

Is Political Business Cycle Theory Relevant to Ireland?

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In recent decades, economists have spent much time analysing the influence of politics on economic cycles. Thomas Newell and Alan Stuart present a review of political business cycle theory literature and consider its relevance to Ireland.

Introduction

Since the 1970s, the field of political economics has attempted to describe and develop models to outline how governments in office, ever conscious of the need for re-election, manipulate key macroeconomic variables in an attempt to achieve political popularity. Research into these political business cycle (PBC) models attempts to link political elections with business cycles and examines theoretical ways in which explanatory links can be developed. The purpose of this paper is twofold. Theoretical, political and economic assumptions that underlie PBC models will be questioned, followed by an investigation into their applicability to Ireland. Two general methodological approaches can be taken to investigate the reliability and validity of these models. These are a qualitative narrative approach that relies upon anecdotal evidence or a quantitative approach using econometric modelling. Although only a small level of research into these theories has been undertaken with respect to Ireland, we shall provide a critique of that research and question its conclusions. The structure of this paper is as follows:

- A review of the main PBC models that have been developed, and a critique of the taxonomy developed by Alt and Chrystal (1983) to describe them;
- An outline of both the explicit and implicit assumptions of PBC models, which are often neglected by authors in the field;
- A review of PBC studies in Ireland, and an extension of research into the area already undertaken;
- An examination of whether the restrictive assumptions required for PBC models to work are realistic in an Irish setting.

Background to Political Business Cycle Theory

An attempt to describe the diversity of PBC theory was undertaken by Alt and Chrystal (1983) and remains the dominant reference in the field. They made a number of initial assumptions, which they claimed were present in all PBC models. They are the following:

- "1. Governments aim to win elections. In order to win elections, they attempt to maximise votes.
2. Among economic outcomes, voters have preferences that are reflected in their voting behaviour.
3. Governments can manipulate the economy to improve their chances of re-election."

Following from these three assumptions, Alt and Chrystal devised a taxonomy to describe the literature concerning PBC theories (Alt and Chrystal, 1983). This is illustrated below. The 2X2 matrix places four main PBC theorists' models in different cells of the matrix. The vertical axis describes whether the electorate's preferences for a particular trade-off of economic outcomes are fixed for each elector or if they vary over time. The horizontal axis describes whether governments are ideologically motivated and wish to adopt the policy preferences of their supporters (responsive governments), or office motivated and wish to calculate policy positions to maximise the greatest number of potential votes (strategic governments). Although the Alt and Chrystal taxonomy has been used as a starting point by researchers investing PBC, our paper will take a different approach. We shall examine the taxonomy's failure to outline the implicit assumptions surrounding the theories it describes and its neglect of alternative dimensions of PBC theory. We will begin by briefly reviewing each model in the taxonomy.

GOVERNMENT PREFERENCES		
ELECTORATE PREFERENCES	Strategic	Responsive
Fixed	Nordhaus	Hibbs
Varying	Tufte	Moseley

Under the assumptions of fixed preferences and strategic governments, Nordhaus developed his model in the context of a naïve Phillips Curve model. With fixed election dates, he predicted that the economies are stimulated prior to an election with output increasing above the natural rate and thus reducing unemployment. After the elections, contractionary policies are implemented to control inflation (Nordhaus, 1975). Hibbs's partisan model was also based upon voters' myopia. His two-party model envisaged a left-wing party and a right-wing party. The former would be willing to reduce unemployment at the expense of high inflation, while the latter would be prepared to tolerate more unemployment with higher inflation. With left-wing victories, cycles are post-election as opposed to pre-election with right-wing victories (Hibbs, 1987). Tufte (1978), while following Nordhaus's myopic and strategic assumptions, claims that governments can in fact influence voters' preferences through the media and can do so to maximise the votes they receive. Mosley, on the other hand, agreed with Tufte's belief that governments can manipulate voters' ideas about which economic variable is the "crisis" variable, but assumed a level of partisan ideological bias among parties, like Hibbs (Mosley, 1984). The cyclical preferences indifference map which underlies these models is illustrated with algebra and appropriate diagrams in Appendix A.

