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ON THE POLITICAL ECONOMY OF UNEMPLOYMENT

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On the Political Economy of Unemployment

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Political Business Cycles on Unemployment

Abstract

The present paper surveys and tests Political Business Cycles theories on a panel of 14 industrialized countries (13 European Union countries and the U.S.), from 1960 to 1996. It investigates whether there is evidence of opportunistic or partisan unemployment effects in their "pre" and "post" rational expectations forms; and whether economic stability and political stability are related. The results suggest the existence of partisan effects, with more support for rational partisan models than for models with permanent output effects. There is also evidence that coalition governments are associated with higher unemployment rates than single party governments.

Keywords: Unemployment, Ideology, Parties, Politics, Elections

1 Introduction

The present paper analyzes the political economy of unemployment in a sample of 14 industrialized nations (the U.S. and 13 European Union countries), from 1960 to 1996. Two main objectives of this paper can be identified. The first is to test political business cycle (PBC) theories' predictions regarding unemployment, in "pre" and "post" rational expectations form. The second objective is to investigate how political fragmentation affects unemployment.

This study uses a larger and richer data set than previous researchers have used to investigate PBC. Unlike previous studies, institutional differences across nations were taken into account by giving different treatments to presidential, semi-presidential and parliamentary regimes. Improvements in the quality of political data allowed the construction of a continuous variable, instead of a discrete variable, to measure governments' ideologies. This is particularly important when coalition governments have been formed by parties with differing ideologies. Another improvement over previous research is to formulate PBC tests using unemployment expressed as deviation from trend. This is particularly important for partisan models incorporating rational expectations, according to which incumbents can cause unemployment to deviate from trend only during a short period following elections.

The paper is organized as follows. Section 2 presents a brief survey of the relevant literature. The following section describes the data set, section 4 develops the empirical methodology and results. Finally, a critique and conclusions are reported.

2 Survey of Literature

This section starts with brief descriptions of the evolution of political business cycle models and of the major empirical work using panel data to investigate this subject.

2.1 Models of political business cycles

For good surveys on political business cycle (PBC) literature see Alesina (1988), Nordhaus (1989), Person and Tabellini (1990), Price (1997), and Alesina, Cohen, and Roubini (1997). The following sub-section presents a brief synthesis of its evolution.

2.1.1 Political business cycle: Nordhaus (1975)[1]

Main assumptions:

1) Economic structure: the expectations-augmented Phillips curve holds. The Phillips curve is steeper in the long-run than in the short-run, implying a smaller trade-off between inflation and unemployment in the long-run than in the short-run. It is assumed that unemployment is a policy variable which policymakers can set at the level they wish, through a choice of fiscal and monetary policy.

2) All voters have the same utility function, and they favor stable prices and low unemployment rates. Voters have myopic expectations, and they weight recent events more heavily. They form expectations based on past experience and they have adaptive inflation expectations. They evaluate incumbents by comparing their actual behavior to the usual behavior of parties.

3) Parties are opportunistic: regardless of their ideological orientation governing parties try to maximize votes. This approach is in accordance with Downs' (1957) idea that parties are more concerned with their own welfare (staying in office) than with the welfare of society as a whole.

Predictions of the model:

1) All governments behave alike during their incumbencies by choosing policies that maximize their plurality at the next election.

2) In the long-run, democratic systems will choose a point in the Phillips curve where unemployment is lower and inflation is higher than optimal. This results from purely myopic policy choices where future periods are ignored. In the short-run, there is a business cycle

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[1] See also Lindbeck (1976), and MacRae (1977).

associated with the electoral cycle. Incumbents engage in anti-inflationary policies after elections, which increase unemployment, and they generate a pre-election inflation surprise to stimulate the economy and increase their probability of winning the election.

2.1.2 Partisan theory: Hibbs (1977)[2]

Main assumptions:

1) Economic structure: the Phillips curve holds. There is a trade-off between inflation and unemployment, presumably even in the long-run. Political authorities can influence the level of unemployment and inflation through fiscal and monetary policy. Different combinations of unemployment-inflation have important impacts on the distribution of income, and consequently on different classes of the population.

2) Individuals have different utility functions, low and middle income groups of the population are more averse to unemployment than inflation, while upper income groups are more concerned with inflation than unemployment. Voters are aware of partisan differences, choosing the parties that represent their preferences. Expectations are myopic, incumbents' performances are evaluated retrospectively, and recent events are weighted more heavily.

3) Parties are supported by different groups of the electorate and, when in power, adopt policies that favor the groups by which they are supported. That is, parties have different ideologies, pursue different objectives, and consequently adopt different policies. Namely, left-wing parties are more concerned with unemployment, while right-wing parties assign a higher priority to price stability.[3]

Predictions of the model:

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[2] See also Hibbs (1987, 1994) for further extensions, and Hibbs (1992) for a survey of partisan theory.

[3] This assumption represents a departure from Downs (1957), who suggested that parties maximize votes, implying that they would converge to the same platform by adopting the median voter's most desired policy.

1) Governments of different parties adopt different policies.

2) Macroeconomic outcomes are systematically related to governments' political orientations: left-wing incumbents reduce unemployment, while right-wing governments adopt anti-inflationary policies when in power.

2.1.3 Rational expectations and game-theoretic literature

The first generation of PBC models assumed voter myopia and an exploitable expectations-augmented Phillips curve. It was believed that macroeconomic policy could have real effects over extended periods of time. With the introduction of rational expectations, the assumption that voters could be systematically fooled was no longer tenable and PBC models required reformulation.[4] In fact, the whole point of macroeconomic policy effectiveness was being questioned with the emergence of the New Classical school of macroeconomics. Relevant papers on this subject are Lucas (1973) and Sargent and Wallace (1975).

A new revival of PBC models occurred with the development of the New Keynesian ideas. Models in this genre incorporated rational expectations, and predicted that anticipated aggregate demand policies could have real impacts if wages or prices were set in advance for multiple periods.[5] The game theoretic literature on macroeconomic theory initially developed by Kydland and Prescott (1977) and Barro and Gordon (1983) was also incorporated in PBC

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[4] Fully rational voters would not reward governments that systematically produced pre-election inflation surprises. Before the introduction of rational expectations, Nordhaus (1975) had already pointed that an obvious remedy for the political business cycle was to improve the information available to voters, so that they could punish purely opportunistic policies. Regarding partisan models, since the electorate would be aware of partisan differences it would perfectly predict the macroeconomic policy being adopted by incumbent party. Thus, macroeconomic policy would be ineffective and no partisan differences would be observed in macroeconomic outcomes.

