Vote Share							
B	0.233	-0.254	-0.551	-0.343	-0.665	-0.636	-0.612
D	0.088	0.114	-0.165	0.071	0.036	0.096	-0.154
F	-0.103	0.001	-0.076	-0.114	-0.099	-0.117	-0.057
F_1	-0.092	0.023	-0.064	-0.114	-0.121	-0.145	-0.076
F_2	-0.213	-0.147	-0.245	-0.228	-0.011	0.208	0.167
I	-0.076	-0.077	-0.071	-0.087	0.013	-0.046	-0.069
I_1	0.165	0.136	0.067	-0.030	0.156	0.058	0.002
I_2	-0.408	-0.336	-0.190	-0.086	-0.254	-0.167	-0.164
N	-0.100	-0.104	-0.115	-0.130	-0.114	-0.057	-0.028
S	0.068	0.216	0.062	0.069	0.028	-0.066	0.078
U	0.227	0.208	0.241	0.214	-0.053	-0.037	0.084

Note: National Abbreviations are the same as in Table 85.

Table 91. Correlations for the Ratio of the Percentage Change in Regional Unemployment to National Unemployment.

Nation	t-1	t-2	t-3	t-6	t-9	t-12	t-24
Incumbent Vote Share							
B	-0.625	0.267	0.252	0.260	0.407	0.242	0.310
D	0.060	0.151	0.094	-0.004	0.066	-0.241	-0.195
F	-0.074	0.080	-0.174	0.144	0.031	-0.315	0.148
F_1	-0.103	0.034	-0.141	-0.138	0.391	-0.196	0.102
F_2	0.225	0.067	-0.015	-0.172	0.163	0.251	0.163
I	0.001	0.263	0.352	0.287	-0.354	-0.102	0.155
I_1	0.112	0.290	0.359	0.261	-0.323	-0.100	0.161
I_2	-0.032	0.248	0.385	0.373	-0.442	-0.119	0.139
N	0.063	-0.090	-0.073	0.125	0.050	0.038	0.016
S	-0.006	-0.340	-0.141	-0.107	0.080	0.116	-0.011
U	0.334	0.279	0.351	0.215	-0.175	-0.138	0.361
Change in Incumbent Vote Share							
B	0.038	-0.488	-0.134	0.074	-0.665	-0.640	-0.588
D	-0.055	-0.136	0.222	-0.091	-0.063	-0.037	0.134
F	-0.094	0.015	-0.105	0.048	0.045	-0.031	0.068
F_1	-0.079	0.039	-0.076	-0.005	0.106	0.016	0.079
F_2	-0.213	-0.240	-0.334	-0.017	0.011	-0.208	-0.167
I	0.082	0.064	0.057	0.255	-0.013	0.046	0.069
I_1	0.082	0.103	0.240	0.466	-0.156	-0.056	-0.002
I_2	0.202	0.146	-0.083	0.092	0.254	0.167	0.164
N	0.116	0.065	0.067	0.131	0.108	0.049	0.043
S	-0.065	-0.210	-0.062	-0.083	0.013	0.089	-0.065
U	0.208	0.203	0.241	0.176	-0.013	0.062	0.143

Note: National Abbreviations are the same as in **Table 85**.

Table 92. Correlations for Regional Deviations in both the Level of GDP and the Percentage Change in Regional GDP.

	Level of GDP			Change in GDP	
Nation	t	t-1	t-2	t-1	t-2
Incumbent Vote Share					
B	-0.049	-0.044	-0.043	-0.392	-0.123
D	0.222	0.223	0.246	0.043	-0.159
F	-0.182	-0.048	-0.056	-0.513	0.102
F_1	0.014	0.002	-0.007	0.125	0.116
F_2	-0.000	-0.010	-0.020	0.088	0.096
I	0.432	0.418	0.391	-0.188	0.059
I_1	0.518	0.499	0.487	-0.207	0.048
I_2	0.243	0.242	0.191	-0.166	0.096
N	0.027	0.015	0.010	0.057	0.064
S	0.490	0.500	0.418	0.064	0.393
U	-0.573	-0.563	-0.545	-0.420	-0.484
Change in Incumbent Vote Share					
B	0.112	0.110	0.091	0.290	0.372
D	0.138	0.134	0.125	0.087	0.165
F	-0.107	-0.078	-0.087	-0.125	0.031
F_1	-0.070	-0.066	-0.078	-0.057	0.047
F_2	-0.157	-0.156	-0.142	-0.020	-0.065
I	-0.227	-0.210	-0.231	-0.013	0.083
I_1	-0.061	-0.026	-0.045	-0.329	-0.158
I_2	-0.418	-0.424	-0.410	0.374	0.042
N	-0.021	-0.019	-0.029	-0.041	-0.012
S	0.416	0.421	0.374	0.080	0.290
U	-0.330	-0.328	-0.317	-0.192	-0.209

Note: National Abbreviations are the same as in **Table 85**.

Table 93. Correlations for the Ratios of both the Level of GDP and Percentage Change of Regional GDP to National GDP.

	Level of GDP			Change in GDP	
Nation	t	t-1	t-2	t-1	t-2
Incumbent Vote Share					
B	0.049	0.044	0.043	0.392	0.123
D	-0.209	-0.211	-0.238	-0.062	0.025
F	0.143	-0.017	-0.013	-0.544	-0.080
F_1	-0.064	-0.052	-0.046	-0.113	-0.092
F_2	0.000	0.010	0.020	0.088	-0.096
I	-0.432	-0.418	-0.391	0.188	-0.059
I_1	-0.518	-0.499	-0.487	0.207	-0.048
I_2	-0.243	-0.242	-0.191	0.166	-0.096
N	-0.028	-0.016	-0.010	-0.055	-0.071
S	-0.490	-0.500	-0.418	-0.064	-0.393
U	0.572	0.563	0.540	0.418	-0.436
Change in Incumbent Vote Share					
B	-0.112	-0.110	-0.091	-0.290	-0.372
D	-0.149	-0.144	-0.132	-0.084	-0.157
F	0.099	0.064	0.075	-0.103	-0.020
F_1	0.065	0.060	0.075	0.058	-0.033
F_2	0.157	0.156	0.142	-0.020	0.065
I	0.227	0.210	0.231	0.013	-0.083
I_1	0.061	0.026	0.045	0.329	0.158
I_2	0.418	0.424	0.410	-0.374	-0.042
N	0.022	-0.020	0.030	0.036	0.015
S	-0.416	-0.421	-0.374	-0.080	-0.290
U	0.333	0.332	0.322	0.190	-0.183

Note: National Abbreviations are the same as in Table 85.

Table 94. Correlations for Vote to Seat Ratio, Current to Previous Vote Share, and Current Vote Share to Change in Vote Share for the Incumbent Party (Parties).

	Votes to Seats	Current to Previous	Current to Change
B	0.765	0.911	-0.132
D	0.868	0.684	0.740
F			
F_1	0.568	0.246	0.569
F_2		0.962	-0.419
I			
I_1	0.940	0.969	-0.142
I_2	0.839	0.915	0.210
N		0.134	0.972
S	0.812	-0.003	0.739
U	0.904	0.974	0.530

Note: National Abbreviations are the same as in Table 85.

Table 95. Regression Results for the Level of Regional Unemployment.

Nation	Constant	SE	Previous	SE	U	SE	R^2
Incumbent Vote Share							
B	0.1296	2.15	0.7793	9.69	-0.0006	0.00	0.829
D	0.1691	2.16	0.9126	5.36	1.9942	3.83	0.655
F	0.2603	8.75	0.4712	9.61	-0.7493	4.50	0.346
F_1	0.3539	9.72	0.1893	2.92	-0.6256	3.09	0.107
F_2	0.0660	4.72	0.8038	33.63	0.0517	0.58	0.926
I	0.0495	1.97	0.8911	19.26	0.0058	0.11	0.897
I_1	0.0551	2.36	0.8843	20.30	0.0811	1.47	0.944
I_2	0.0071	0.13	0.9622	9.60	-0.1271	1.46	0.856
N	0.1729	0.56	1.3701	1.79	-2.9672	1.34	0.041
S	0.6437	8.69	-0.0474	0.37	-1.4420	5.18	0.364
U	0.0358	1.55	0.9902	29.25	-0.3006	4.20	0.957
Change in Incumbent Vote Share							
B	-0.0212	0.78			0.2523	1.55	0.079
D	-0.1976	3.63			1.9512	3.85	0.119
F	-0.0220	1.30			-0.2563	1.35	0.006
F_1	-0.0351	1.36			-0.1694	0.63	0.002
F_2	-0.0326	3.47			0.0374	0.29	0.001
I	-0.0073	0.97			-0.0354	0.67	0.009
I_1	-0.0037	0.47			0.0321	0.57	0.010
I_2	-0.0135	1.15			-0.1375	1.70	0.146
N	0.2903	1.55			-2.1348	1.55	0.030
S	0.1836	2.45			-1.2875	3.00	0.158
U	0.0294	4.50			-0.2865	5.49	0.255

Note: National Abbreviations are the same as in Table 85.
Previous is the vote share of the incumbent party (parties) in the previous election.
U is the level of subnational unemployment measured as a percentage of the labor force.

Table 96. Regression Results for the Percentage Change in the Level of Regional Unemployment.