The main ways in which the Alt and Chrystal taxonomy can be criticised are as follows:

- Some PBC theories exist that do not strictly follow all of Alt and Chrystal's assumptions;
- Alt and Chrystal ignore more important dimensions, which differentiate PBC models;
- Some models span more than one cell of Alt and Chrystal's taxonomy.

For instance, Alt and Chrystal's third assumption above does not state whether the government's ability to manipulate the economy depends upon voters' myopia. As it happens, all the models that they place in their taxonomy assume voters' inflation myopia, but a significant amount of the literature instead ignores voters' myopia in favour of asymmetric information between voters and future governments as the cause of the cycles. Alesina (1988), for example, expands Hibbs's model into one based upon rational expectations and Bayesian game theory. As before, the left-wing party concerns itself more with unemployment and is willing to accept higher short-run inflation, while with right-wing parties, the opposite holds true. Firms set inflation expectations as the weighted probability that either party will win the election. Therefore, a temporary boom follows left-wing victories as inflation is always higher than expected, while a temporary recession follows a right-wing victory as inflation is lower than expected. Sheffrin (1996) suggests that stock market indices should reflect Alesina's "announcement effect". This would result because a right-wing victory should result in lower prices, reflecting depressed profit streams, and vice versa for left-wing victories.

Others, including Rogoff and Sibert, Ferejohn and Cukierman and Meltzer have attempted to apply similar rational expectations analysis to fiscal policy distortions at electoral frequencies (Rogoff & Sibert, 1988). Persson and Tabellini (1991) go one step further by measuring government competence in terms of the natural rate of unemployment. It is also worth noting research findings by Kelman (1988) that electors' voting does not necessarily reflect their own preferences and can even be vaguely altruistic in nature. For instance, his research indicated that people vote for a particular party's policy because they believe that it will be good for the country in general, rather than for themselves.

Frey and Schneider (1978) also seem to combine both Alt and Chrystal's responsive and strategic governments with fixed preferences. In their model, they attempt to outline a popularity function and a policy function. The political popularity function expresses a party's support as a function of the unemployment, inflation and economic growth rates, while the latter embodies the responsive ideological preferences of the incumbent government. If popularity is low, then economic variables are manipulated to 'correct' the picture, whereas with high popularity the government follows its supporters' and own ideology by being responsive. Therefore, Frey and Schneider's model emphasises utility maximising instead of vote-maximising governments. Popularity is sought so that the ideological programme can be followed.

Another highly unrealistic implicit assumption of the Alt and Chrystal's models is the exogeneity of the

election timing (i.e. elections occur at fixed time intervals). However, only a tiny number of countries, such as America, have this system of electoral law. The 'ethnocentric' bias of PBC theory was only questioned by Balke (1990), who proposed the simple fact that governments time elections to occur during periods of economic boom. Thus instead of elections causing booms, Balke claimed that booms cause elections in endogenous election-timing regimes. Instead of the business cycle being fitted to the political cycle, the political cycle is fixed to the business cycle. Terrones (1987) goes one step further by expressing the probability of holding elections as a function of the strength of the economy and the remaining period in office.

It is evident from the descriptions above that Alt and Chrystal's taxonomy, prominent for so long in PBC theory, is flawed and outdated in describing the diversity of PBC literature. However, Alt and Chrystal's claim of a lack of empirical evidence is still generally true for all PBC models:

"... it is curious that the literature on political business cycle is widely invoked, even though there is little evidence of such cycles" (Alt & Chrystal, 1983)

What this paper proposes is to outline the unrealistic assumptions that PBC models make about countries' economies and political systems. The fact that some models have not discussed all of their assumptions or how they differ from one another is a cause of great confusion. All PBC theories make the following assumptions:

- A1) economic policy is a dominant dimension that divides political parties,
- A2) growth, output and inflation are mostly endogenously determined.

While the first assumption is sometimes subsumed by ethnic or social cleavages, the second is true only for the most autarkic regimes today. Some or most PBC theories also make the following explicit assumptions, which are also questionable:

- B1) voters' myopia or asymmetric information,
- B2) exogenous election timing,
- B3) choice between individual and social welfare is reflected in voters' preferences,
- B4) parties are either strictly strategic or responsive but not both.