[5] Two papers that introduced this idea were Fisher (1977) and Taylor (1980).

literature. In these games, the incumbent party strategically interacts with the competing parties and with the electorate.

2.1.4 Rational opportunistic models: Rogoff and Sibert (1988)[6]

Main assumptions:

1) Economic structure: the model concentrates on macroeconomic policy variables, not on outcomes.[7]

2) All voters have the same utility function, and they chose the candidate that is expected to generate the highest utility when elected. Individuals have rational expectations, but are imperfectly informed. There is uncertainty about the competence of the incumbent, which is bigger the smaller is the revenue it needs to provide for a given level of government services. Citizens observe the level of government competence with a one-period lag, and they try to make inferences based on the level of taxes that is set at the beginning of the period.

3) Parties are rational and opportunistic. Governments differ in levels of competence, and they know about it before voters do. Therefore, before elections incumbents have an incentive to signal that they are competent by manipulating macroeconomic policy variables. The incumbent incentive to cheat (to appear more competent than he really is) is reduced by the fact that he places some weight on social welfare losses derived from excessive use of seignorage. Opposition parties can make promises, but they lack a way to reveal how they would do if they were in office.

Predictions of the model:

1) All governments (with given competence levels) behave alike.

2) In the non-reputational equilibrium, there may be opportunistic effects in the policies adopted, but not necessarily in real outcomes. Since policymakers know their competence

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[6] See also Cukierman and Meltzer (1986), Rogoff (1990), and Person and Tabellini (1990).

[7] It does not directly provide a rationale for an electoral cycle in unemployment.

before voters do, they have an incentive to take advantage of this asymmetry of information by trying to appear as competent as possible before elections. As taxes are set at the beginning of the period, mistakes (intentional or not) made by the government generate a shortfall in revenue, which will be adjusted through distortionary seignorage taxes. That is, the electorate observes the level of government competence directly but with a lag. Therefore, before election periods the incumbent tries to signal its competence by cutting taxes (or increasing government spending, or money growth) in order to be re-elected. However, during off-election periods there is no incentive to cheat. As the electoral cycles in policy variables derive from temporary asymmetries of information, and voters are rational and aware of parties incentives to fool them, the opportunistic behavior is limited (the political business cycles are less regular and shorter than Nordhaus' cycles). Inflation is higher than "normal" immediately before elections. If the analysis is extended to the infinite future, a reputational equilibrium may exist that Paretto dominates the non-reputational equilibrium. Moreover, if parties and voters place a high weight on the future, the equilibrium may produce a situation where distortionary seignorage taxes are never used.

2.1.5 Rational partisan models: Alesina (1987), and Chappell and Keech (1986)[8]

Main assumptions:

1) Economic structure: there is an exploitable inflation-output trade-off in the short-run because of multi-period nominal wage contracting. In the long-run, the economy tends to the natural rate of unemployment.

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[8] Alesina and Sachs (1988) found positive evidence for the empirical implications of the model proposed by Alesina (1987) using U.S. data. Chappell and Keech (1988) present and test a theoretical model which investigates the unemployment impacts of different monetary policies by Democratic and Republican administrations in the US.

2) Voters have rational and forward-looking expectations. They have different utility functions, they are aware of partisan differences, and they choose the candidate that is expected to generate the highest utility when elected.

3) Parties have different ideologies and represent the interests of different groups of the electorate. Both parties agree that inflation above a certain level is bad, but left-wing parties are more (less) concerned about unemployment (inflation) than right-wing parties.

Predictions of the model:

1) Governments of different ideologies adopt different policies.

2) Rational partisan models were developed in the settings of a game-theoretic model close to the one proposed by Barro and Gordon (1983), in which individuals (wage-setters) act first by setting the nominal wage, and only afterwards can they observe the level of inflation. Policymakers have an incentive to announce a different level of inflation to generate an inflation surprise that induces real macroeconomic effects. However, since wage-setters are rational and forward looking, they recognize the incumbent's incentive to cheat (generate an inflation surprise), and set the nominal wage high enough to eliminate this incentive. Thus, in equilibrium (if the wage-setters know which party is going to be in office in the next term), policymakers can not affect output and inflation is higher than optimal. In such an environment, only in the presence of uncertainty about election results does unemployment deviate from its natural rate. The model predicts unemployment below its natural rate at the beginning of a left-wing government and above its natural rate at the beginning of a right-wing administration. After expectations and wages adjust, employment returns to its natural rate.[9] Inflation is higher during a left-wing administration than during a right-wing administration.

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[9] Alt (1985) suggested an alternative explanation to rational expectations, for the occurrence of partisan effects only in the first half of an administration. He argues that besides the fact that expectations are likely to adjust, transitory effects on unemployment may be due to changes in the macroeconomic polices adopted by parties during the second half of their term. The underlying idea is that a sustained reduction

2.2 Recent developments

Tests for electoral cycles typically look for very restricted patterns in outcomes and policy, such as the significance of a dummy variable defined as unity for several quarters before or after an election and zero thereafter. According to Haynes and Stone (1989) these tests have typically found inconclusive or negative results. Using flexible functional forms they present estimates of political business cycle patterns using U.S. data (1951I to 1986II) for economic outcomes (real gross national product, unemployment, and inflation), and policies (money growth rates and cyclically adjusted budget surplus). They found strongly significant four-year electoral cycles in macroeconomic outcomes and policies.

Most studies of partisan effects analyze the U.S. economy, which has a stable four-year electoral period. Ellis and Thoma (1991) present two versions of the partisan model in economies with variable electoral terms. The first model deals with situations where the government involuntarily risks loosing power, such as a vote of no confidence, a coalition breakdown, or a coup d'Etat. The second model concerns situations when a government optimally chooses the date of the next election. In both cases the economy deviates from the natural output when the probability of a change in government is different from zero or one, and the direction of output deviations depends on incumbent government preferences.

Alvarez, Garett and Lange (1991) hypothesize that labor market institutions and union behavior may influence the success of partisan policies. They argue that in countries with densely and centrally organized labor movements, leftist governments can promote economic growth and reduce unemployment and inflation; while in countries with weak labor movements, rightist governments can pursue their partisan-preferred macroeconomic strategies and similarly achieve their preferred macroeconomic outcomes. Using data for 16 advanced industrial democracies between 1967 and 1984 they found evidence supporting this hypothesis.

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of unemployment has costs associated with it, namely in terms of inflation, which may induce parties to cease pursuing this objective after a certain period in office.

Detken and Gartner (1992) present a model where macroeconomic outcomes result from a Stackelberg-type game between the trade union and the government, in which the union takes the first move. They argue that if the union's program contains political items, the union's wage bargaining strategies take into account how bargaining results affect the state of the economy and, hence, the incumbent re-elections prospects. Therefore, bargaining strategies will depend on whether the union prefers the incumbent government to win the election or not, and constitute another source of macroeconomic instability.

