# Public Budgeting in EU Commission
# A Test of the Punctuated Equilibrium Thesis[1]

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*Abstract:*

We test a punctuated equilibrium model of budgeting in the context of the European Union. Compared either to the US or to the national systems of its member states, we know little about the impact of the institutional design of the EU on its internal budgeting processes. For one, we do not know whether the heterogeneous preferences of each member-state are likely to create friction or venue-shopping towards the EU Commission. This paper first describes European budgeting processes since the inception of the EU, taking into consideration the enlargement process. In a second section, we present European budgeting data to test models of friction, incrementalism, and punctuated equilibrium, drawing from a developing literature with US and European applications. The findings make clear that EU budgeting processes correspond to a punctuated equilibrium model of budgetary choice, as previous studies have recently shown for the US and many European member states.

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## Introduction

In the perspective of the new financial framework of the EU for the 2007-2013 period implemented by the European Council in December 2005, the European budget is regularly judged insufficient in regard with the goals of the Lisbon Strategy and the expected expenditures of cohesion (in consequence of the last enlargement process). How to explain the systematic gap between the EU fiscal needs and the real fiscal involvement?

Previous research in American, Danish, Belgian, French, British, and German government budgeting has shown that all exhibit characteristics of punctuated equilibrium based on a friction model (see the September 2006 special issue of the *Journal of European Public Policy*). Jones and Baumgartner (2005) laid out two possible reasons for the high friction associated with budgeting in the United States: Cognitive overload and institutional friction. Other tests of various European budgetary data show that all the national different systems showed substantial friction effects, although the precise level of friction varies.

The strategy of testing whether the punctuated-equilibrium (PE) results common in the US literature are caused by the structural design of the American political system or are a universal phenomenon rooted in the nature of human decision making is to look at the distribution of policy changes across time. But what is true at the national level with Parliamentary systems and unitary governments is not necessarily to be found at the European level where policies are formulated through intergovernmentalism and in a different institutional setting. Indeed, institutional friction within the EU may be substantially lower because of both the delegated

process of decision-making and the reduced role of the European Parliament. In addition, the Commission acts as an executive branch of EU with its own agenda-setting powers and this may be expected to reduce levels of institutional friction further. We therefore look in detail at EU budgeting here in order to see if it shows characteristics similar to what has been found in national budgeting systems or if the supranational and inter-governmental character of the institutions of the EU induces different patterns of budgetary change over time, notably with reduced friction because of greater executive authority.

Compared either to the US or to the national systems of its member states, we know little about the impact of the institutional design of the EU itself on its internal budgeting processes. For one, we do not know whether the heterogeneous preferences of each member-state are likely to create friction or venue-shopping towards the EU Commission. We describe the budgetary process within the EU in order to explore these issues and establish our theoretical expectations.

In a first part, this paper presents the theoretical framework of Punctuated Equilibrium (PE) and discusses the reasons why the EU is likely to exhibit punctuated policy change, considering rival hypotheses as well. A second part describes European budgeting processes since the inception of the EU. We then examine public budgeting in historical perspective, taking into consideration the enlargement process. European budgets quantify collective political decisions made in response to incoming information, the preferences of (delegated) decision-makers, and the institutions that structure how decisions are made.

In a third section, we present European budgeting data to test models of friction, incrementalism, and punctuated equilibrium. Data are collected from the EU Commission historical budgets and include the overall EU budget since 1968; functional budgets for six series: Agriculture; External Action; Regional Development; Research; Administration; and Repayments and Other. We also analyze several series which are politically defined and available only for shorter periods, and three additional policy series available for less than the full period (Appendix 3 describes our data series). For each series, we examine the distribution of annual percentage changes in spending, adjusting for any changes in budget categories used. The PE theory leads us to expect and findings from other countries so far show distributions with high kurtosis: A high central peak combined with weak shoulders and extensive outliers. By contrast, a rational or comprehensive proportionate reaction to changing social conditions, with no friction imposed by institutional design, would produce a Normal distribution of changes. The theory is easily tested by simple distributional tests.

The paper concludes with comments relating to a future research agenda.

## Theoretical framework

Public budgeting is often conflictual since it represents the result of a process of negotiation among actors representing different preferences, often divided by different ideological if not partisan attachments and with different institutional roles. Breuning and Koski (2006) state that "similar to other democratic public budgeting arenas, state budgets contain the outcomes of extensive decision making processes involving the preferences of many political actors." The expression of budgetary preferences provides an accurate idea of collective choice. But it does

not necessarily imply that final outcomes satisfy all social demands. In other words, it means that budgets may produce some non-satisfaction due to political institutions, conflicting preferences, and resources constraints. Then if political actors could take budgetary decisions that satisfied all individuals, political stability would be the normal trend of policymaking. But any government faces to an extraordinary sum of uncertainties that make its choices more difficult to implement. To that extent models of policymaking are generally based on the twin principles of incrementalism and negative feedback (Baumgartner and Jones, 1993).