The case of the models that make these assumptions is outlined in the model descriptions above. In addition, political science literature suggests the following implicit assumptions, which are at odds with the PBC models to varying degrees in different countries:

- C1) proportionality of the electoral system,
- C2) economic policy variables in manifestos turn into actual outcome variables,
- C3) party policy within a party is stable, regardless of the personalities that hold key positions,
- C4) clear differentiation of economic policy between parties,
- C5) coalitions reflect policy positions in proportion to their share of support in government,
- C6) control of certain key ministries has no effect on overall coalition policies.

In the second half of this paper, we shall review and extend empirical tests of the models outlined above in relation to Ireland. We will also show that in the case of Ireland, the A, B and C assumptions are somewhat difficult to accept as being valid.

PBC Theory and Ireland

Unfortunately, there has been a paucity of PBC research in Ireland. Only one major Irish econometric study has been undertaken (Annett, 1991). Other Irish political science and economic history literature, however, shall be used to provide a critique of Annett's results. Finally, the robustness of the A, B and C assumptions shall be examined in the case of Ireland.

In attempting to model political business cycle theories econometrically, authors like Alesina (1988) and Hibbs (1987) adopted the approach of creating regression equations to explain domestic growth, inflation and unemployment using foreign and domestic values of the relevant variables as regressors. Various PBC dummy variables are then individually added to the basic equation to test the various hypotheses of different authors. The purpose of adding the dummy variables individually is to avoid overspecification. Annett simplified this approach by including only some domestic autoregressive terms and the UK equivalents of the relevant variables as proxies for exogenous effects on domestic

growth, unemployment and inflation. Annett's regression equations are specified below. In order to obtain as many government changes and degrees of freedom as possible, a time period of 1949 to 1991 was chosen:

$$\text{Irish Annual Economic Growth: } \text{IREG}_{it} = \text{IREG}_{it-1} + \text{UKEG}_{it} + e_i$$

$$\text{Irish Annual Unemployment Rate: } \text{IRUNEMP}_{it} = \text{UKUNEMP}_{it} + e_i$$

$$\text{Irish Annual Inflation Rate: } \text{IRINF}_{it} = \text{IRINF}_{it-1} + \text{IRINF}_{it-2} + \text{UKINF}_{it} + e_i$$

Until 1989, post-war Irish politics consisted of single-party Fianna Fáil minority or majority governments, alternating with Fine Gael and Labour-led majority and minority coalitions. Annett labelled the Fianna Fáil governments as left-wing "social democratic" alternatives to right-wing "conservative" coalition governments. The rationale behind these labels was based upon an interpretation of Mair's work into the public spending policies of parties over time (Mair, 1987). The dummy variables used by Annett and his results are presented in Appendix B. Annett's basic equations all yielded moderate to high R² values and significant regressor t-statistics.

Annett's annual growth equation found no evidence of Nordhaus-style election-time growth spurts since the relevant dummies were insignificant. The "HPART" dummy tested the Hibbs (myopic) partisan model. Its positive and strongly significant value is indicative of Fianna Fáil being the party of fiscal expansion and high growth. Yet, there is no evidence of growth being consistent with the weak or strong versions of the Alesina model. The basic annual unemployment equation is also significant but with a low level of explanatory power. Here the Nordhaus dummies are not only insignificant, but also have the opposite of the hypothesised sign. The Hibbs dummy predicts lower unemployment under Fianna Fáil. Lagged one period, "WRPT" is highly significant yielding evidence in favour of the weak rational partisan model. Incorporating the strong rational partisan dummies, also lagged one period, does not provide much evidence in favour of cyclical behaviour after each election. From the results, it is evident that partisan unemployment might exist, though both the temporary and permanent versions of Alesina's model look unlikely (Alesina, 1988; Annett, 1991). The basic annual inflation model proved to have much greater explanatory power than the previous two models. None of the dummy variables outlined above were significant. Therefore, neither Nordhaus-style inflationary bouts around elections nor Hibbs-style partisan inflationary differences are evident. Annett also tried to test Persson and Tabellini's competence hypothesis (i.e. that higher inflation is associated with weak governments) by using the "STAB1" and "STAB2" stability dummies (see Appendix B). The results show that neither is significant. Annett never tested for either the Moseley or Tufte models of varying preferences. Since detailed policy-priority surveys of the electorate have only been done since 1987, it was impossible for the authors to attempt any meaningful econometric test of them.