Nation	Constant	SE	Previous	SE	U	SE	R^2
Incumbent Vote Share							
B	0.1422	3.19	0.7592	9.31	0.1233	0.45	0.831
D	-0.0725	1.99	0.8165	8.59	1.1250	10.42	0.894
F	0.1798	7.88	0.5299	10.97	0.7375	2.41	0.313
F_1	0.2893	10.06	0.2262	3.49	0.5771	1.62	0.074
F_2	0.0687	5.58	0.8080	32.74	0.1140	0.64	0.926
I	0.0558	2.05	0.8796	18.06	-0.0755	0.60	0.898
I_1	0.0716	3.00	0.8650	20.01	-0.2985	2.25	0.949
I_2	-0.0374	0.57	1.0191	8.87	0.3070	1.56	0.858
N	0.3125	1.03	0.4601	0.91	1.9564	0.73	0.025
S	0.4007	5.57	-0.0035	0.02	-0.2847	0.68	0.010
U	-0.0491	3.71	1.0747	37.81	-0.3300	1.35	0.949
Change in Incumbent Vote Share							
B	0.0126	1.40			-0.3276	1.27	0.044
D	-0.1363	8.61			1.0827	9.78	0.794
F	-0.0374	5.13			0.6855	1.94	0.013
F_1	-0.0416	4.14			0.6117	1.29	0.009
F_2	-0.0253	8.24			0.4656	2.10	0.046
I	-0.0106	2.25			0.0632	0.54	0.006
I_1	-0.0015	0.30			-0.1252	0.91	0.027
I_2	-0.0265	3.90			0.2883	1.84	0.167
N	-0.0011	0.01			1.1134	0.43	0.002
S	-0.0165	0.43			-0.2664	0.47	0.005
U	-0.0184	2.86			-0.5328	2.23	0.053

Note: National Abbreviations are the same as in Table 85.
Previous is the vote share of the incumbent party (parties) in the previous election.
U is the percentage change in subnational unemployment from time t to time t-1.

Table 97. Regression Results for the Level of GDP.

Nation	Constant	SE	Previous	SE	G	SE	R^2
Incumbent Vote Share							
B	0.1413	3.11	0.7819	11.48	-0.000001	0.40	0.185
D	-0.2082	2.59	1.0554	6.46	0.000017	4.14	0.675
F	0.2677	7.91	0.4640	9.14	-0.000007	3.83	0.334
F_1	0.3858	9.36	0.1564	2.35	-0.000007	3.42	0.116
F_2	0.0546	3.58	0.8058	34.11	0.000002	1.61	0.927
I	0.0297	0.69	0.9061	18.24	0.000002	0.56	0.897
I_1	0.0844	1.92	0.8845	18.24	-0.000002	0.88	0.941
I_2	-0.0757	0.95	0.9856	9.55	0.000007	1.62	0.860
N	0.2993	0.81	0.5656	1.16	-0.000001	0.11	0.018
S	0.6073	7.33	0.0410	0.29	-0.000050	3.87	0.242
U	-0.0729	4.50	1.0496	35.22	0.000005	2.63	0.952
Change in Incumbent Vote Share							
B	0.0421	1.10			-0.000002	-0.60	0.012
D	-0.1863	3.94			0.000017	4.19	0.386
F	-0.0411	2.04			-0.000003	0.13	0.000
F_1	-0.0598	2.03			-0.000001	0.32	0.001
F_2	-0.0474	4.07			0.000002	1.52	0.025
I	-0.0427	2.16			0.000004	1.63	0.051
I_1	-0.0075	0.34			0.000001	0.34	0.004
I_2	-0.0860	2.84			-0.000007	1.90	0.175
N	0.0229	0.12			-0.000002	0.03	0.000
S	0.2441	2.72			-0.000060	3.17	0.173
U	-0.0624	4.14			0.000006	3.85	0.144

Note: National Abbreviations are the same as in Table 85.
Previous is the vote share of the incumbent party (parties) in the previous election.
G is the level of subnational GDP measured in ECUs.

Table 98. Regression Results for the Percentage Change in the Level of Regional GDP.

Nation	Constant	SE	Previous	SE	G	SE	R^2
Incumbent Vote Share							
B	0.1752	1.24	0.7911	10.37	-0.6580	-0.33	0.830
D	-0.1960	2.78	0.9511	6.26	2.5081	4.92	0.720
F	0.1412	5.43	0.5259	10.84	0.3935	2.11	0.310
F_1	0.2508	7.31	0.2241	3.45	0.4106	1.56	0.073
F_2	0.0721	5.23	0.8032	33.49	-0.0259	0.40	0.926
I	0.0401	1.32	0.8886	20.08	0.0807	0.53	0.897
I_1	0.0064	0.22	0.8953	22.85	0.3668	2.38	9.500
I_2	0.0419	0.72	0.9619	9.55	-0.3453	1.41	0.855
N	0.2928	0.97	0.6465	1.29	-0.8235	0.59	0.022
S	0.3961	5.45	0.0007	0.00	-0.1647	0.44	0.004
U	-0.0496	3.51	1.0845	36.01	0.0363	0.18	0.948
Change in Incumbent Vote Share							
B	0.2647	1.73			-3.1272	1.60	0.084
D	-0.2132	4.72			2.4936	5.00	0.471
F	-0.0660	3.78			0.2865	1.33	0.006
F_1	-0.0786	2.89			0.3725	1.07	0.006
F_2	-0.0313	4.26			0.0159	0.19	0.000
I	-0.0133	0.58			0.0144	0.09	0.000
I_1	-0.0452	1.88			0.3206	1.91	0.108
I_2	0.0242	0.73			-0.3749	1.66	0.140
N	0.0979	0.82			-1.0763	0.80	0.008
S	-0.0101	0.23			-0.2773	0.56	0.006
U	-0.0155	2.05			0.2788	1.46	0.024

Note: National Abbreviations are the same as in Table 85.
Previous is the vote share of the incumbent party (parties) in the previous election.
G is the percentage change in subnational GDP from time t to time t-1.

Table 99. Regression Results for the Deviations in the Level of Regional Unemployment.

Nation	Constant	SE	Previous	SE	U	SE	R^2
Incumbent Vote Share							
B	0.1295	0.04	0.7793	0.08	0.0006	0.17	0.829
D	0.0137	0.17	0.9871	4.77	-0.7497	1.03	0.488
F	0.1725	7.62	0.5274	10.82	0.3074	1.41	0.303
F_1	0.2821	9.89	0.2252	3.45	0.1465	0.55	0.062
F_2	0.0697	5.69	0.8038	33.63	-0.0517	0.53	0.926
I	0.0501	1.91	0.8911	19.26	-0.0058	0.11	0.897
I_1	0.0633	2.59	0.8843	20.30	-0.0811	1.47	0.944
I_2	-0.0057	0.10	0.9622	9.60	0.1271	1.46	0.856
N	0.2332	0.75	0.6676	1.29	1.1726	0.54	0.022
S	0.3808	6.95	-0.0474	0.37	1.4420	5.18	0.364
U	0.0038	0.21	0.9921	28.72	0.2926	3.98	0.956
Change in Incumbent Vote Share							
B	0.0168	2.34			-0.2523	1.55	0.079
D	0.0088	0.75			-0.7432	1.05	0.038
F	-0.0430	8.53			0.1685	0.67	0.002
F_1	-0.0497	6.52			0.1360	0.38	0.001
F_2	-0.0300	13.96			-0.0374	0.29	0.001
I	-0.0188	2.37			0.0354	0.67	0.009
I_1	-0.0005	0.10			-0.0321	0.56	0.010
I_2	-0.0273	4.01			0.1375	1.70	0.146
N	0.0382	0.56			1.6519	0.82	0.009
S	-0.0511	2.12			1.2875	3.00	0.158
U	0.0002	0.11			0.2810	5.30	0.242

Note: National Abbreviations are the same as in **Table 85**.
Previous is the vote share of the incumbent party (parties) in the previous election.
U is the subnational deviation (national - subnational) for unemployment measured as a percentage of the labor force.

Table 100. Regression Results for the Ratio of the Level of Regional Unemployment to the Level of National Unemployment.

Nation	Constant	SE	Previous	SE	U	SE	R^2
Incumbent Vote Share							
B	0.1296	2.15	0.7793	9.69	-0.0001	0.00	0.829
D	-0.0685	0.67	0.9911	4.81	0.0808	1.06	0.489
F	0.1911	6.41	0.5296	10.87	-0.0200	1.13	0.302
F_1	0.2863	7.71	0.2257	3.46	-0.0049	0.22	0.061
F_2	0.0660	4.72	0.8038	33.63	0.0037	0.53	0.926
I	0.0495	1.97	0.8911	19.26	0.0006	0.11	0.897
I_1	0.0551	2.36	0.8843	20.30	0.0082	1.47	0.944
I_2	0.0071	0.13	0.9622	9.60	-0.0128	0.15	0.856
N	0.4387	1.23	0.6688	1.34	-0.1990	0.83	0.027
S	0.6437	8.69	-0.0474	0.37	-0.2629	5.18	0.364
U	0.0347	1.46	0.9909	28.55	-0.0304	3.99	0.956
Change in Incumbent Vote Share							
B	-0.0212	0.78			0.0380	1.55	0.079
D	-0.0715	0.96			0.0804	1.08	0.040
F	-0.0302	1.38			-0.0129	0.63	0.001
F_1	-0.0379	1.14			-0.0118	0.39	0.001
F_2	-0.0326	3.47			0.0027	0.29	0.001
I	-0.0073	0.97			-0.0036	0.67	0.009
I_1	-0.0037	0.47			0.0032	0.56	0.010
I_2	-0.0135	1.15			-0.0139	1.70	0.146
N	0.2808	1.05			-0.2372	1.02	0.014
S	0.1836	2.45			-0.2347	3.00	0.158
U	0.0288	4.34			-0.0290	5.31	0.242

Note: National Abbreviations are the same as in **Table 85**.
Previous is the vote share of the incumbent party (parties) in the previous election.
U is the subnational ratio (subnational / national) for unemployment measured as a percentage of the labor force.