In a recent work, Gartner (1996) investigated how Nordhaus political business cycle effects are affected by output and unemployment persistence in models where nominal frictions exist and voters judge government competence adaptively. He argued that in such models, even moderate degrees of persistence may turn the political business cycle upside down: policies are expansionary when elections are far away and turn restrictive as the election draws close.

2.3 Empirical work using panel data

Most studies on this subject use time-series data for a single country, with the U.S. being the most studied country. Since the present essay uses panel data, this sub-section reviews the literature on multi-country research, which is less abundant.

One of the pioneering works with pooled data was performed by Hibbs (1977) on 12 Western European and North American countries, from 1960 to 1969. His main conclusion was that governments adopted policies that tended to favor the groups by which they were supported; that is, he reported favorable evidence on partisan effects with permanent effects. Paldam's (1979) study covered three component series (current growth, real growth, and growth in implicit deflators) for eight main national account series of 17 OECD countries, over the years of 1948-75. He assumed that for a clear electoral pattern to appear a government had to be stable to plan for a certain period. For the 49 governments that were identified as stable, he found weak evidence of Nordhaus political business cycles.

Alt (1985) analyzed partisan effects on the unemployment series of 14 Western industrial nations (1960-83). He reported that the evidence was clearly consistent with the existence of partisan effects, provided that the level of world activity was included as a determinant of national unemployment, and that a partisan effect occurred only when the new government promised it before taking office. He also found weak evidence that an effect was more likely to occur when the government secured a parliamentary majority.

Alesina's first paper on this subject, using panel data, appeared in 1989. Using annual data on growth, unemployment and inflation for twelve OECD countries, from 1968 to 1986, his main findings can be summarized as follows: (1) there is positive evidence in favor of rational partisan theories, but not clear evidence in favor of political business cycles and, (2) more polarized and unstable governments have been associated with worse performance in terms of unemployment and inflation.

Alesina and Roubini (1992) used a sample of 18 OECD economies, from 1960 to 1985, for inflation, unemployment, and real output growth. Their main results were the following. First, Nordhaus' political business cycle theory on output and unemployment was rejected by the data. Second, the data on the inflation rate showed an electoral cycle consistent with the models of budget cycles of Rogoff and Sibert (1988). Third, there was evidence in favor of rational partisan theories. And finally, the partisan theory with permanent effects on output and unemployment was rejected by the data.

Using Alesina and Roubini (1992) empirical results, Gartner (1994) argued that their conclusions were not warranted by the underlying empirical work. According to his interpretation of the results permanent partisan effects exist on output and inflation, the test design and results do not allow one to say the post-rational expectations models perform better than pre-rational expectations models, and the empirical results are not consistent with the rational political business cycle model. He argued that since Alesina and Roubini (1992) found evidence of temporary partisan effects on output *growth*, output effects were permanent. Furthermore, because unemployment showed signs of high persistence temporary shocks

permanently moved unemployment to a new level. Concerning rational opportunistic effects, he argued that simulations of Alesina and Roubini (1992) specification suggested that inflation rises in the election period and in the subsequent 4 quarters, which contradicted the predictions of the theory.

Using annual data from 1960 to 1987, Alesina, Cohen and Roubini (1992) tested opportunistic effects on a sample of 18 OECD economies. They reported that there was very little evidence of pre-electoral effects on economic outcomes, that there was some evidence of "political monetary cycles," as well as "political budget cycles" and finally, that inflation exhibited a post-electoral jump. In a later paper (1993), the same three authors analyzed if elections are called strategically when economic conditions are favorable and if monetary and fiscal policy instruments are manipulated before elections in order to increase the probability of re-election. Tests were performed on a sample of 14 OECD countries for the period of 1960 to 1987. No evidence was found, except for Japan, that favorable economic conditions increase the probability of anticipated elections. Nordhaus's formulation of PBC was rejected by the data, and weak evidence was found of opportunistic manipulation of macroeconomic policy instruments. Recently, the same three authors published a book (Alesina, Cohen and Roubini, 1997) where their previous analysis on this subject are integrated and updated. Concerning political cycles in industrial democracies, they analyze 3 macroeconomic series (unemployment, growth and inflation), for 18 countries, from 1960 to 1993. Their empirical work continues to suggest that there is no evidence of an electoral cycle on unemployment, and that the evidence is supportive of rational partisan theory. They also argue that rational partisan effects are stronger in countries where governments are clearly identifiable as right or left-wing.

All of the studies mentioned above, when testing partisan theory, used discrete variables to classify the ideology of governments, creating ambiguities when the government is composed of a coalition of parties with different ideologies. Furthermore, none of the studies gave a different treatment to parliamentary, semi-presidential and presidential regimes. Regarding rational partisan theory, it is surprising that although its predictions about unemployment are

best described in terms of deviations from its natural rate, none of the previous papers has tested rational partisan theory using unemployment deviations from trend. In order to overcome these shortcomings, more detailed political data were collected and deviations of unemployment from its natural rate were estimated.

3 The Data Set

The data set used in the empirical investigation covers 14 industrialized countries, for the period between 1960 and 1996. Although most papers that test PBC theories on a panel use OECD countries in general, this paper only considers the U.S. and 13 European Union (E.U.) countries (Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, and United Kingdom).[10] Since the U.S. and the E.U. countries have different macroeconomic performances, especially in terms of unemployment, but have similar ways of organizing their economies it seems interesting to test PBC on this group of countries.

It is, however, important to take into account some economic and political differences across nations. Countries vary in their degree of openness. The degree of openness of E.U. nations is bigger than that of U.S., and consequently national outcomes are more influenced by the conditions of world demand. Concerning political issues, some differences between the stable U.S. Presidential political regime, where two parties compete for office and elections are held every four years, and the political systems of European countries should also be taken into account. First, the political system of most E.U. countries is not as stable as the U.S. system: most governments are party coalitions, and more than 50% of them fall before the end of their terms. This creates problems in the definition of incumbents' ideological orientation, and also governments may not stay in office enough time to be considered responsible for macroeconomic outcomes. Second, the U.S. has a presidential regime, while France and Finland have semi-presidential regimes and the rest of E.U. countries have parliamentary regimes.

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[10] Greece was excluded from the sample since no data was found for the quarterly unemployment rate.