However, Annett did attempt to test for the Balke (1990) and Terrones (1987) hypotheses about election calling in endogenous election-timing regimes (Annett, 1991). Annett followed the methodology of his predecessors in using logit and probit models to estimate the probability of calling an election (Alesina, 1988). The dependent economic variables were quarterly inflation, quarterly change in unemployment and the number of quarters since the previous election (TL). The basic logit and probit models are defined by the following basic equation:

$$\text{PROB}_{it} = \text{IRUNEMP}_{it} + \text{IRINF}_{it} + \text{TL}_{it} + e_i$$

Annett added his stability dummies to the basic equation and the results are in Appendix B. Both the basic equations show that while inflation is insignificant in the decision to call elections, there is weak significance in the negative relationship between unemployment and the probability of calling elections. The evidence is stronger in the logit model. However, the assumption of election calling as a 'choice' variable in endogenous election-timing regimes is not particularly applicable in Ireland due to the fact that most elections are caused by necessity as a result of coalition break-ups or political scandals (Coakley & Gallagher, 1992). The high significance of Annett's stability dummies indicates that it is the presence of coalitions and minority governments that determines elections to a much greater extent than the state of the economy.

Annett did not test Frey and Schneider's beliefs about partisan behaviour being contingent upon a favourable economic climate. However, in this paper an adjustment was made to Annett's basic growth equation to test just that. The dummy variable "ECNCLMAT" was added to the basic equation to provide the necessary adjustment. However, both the R² value of the basic equation and the t-statistic of most of the dummies disimproved, thus casting doubt upon the Frey-Schneider model validity for Ireland. The results are illustrated below.

Results of the Frey-Schneider Growth Adjustment:

	PBC1	PBC2	HPART	WRPT	D1	D2	R1
Coefficient	.00023	-.00057	.0036	-.00037	.0016	-.0026	-.0036
t-statistic	.9645	.9018	.1313	.9155	.7965	.6952	.4339
<i>R</i> ² =0.64, <i>F</i> =23.604							

The authors also tested Sheffrin's idea the "announcement effect" of Alesina's concerning expected inflation hypothesis upon stock exchange prices, by setting up the following equation (Sheffrin, 1996):

$$SEPRICES_{it} = IRINF_{it} + IRINF_{it-1} + PBCINF_{it} + e_i$$

Results of the Sheffrin "Announcement Effect" Equation:

	Basic Equation	PBCINF
Coefficient	<i>R</i> ² =0.72	-105.5
t-statistic	<i>F</i> =16.14	0.325

Unfortunately, these results show low t-statistics, even after correcting for autocorrelation and multicollinearity, so we can disregard Sheffrin's proposal.

An Examination of PBC Assumptions in Ireland

At the end of the second section, we noted the underlying assumptions of PBC theory and the extent to which they were crucial. In reinforcing our criticisms of PBC models, our final section will examine these assumptions in relation to Ireland. Both of the A assumptions, which underlie all of the PBC models, can be easily proved to be untenable in Ireland. A quick glance at any history book will illustrate that the economic policy dimension has never been a dominant divisive force in Irish politics (Cullen, 1987). The 1950s obsession with the question of national identity was replaced by social, rural/urban and moral issues in the 1960s and 1970s (Chubb, 1992). Only from the mid-1980s did political scientists develop policy position tables to calculate more accurately the importance of the economic policy dimension. Indeed, economic policy only ever equalled or was exceeded by the other dimensions in terms of importance in Ireland, especially when compared with other countries (Laver, 1994). In fact, before the 1980s, the economic debates were dominated by the level of public spending and not about an inflation-unemployment trade-off. Criticism of the second A assumption stems from this. All major models determining Irish inflation (Central Bank of Ireland, 1997), unemployment (Barry & Bradley, 1990) and even growth (Ó Gráda & O'Rourke, 1995) have stressed the importance of exogenous determination of the variables. Being a small open economy with fixed exchange rates leaves Ireland with little scope for fiscal or monetary 'fine-tuning' in the sense of the PBC models. The Maastricht convergence criteria merely reinforce this stringent reality for 1990s Ireland. It must also be remembered that, in Annett's and this paper's ANCOVA models, the political dummies were only dummy variables and secondary to the main external and autoregressive variables in the basic equation.