Table 101. Regression Results for the Deviations in the Percentage Change in the Level of Regional Unemployment.

Nation	Constant	SE	Previous	SE	U	SE	R^2
Incumbent Vote Share							
B	0.1395	3.40	0.7591	9.31	-0.1233	0.45	0.831
D	-0.0075	0.09	1.0423	4.87	0.2363	0.49	0.473
F	0.1685	7.49	0.5348	11.00	-0.5170	1.65	0.305
F_1	0.2810	9.90	0.2280	3.50	-0.4647	1.29	0.069
F_2	0.0675	5.34	0.8080	32.74	-0.1140	0.64	0.926
I	0.0568	2.03	0.8795	18.06	0.0755	0.60	0.898
I_1	0.0755	3.08	0.8650	20.01	0.2985	2.25	0.949
I_2	-0.0414	0.62	1.0191	8.87	-0.3070	1.56	0.858
N	0.3241	1.07	0.5246	1.08	-2.6768	0.96	0.030
S	0.3861	5.65	-0.0035	0.02	0.2847	0.68	0.010
U	-0.0416	3.04	1.0750	37.78	0.3197	1.31	0.949
Change in Incumbent Vote Share							
B	0.0197	2.80			0.3276	1.27	0.054
D	0.0085	0.71			0.2137	0.47	0.008
F	-0.0428	8.70			-0.6271	1.74	0.011
F_1	-0.0493	6.75			0.5993	1.26	0.008
F_2	-0.0300	14.29			-0.4656	2.10	0.046
I	-0.0114	2.52			-0.0632	0.54	0.006
I_1	0.0001	0.03			0.1252	0.91	0.027
I_2	-0.0304	4.62			-0.2883	1.84	0.167
N	0.0343	0.52			-2.4142	0.87	0.010
S	-0.0301	1.20			0.2664	0.47	0.005
U	-0.0059	2.72			-0.5238	2.19	0.052

Note: National Abbreviations are the same as in Table 85.
Previous is the vote share of the incumbent party (parties) in the previous election.
U is the subnational deviation (national - subnational) for unemployment measured as the percentage from time t to time t-1.

Table 102. Regression Results for the Ratio of the Percentage Change in the Level of Regional Unemployment to the Percentage Change in the Level of National Unemployment.

Nation	Constant	SE	Previous	SE	U	SE	R^2
Incumbent Vote Share							
B	0.1918	4.28	0.696	9.15	-0.0155	1.99	0.851
D	0.0114	0.13	1.0266	4.88	-0.0129	0.30	0.470
F	0.1760	7.70	0.5332	10.98	-0.0065	1.66	0.305
F_1	0.2894	10.01	0.2253	3.47	-0.0068	1.45	0.071
F_2	0.0687	5.58	0.8080	32.74	-0.0012	0.64	0.926
I	0.0463	1.83	0.8918	20.49	0.0015	0.68	0.898
I_1	0.0497	2.05	0.9033	21.32	0.0017	0.68	0.941
I_2	0.0072	0.12	0.9248	9.24	0.0025	0.75	0.842
N	0.1619	0.49	0.6633	1.33	0.0583	0.84	0.027
S	0.3864	5.35	-0.0022	0.01	-0.0010	0.04	0.000
U	-0.0485	3.65	1.0768	37.74	0.0059	1.11	0.949
Change in Incumbent Vote Share							
B	0.0176	1.35			0.0016	0.20	0.001
D	0.0207	0.47			-0.0121	0.29	0.003
F	-0.0356	5.03			-0.0071	1.58	0.009
F_1	-0.0423	4.03			-0.0068	1.09	0.006
F_2	-0.0253	8.24			-0.0047	2.10	0.046
I	-0.0143	2.04			0.0013	0.57	0.007
I_1	0.0001	0.03			0.1252	0.91	0.024
I_2	-0.0370	3.39			0.0028	0.85	0.041
N	-0.0526	0.57			0.0690	1.02	0.013
S	-0.0134	0.29			-0.0152	0.45	0.004
U	-0.0168	2.66			0.0105	2.00	0.043

Note:

National Abbreviations are the same as in Table 85.
Previous is the vote share of the incumbent party (parties) in the previous election.
U is the subnational ratio (subnational / national) for unemployment measured as the percentage from time t to time t-1.

Table 103. Regression Results for the Deviations in the Level of Regional GDP.

Nation	Constant	SE	Previous	SE	G	SE	R^2
Incumbent Vote Share							
B	0.1272	3.66	0.7819	11.48	0.000001	0.40	0.830
D	0.0122	0.15	0.9900	4.71	0.000006	0.72	0.478
F	0.1797	7.96	0.5215	10.81	-0.000006	2.84	0.318
F_1	0.2894	10.01	0.2253	3.47	-0.000000	1.45	0.071
F_2	0.0687	5.67	0.8058	34.11	-0.000002	1.61	0.927
I	0.0427	1.55	0.9061	18.24	-0.000002	0.56	0.897
I_1	0.0627	2.35	0.8845	18.24	0.000003	0.88	0.941
I_2	-0.0038	0.07	0.9619	9.55	-0.000007	1.41	0.855
N	0.2268	0.90	0.5702	1.15	-0.000001	0.00	0.018
S	0.3693	6.16	0.0410	0.29	0.000060	3.87	0.829
U	-0.0276	1.66	1.0545	32.91	-0.000004	1.83	0.950
Change in Incumbent Vote Share							
B	0.0180	2.32			0.000002	0.60	0.012
D	0.0084	0.71			0.000006	0.74	0.019
F	-0.0394	7.24			-0.000004	1.81	0.012
F_1	-0.0423	4.03			-0.000003	1.09	0.006
F_2	-0.0300	14.13			-0.000002	1.52	0.025
I	-0.0087	1.85			-0.000004	1.63	0.051
I_1	0.0002	0.34			-0.000001	0.34	0.004
I_2	-0.0370	3.39			-0.000007	0.85	0.041
N	0.0157	0.25			-0.000004	0.19	0.000
S	-0.0282	1.23			0.000050	3.97	0.173
U	0.0004	0.16			-0.000006	3.28	0.109

Note: National Abbreviations are the same as in Table 85.
Previous is the vote share of the incumbent party (parties) in the previous election.
G is the subnational deviation (national - subnational) for GDP measured in ECUs.

Table 104. Regression Results for the Ratio of the Level of Regional GDP to the Level of National GDP.

Nation	Constant	SE	Previous	SE	G	SE	R^2
Incumbent Vote Share							
B	0.1413	3.11	0.7819	11.48	-0.0141	0.40	0.830
D	0.0815	0.63	0.9931	4.76	-0.0705	0.78	0.480
F	0.1218	4.06	0.5266	10.89	0.0544	2.37	0.312
F_1	0.2857	9.96	0.2115	3.20	0.3319	1.15	0.067
F_2	0.0346	3.58	0.8058	34.11	0.0140	1.61	0.927
I	0.0297	0.69	0.9061	18.24	0.0130	0.56	0.897
I_1	0.0844	1.92	0.8845	18.24	-0.0217	0.88	0.941
I_2	0.0757	0.95	0.9856	9.55	0.0609	1.62	0.860
N	0.2761	0.70	0.5701	1.14	0.0008	0.00	0.018
S	0.6073	7.33	0.0410	0.29	-0.2380	3.87	0.242
U	-0.0683	3.92	1.0539	32.98	0.0411	1.88	0.950
Change in Incumbent Vote Share							
B	0.0421	1.10			-0.0241	0.60	0.012
D	0.0785	0.88			-0.0700	0.80	0.022
F	-0.0840	3.39			0.0440	1.66	0.010
F_1	-0.0494	6.65			-0.2912	0.78	0.003
F_2	-0.0474	4.07			0.0174	1.52	0.025
I	-0.0427	2.16			0.0341	1.63	0.051
I_1	-0.0075	0.34			0.0078	0.34	0.004
I_2	-0.0860	2.84			0.0631	1.90	0.175
N	-0.0198	0.10			0.0355	0.19	0.000
S	0.2441	2.72			-0.2723	3.17	0.173
U	-0.0609	3.58			0.0614	3.32	0.111

Note: National Abbreviations are the same as in **Table 85**.
Previous is the vote share of the incumbent party (parties) in the previous election.
G is the subnational ratio (subnational / national) for GDP measured in ECUs.

Table 105. Regression Results for the Deviations in the Percentage Change in the Level of Regional GDP.