The main macroeconomic series analyzed is the quarterly unemployment rate for each country, which was obtained from OECD-MEI. Quarterly growth of the industrial production index for industrialized nations was collected from the IMF-IFS. In order to test opportunistic effects the relevant data were election dates.[11] For parliamentary or presidential regimes parliamentary or presidential election dates were considered respectively, while for semi-presidential regimes both presidential and parliamentary election dates were considered. To test partisan effects governments' ideology had to be determined. For parliamentary regimes, governments were classified as right/left wing on the basis of the ideology of the parties that formed them. For presidential regimes, the President's ideology was determinant. Finally for semi-presidential regimes, the ideology was determined by the simple average of presidential and governmental ideologies.

The ideological data used in the paper were compared with the political data used by Alesina, Cohen and Roubini (1997), and Alt (1985). In order to test rational partisan theory, Alesina, Cohen and Roubini (1997)[12] used a discrete variable equal to +1 in the N quarters starting with a change of government toward the right, to -1 in the N quarters starting with a change of government toward the left, and 0 otherwise (N=4, 6, 8). A specification like this presents several problems when the government is a coalition of parties from different ideologies. First of all, both governments composed by a single party that belongs to the right (left) and governments formed by a coalition of parties from different ideologies but where right (left)-wing parties are dominant, were classified by Alesina, Cohen and Roubini (1997) as right (left)-wing governments. Second, a change in governmental ideology was reported when a "substantial" change in the weight of right and left-wing parties occurred, even if the dominant orientation of the government remained unchanged.

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[11] Details of the political data sources are available from the author upon request.

[12] Alesina, Cohen and Roubini (1997) updated Alesina and Roubini's (1992) sample until 1993, however the same methodology to test PBC was followed in both analysis and their conclusions did not change.

In order to overcome the shortcomings referred to above, data were collected on the number of deputies that belong to right-wing parties forming government and the total number of deputies of the governing parties. This information was used to calculate the percentage of deputies that belong to right-wing parties among the total number of deputies in the governing coalition, which is a proxy variable for governmental orientation. This continuous variable can better capture small changes in governments' orientation, than Alesina, Cohen and Roubini's discrete variable. Furthermore, this variable allows the introduction of an objective criterion to determine governmental ideology: a government is classified as right(left)-wing if more than 50% of the deputies belonging to incumbent parties are right (left) oriented. This is important, since a discrete variable similar to the one used by Alesina, Cohen and Roubini (1997) was also applied in the present paper. However, here a change in governmental ideology was only reported when the major (50% or more) orientation of the government changed.[13]

As already mentioned, only stable governments are able to implement their most preferred policies and should consequently be held responsible by macroeconomic outcomes during their administrations. Thus, data were also collected to determine whether governments

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[13] An example of this divergence of criteria can be found in Austria, 1983-2nd quarter and after. From the 1st quarter of 1970 to the 2nd quarter of 1983 a single left-wing party (Socialist Party of Austria) ruled. Alesina, Cohen and Roubini (1997) and the author of this paper classified this government as left-wing. After the 2nd quarter of 1983, the Socialist Party formed a coalition with the Freedom Party of Austria, which is a right-wing party. Alesina, Cohen and Roubini (1997) reported this as a change to the right. In this paper, no change in the orientation is reported when the discrete variable is used, but some change occurs when using the percentage variable.

were formed by a coalition of parties, or by a single party;[14] and if the ruling parties had a majority in the parliament or not.[15]

Table 1 presents descriptive statistics for political data by country. For the time period analyzed the average time between an election or a change in governments' ideology was 10.9 quarters. Austria, Finland, and Italy had the lowest percentage time of right-wing governments, while Belgium, Netherlands, Portugal, and the U.K. had the highest. All governments were coalitions in Belgium, Germany, and Netherlands; there were no coalition governments in Spain and in the U.K. Among parliamentary regimes, only Belgium and Germany had majority governments during the whole period analyzed.

[Table 1]

4 Empirical Work

This section is organized into three parts. The first part presents tests of PBC. In the second part, tests are performed to assess the impact of political fragmentation on unemployment. The final part presents an integrated test of both hypotheses referred to above.

In order to test the various theories, the following regression was estimated:[16]

Equation 1 $$U_{it} = \alpha_0 + \alpha_1 U_{it-1} + \alpha_2 U_{it-2} + \ldots + \alpha_n U_{it-n} + \alpha_{n+1} AGIPInd_{it-1} + \alpha_{n+2} PDUM_{it-1} + \varepsilon_{it}$$

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[14] This criterion had to be adapted for presidential and semi-presidential regimes. For the United States, a coalition exists when the Presidents' party doesn't have a majority in Congress. For France and Finland, a coalition is considered to exist when the President and the Government have different ideologies.

[15] Presidential and semi-presidential regimes were all classified as majorities.

[16] Although not reported in the tables presented, a constant and dummies for each individual country except one were included to take into account differences across countries. For all regressions, an F-test for the coefficients for the dummies was performed, and in all cases these coefficient estimates were jointly statistically significant.

Where U is the quarterly unemployment rate. *AGIPInd* is the once lagged annual growth of the industrial production index (IPI_t) for industrialized economies [$(IPI_t-IPI_{t-4})/IPI_{t-4}$].[17] *PDUM* is a political variable that varies by specification[18] and ε is the error term.

As has been explained before, the introduction of rational expectations on partisan models changed the focus of party ideology impact on unemployment from its levels to its deviations from natural rate. I therefore also report results where the dependent variable in Equation 1, is replaced by unemployment percentage deviations from trend (*UDT*).[19] Because deviations from trend are more volatile than unemployment levels, in this specification the growth of industrial production index for industrialized economies is measured monthly (*MGIPInd*) instead of annually (*AGIPInd*).

Unit root tests (Dickey-Fuller, 1981) were performed on unemployment and unemployment deviations from trend. As expected, the hypothesis that deviations from trend follow a unit-root process could be rejected for all individual countries. Rather surprisingly, results obtained on unemployment levels indicated that the unit-root hypothesis could only be rejected for Austria, and the U.S. However, the results for the entire panel allow the rejection of the unit root hypothesis. Although empirical results indicate that in some countries unemployment is non stationary, three points deserve consideration. First, my data are at most, from 1960 to 1996 (for several countries the data begin after 1960). This may be too short a

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[17] This variable is included in order to control for the effects of the world economy on domestic unemployment rates.

[18] It is lagged one quarter since it takes time for adopted policies to have an impact on unemployment.