Regarding the B assumptions, the adaptive and rational expectations approaches to studying inflationary expectations in the models are untenable given the prominence of indicative planning in Ireland, especially in the latter half of the sample period. Indeed, Leddin and Walsh (1995) find no relationship whatsoever between inflation and unemployment in Ireland. The assumption of exogenous election-timing has already been dealt with, but assumption B3, that voting reflects individual as opposed to social preferences in voting, can also be questioned. In Ireland, "the assumption that man is

an object of political rationality capable of calculating his precise well-being under different contingencies" has proved to be sometimes subservient to identification of voting for the traditional "family party" or for one's "social group" (Chubb, 1992). While these ties have weakened more recently (Coakley & Gallagher, 1992), there is considerable qualitative support for Kelman's socially responsible voting hypothesis mentioned above (Borooah, 1990). The B4 assumption of governments being either strategic or responsive, but not both, was tested by the Frey-Schneider regressions above.

The first of the C assumptions, proportionality of the electoral system, simply states that the proportion of votes for a party approximately equals the proportion of seats that the party gets in parliament. Although Ireland's PR-STV system is far more proportional than those of the UK and the US, there are still four ways by which it is prone to disproportionality (Coakley & Gallagher, 1992), and incidents of such have occurred during the sample period of study. Annett (1991), also admitted the assumption C2, that manifesto policy variables are transformed into outcome variables, in his paper. However, some political scientists have outlined no less than five ways in which this fundamental assumption is inapplicable (Gallagher, Laver and Mair, 1995), and have described Ireland as an example of this. Assumption C3 is also highly questionable given the importance of "personality politics" in Ireland over "toeing the party line" (Chubb, 1992). Cullen (1987) provides a critique of how dominant individuals have tried to alter party stances on economic issues, making Irish parties very "fuzzy at the edges". A corollary of this is the lack of validity one can give to assumption C4, and recent policy tables have confirmed the instability of economic policy positions among parties over time (Laver, 1994). Work by Borooah and Borooah (1990) casts doubt upon the "left- and right-wing" labels applied by Annett, which underlies the whole basis of the regressions in his, and this, paper. Indeed, Alt (1985) used labels that were the exact opposite of Annett's ones. Assumptions C5 and C6 have been questioned in a new model by Laver and Shepsle (1992) called "Portfolio Allocation", which they based upon "Westminster Model" countries like Ireland. The model emphasises the importance of the policy beliefs of the particular ministers in a government and the power that some portfolios can wield over others. Lee (1990) confirms their beliefs by outlining how the party affiliation and personal beliefs of Irish Ministers for Finance dominated coalition politics disproportionately. He also provides the example of MacEntee and Lemass as two people from one party with opposite fiscal views. Lee even uses the explicit term "political business cycle" to describe the Fianna Fáil Colley budget of 1972, but goes on to conclude that there was no evidence of this being a regular occurrence or of any recurring pattern with any party or coalition. In summary, the overwhelming qualitative evidence can be said to undermine the implicit C assumptions of PBC theory in Ireland.