Nation	Constant	SE	Previous	SE	G	SE	R^2
Incumbent Vote Share							
B	0.1232	3.15	0.7911	10.37	0.6590	0.33	0.830
D	0.0003	0.00	1.0202	4.91	0.4459	0.46	0.472
F	0.2101	9.75	0.3992	8.22	-0.3492	7.15	0.407
F_1	0.2813	9.86	0.2262	3.45	0.0000	0.13	0.061
F_2	0.0745	4.31	0.8032	33.49	0.0259	0.40	0.926
I	0.0550	2.40	0.8953	22.85	-0.3667	2.38	0.950
I_1	-0.0148	0.25	0.9856	9.55	0.0000	1.62	0.860
I_2	-0.0038	0.07	0.9619	9.55	0.3453	1.41	0.855
N	0.2789	0.84	0.5668	1.06	0.0215	0.01	0.018
S	0.3849	5.61	0.0007	0.00	0.1647	0.44	0.004
U	-0.0423	2.83	1.0791	36.06	0.1253	0.62	0.948
Change in Incumbent Vote Share							
B	0.0177	2.51			3.1272	1.60	0.084
D	0.0079	0.67			0.4430	0.46	0.008
F	-0.0503	8.67			-0.1181	2.11	0.016
F_1	-0.0456	5.09			0.0000	0.96	0.005
F_2	-0.0327	2.20			-0.0159	0.19	0.040
I	-0.0028	0.56			-0.3206	1.91	0.108
I_1	-0.0229	3.05			0.0000	1.90	0.175
I_2	-0.0255	3.56			0.3749	1.66	0.140
N	0.0146	0.23			-0.5360	0.36	0.002
S	-0.0290	1.15			0.2773	0.56	0.006
U	-0.0033	1.40			-0.3493	1.83	0.037

Note: National Abbreviations are the same as in Table 85.
Previous is the vote share of the incumbent party (parties) in the previous election.
G is the subnational deviation (national - subnational) for GDP as percentage change from time t to time t-1.

Table 106. Regression Results for the Ratio of the Percentage Change in the Level of Regional Unemployment to the Percentage Change in National Unemployment.

Nation	Constant	SE	Previous	SE	G	SE	R^2
Incumbent Vote Share							
B	0.1752	1.24	0.7911	10.37	-0.0520	0.33	0.830
D	0.0378	0.33	1.0172	4.89	-0.0362	0.44	0.472
F	0.2533	10.76	0.3727	7.54	-0.0353	7.45	0.415
F_1	0.3105	7.63	0.2139	3.23	-0.0256	1.01	0.066
F_2	0.0721	5.23	0.8032	33.49	0.0024	0.40	0.926
I	0.0401	1.32	0.8886	20.08	0.0107	0.53	0.897
I_1	0.0064	0.22	0.8953	22.85	0.0486	2.38	0.950
I_2	0.0419	0.72	0.9619	9.55	-0.0458	1.41	0.855
N	0.2834	0.78	0.5633	1.07	-0.0021	0.03	0.018
S	0.3961	5.45	0.0007	0.00	-0.0112	0.44	0.004
U	-0.0475	3.57	1.0793	36.10	0.0050	0.60	0.948
Change in Incumbent Vote Share							
B	0.2647	1.73			-0.2470	1.60	0.044
D	0.0443	0.55			-0.0362	0.45	0.007
F	-0.0406	7.79			-0.0093	1.73	0.011
F_1	-0.0757	2.34			0.0264	0.80	0.003
F_2	-0.0313	4.26			-0.0014	0.19	0.000
I	-0.0133	0.58			0.0019	0.09	0.051
I_1	-0.0452	1.88			0.0425	1.91	0.108
I_2	0.0242	0.73			-0.0497	1.66	0.140
N	-0.0057	0.06			0.0190	0.31	0.001
S	-0.0101	0.23			-0.0189	0.56	0.006
U	-0.0176	2.40			0.0143	1.81	0.036

Note: National Abbreviations are the same as in Table 85.
Previous is the vote share of the incumbent party (parties) in the previous election.
G is the subnational ratio (subnational / national) for GDP as percentage change from time t to time t-1.

FINAL CONCLUSIONS

Do regional economic experiences influence voters' evaluations of general economic well-being? Are regional economic experiences salient enough to alter the electorate's voting behavior? Can national incumbents expect that support will diminish in economically disadvantaged regions of the country, and, conversely, increase in economically advantaged regions? These are the questions that this thesis addresses.

This thesis proceeds from the conviction that regional economic experiences color perceptions of general economic well-being. Regional economic experiences supplement the information about the national economy citizens receive from news reports and political elites.

The a priori theory underlying almost all of the economic voting literature -- that voters pursue a rational satisficing strategy, favoring incumbents who maintain or improve economic conditions and rejecting incumbents who fail to sustain economic well-being -- is equally applicable to the a priori theory underlying this particular study. If voters pursue a rational satisficing strategy as Downs (1957) and Kramer (1971) contend, then is it not plausible

that voters in any given region of the country will be more inclined to support incumbents who maintain or improve economic conditions in that region vis-à-vis other regions in the country and, conversely, less willing to support incumbents when regional disparities widen?

This thesis provides a firm theoretical foundation for the a priori theoretical presumptions underlying this study. It builds upon frustration-aggression theory by expanding Gurr's (1967, 1970) theories of relative deprivation. Regional differences in economic conditions can lead to the perception that some regions are worse off relative to other regions. The perception that some regions are worse off relative to others can lead to resentment among disadvantaged voters, leading to a drop in incumbent support.

This study therefore begins with the theoretical presumption that regional economic conditions have a significant effect on incumbent support, an effect that is independent of national economic conditions.

To empirically test the effects of regional economic conditions on the electorate support for national incumbents, this study uses a three element research design. The initial element focuses on individual-level survey responses. Micro-level models give access to theoretical elements unavailable at the level of aggregates. The second

focuses on national aggregates for both incumbent popularity and economic conditions. The goal is to demonstrate that national economic conditions alone do not provide a robust explanation incumbent popularity. The final element focuses on a pooled cross-sectional analysis. Instead of national aggregates, the emphasis shift to regional aggregates for incumbent vote share and economic conditions.

The results from both the micro-level survey analysis and from the pooled cross-sectional analysis of regional aggregates both support this study's a priori hypotheses. Regional disparities in unemployment and GDP do appear to influence voters' economic perceptions and, ultimately, their vote choice.

The micro-level analysis demonstrates that regional patterns of unemployment and GDP both substantially affect vote choices of individual survey respondents and the economic perceptions of those same respondents. Regional deviations in GDP significantly affect ideology, which has a marked impact on vote choice. Regional deviations in unemployment have a significant independent impact on vote choice. The impact of regional deviations in unemployment can gain or lose a significant amount of support for incumbent governments. For the data at hand, estimates range from a loss of approximately 11% to a gain of approximately 5%. Regional deviation in unemployment can

also have a substantial impact on survey respondents' perceptions of changing economic conditions.

Individual-level models based on survey responses are generally plagued with large amounts of stochastic error. The individual regressions and the system of equations analyzed in this thesis are no exception. Yet, regional economic experiences make their effects known through all of that stochastic error, reassuring us that the findings are not simply the result of random correlations and/or sample size. The high degree of concurrence statistical analysis, underlying analytic theory, and the existing literature on economic voting adds further reassurance that the findings are not simply chance associations.

The national aggregate analysis treats popularity functions as a straw man. The a priori presumption from the outset was that clear and unambiguous causal relationships between national economic conditions and executive popularity would not be discovered. An exclusive focus on national economic indicators misses much of the economic variation that the electorate experiences. Therefore, it is not so surprising that results for national popularity functions are sometimes sensitive to model specification and to time periods studied.

This analyst is confident that national economic conditions have an impact on the electorate's perception of

incumbent performance. This analyst is also equally confident that regional economic experiences also have an independent effect on the electorate's perceptions. The inclusion of regional economic experiences in popularity functions should improve both the fit and the robustness of models employing incumbent popularity.

The national aggregate analysis provides strong evidence that a causal relationship exists between national economic conditions and satisfaction with the performance of French and German incumbents. The relationship is particularly robust for the French incumbents, especially the French premier.

This study employs three different statistical techniques and three alternative model specifications to test the sensitivity of these findings. Similar causal relationships are present in an Almon polynomial distributed lag response model, vector autoregression, and transfer function analysis, lending persuasive weight to the argument that these associations are truly causal relationships and not mere chance associations.

The pooled cross-sectional analysis supports the micro-level findings. The results strongly suggest that support for the incumbent national government is influenced by regional economic fluctuations. Furthermore, there is strong support for the hypothesis that differences between

regional and national conditions, measured in terms of unemployment and GDP, are a significant force. These findings hold up extremely well for the British and Spanish cases under alternative operationalizations of both the dependent variable and the macroeconomic series, adding additional persuasive weight that these effects are causal and not just chance associations. There is also some suggestion that other West European electorates are also sensitive to changing regional economic conditions. For example, there is considerable evidence that the Danish electorate is sensitive to the general level of GDP. There is also sporadic evidence for causal relationships in France and Italy.

The importance of these findings are considerable. They demonstrate that the conventional focus on national indicators in political economy models may be misplaced. An exclusive focus on national economic conditions misses important economic variation. The public appears to respond to regional economic experiences in national elections and appears ready to hold national political officeholders accountable for regional disparities. These results thus reinforce those of Belluci (1985), Lancaster and Lewis-Beck (1986), Lewis-Beck and Mitchell (1990), and Marsh and Mitchell (1991), while being at odds with those of Peltzman (1987).

It must be admitted that these findings are not conclusive. The term appears is used throughout the previous paragraph to emphasize that important caveats apply to the findings of this thesis. These findings are preliminary in nature.

The most important caveat is the relative lack of longitudinal variation for the regional analysis. Both the micro-level survey analysis and the pooled cross-sectional aggregate analysis suffer from a relative lack of longitudinal variation. The micro-level analysis uses two Eurobarometer surveys that are separated by six months of time. The pooled cross-sectional analysis often sometimes contains only one national election and at most two national elections for any single incumbent. Longitudinal variation is therefore constrained to a window varying from two to six years. This contrasts with the national popularity studies, where longitudinal variation extend across twenty or more years.