[19] Percentage deviations are used because I am working with panel data. The trend is used as a proxy for the natural rate and was estimated via the Hodrick and Prescott time series decomposition filter (Hoderick and Prescott, 1997). Since I am using quarterly data, a value of 1600 was chosen for the smoothing parameter. This is a common choice by investigators of the empirical properties of the business cycle.

span to get high power augmented Dickey-Fuller tests.[20] Second, for all individual countries, as well as in the panel, at least two lags of unemployment are statistically significant variables explaining current unemployment rates. This suggests that the degree of persistence in unemployment rates is very high, but not a unit root since if this was so, the first lag would be the best predictor of current values of the series (coefficient equal to one). Third, it is hard to conceive the unemployment rate as a unit root series, since it is bounded between zero and one. Taking this into account, tests of the PBC theories were performed on levels of unemployment and on unemployment deviations from trend. The optimal number of lags was decided according to the Schwarz Bayesian Information Criterion and the Breusch-Godfrey test was used to test for autocorrelation.

4.1 Testing Political Business Cycle Theories

This subsection presents tests of the PBC theories on unemployment. Alesina, Cohen and Roubini (1997) already tested these theories for 18 OECD countries (1960-93), for unemployment, inflation, and GDP growth. Although this paper has a different sample (the U.S. and E.U. countries, and is updated to 1996) and focuses on unemployment, comparisons of my results to theirs are done as well as a critique of the specifications they used.

Alesina, Cohen and Roubini (1997) tested PBC theories on unemployment, defining the dependent variable as the difference between the domestic unemployment rate and the "OECD unemployment rate."[21] They argue that this is a way of controlling for nonstationarities in the unemployment process. As was argued above, it is difficult to conceive of unemployment as a unit root, and besides this, when testing PBC theories on inflation and growth of GDP, Alesina,

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[20] Campbell and Perron (1991, p. 153) discussed issues concerning the power and frequency of the data employed to perform unit root tests.

[21] OECD unemployment rate was defined as the average unemployment rate of the seven largest economies in the sample weighted by each country's share of GNP over the total.

Cohen and Roubini (1997) included the "OECD averages" as independent variables. In my opinion the same procedure should have been used for unemployment. Furthermore, rational partisan theory argues that electoral uncertainty about incumbents ideology allows newly elected governments to manipulate unemployment at the beginning of their administrations, making it deviate from its natural rate. However, as soon as expectations are corrected unemployment returns to its trend level. Therefore, a more accurate way to test rational partisan effects is to use unemployment percentage deviations from trend as the dependent variable.

4.1.1 Testing rational partisan theory (RPT)

The political discrete variable used by Alesina, Cohen and Roubini (1997) was the following:

RP1n=+1 in the n quarters starting with that of a change of government ideology towards the right, -1 in the n quarters starting with that of a change in government ideology towards the left, 0 otherwise (n = 4, 6, 8). According to the theory, a positive sign for the estimated coefficient is expected.

They say that although "Ideally, one would want to construct, for every country, a SURPRISE variable similar to the one used (...) for the United States. This task goes beyond the scope of the present volume and presents rather challenging difficulties." (Alesina, Cohen and Roubini, 1997, p. 148). This implies that they assumed the electoral surprise to be equal to the difference between last and current election results. Their results for unemployment, with n = 4, 6, 8, indicate that the political variable is statistically significant.

I start by accepting their assumption that electoral surprises equal the difference between last and current election results but later try a different assumption to test the robustness of the results. Having Alesina, Cohen and Roubini's assumption in mind, the same discrete political variable was applied in this paper as well as an alternative continuous political variable defined as:

RP2n = The change in the percentage of deputies belonging to right-wing parties forming government, in the n quarters starting with a change in governmental ideology (n = 4, 6, 8).[22] A positive sign on the estimated coefficient is expected.

Test results on panel data using levels of unemployment as the dependent variable are reported in Table 2. Estimates of Alesina, Cohen and Roubini's (1997) specification using my sample generate results similar to theirs. The political discrete variable is statistically significant at the 5% significance level, or better, for n = 6 or 8. The alternative "percentage variable" generates even stronger supportive results for rational partisan theory. Estimated coefficients have the expected sign, and are statistically significant at the 1% significance level, for n = 4, 6, and 8.[23]

[Table 2]

As has been said before, according to rational partisan theory if there is uncertainty about an electoral result unemployment deviates from its natural rate at the beginning of a new administration. As economic agents correct their expectations about the incumbent ideology, unemployment returns to the natural rate. Therefore, it is more accurate to test the theory on unemployment deviations from trend than on unemployment levels. Results using unemployment percentage deviations from trend (UDT) as the dependent variable are reported in Table 3.

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[22] See the section describing the data for a detailed explanation of the variable and reasons why it may better capture governmental ideology.

[23] Tests for individual countries were also performed with results available from the author upon request. Using the "percentage" variable (RP2), evidence of rational partisan theory is stronger than using Alesina, Cohen and Roubini's (1997) discrete variable: the number of regressions where estimated coefficients on the political variable have the expected sign is larger and they are more significant. Using RP1, evidence of rational partisan theory is found for Denmark, Sweden, and the U.S., while using the new variable (RP2) besides these countries, weak evidence is also found for Austria and Belgium.

[Table 3]

Empirical results obtained with the new dependent variable almost replicate the previous ones: the political variables continue to be statistically significant in all specifications except for the one using the discrete variable for n = 4.[24] However, these tests were performed under the questionable assumption that changes in governments' ideology are a good proxy for electoral surprises.[25] That is, individuals expect the governing party to be elected for another term. Under this assumption, if one transforms the political variable such that it represents not the change in governmental ideology but the newly elected government ideology during the early quarters of a new administration and zero thereafter, one would expect the political variable to be less statistically significant since it captures both situations where election surprises occurred and didn't occur. To be more precise, the two alternative political variables used from now on are:

RP3n= +1 in the first n quarters of a right-wing government, -1 in the first n quarters of a left-wing government (n = 4, 6, 8).

RP4n= The percentage of deputies belonging to right-wing parties forming government, in the first n quarters of each administration (n = 4, 6, 8).

When the dependent variable is levels of unemployment, the discrete political variable is significant at the 5% level, or better, for n = 4, 6, or 8, while the "percentage" political variable is statistically significant for n = 6 or 8. When the same assumption is applied on unemployment percentage deviations from trend generated results are similar. In this case both political variables are statistically significant for n = 6 or 8. Two explanatory hypotheses of these results are plausible. Either changes in governments' ideology are not a good proxy for

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[24] When the test is performed on individual countries, results confirm Denmark as a country where rational partisan effects are strong, but the evidence for Sweden and the U.S. is much weaker than before.

[25] Recall that partisan theory argues that real partisan effects only occur due to expectational errors about the ideology of the newly elected government.

electoral surprises, or partisan effects are stronger in the early quarters of an administration due to other factors besides electoral surprises, and as parties stay in office they behave more and more like their predecessors.[26] This certainly suggests that unless electoral surprises become more accurately calculable, tests for rational partisan theory are very difficult to implement.