Conclusions

In this paper, we outlined and summarised, as broadly as possible, the diverse literature surrounding political business cycle theory. The Alt and Chrystal taxonomy, the traditional starting point for work on PBC theory, was shown to be inadequate as a description of the diverse models in use. We then proceeded to describe not only the explicit, but also the implicit assumptions that underlie most, if not all, PBC models that have been ignored in the literature. In applying the models to Ireland, we wanted to extend the econometric models used by Annett (1991) and provide a critique of them. While Annett concluded that there might be some evidence for partisan effects, by examining this paper's A, B and C assumptions we cast doubt upon his assumptions. While Annett's answer to the question in the title was a complicated way of saying 'maybe', this paper proposes a much simpler way of answering 'no'. PBC modelling is gradually losing empirical support in most other countries too.

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Appendix A: Political Indifference Map Showing Vote Optimisation Underlying PBC Modelling

Since the two components of the 'misery index' are equivalent to negative goods in consumer theory, we can draw concave *isovote lines* (dotted) as an indifference map superimposed upon a set of naïve Philips curves (full lines) to arrive at a *voting expansion path* under the assumption of adaptive expectations. The objective isovote

function can be expressed as a function of inflation (p) and unemployment (U), while the non-linear Philips curves constraint can be expressed in the form of inflation as a function of unemployment (see Diagram 1). The non-linear constrained optimisation problem can be expressed as a Lagrangean:

The first order optimisation conditions are therefore:

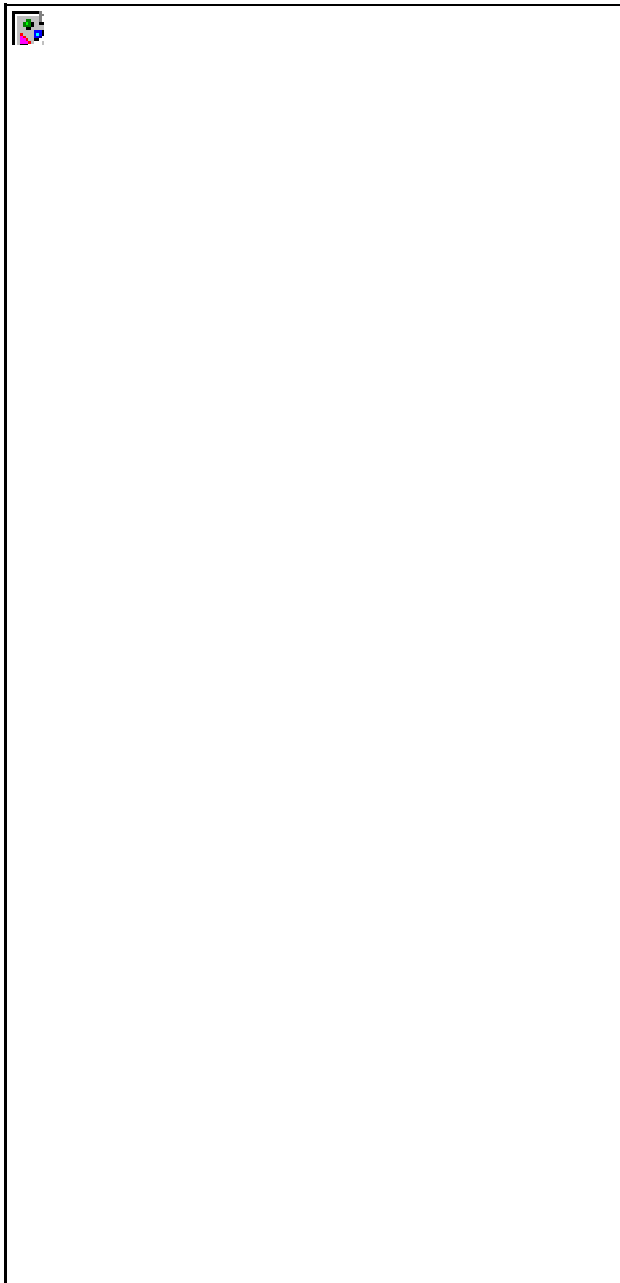
$$\frac{\partial L}{\partial p} = 0$$

$$\frac{\partial L}{\partial U} = 0 \quad \frac{\partial L}{\partial \lambda} = 0$$

Then setting the first order conditions equal to zero and solving to eliminate λ gives:

$$\frac{\partial g(U)}{\partial U} = -\frac{g(U)}{U} \quad \frac{\partial g(U)}{\partial U} = -\frac{g(U)}{U}$$