Regional economic conditions can be incorporated into models of economic voting as regional measures of important economic indicators. They can also be incorporated as measures of regional disparity by either subtracting them from or dividing them into comparable national indicators. This study includes measures of regional disparity.

Measures of regional disparity accord well with the a priori theory underlying this study. Regional deviations are presumed to cause perceptions of relative deprivation, leading to frustration with incumbent performance and ultimately to a decline in incumbent support.

Untransformed regional measures are also compatible with the a priori theory underlying this study. They are included in the pooled cross-sectional analysis. Unfortunately, it was not possible to include national measures as separate causal variables. There is not enough longitudinal variation to permit the separate inclusion of national economic indicators. Where there is only one general election represented in a national pool, national economic indicators are a constant. Where there are two elections, national economic indicators become a dichotomous variable, equivalent to an election dummy variable. Instead of being coded 0 or 1, the variable would be coded with the national indicator at election t and election t-i. Further, the variance at the national level would be severely constrained compared to the cross-sectional variation. Any relationship between the dependent variable and the blocs of regional and national indicators would more likely be a statistical artifact of constrained national longitudinal variation.

A second important caveat is the relative absence of political variables from this analysis. Political effects are captured through dummy variables for specific administrations, term counters, etc. These variables are the equivalent of specific ignorance. The term specific ignorance distinguishes these variables from the stochastic disturbance term -- general ignorance. They are at best surrogates for a more complete specification of political variables.

The absence of political variables is common throughout the literature. If the analyst assumes that economic indicators are not correlated with political variables, then unbiased, efficient estimates of economic effects are still possible.

This assumption is testable. Ostrom and Simon (1989) is only one recent example that attempts to include political variables.

Much remains to be done. A subsequent portion of this dissertation addresses research that this analyst intends to undertake.

The results of this analysis do weigh heavily in favor of the a priori hypotheses underlying this study. This is encouraging. It is encouraging enough for this analyst to conclude that further research into the effects of regional economic experiences is warranted and will prove fruitful in

understanding how economic experiences subtly influence electoral behavior.

FUTURE RESEARCH

The preliminary nature of this research has already been admitted. This thesis raises many questions and answers none definitively. It does demonstrate that there is good reason to believe that regional economic experiences color the electorate's perceptions of general economic well-being and influence the electorate's support for political incumbents.

Greater confidence in the findings of this study would result primarily from three different research efforts.

The first and arguably the most important focus for future research is to increase longitudinal variation in the pooled cross-sectional analysis. This means obtaining subnational economic indicators across a wider period of time. As the EC continues to collect this data, future researchers will be able to construct larger datasets. Research does not need to wait for future decades, however. The EC does not do primary data collection for their regional economic datasets. They instead rely upon member states to supply the necessary data. Thus, regional economic indicators are available from the member states themselves. Unfortunately, the data is not routinely

published. The British government, for example, publishes unemployment on a county by county basis annually. The Employment Office collects this data monthly. Direct contact with the agency is necessary to retrieve the monthly figures by county in England. The same is true for the Welsh and Scottish figures.

Extension of the data beyond a narrow time period also introduces a second complexity. Constituency boundaries are sometimes subject to change in West Europe. Systems with proportional representation (PR) are much less inclined to alter constituency boundaries. Reapportionment for PR systems is usually limited to redistributing the number of seats a given constituency elects. Majoritarian systems like those in Britain and France do sometimes necessitate boundary changes. Even PR systems are not immune. The Danish constituency boundaries, for example, were significantly redrawn in the 1960s.

Changes in constituency boundaries can sometimes be controlled by aggregating individual constituencies into larger ad hoc electoral units. This is the approach the Marsh and Mitchell (1991) adopt. Their four election analysis of Irish electoral behavior was complicated by the Irish passion for gerrymandering district boundaries. They aggregate the forty-eight Irish counties into twenty-two electoral units. This works well as long as regional

economic indicators are aggregated at a level higher than electoral constituency boundaries and none of the electoral units cross those regional boundaries. Otherwise, a weighting scheme would have to be developed.

The British case is probably the worst possible case. Not only have constituency boundaries been altered dramatically over the last three decades, so have the local authority boundaries. In the case of England, this means county boundaries have been altered. A weighting scheme is therefore necessary unless one wants to aggregate up to the regional level, collapsing forty-five cross-sections into nine. Direct contact with the individual Boundary Commissions and the Home Office would be necessary to develop an appropriate weighting strategy.

The benefits of including regional economic variation across two or three decades on a nation-by-nation basis would provide a rigorous test of the "regional effects" hypothesis. The evidence from Marsh and Mitchell (1991) demonstrates that regional effects have a significant independent effect on incumbent support in an extended pooled cross-sectional model.

France, Germany, and the United Kingdom are prime candidates for an extended pooled cross-sectional analysis. The familiar link between the economy and electoral behavior has been studied extensively for each. The robust results

for regional effects in the British case in this study are especially promising. Professor Thomas Lancaster of Emory University and I will be studying the German case this winter. Electoral and demographic data at the Landkreise (county) level have already been collected from 1948 to 1990. The economic indicators will be collected by Professor Lancaster this winter in Germany. I have offered a joint research project to another researcher on the French case. I will perform the analysis on the British case myself. I will be collecting the necessary data for the British and French cases in the coming summer. I will visit London, Cardiff, Edinburgh, and Paris to speak with the appropriate officials.

My experience with the Irish case inclines me to believe that the "smaller" West European nations will also provide promising results from an extended pooled cross-sectional analysis. I intend to look at each of the West European nations in turn at some point and, perhaps, extend this analysis outside the bounds of West Europe. Discussions with Professor Scott Flanagan at Florida State University lead me to believe that Japan would also provide promising results.

The second focus is to include regional and even local elections. Are regional and local elections influenced by

national economic conditions? If so, are they perhaps even more influenced by regional economic experiences.

The German case is especially interesting in this respect. The German Länder implement federal policies, giving them a local interpretation. Regional economic planning is a shared responsibility of the federal and Länder governments. The German constitution, the Basic Law (Grundgesetz), requires that regional economic disparities be minimized. Therefore, it becomes important to know whom the electorate holds accountable for both national and regional economic well-being -- national incumbents or Länder incumbents.

The research that Professor Lancaster and I will be performing will include elections at three different levels -- the national Bundestag, the individual Landtags, and the European Parliament. It may also include local elections (Gemeindenwahl) for communities larger than 50,000 inhabitants. The same research design is planned for the British and French cases.

REFERENCES

Achen, C. 1982. Interpreting and Using Regression. Sage University Paper Series on Quantitative Applications in the Social Sciences, 07-029. Newbury Park, CA: Sage Publications.

Akaike, H. 1973. "Information Theory and the Extension of the Maximum Likelihood Principle." In 2nd International Symposium on Information Theory. B. N. Petrov and F. Csaki, eds. Budapest.

Aldrich, J. and F. Nelson. 1984. Linear Probability, Logit, and Probit Models. Sage University Paper Series on Quantitative Applications in the Social Sciences, 07-045. Newbury Park, CA: Sage Publications.

Alt, J. 1984. "Dealignment and the dynamics of partisanship in Britain." In Electoral Change in Advanced Industrial Democracies: Realignment or Dealignment? R. Dalton, S. Flanagan, and P. Beck, eds. Princeton, NJ: Princeton University Press.

------. 1985. "Party strategies, world demand, and unemployment: Domestic and international sources of economic activity." American Political Science Review, 79:1016-40.

Alt, J. and K. Chrystal. 1983. Political Economics. Berkeley: University of California Press.

Anderson, G. and G. Mizon. 1989. "What Can Statistics Contribute to the Analysis of Economic Structural Change?" In Statistical Analysis and the Forecasting of Economic Structural Change. P. Hackl, ed. Berlin: Springer Verlag.

Arcelus, F. and A. Meltzer. 1975. "The effects of aggregate economic variables on congressional elections." American Political Science Review, 69:1232-40.

Bails, D. and L. Peppers. 1982. Business Fluctuations: Forecasting Techniques and Applications. Englewood Cliffs, NJ: Prentice-Hall.

Barnes, S., M. Kaase, and K. Allerbeck. 1979. Political Action: Mass Participation in Five Western Democracies. Beverly Hills: Sage Publications.

Bartels, L. 1985. "Alternative Misspecifications in Simultaneous-Equation Models." Political Methodology. 11:181-99.

----------. 1990. "Instrumental and Quasi-Instrumental Variables." Paper presented at the Summer Methodology Conference, St. Louis, MO, July 1990.

Bartolini, S. and P. Mair. 1984. Party Politics in Contemporary Western Europe. London: Frank Cass and Co, Ltd.

Beck, N. 1980. "Parties, Administrations and American Macroeconomic Outcomes." American Political Science Review. 76:83-94.

Bellucci, Paolo. 1984. "The effect of aggregate economic conditions on the political preferences of the Italian electorate, 1953--1979." European Journal of Political Research, 12:387-412.

----------. 1985. "Economic Concerns in Italian Electoral Behavior: Toward a Rational Electorate." In Economic Conditions and Electoral Outcomes: The United States and West Europe. H. Eulau and M. Lewis-Beck, eds. New York: Agathon Press.

Berry, W. and S. Feldman. 1985. Multiple Regression in Practice. Sage University Paper Series on Quantitative Applications in the Social Sciences, 07-050. Newbury Park, CA: Sage Publications.

Bloom, H. and D. Price. 1975. "Voter response to short-run economic conditions: The asymmetric effect of prosperity and recession. American Political Science Review, 69:1240-64.