Focusing on the pattern of EU public spending on a long period implies the need to evaluate annual changes in budgets over long periods of time. For that, if we follow the conclusions of the Wildasky model (1964), it must be expected that European decision-makers make incremental course corrections from the status quo, a view of the budgeting process that has dominated thinking about policy change since the late 1950s. Lindblom (1959) and Wildavsky (1964) and others argued that annual budget results tend to drift rather than to shift abruptly. Jones and Baumgartner (2005) develop a new model of choice for public policy which is consistent with the incremental model, but more general. More importantly, it is consistent with a more accurate model of human cognition and policy choice in organizations, based on bounded rather than comprehensive rationality. They demonstrated that incrementalism as it was originally laid out is actually a theory of comprehensive rationality, or its predictions are consistent with such a model. The authors are aware of the irony of this assertion, as Lindblom's model was explicitly based on such concepts as "muddling through" and limited search for alternatives. The importance of the status quo in structuring policy change was an important element of the original incrementalist model. But the early incrementalists did not appreciate the huge shifts

that empirically are associated with some proportion of budgeting decisions; their model predicted a normal distribution of responses, which in fact is equivalent to an Efficient Market Thesis approach, implying an efficient reaction consistent, in fact, with comprehensive rationality. Baumgartner and Jones showed that in fact the distributions are not normally distributed at all, but have a huge central peak (corresponding with the status quo bias that the incrementalists rightly identified) combined with much larger than expected numbers of extreme outliers (a fact that the incrementalists overlooked for reasons of the relatively small numbers of observations in their empirical work).

Considering the aggregation of thousands of social or economic demands (what may be considered the "inputs" with which governments deal, the first differences in any such series aggregated from thousands of unrelated series must be a normal distribution, through the Central Limit Theorem. Some problems may have gotten worse, some may have ameliorated, and most will be similar to where they were in the previous year. A decision-making process reacting proportionately to such changing inputs would produce a Normal distribution of budget changes. This can easily be ascertained by looking at the percentage change in consistently defined spending categories and aggregating across enough years to yield stable estimates. With hundreds or thousands of observations, the distribution of budgetary changes can easily be compared with a Normal distribution.

Incrementalism logically must yield a normal distribution of outcomes, but disproportionate information processing yields leptokurtic outcomes—that is, "too many" cases in the central peak, relatively few cases in the shoulders, and a great number of outliers as compared to the

Normal distribution. Jones and Baumgartner argued that the particular distribution they observed (and which has subsequently been affirmed in many analyses at the local, regional, and national levels in the US and in many European states), with its characteristic high kurtosis values, could be explained by cognitive friction or institutional constraints, or both. The cognitive argument is simply that human decision-makers cannot simultaneously monitor each of the thousands of variables that may be important, so inevitably they pay attention only to a subset of the relevant information. They are occasionally forced to make dramatic adjustments to previous decisions when unmonitored policy issues emerge as crises; so instead of steady, comprehensive, smooth and proportionate adjustments, they posit a model of alternation between equilibrium-based periods when (for any single budget category) the status quo is largely recreated and occasional punctuations when dramatic adjustments are made. Adding institutional constraints only makes the stochastic process implications more severe, as institutional missions, standard operating procedures, and the difficulty of creating new institutions in government reinforce the tendency to attend to those dimensions of an issue already established in the status quo policy. To the extent that we find levels of kurtosis in budgetary outputs roughly equivalent across many institutional settings, then the cognitive explanation must be the more important one. If institutional designs are adding substantially to the friction over and above the cognitive limitations, then levels of kurtosis across institutional settings should vary substantially with the efficiency or inefficiency of the institutional design. In this paper, we extend previous studies by looking at budgeting processes in the EU, a system with dramatically different institutional procedures than those used in national member-states or in those organizations previously analyzed in the literature.