4.1.2 Testing partisan theory with permanent effects

Similarly to the previous sub-section, the following two specifications of the political variable were used to test partisan theory with permanent effects:

PP1 = +1 if a right-wing government rules; -1 if a left-wing government is in office. According to the theory, a positive sign is expected on the estimated coefficient.

PP2 = The percentage of deputies belonging to right-wing parties forming government. A positive sign is expected on the estimated coefficient.

Empirical results for the panel are reported in Table 4. Similarly to Alesina, Cohen and Roubini (1997), the political discrete variable (PP1) is not statistically significant but has the expected sign. The results for the "percentage" variable suggest evidence of Hibbs permanent partisan effects at the 5% significance level.[27]

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[26] An argument that has already been suggested by Alt (1985). See footnote 9.

[27] However, when the political variable is lagged twice or when elections separated by less than two years are excluded from the analysis, the coefficient is not statistically significant from zero at any conventional significance level. With individual country data, supportive evidence for the theory is found for Denmark, Sweden and the U.S., with both variables. For Finland marginal support is found with the "percentage" variable (note that since all governments in Finland were left-wing, the coefficient for the dummy political variable could not be estimated).

Although Hibbs predictions about party ideology impact on macroeconomic variables were defined on their levels, I also tested the existence of permanent partisan effects on percentage deviations from trend. For both political variables estimated coefficients have expected signs but none is statistically significant.

[Table 4]

4.1.3 Testing Nordhaus opportunistic effects

Opportunistic effects were tested using the same dummy variables as Alesina, Cohen and Roubini (1997):

OEBn = +1 in the n quarters preceding an election and in the election quarter; 0 otherwise. According to the theory, a negative sign is expected for the estimated coefficient. N= 4, 6, 8.

OEAn = +1 in the n quarters after an election and in the election quarter; 0 otherwise. A positive estimated coefficient is expected. N= 4, 6, 8.

When testing Nordhaus opportunistic behavior, elections separated by less than two years were excluded from the analysis, as the dummies for the quarters before and after elections could coincide, thus confounding the results. Empirical results presented in Table 5 show that in all regressions the political dummy variable has the wrong sign and is not statistically significant at any conventional significance level.[28]

[Table 5]

When unemployment is expressed as percentage deviations from trend, regardless of the political variable used, evidence is not supportive of permanent partisan effects in any of the considered countries. The only exception is Denmark for which both variables used are statistically significant at the 5% significance level.

[28] Results for individual countries were also not supportive of the theory.

Although Nordhaus did not express the political business cycle in terms of deviations from natural rates, a test for the theory was also performed on percentage deviations of unemployment from trend. The underlying idea is that before elections governments would manipulate unemployment such that it would be below its natural rate in order to win votes and that after elections unemployment would be above its natural rate. Tests performed on percentage deviations from trend were also not supportive of the theory. In none of the specifications was the political dummy variable statistically significant.

A more flexible test suggested by Haynes and Stone (1989) uses a set of dummy variables for each of the 4, 6, and 8 quarters before and after an election. Estimates of this specification also do not support the presence of Nordhaus opportunistic effects.

Tests for rational opportunistic effects were not performed, because the theory suggests that more evidence should be found on the political instruments (such as taxes, money supply or government spending) than on macroeconomic outcomes, and the present paper focuses on the political economy of unemployment.

4.2 The influence of the degree of political fragmentation

Since the sample includes E.U. countries which have a more fragmented political system than the U.S., it seems interesting to complement the tests on PBC theories with an analysis of the degree of political fragmentation influence on unemployment. It is hypothesized that the more fragmented the political system is, the less able governments are to implement their preferred policies, leading to "worse" macroeconomic outcomes. Two aspects are used to measure fragmentation: (1) whether governments are coalitions or not, and (2) whether the ruling parties have a majority of votes in the Parliament or not. To test the impact of the political system degree of fragmentation on unemployment regressions similar to those used to test PBC theories were estimated, but the political variables now consist of measures of the political fragmentation degree. The variables used are defined as follows:

COAL = +1 if the government is a coalition of parties, 0 otherwise. A positive sign on the estimated coefficient is expected.

MIN_t = +1 if the parties forming government have a minority of votes; 0 otherwise. A positive sign is expected.

Results, reported in Table 6, provide strong evidence for the hypothesis that coalition governments perform worse in terms of unemployment than single-party governments. The dummy for minority governments has the correct sign, but is not statistically significant. It should be noted that most coalition governments achieve a majority of seats in the Parliament,

which might be an explanation for why evidence is not supportive of the hypothesis that minority governments perform worse in terms of unemployment.[29] When the same specification was run on unemployment percentage deviations from trend, none of political dummy variables were statistically significant at the 5% significance level, regardless of the sample used (pooled or individual country data).

[Table 6]

4.3 An integrated test

Since PBC factors and the fragmentation of the political system simultaneously affect unemployment, this section presents results for a regression that includes all variables that were statistically significant in the previous sections. Recall that when a relevant variable is omitted from a regression coefficient estimates are biased.[30] Therefore, the following regression was estimated:

Equation 2
$$U_{it} = \alpha_0 + \alpha_1 U_{it-1} + \alpha_2 U_{it-2} + \ldots + \alpha_n U_{it-n} + \alpha_{n-1} GIPInd_{t-1} + \alpha_{n+2} PP_{it-1} + \\ + \alpha_{n+3} RP_{it-1} + + \alpha_{n+4} COAL_{t-1} + \varepsilon_{it}$$

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[29] Tests for individual countries suggest that in Sweden coalition and minority governments perform worse in terms of unemployment and in the U.S. poor performance in unemployment occurs when the President and the Congress have different ideologies. When analyzing the results for individual countries one should take into account that some coefficients could not be estimated because in some countries all governments were coalitions or majorities.

[30] I started by estimating a regression where all political variables were included. Nordhaus political variables and the dummy for minority governments continued not to be statistically significant at the 10% significance level. An F-test on the joint significance of these variables was performed with results suggesting that the null significance of the variables could not be rejected at conventional significance levels.