Box, G. E. P. and G. M. Jenkins. 1976. Time Series Analysis. San Francisco: Holden-Day.

Brody, R. and L. Sigelman. 1983. "Presidential popularity and presidential elections: An update and an extension." Public Opinion Quarterly, 47:325-8.

Brody, R. and P. Sniderman. 1977. "From life space to polling place: The relevance of personal concerns for voting behavior." British Journal of Political Science, 7:337-60.

Brown, T. and A. Stein. 1982. "The Political Economy of National Elections." Comparative Politics. 14:479-97.

Budge, I., I. Crewe, and D. Farlie. 1976. Party Identification and Beyond. London: John Wiley and Sons.

Budge, I. and H. Keman. 1990. Parties and Democracy: Coalition Formation and Government Functioning in Twenty States. London: Oxford University Press.

Campbell, A., P. Converse, W. Miller, and D. Stokes. 1960. The American Voter. New York: Wiley and Sons.

----------. 1966. lections and the Political Order. New York: Wiley and Sons.

Chappell, H. and W. Keech. 1985. "A new view of political accountability for economic performance." American Political Science Review. 79:10-27.

Chappell, H. 1983. "Presidential popularity and performance: Are voters really so naive?" The Review of Economics and Statistics. 65:385-92.

---------- "Party differences in macroeconomic policies and outcomes." American Economic Review, Papers and Proceedings. 76:71-4.

Chow, G. and P. Corsi. 1982. Evaluating the Reliability of Macro-Economic Models. New York: John Wiley and Sons.

Chrystal, K. A. and J. Alt. 1981. "Some Problems in Formulating and Testing a Politico-Economic Model of the United Kingdom. Economic Journal. 91:730-736.

----------. 1983. "Some Problems in Formulating and Testing a Politico-Economic Model of the United Kingdom." European Journal of Political Research. 11:113-24.

Claggett, W. 1986. "A reexamination of the asymmetry hypothesis: Economic expansions, contractions and congressional elections." Western Political Quarterly, 39:623-33.

Conover, P. 1985. "The Impact of Group Economic Interests on Political Evaluations." American Politics Quarterly. 13:139-66.

Conover, P. and S. Feldman. 1986. "Emotional Reactions to the Economy: I'm Mad as Hell and I'm Not Going to Take it Anymore." American Journal of Political Science. 30:50-78.

Conover, P., S. Feldman, and K. Knight. 1987. "The Personal and Political Underpinnings of Economic Forecasts." American Journal of Political Science. 31:559-83.

Conradt, D. 1989. The German Polity. 4th ed. New York: Longman.

Converse, P. 1966. "The Concept of a Normal Vote." In Elections and the Political Order. A. Campbell, P. Converse, W. Miller, and D. Stokes, eds. New York: Wiley and Sons.

Coverdale, J. 1985. "Regional Nationalism and the Elections in the Basque Country." In Spain at the Polls -- 1977, 1979, 1982. H. Penniman and E. M. Mujal-Léon, eds. Durham, NC: Duke University Press.

Craig, F. S. W. 1988. British Electoral Facts: 1832-1987. Dartmouth, UK: Parliamentary Research Services.

Daalder, H. and P. Mair, eds. 1983. Western European Party Systems: Continuity and Change. London: Sage Publications.

Dalton, R. 1988. Citizen Politics in Western Democracies: Public Opinion and Political Parties in the United States, Great Britain, West Germany and France. Chatham, NJ: Chatham House.

---------. 1989. Politics in West Germany. Glenview, IL: Scott, Foresman and Co.

Dickey, D. and W. Fuller. 1979. "Distribution of the Estimators for Autoregressive Time Series with a Unit Root." Journal of the American Statistical Association. 74:427-31.

Dickey, D. and G. Pantula. 1987. "Determining the Order of Differencing in Autoregressive Processes." Journal of Business and Economic Statistics. 5:455-61.

Dickey, D., W. Bell, and R. Miller. 1986. "Unit Roots in Time Series Models: Tests and Implications." American Statistician. 40:12-26.

Dinkel, R. 1981. "Political Business Cycles in Germany and the United States: Some Theoretical and Empirical Considerations." In Contemporary Political Economy. D. A. Hibbs, Jr. and H. Fassbender, eds. Amsterdam: North-Holland.

Downs, A. 1957. An Economic Theory of Democracy. New York: Harper.

Ehrmann, H. 1983. Politics in France. 4th ed. Boston: Little, Brown, and Co.

van der Eijk, Cees. 1987. "Testing Theories of Election Cycles: The Case of the Netherlands." European Journal of Political Research, 15:253-70.

van der Eijk, Cees, and Erik Oppenhuis. 1989. "European Parties' Performance in Electoral Competition." European Journal of Political Research, 17:[].

Eulau, H. and M. Lewis-Beck, eds. 1985. Economic Conditions and Electoral Outcomes. New York: Agathon.

Fair, R. 1978. "The Effect of Economic Events on Votes for President." The Review of Economics and Statistics. 60:159-73.

Feige, E. and D. Pearce. 1979. "The Causal Relationship Between Money and Income: Some Caveats for Time Series Analysis." Review of Economics and Statistics. 76:363-373.

Feldman, S. 1982. "Economic Self-Interest and Political Behavior." American Journal of Political Science. 26:446-66.

----------. 1985. "Economic Self-Interest and the Vote: Evidence and Meaning." In Economic Conditions and Electoral Outcomes: The United States and West Europe. H. Eulau and M. Lewis-Beck, eds. New York: Agathon Press.

Fiorina, M. 1978a. "Economic retrospective voting in American national elections: A micro analysis." American Journal of Political Science. 22:426-43.

----------. 1978b. Retrospective Voting in American National Elections. New Haven: Yale University Press.

----------. 1981. "Short- and long-term effects of economic conditions on individual voting decisions. In Contemporary Political Economy. D. Hibbs and H. Fassbender,eds. Amsterdam: North-Holland.

Fitzmaurice, J. 1979. "Denmark." In Political Parties in the European Community. S. Henig, ed. London: Goerge Allen and Unwin.

Franklin, M. and A. Mughan. 1978. "The Decline of Class Voting in Britain: Problems of Analysis and Interpretation." American Political Science Review. 72:523-534.

Freeman, J. 1983. "Granger Causality and the Time Series Analysis of Political Relationships." American Journal of Political Science. 27:337-58.

Freeman, J., J. Williams, and T. Lin. 1989. "Vector Autoregrssion and the Study of Politics." American Journal of Political Science. 33:842-77.

Frey, B. and F. Schneider. 1975. "On the Modelling of Politico-Economic Interdependence." European Journal of Political Research. 3:339-60.

----------. 1978. "A Politico-Economic Model of the United Kingdom." Economic Journal. 88:243-53.

----------. 1979. "An Econometric Model with an Endogenous Government Sector." Public Choice. 34:29-43.

----------. 1980. "Popularity Functions: The Case of the U.S. and West Germany." In Models of Political Economy. P. Whiteley, ed. London: Sage Publications.

----------. 1981. "A Politico-Economic Model of the U.K.: New Estimates and Predictions." Economic Journal. 91:737-740.

Fuller, W. 1977. Introduction to Statistical Time Series. New York: Wiley.

Geweke, J., R. Meese, and W. Dent. 1979. Comparing Alternative Tests of Causality in Temporal Systems: Analytic Results and Experimental Evidence. Social Systems Research Institute Workshop Paper 7928, University of Wisconsin, Madison.

Girauld, R. 1980. "L'Analyse Spectrale: Théorie et Application à l'Étude des Interactions." Ph.D. dissertation. Université de Paris II.

Golden, D. and J. Poterba. 1980. "The Price of Popularity: The Political Business Cycle Reexamined." American Journal of Political Science. 24:696-714.

Goodhart, C. A. E. and R. J. Bhansali. 1970. "Political Economy." Political Studies. 18:43-106.

Goodman, S. and G. Kramer. 1975. "Comment on Arcelus and Meltzer, the effect of aggregate economic conditions of congressional elections." American Political Science Review. 69:1255-65.

Granger, C. 1988. "Some Recent Developments in the Study of Causality." Journal of Econometrics. 39:199-211.

Granger, C. and P. Newbold. 1974. "Spurious Regressions in Econometrics." Journal of Econometrics. 2:111-20.

----------. 1986. Forecasting Economic Time Series. Orlando: Harcourt Brace Jovanovich.

Gurr, Ted R. 1967. "A Causal Model of Civil Strife: A Comparative Analysis Using New Indices." American Political Science Review, 42:1104-24.

----------. 1970. Why Men Rebel. Princeton NJ: Princeton University Press.

Hackl, P. 1989. Statistical Analysis and the Forecasting of Economic Structural Change. Berlin: Springer Verlag.

Haugh, L. 1976. "Checking the Independence of Two Covariance-Stationary Time Series: A Univariate Cross Correlation Approach." Journal of the American Statistical Association. 71:375-385.

Hebert, M. and M. Machen, eds. 1984. Regionalisation in France, Italy, and Spain. London: London School of Economics.

Henig, S., ed. 1979. Political Parties in the European Community. London: Goerge Allen and Unwin.

Hibbs, D. A., Jr. 1981. "Economics and Politics in France: Economic Performance and Mass Support for French Presidents Pompidou and Giscard d'Estaing." European Journal of Political Research. 9:133-45.

----------. 1982a. "On the Demand for Economic Outcomes: Mass Political Support in the U.S., Great Britain, and Germany." Journal of Politics. 44:426-62.

----------. 1982b. "President Reagan's mandate for the 1980 elections: A shift to the right?" American Politics Quarterly. 10:387-420.