*Institutional friction in the EU*

Jones and Baumgartner's model of friction is simple. Whether the mechanism is the scarcity of attention at the cognitive level or the routine operation of institutional rules and procedures, the model predicts a strong tendency to repeat the status quo, generating a great central peak in the distribution of annual percentage changes in public budgets. At the same time, the model predicts a significant number of dramatic punctuations, as policymakers suddenly face urgent problems (problems which they had previously ignored, an inevitable consequence of limited attention). Therefore the tails of the distribution are expected to have many more cases far in the extremes than would be observed in a Normal distribution. A model of incrementalism, by contrast, predicts a Normal curve, as the Efficient Market Thesis would predict that the distribution of changes in share prices of companies or of any stock market index would be perfectly Normal, as the market would instantaneously adjust to any new information, and the nature of the new information entering the system would be driven, over long periods of time, by thousands of stochastic series, the combination of which would be Normal, through the Central Limit Theorem. In a P-E perspective of government budgeting, decision-makers are able only to address a small number of the potential problems that might merit their attention; they therefore allocate their attention (and the most significant budgetary adjustments) only to those few problems that are judged to be the most urgent or severe; all other problems, even moderately severe ones, see only marginal adjustments from the status quo ante. Comprehensive, proportionate response to changing social and economic input factors is impossible because of bounded rationality or institutional friction.

Given this set of hypotheses and expectations, it is a simple matter to compare the outputs of any budgeting process over time to a Normal distribution. If the friction or PE model is correct, the distribution of percentage changes in consistently defined budgetary categories should simultaneously exhibit both a high central peak and large numbers of outliers. This can be assessed by the statistical measure of kurtosis, the fourth moment of a distribution. A normal distribution has a kurtosis value of 3; lower values reflect relatively flat distributions compared to the Normal (such as uniform distributions); higher values reflect more peaked distributions. Note that by definition a peaked distribution with high kurtosis also has many outliers; otherwise it would simply be a Normal distribution with low variance.

Within the European Union, we could expect that the juxtaposition of 27 current policy makers within an intergovernmental council naturally creates institutional friction in a sense of time-consuming processes to prioritize policies. There is significant reason to expect that the EU budgetary process, requiring agreement by so many disparate actors, and with the EU being not a nation state but an international organization, should have higher values of friction than what is observed within any single nation state. On the other hand, the EU has fewer competencies than national governments, which should make allocating attention among them significantly easier than in large national governments with many more competencies. Finally, previous studies have already demonstrated that national budgeting processes have very high levels of friction. The literature gives little guidance, in sum, about whether we should expect EU budgeting processes to be higher or lower in their friction than national processes. The comparison is nonetheless important because if we find roughly similar levels of friction in such diverse institutional settings as the EU and various member states, then it would follow that the cognitive

explanation must be more important than the institutional one. Decision-making processes and institutional structures within the EU are undoubtedly different from those in individual nation states so similar findings would suggest a general explanation holds.

Venue shopping is part of the explanation for the (undisputed) growth in EC/EU level interest groups formation and lobbying noted in the literature (Richardson, 2001). Another explanation recently put forward by Robinson et al. (2007) in the case of education spending is linked to the complexity of the process since it requires the participation of a large number of people (officials, experts, civil servants, elites…). Then it increases both decision and transaction costs and naturally creates institutional friction between legislative and executive powers. The study of the EU has often been the subject of analysis in terms principal/agent models (Pollack, 1997, Kassim and Menon, 2003). Member states acting as principals (through the EU Council) delegate to supranational agents (EU Commission) the responsibility for carrying out a function or set of missions on the principal's behalf. But as we have mentioned above, budgetary processes are the output of executive branch priorities and there is reason to think that the strong powers of the commission in these matters should lead to lower institutional friction than in national parliamentary regimes.

*The Punctuated Equilibrium (PE) thesis*

The model of punctuated equilibrium derived from palaeontology and was applied to politics by Baumgartner and Jones (1993). The authors developed the theory in order to explain agenda dynamics in American politics. The idea is simple: it consists on observing when policy series are affected by stability (incremental movements) and instability (huge and violent change not assumed by incrementalist theories). The difference with incrementalism is contained with the

following model: $B_t=B_{t-1}+\varepsilon_t$ where $B_t$ is the budget in place at time *t* and this is a function of the budget in the previous time period and a random effect. Jones and Baumgartner (2005: p. 327) explain that if "period-to-period policy changes are summed up, then the resulting frequency distribution would be approximatively normal" (i.e. $B_{t-1}- B_t=\varepsilon_t$). If incrementalism is the right theory for explaining budgetary changes, then their distribution must be normally distributed across time. At the opposite, if it is not normally distributed, then incrementalism is not the relevant model of policy choice. That is why punctuated equilibrium presents an alternative theory which focuses on the cognitive limitations and institutional decision-costs associated with government budgetary choices.