The symbols represent the same variables described in the previous sections, and n = 4, 6, 8 as before. The political variables used to test rational partisan theory are the ones that assume electoral uncertainty to be equal to the change in governments' ideology (RP1n and RP2n). All data points were considered. As can be seen from Table 7, by including all variables previously considered as relevant in the same regression, the "percentage" political variable for permanent partisan effects is no longer significant. However, strong evidence for rational partisan theory and for the hypothesis that coalitions perform worse than single parties in terms of unemployment can still be found.[31]

[Table 7]

5 Conclusion

Although a few studies have already been done on the political aspects of unemployment on a panel of countries, the present analysis is original in several aspects. First of all, three more years of observations were added to the latest study on this topic, providing an additional election for most of the countries. Second, previous papers tested partisan effects by using a discrete political variable equal to + 1 when there is a change in governmental orientation towards the right, and equal to - 1 in the opposite case. A specification like this presents several problems when the government is formed by a coalition of parties from different ideologies. Besides using a discrete variable specification to capture partisan effects, the present paper uses an alternative continuous variable consisting of the percentage of right-wing deputies belonging to ruling parties over the total number of deputies that ruling parties have. This continuous variable allows the introduction of an objective criterion on the definition of governments' ideology, and captures small changes in governmental orientation, impossible to get by using a discrete variable. Third, although rational partisan theory predictions about unemployment

[31] For specifications using unemployment percentage deviations from trend as the dependent variable only the rational partisan theory political variables are statistically significant.

behavior under electoral uncertainty refer to its deviations from natural rate, tests of the theory have always been performed on its levels. In this paper the theory is tested both on unemployment levels and on unemployment deviations from trend. Fourth, most studies test each PBC theories one at a time, not taking into account that the omission of a relevant variable in a regression can extensively bias the results. Finally, although the sample for most studies includes countries, which have presidential, semi-presidential, and parliamentary regimes, no distinction was made among them. The variable defined in this paper to capture partisan effects takes institutional differences into account by giving a different treatment to the three kinds of regimes.

Empirical results show evidence of rational partisan effects both on levels of unemployment and on its deviations from the natural rate. Results using the percentage political variable to capture governmental ideology are stronger than those using the discrete political variable. However, real partisan effects on unemployment seem to occur regardless of whether there is or not a change in the orientation of governments. This stresses the importance of finding an accurate way to measure election expectational surprises. As Hibbs (1992) noted, this is a serious weakness of rational partisan theory tests. A possible solution is to use data on the popularity of governments or poll data before elections. Unfortunately data on these items is difficult to collect when working with a large number of countries.

Although positive evidence on permanent partisan effects is found when the percentage ideological variable is the only political variable included in the regression, when other political variables considered relevant are included, the percentage ideological variable stops being significant. The evidence was also not supportive of Nordhaus' opportunistic behavior.

Regarding the fragmentation of the political system, results suggest coalition governments perform worse in terms of unemployment than single-party governments. Although negative evidence was found on the hypothesis that minority governments tend to perform worse, one should take into account that most coalition governments have a majority of seats in the Parliament, which might mix the effects.

A final remark ought to be made on the idea that PBC literature has evolved simultaneously with macroeconomic theory. The question of whether PBC effects exist leads to a broader and older question of whether aggregate demand macroeconomic policy is neutral or not. The large number of schools that exist in macroeconomic thought reflects the controversy in macroeconomic theory, and consequently in PBC theories.

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Table 1 Country Statistics

Country	Number of Elections or Changes in Ideology	% Time of Right-Wing Governments in Office	% Time of Coalition Governments in Office	% Time of Majority Governments in Office	Average Time Between an Election or a Change	Period Analyzed
Austria	11	18	49	94	10.2	69:1 - 96:4
Belgium	15	75	100	100	7.2	70:1 - 96:4
Denmark	13	50	60	6	8.3	70:1 - 96:4
Finland	18	0	32	100	8.2	60:1 - 96:4
France	8	48	17	100	13.5	70:1 - 96:4
Germany	12	64	100	100	12.3	60:1 - 96:4
Ireland	4	55	84	68	14.0	83:1 - 96:4
Italy	13	11	82	74	11.3	60:1 - 96:4
Netherlands	10	69	100	97	10.8	70:1 - 96:4
Portugal	5	73	18	78	11.0	83:2 - 96:4
Spain	7	32	0	36	11.1	77:2 - 96:3
Sweden	11	26	24	17	12.7	62:1 - 96:4
U.K.	9	69	0	98	15.6	62:1 - 96:4
U.S.A.	10	56	57	100	14.8	60:1 - 96:4
Total number of elections or changes in ideology					146	
Average duration all governments					10.9	

Table 2 Rational Partisan Theory: Unemployment Levels and Pooled Sample (Changes in Ideology = Electoral Surprises)

	Discrete variable			Percentage variable		
	RP14(-1)	RP16(-1)	RP18(-1)	RP24(-1)	RP26(-1)	RP28(-1)
UNEM(-1)	1.15*** (45.6)	1.15*** (45.6)	1.15*** (45.6)	1.15*** (45.7)	1.15*** (45.6)	1.14*** (45.5)
UNEM(-2)	.05 (1.4)	.05 (1.4)	.05 (1.4)	.05 (1.5)	.05 (1.5)	.05 (1.5)
UNEM(-3)	-.19*** (-5.0)	-.19*** (-4.9)	-.19*** (-5.0)	-.19*** (-5.0)	-.19*** (-4.9)	-.19*** (-4.9)
UNEM(-4)	.11*** (3.0)	.11*** (3.0)	.11*** (3.0)	.11*** (3.0)	.11*** (3.0)	.11*** (2.9)
UNEM(-5)	-.15*** (-6.2)	-.15*** (-6.2)	-.15*** (-6.2)	-.15*** (-6.2)	-.15*** (-6.2)	-.15*** (-6.2)
AGIPind(-1)	-.98*** (-4.4)	-1.0*** (-4.5)	-1.0*** (-4.5)	-1.0*** (-4.5)	-.99*** (-4.4)	-.98*** (-4.4)
RP(-1)	.02 (1.2)	.06*** (2.7)	.04** (2.4)	.001*** (3.6)	.0009*** (3.6)	.0007*** (3.2)
Adjusted R-squared	0.99	0.99	0.99	0.99	0.99	0.99

Notes: The coefficients on the dummies included to control for fixed effects are not reported.
t-statistic are in parentheses.
*** significant at the 1% level; ** significant at the 5% level; * significant at the 10% level.