----------. 1982c. "The dynamics of political support for American presidents among occupational and partisan groups." American Journal of Political Science. 26:312-32.

----------. 1983. "Communication." American Political Science Review. 77:447-51.

----------. 1987. The American Political Economy. Cambridge, MA: Harvard University Press.

Hibbs, D. A., Jr. and H. Fassbender, eds. 1981. Contemporary Political Economy. Amsterdam: North-Holland.

Hibbs, D. A., Jr. and H. Madsen. 1981. "The Impact of Economic Performance on Electoral Support in Sweden, 1967-68." Scandinavian Political Studies. 4:33-50.

Hibbs, D. A., Jr. and N. Vasilatos. 1981. "Macroeconomic Performance and Mass Political Support in the United States and Great Britain." In Contemporary Political Economy. D. A. Hibbs, Jr. and H. Fassbender, eds. Amsterdam: North-Holland.

Jackman, R. 1985. "Cross-National Statistical Research and the Study of Comparative Politics." American Journal of Political Science. 29:161-82.

Jackson, J. 1975. "Issues, choices and presidential votes." American Journal of Political Science. 19:161-85.

Jacobson, G. and S. Kernell. 1983. Strategy and Choice in Congressional Elections. New Haven: Yale University Press.

Janung, L. and E. Wadensjoe. 1979. "The Effect of Unemployment, Inflation, and Real Income Growth on Government Popularity in Sweden." 81:343-353.

Jennings, M. 1984. "The intergenerational transfer of political ideologies in eight Western nations." European Journal of Political Research, 12:261-76.

Johnston, J. 1984. Econometric Models. 3rd edition. New York: McGraw-Hill.

Jung, H. 1978. "Okonomische Einstellungen und das Wahlervalhalten auf dem Hintergrund sozialstruktureller Variablen." In Wahlerverhalten in der Dundesrepublik Deutschland. D. Oberndörfer, ed. Berlin: Duncker and Humblot.

Kaltefleiter, W. 1978. "The Impact of Economic Variables on Voting Behavior in the German Federal Election of 1976. Mimeo.

Karchere, A. and E. Kuh. 1982. "Some Initial Thoughts About Model Reliability." In Evaluating the Reliability of Macro-Economic Models. G. Chow and E. Kuh, eds. New York: John Wiley and Sons.

Kernell, S. 1977. "Presidential popularity and negative voting: An alternative explanation of the mid-term congressional decline of the president's party." American Political Science Review, 71:44-66.

----------. 1978. "Explaining presidential popularity: How ad hoc theorizing, misplaced emphasis, and insufficient care in measuring one's variables refuted common sense and led conventional wisdom down the path of anomalies." American Political Science Review, 72:506-22.

Kernell, S. and D. A. Hibbs, Jr. 1981. "A critical threshold model of presidential popularity." In Contemporary Political Economy. D. Hibbs and H. Fassbender, eds. Amsterdam: North-Holland.

Key, V.O. 1966. The Responsible Electorate. New York: Vintage.

Kiewiet, D. 1983. Macroeconomics and Micropolitics: The Electoral Effects of Economic Issues. Chicago: University of Chicago Press.

Kiewiet, D. and D. Rivers. 1984. "A retrospective on retrospective voting." Political Behavior, 6:369-93.

Kinder, D. and D. Kiewiet. 1979. "Economic discontent and political behavior: The role of personal grievances and collective economic judgments in congressional voting." American Journal of Political Science, 23:495-527.

----------. 1983. "Sociotropic politics: The American case." British Journal of Political Science, 11:129-41.

Kinder, D. and W. Mebane. 1983. "Politics and economics in everyday life." In The Political Process and Economic Change. Kristen Monroe, ed. New York: Agathon.

Kirchgässner, G. 1985a. "Causality Testing of the Popularity Function: An Empirical Investigation." Public Choice. 45:155-73.

----------. 1985b. "Rationality, Causality, and the Relation Between Economic Conditions and the Popularity of Parties." European Economic Review. 28:1-2.

----------. 1986. "Economic Conditions and the Popularity of West German Parties: A Survey." European Journal of Political Research. 14:421-39.

Kmenta, J. 1971. Elements of Econometrics. New York: Macmillan.

Kmenta, J. and J. Ramsey. 1980. Evaluation of Econometric Models. New York: Academic Press.

Kramer, G. 1971. "Short-term fluctuations in U.S. voting behavior: 1896-1964." American Political Science Review. 65:131-43.

----------. 1983. "The ecological fallacy revisited: Aggregate-versus individual-level findings on economics and elections, and sociotropic voting." American Political Science Review. 77:92-111.

Kuklinski, K. and D. West. 1981. "Economic expectations and voting behavior in the United States Senate and House elections." American Political Science Review. 75:436-47.

Lafay, J. D. 1973. "Comportements Politiques et Conjoncture économique." Mimeo. Université de Poitiers.

----------. 1977. "Les Conséquences Électorale de la Conjoncture Économique: Essais de Prevision Chifree Pur Mars 1978." Vie et Sciences Économiques. 75:1-7.

----------. 1981. "The Impact of Economic Variables on Political Behavior in France." In Contemporary Political Economy. D. A. Hibbs and H. Fasbender, eds. Amsterdam: North-Holland.

----------. 1985. "Political Change and Stability of the Popularity Function: The French General Election of 1981." In Economic Conditions and Electoral Outcomes: The United States and West Europe. H. Eulau and M. Lewis-Beck, eds. New York: Agathon Press.

Lafay, J. D., J. Berdot, and R. Giraud. 1981. "Popularity Functions and Models for France: Tables of Preliminary Results." Mimeo. Université de Poitiers.

Lancaster, T. and M. Lewis-Beck. 1986. "The Spanish voter: tradition, economics, ideology." Journal of Politics. 48:648-74.

----------. 1989. "Regional Vote Support: The Spanish Case." International Studies Quarterly. 33:29-43.

Lane, J. and S. Ersson. 1987. Politics and Society in Western Europe. London: Sage Publications.

Lecaillon, J. 1980a. La Crisis et l'Alternance. Paris; Cujas.

----------. 1980b. "Salaires, Chômage et Situation Politique." Revue d'Économique Politique. 5:615-27.

----------. 1981. "Popularité des Gouvernements et Popularité Économique." Consommation. Pages 17-50.

----------. 1982. "Disparité de Revenues at Stratégie Politique." Mimeo. Université de Paris I.

Lewis-Beck, M. 1980. "Economic Conditions and Executive Popularity: The French Experience." American Journal of Political Science. 24:306-23.

----------. 1981. "The Electoral Politics of the French Peasantry: 1946-1978." Political Studies. 29:517-36.

----------. 1983. "Economics and the French Voter: A Microanalysis." Public Opinion Quarterly. 47:347-60.

----------. 1984. "France: The Stalled Electorate." In Electoral Change in Advanced Industrial Democracies. R. Dalton, S. Flanagan, and P. Beck, eds. Princeton, NJ: Princeton University Press.

----------. 1985a. "Un Modèle de Prévision des Élections Législative Françaises (avec une Application pour 1986)." Revue Française de Science Politique. 35:1080-91.

----------. 1985b. "Pocketbook Voting in U.S. National Election Studies: Fact or Fiction?" American Journal of Political Science. 29:348-56.

----------. 1986. "Comparative Economic Voting: Britain, France, Germany, Italy." American Journal of Political Science. 30:315-46.

----------. 1988. Economics and Elections: The Major Western Democracies. Ann Arbor, MI: University of Michigan Press.

Lewis-Beck, M. and P. Bellucci. 1982. "Economic Influences on Legislative Elections in Multiparty Systems: France and Italy." Political Behavior. 4:93-107.

Lewis-Beck, M. and G. E. Mitchell II. 1990. "Does Liverpool Matter? Regional Economic Conditions and the Vote." Paper presented at the Annual Meeting of the American Political Science Association, San Francisco, August 1990.

Lewis-Beck, M. and T. Rice. 1982. "Presidential popularity and presidential vote." Public Opinion Quarterly. 46:534-7.

López-Pintor, R. 1985. "Francoist Reforms in Democratic Spain: The Popular Alliance and the Democratic Coalition." In Spain at the Polls -- 1977, 1979, 1982. H. Penniman and E. M. Mujal-Léon, eds. Durham, NC: Duke University Press.

Mabille, X. and V. Lorwin. 1979. "Belgium." In Political Parties in the European Community. S. Henig, ed. London: Goerge Allen and Unwin.

MacRae, D. 1977. "A Political Model of the Business Cycle." Journal of Political Economy. 85:239-63.

----------. 1981. "On the political business cycle." In Contemporary Political Economy. D. Hibbs and H. Fassbender, eds. Amsterdam: North-Holland.

Madsen, H. 1980. Electoral Outcomes and Macro-Economic Policies: The Scandinavian Cases." In Models of Political Economy. P. Whiteley, ed. London: Sage Publications.

---------. 1981. "Partisanship and macroeconomic outcomes: A reconsideration." In Contemporary Political Economy. D. Hibbs and H. Fassbendereds. Amsterdam: North-Holland.

Markus, Gregory. 1988. "The impact of personal and national economic conditions on the presidential vote: A pooled cross-sectional analysis." American Journal of Political Science. 32:137-54.

Markus, G. and P. Converse. 1979. "A dynamic simultaneous equation model of electoral choice." American Political Science Review. 73:1055-70.