Baumgartner and Jones (1993) emphasized that most policies most of the time are subject to negative feedback processes with the effect of maintaining equilibrium in policy outcomes. Policy stability is reinforced in such areas because any move away from the status quo equilibrium tends to be balanced or offset by a counteracting movement by those adversely affected by the pressure for change. Pluralism as defined by David Truman is a classic model of equilibrium: For each "disturbance" (pressure for change), social actors mobilize to demand redress; the equilibrium is reinforced and perpetuated by a process mathematically equivalent to a negative feedback process. But the second part of the process linking stability and change in American politics, according to Baumgartner and Jones, was the occasional but very important periods when positive feedback processes occur. These are characterized by social cascades, venue-shopping, and issue-redefinitions; these are explosive processes in which an initial change is amplified rather than mitigated over time. The result of any positive feedback process, in contrast to a negative feedback process, is to destroy the status quo with some form of explosive

change. They argued that policies are typically associated with negative feedback but occasionally can be subject to the dramatic processes associated with positive feedback. Punctuated equilibrium describes this process. In more recent work (Jones and Baumgartner 2005) they added an explicit discussion of bounded rationality in human cognition and stressed the importance of scarcity of attention on public agendas. Considering that there are more social problems than governments can simultaneously prioritize, attention tends to focus on just a small number of issues, not the full range. Those issues that are left "off the agenda" tend to be subject to negative feedback processes while those that rise high on the agenda by seem dramatic changes enacted; why would they be high on the agenda, after all, if the policies were working so perfectly? The very presence of the issue on the agenda suggests that existing policies are not working well, thereby possibly justifying both the intrusion of new actors previously not involved and the consideration of new policy models previously not taken seriously.

To summarize, Jones and Baumgartner (2005) laid out the reasons why, through the Central Limit Theorem, we would expect that the distribution of annual changes in the severity of thousands of social indicators affecting the government budget will be distributed Normally. Since there are thousands of economic, social, and stochastic inputs that affect government programs and no single process determines any more than a few of them together, their combination must mathematically be distributed Normally, at least in annual percent changes, as we analyze here. If changes in the severity of the social inputs are distributed Normally and government is reacting to these changes proportionately, then we should see a perfect illustration of incrementalism: Annual changes in budgets should also be Normally distributed. Following an individual series will who a random walk in time—policies are based on the status quo, adjusted

by a random adjustment to the changing circumstances. Across all policy areas combined, the overall distribution of comprehensive rationality will be a Normal distribution.

If the decision-making process is characterized by significant institutional or cognitive friction, on the other hand, then the distribution of budget changes will not be Normal but will have a high kurtosis value, even if the underlying social inputs are Normal. This is because the decision-making process itself adds friction. Rather than responding proportionately to social inputs, the system under-responds to those inputs that are below a threshold, but over-responds to those that pass the threshold. Friction, based on cognitive processes or on institutional structure, creates disproportionate response and leads to a characteristic, highly peaked, distribution.

An example can be advanced in agriculture matters when the mad cow crisis affected the UK, France and Ireland. The reaction of EU was to allocate a fresh funding of about 1 billion euros[2] to manage this crisis. But this amount does not mean that EU has efficiently reacted to the problem. It only means that the problem was so severe that the reaction was probably disproportionate in terms of annual change of spending but disproportionate as well regarding the complexity of the disease and the scientific knowledge (at this time in 2000-2001) of suitable organizational response. As suggested by Baumgartner et al. (2006), not only is government slow to pay attention to new policy problems, but, once established, policies may be continued long after the severity of the problem which justified them in the first place has declined. Reactions to

[2] Under this proposal, 700 million euro (US$644 million) will be used in a destruction scheme for animals older than 30 months which cannot enter the food chain, 238 million euro (US$219 million) will be used for market intervention in the beef meat market and 33 million euro (US$30 million) will be spent in the co-financing of the BSE tests. The initial Bovine Spongiform Encephalopathy crisis and the failure of the institutions of the EU and Member States to react effectively and efficiently to this developing crisis, brought to light some of the faults in the food safety and animal health part of the EU's system of governance (Vincent, 2004).

improvements in the state of the world, by reallocating attention or resources to other areas with more severe problems, or more rapidly growing ones, are slow.

Before presenting the main lines of the EU budgetary process, we first underline that the institutional framework in which EU evolves raises at least two kinds of institutional problems that are likely to enhance attention shifting: the individual bargaining power of each member-state and the perspective of enlargement (Seguiti, 2003). It is important to stress these two features since they reinforce the thesis of uncertainty and participation of heterogenous actors caused by enlargement process with non similar countries.