This last equation is the voting expansion path, which goes through the origin when voters reach their optimal satiation point with no inflation or unemployment. The term $-\frac{g(U)}{U}$ is the marginal technical rate at which inflation is substituted for unemployment in a given naïve Philips curve. The left-hand side of the equation is the ratio of the negative of the marginal rates of substitution of votes with respect to inflation and unemployment. Under the assumption of rational expectations, the constraint would be vertical at the non-accelerating inflation rate of unemployment (or NAIRU shown here by the symbol U^* , see Diagram 2). The constrained optimisation problem with vertical Philips curves is impossible to illustrate by a Lagrangean, since there are no interior optimum solutions and the voting expansion path is coincident with the horizontal 'unemployment' axis. Each long-run optimum point is simply the boundary solution where each isovote line intersects the relevant NAIRU. It is worth also noting that no explicit functional form was used for either the isovote lines or the short-run Philips curves, since it is uncertain whether a circular, parabolic, hyperbolic or quadratic would best describe them.



Appendix B: Description of the Variables Used in Annett's (1991) and This Paper's Regressions and the Relevant Results

PBC1: 0 in the election year (the preceding year if the election is before June), 1 otherwise (Nordhaus model).

PBC2: 0 in the election year and the preceding year, 1 otherwise (Nordhaus model).

PBCINF: 1 in the election year for Fianna Fáil governments, -1 for Fine Gael-Labour governments, 0 otherwise (the following year if the election is held in the last quarter) (Hibbs model).

HPART: 1 for years with Fianna Fáil governments, -1 otherwise (Hibbs model).

WRPT: 1 in the two years after the election, including the election year, for governments involving a change in power towards Fianna Fáil, -1 in the two years after election, including the election year, for governments involving changes in power away from Fianna Fáil, 0 otherwise (weak Alesina model).

D1: 1 for the first two years governments that do not involve Fianna Fáil, including the election year, 0 otherwise (strong Alesina model).

D2: 1 for the remaining years of the term (not equal to 1 in D1) for governments that do not involve Fiann

R1: 1 for the first two years of Fianna Fáil governments, including the election year, 0 otherwise (strong Alesina model).

STAB1: 0 for all majority governments, 1 for all minority governments (Persson-Tabellini model).

STAB2: 0 for all single-party governments, 1 for all coalitions (Persson-Tabellini model).

PROB: probability of an election being called (Balke and Terrones models).

TL: the number of quarters since the previous election (Balke and Terrones models).

ECONCLMT: 1 when economic growth exceeds 4%, 0 otherwise (Frey-Schneider model).

Annett's Annual Growth Equation:

	PBC1	PBC2	HPART	WRPT	D1	D2	R1
Coefficient	0.001	0.31	0.82	0.36	-1.08	-3	-0.45
t-statistic	0.001	0.47	2.62	0.7	-1.25	-3.21	-0.64
<i>R²=0.27, F=7.3</i>							

Annett's Annual Unemployment Equation:

	PBC1	PBC2	HPART	WRPT[-1]	D1[-1]	D2[-1]	R1[-1]
Coefficient	-3.47	-3.91	-3.3	-7.12	6.64	-3.71	-6.64
t-statistic	-0.9	-1.08	-1.9	-2.83	1.37	-0.69	-1.59
<i>R²=0.24, F=13.17</i>							

Annett's Annual Inflation Equation:

	PBCINF	HPART	STAB1	STAB2
Coefficient	0.54	0.92	1.02	-0.06
t-statistic	0.76	1.09	1.33	-0.08
<i>R²=0.88, F=96.96</i>				

Annett's Election-Calling Equation:

Probit Model	Basic Equation	STAB1	STAB2
Coefficient	<i>Log Likelihood</i> = -37.55	1.19	0.07
t-statistic		2.83	0.22

Logit Model	Basic Equation	STAB1	STAB2
Coefficient	<i>Log Likelihood</i> = -36.52	2.22	0.23
t-statistic		2.75	0.35