Marsal, J. and J. Roiz. 1985. "Catalán Nationalism and the Spanish Elections." In Spain at the Polls -- 1977, 1979, 1982. H. Penniman and E. M. Mujal-Léon, eds. Durham, NC: Duke University Press.

Marsh, M. and G. E. Mitchell II. 1991. "Economics and Electoral Change: The Irish Experience." Paper presented at the Annual Meeting of the Midwest Political Science Association, Chicago, April 1991.

Mény, Y. and V. Wright, eds. 1985. Centre-Periphery Relations in West Europe. London: George Allen and Unwin.

Miller, A. H. and O. Listhaug. 1985. "Economic Effects on the Vote in Norway." In Economic Conditions and Electoral Outcomes: The United States and West Europe. H. Eulau and M. Lewis-Beck, eds. New York: Agathon Press.

Miller, W. L. and M. Mackie. 1973. "The Electoral Cycle and the Asymmetry of Government and Opposition Popularity: An Alternative Model of the Relationship Between Economic Conditions and Political Popularity." Political Studies. 21:263-279.

Mills, T. 1990. Time Series Techniques for Economists. Cambridge: Cambridge University Press.

Monroe, K. 1978. "Economic influences on presidential popularity." Public Opinion Quarterly. 42:360-9.

---------. 1979. "Economic analysis of electoral behavior: A critical review." Political Behavior. 1:137-43.

----------. 1980. "A French Political Business Cycle?" In French Politics and Public Policy. P. Cerny and M. Schain, eds. New York: St. Martin's Press.

----------. 1983. "Political manipulation of the economy: A closer look at political business cycles." Presidential Studies Quarterly. 13:37-49.

Morgan, R., ed. 1986. Regionalism in European Politics. London: Policies Studies Institute.

Mueller, J. 1970. "Presidential popularity from Truman to Johnson." American Political Science Review. 64:18-34.

Mughan, A. 1987. "General Election Forecasting in Britain: A Comparison of Three Models." Electoral Studies. 6:195-207.

Nazem, S. 1988. Applied Time Series for Business and Economic Forecasting. New York: Marcel Dekker, Inc.

Nordhaus, W. 1975. "The political business cycle." Review of Economic Studies. 42:169-90.

Norpoth, H. 1984. "Economics, politics, and cyles of presidential popularity." Political Behavior. 6:252-73.

----------. 1985. "Economics, Politics, and the Cycle of Presidential Popularity." In Economic Conditions and Electoral Outcomes: The United States and West Europe. H. Eulau and M. Lewis-Beck, eds. New York: Agathon Press.

----------. 1987. "Transfer Function Analysis." In New Tools for Social Scientists: Advances and Applications in Research Methods. W. Berry and M. Lewis-Beck, eds. Beverly Hills: Sage.

Norpoth, H. and T. Yantek. 1983. "Macroeconomic Conditions and Fluctuations of Presidential Popularity: The Question of Lagged Effects." American Journal of Political Science. 27:785-807.

Norton, P. 1991. The British Polity. 2nd ed. New York: Longman.

Ostrom, C., Jr. 1990. Time Series Analysis: Regression Techniques. Sage University Paper Series on Quantitative Applications in the Social Sciences, 07-009. 2nd edition. Newbury Park, CA: Sage Publications.

Ostrom, C., Jr. and R. Smith. 1990. Cointegration and Error Correction in Multiple Time Series Analysis: Presidential Approval and the Quality-of-Life Equilibrium Hypothesis. Paper presented at the 1990 Political Methodology Summer Conference, Washington University, St. Louis, MO, July 19-21.

Page, B. and C. Jones. 1979. "Reciprocal effects of policy preferences, party loyalties and the vote." American Journal of Political Science. 73:1071-89.

Paldam, M. 1981a. "A Preliminary Survey of the Theories and Findings on Vote and Popularity Functions." European Journal of Political Research. 7:1-26.

----------. 1981b. "An essay on the rationality of economic policy: The test-case of the election cycle." Public Choice. 37:287-305.

----------. 1986. "The distribution of election results and the two explanations of the costs of ruling." European Journal of Poltical Research. 2:5-24.

Paldam, M. and F. Schneider. 1980. "The Macro-Economic Aspects of Government and Opposition Popularity in Denmark, 1957-78." Nationalokonomisk Tidsskrift. 118:149-70.

Peltzman, S. 1987. "Economic Conditions and Gubernatorial Elections." American Economic Review. 77:293-97.

Penniman, H. and E. M. Mujal-Léon. 1985. Spain at the Polls -- 1977, 1979, 1982. Durham, NC: Duke University Press.

Peretz, P. 1981. "The Effect of Economic Change on Political Parties in West Europe." In Contemporary Political Economy. D. A. Hibbs, Jr. and H. Fassbender, eds. Amsterdam: North-Holand.

Pfeffley, M. 1985. "The Voter as Juror: Attributing Responsibility for Economic Conditions." In Economic Conditions and Electoral Outcomes: The United States and West Europe. H. Eulau and M. Lewis-Beck, eds. New York: Agathon Press.

Phillips, P. 1986. "Understanding Spurious Regressions in Econometrics." Journal of Econometrics. 33:311-40.

Phillips, P. and S. Durlauf. 1986. "Multiple Time Series Regression with Integrated Processes." Review of Economic Studies. 53:473-95.

Phillips, P. and S. Ouliaris. 1988. "Testing for Cointegration Using Principle Components Methods." Journal of Economic Dynamics and Control. 12(2-3):205-30.

Pierce, D. 1977. "Relationships -- and the Lack Thereof -- Between Economic Time Series, with Special Reference to Money and Interest Rates." Journal of the American Statistical Association. 72:11-26.

Pissarides, C. A. 1980. "British Government Popularity and Economic Performance." Economic Journal. 90:569-81.

Rattinger, H. 1981. "Unemployment and the 1976 Election in Germany: Some Findings at the Aggregate and the Individual Level of Analysis." In Contemporary Political Economy. D. A. Hibbs, Jr. and H. Fassbender, eds. Amsterdam: North-Holland.

Rokkan, S. and D. Urwin, eds. 1982. The Politics of Territorial Identity. London: Sage Publications.

Rosa, J. 1980. "Economic Conditions and Elections in France." In Models of Political Economy. P. Whiteley, ed. London: Sage Publications.

Rosenstone, S. 1982. "Economic adversity and voter turnout." American Journal of Political Science. 26:25-46.

Roth, D. 1973. "Okonomische Variablen und Wahlverhalten: Eine empirische Untersuchung zur Validatat von Einschatzungsfragen." Politische Vierteljahresscrift. 14:257-74.

-------. 1977. "Ökonomische Situation und Wahlverhalten: Das Beispiel Arbeitslosigkeit." Politische Vierteljahresschrift. 18:537-50.

Safran, W. 1991. The French Polity. 3rd ed. New York: Longman.

Sassoon, D. 1986. Contemporary Italy: Politics, Economy & Society since 1945. New York: Longman.

Sayrs, L. 1989. Pooled Time Series Analysis. Sage University Paper Series on Quantitative Applications in the Social Sciences, 07-070. Newbury Park, CA: Sage Publications.

Schneider, F. 1985. "Public Attitudes Toward Economic Conditions and Their Impact on Government Behavior." In Economic Conditions and Electoral Outcomes: The United States and West Europe. H. Eulau and M. Lewis-Beck, eds. New York: Agathon Press.

Scwartz, G. 1978. "Estimating the Dimension of a Model." Annals of Statistics. 6:461-464.

Schwert, G. W. 1987. "Effects of Model Specification Error Tests for Unit Roots in Macroeconomic Data." Journal of Monetary Economics. 20:73-103.

Sears, D. and R. Lau. 1983. "Inducing apparently self-interested political preferences." American Journal of Political Science. 27:223-52.

Sniderman, P. and R. Brody. 1977. "Coping: The ethic of self-reliance." American Journal of Political Science. 21:501-21.

Stigler, G. 1973. "General economic conditions and national elections." American Economic Review, Papers and Proceedings. 63:160-7.

Toinet, M. F. 1985. "Economics and Electoral Outcomes: Some Personal Observations." In Economic Conditions and Electoral Outcomes: The United States and West Europe. H. Eulau and M. Lewis-Beck, eds. New York: Agathon Press.

Tufte, E. 1978. Political Control of the Economy. Princeton: Princeton University Press.

Weatherford, M. S. 1978. "Economic Conditions and Electoral Outcomes: Class Differences in the Political Response to Recession." American Journal of Political Science. 22:917-38.

----------. 1983. "Economic Voting and the 'Symbolic Politics' Argument: A Reinterpretation and Synthesis." American Political Science Review. 77:158-74.

Whiteley, P. 1980. Models of Political Economy. London: Sage Publishing.

----------. 1984. "Inflation, Unemployment, and Government Popularity -- Dynamic Models for the U.S." Electoral Studies. 3:3-24.

----------. 1985. "Perceptions of Economic Performance and Voting Behavior in the 1983 General Election in Britain." In Economic Conditions and Electoral Outcomes: The United States and West Europe. H. Eulau and M. Lewis-Beck, eds. New York: Agathon Press.

----------. 1986. "Macroeconomic Performance and Government Popularity in Great Britain: The Short-Run Dynamics." European Journal of Political Research. 14:45-61.

Wilson, F. 1990. European Politics Today: The Democratic Experience. Englewood Cliffs, NJ: Prentice-Hall.

Wonnacott, R. and T. Wonnacott. 1979. Introductory Statistics. New York: Wiley and Sons.

Yantek, T. 1988. "Polity and Economy under Extreme Economic Conditions." American Journal of Political Science. 32:196-216.