Table 3 Rational Partisan Theory: Unemployment & Deviations from Trend and Pooled Data (Changes in Ideology = Electoral Surprises)

	Discrete variable			Percentage variable		
	RP14(-1)	RP16(-1)	RP18(-1)	RP24(-1)	RP26(-1)	RP28(-1)
UDT(-1)	.89*** (39.1)	.88*** (39.1)	.88*** (39.0)	.89*** (39.1)	.88*** (39.1)	.88*** (39.0)
UDT(-2)	.04 (1.4)	.04 (1.5)	.04 (1.4)	.04 (1.4)	.04 (1.5)	.04 (1.5)
UDT(-3)	-.11*** (-3.8)	-.11*** (-3.8)	-.11*** (-3.8)	-.11*** (-3.8)	-.11*** (-3.8)	-.11*** (-3.8)
UDT(-4)	.20*** (6.9)	.20*** (6.9)	.20*** (6.9)	.20*** (6.9)	.20*** (6.9)	.20*** (6.9)
UDT(-5)	-.28*** (-14.8)	-.28*** (-14.8)	-.28*** (-14.8)	-.28*** (-14.8)	-.28*** (-14.8)	-.28*** (-14.7)
MGIPind(-1)	-35.66*** (-2.6)	-36.67*** (-2.6)	-36.85*** (-2.7)	-36.51*** (-2.6)	-36.02*** (-2.6)	-35.65*** (-2.6)
RP(-1)	.36 (1.0)	.89** (2.2)	.95** (2.3)	.01* (1.7)	.01** (2.3)	.01** (2.4)
Adjusted R-squared	0.779	0.780	0.780	0.779	0.780	0.780

Notes: The coefficients on the dummies included to control for fixed effects are not reported.
t-statistic are in parentheses.
*** significant at the 1% level; ** significant at the 5% level; * significant at the 10% level.

Table 4 Tests for Partisan Theory with Permanent Effects

	PANEL	
	PP1(-1)	PP2(-1)
UNEM(-1)	1.15***	1.15**
	(45.7)	(45.6)
UNEM(-2)	.05	.05
	(1.4)	(1.4)
UNEM(-3)	-.19***	-.19***
	(-5.0)	(-5.0)
UNEM(-4)	.11***	.11***
	(3.0)	(2.9)
UNEM(-5)	-.15***	-.15***
	(-6.2)	(-6.2)
AGIPInd(-1)	-.97***	-.97***
	(-4.3)	(-4.3)
PP(-1)	.007	.0005**
	(.7)	(2.1)
Adjusted R-squared	0.99	0.99

Notes: The coefficients on the dummies included to control for fixed effects in the panel estimations were not reported.
t-statistic are in parenthesis.
*** significant at the 1% level; ** significant at the 5% level; * significant at the 10% level.

Table 5 Tests for Opportunistic Effects

	Before			After		
	N=4	N=6	N=8	N=4	N=6	N=8
UNEM(-1)	1.19*** (46.4)	1.19*** (46.4)	1.19*** (46.3)	1.19*** (46.4)	1.19*** (46.3)	1.19*** (46.3)
UNEM(-2)	-.009 (-.2)	-.009 (-.2)	-.01 (-.2)	-.007 (-.1)	.007 (-.1)	-.008 (-.1)
UNEM(-3)	-.18*** (-4.5)	-.18*** (-4.5)	-.18*** (-4.4)	-.18*** (-4.5)	-.18*** (-4.5)	-.18*** (-4.5)
UNEM(-4)	.12*** (3.1)	.12*** (3.1)	.12*** (3.1)	.12*** (3.1)	.12*** (3.1)	.12*** (3.1)
UNEM(-5)	-.15*** (-6.3)	-.15*** (-6.3)	-.15*** (-6.3)	-.15*** (-6.4)	-.15*** (-6.3)	-.15*** (-6.3)
AGIPInd(-1)	-.79*** (-3.6)	-.79*** (-3.6)	-.77*** (-3.5)	-.77*** (-3.5)	-.77*** (-3.5)	-.78*** (-3.5)
OE	.007 (.42)	.005 (.32)	.02 (1.4)	-.02 (-1.3)	-.02 (-1.3)	-.01 (-1.0)
Adjusted R-squared	0.99	0.99	0.99	0.99	0.99	0.99

Notes: The coefficients on the dummies included to control for fixed effects are not reported.
t-statistic are in parenthesis.
*** significant at the 1% level; ** significant at the 5% level; * significant at the 10% level.

Table 6 Tests for Fragmentation Effects

	PANEL
UNEM(-1)	1.15*** (45.5)
UNEM(-2)	.05 (1.4)
UNEM(-3)	-.19*** (-5.0)
UNEM(-4)	.11*** (2.9)
UNEM(-5)	-.14*** (-6.1)
AGIPInd(-1)	-.98*** (-4.4)
COAL(-1)	.07*** (2.5)
MIN(-1)	.008 (.2)
Adjusted R-squared	0.99

Notes: The coefficients on the dummies included to control for fixed effects are not reported.
t-statistic are in parenthesis.
*** significant at the 1% level; ** significant at the 5% level; * significant at the 10% level.

Table 7 An Integrated Test

	Political Discrete Variable			Political Percentage Variable		
	N=4	N=6	N=8	N=4	N=6	N=8
UNEM(-1)	1.15***	1.14***	1.14***	1.14***	1.14***	1.14***
	(45.5)	(45.4)	(45.4)	(45.6)	(45.5)	(45.4)
UNEM(-2)	.05	.05	.05	.05	.05	.05
	(1.4)	(1.5)	(1.5)	(1.5)	(1.5)	(1.5)
UNEM(-3)	-.19***	-.19***	-.19***	-.19***	-.19***	-.19***
	(-5.0)	(-5.0)	(-5.0)	(-5.0)	(-4.9)	(-5.0)
UNEM(-4)	.11***	.11***	.11***	.11***	.11***	.11***
	(2.9)	(2.9)	(2.9)	(2.9)	(2.9)	(2.9)
UNEM(-5)	-.15***	-.15***	-.14***	-.14***	-.15***	-.14***
	(-6.1)	(-6.1)	(-6.1)	(-6.1)	(-6.1)	(-6.1)
AGIPind(-1)	-.98***	-1.0***	-1.0***	-1.0***	-.99***	-.98***
	(-4.4)	(-4.5)	(-4.5)	(-4.4)	(-4.4)	(-4.4)
PP(-1)	-.001	-.01	-.01	.00004	-.00002	-.00001
	(-.1)	(-1.1)	(-1.1)	(.1)	(-.07)	(-.05)
RP(-1)	.02	.06***	.05**	.001***	.0008***	.0006**
	(1.0)	(2.7)	(2.3)	(3.0)	(2.9)	(2.4)
COAL(-1)	.06**	.06**	.06**	.05*	.05*	.05*
	(2.4)	(2.5)	(2.5)	(1.8)	(1.8)	(1.8)
Adjusted R-suqared	0.99	0.99	0.99	0.99	0.99	0.99

Notes: The coefficients on the dummies included to control for fixed effects are not reported.
t-statistic are in parenthesis.
*** significant at the 1% level; ** significant at the 5% level; * significant at the 10% level.