## EU budgetary processes

*Specificity of the European budgeting process*

Since its inspection in 1957, the EU has faced many financial crises leading some countries (as Germany, France or the UK) to threaten the continued pursuit of European integration. In the international relations literature, such financial struggles can be analyzed as the result of domination of powers for the survival of nations (the realist paradigm), or the result of a redistribution process in which actors have to decide to what extent they want to use budgets to alter the distribution of wealth among member states (rational choice paradigm). An alternate theory stems from public economics to understand the fiscal choices of institutions. Many scholars have tried to explain the determinants of public spending in Europe (Alesina and Wacziarg, 1999; Tanzi and Schuknecht, 2000; Fiorito and Kollintzas, 2004). But inside the EU, no empirical work has precisely described the pattern of public spending dedicated to the main competencies (agriculture, regional development, research, etc).

In the European integration literature, it is usually argued that the application of fiscal federalism should favor the emergence of a decentralized provision of public goods when states have heterogeneous preferences but centralization if there are strong externalities between different jurisdictions (Oates, 1999). Consequently the existence of externalities is source of likely cooperation between actors in order to reduce the negative effects or cross-border externalities. The more trans-European externalities arise, the more the decision makers are likely to bring new issues on the European agenda. If we consider the range of externalities occurring among EU countries in terms of collective action, we can expect that the level of public spending within the EU will be of tremendous interest to national decision-makers. But at the same time, great uncertainty remains around the actual impact of public spending. That is why Europe seems to be more prone to be affected by multilateral cross-border externalities than unified countries. Then it should be not surprising to observe the shift of national issues to European issues for at least two reasons. First, as argued by Princen (2007), the movement of domestic issues to the European level is a strategic mechanism by which one may transfer the burden if externalities are strong or to overcome domestic opposition, notably for regulatory issues. The second reason is more recent and refers to the venue shopping (Baumgartner and Jones, 1993) concept whereby actors try to displace attention to new decision venues more favorable to their points of view. The practice of intergovernmentalism in Europe seems to be a fertile ground for venue-shopping since different European institutions control different instruments to satisfy various demands.

Our approach must consider the three levels of budgetary agenda-setting: at the European level, at the domestic level and both simultaneously. As agenda-setting is a highly political process,

political actors seek actively to bring issues on to the agenda if they are looking for a change of policy or to keep them off if they prefer status quo (Princen, 2007).

*Some historical elements of the European budgeting process*

The history of European integration is narrowly linked to the implementation of a budgetary procedure whose enforcement has introduced conflicts at some times. We can divide the 1957 – 2007 period into five eras:

(a) 1953-1975: creation of an original budget system based on national contributions until 1970 and on autonomous EU resources from 1971 (customs tariffs, tax receipts and agriculture receipts).

(b) 1975-1988: financial crises due to the unbalance between new needs (enlargement process) and the level of receipts. The crisis was institutional as well since the Parliament competed with the Council on the use of budgetary power. Finally, the UK and Germany were opposed to continuing as net contributors to the EU budget.

(c) 1988: Jacques Delors' reform consisting of adding a fourth set of autonomous EU resources (based on relative wealth of the member states) and increased budgetary discipline (mainly by controlling the agriculture expenditures).

(d) 1993-99: application of the Delors' reform in the Maastricht Treaty environment.

(e) 2000-06: budgetary stability in the enlargement perspective (Agenda 2000)

The EU budget is usually depicted as a financial tool to implement collective choice of Europe. Before 1975, the EU budget was a financial instrument similar to those found in traditional international organizations, i.e. mainly without its own resources, relying completely on the contributions of its member states (Laffan and Lindner, 2005: 193).

The budget is the only centralised instrument for the implementation of the common fiscal policy at EU level. The remainder of the EU fiscal system can be looked upon as a set of diverse rules and treaties via which the member states harmonise and coordinate the other segments of fiscal policy. The EU is a confederation, in other words a complex political and economic formation, and in this segment it is necessary to consider the EU budget, through which only a limited number of common EU functions are financed (Simovic, 2005). We give an overview of the history of EU budgeting below, but note that the EU expenditures have never bypassed 1.3 per cent of the aggregate gross domestic product of the EU member states.

At the institutional level, the budgetary process involves three main institutions: the Commission, the Council and the Parliament. The Commission initiates the budgetary cycle by presenting a first draft to the Council which at its turn meets with the European Parliament before the budget draft adoption. Once the budget is adopted, the Commission is responsible for implementing the budget. It is important to stress that the European Parliament has a strong power to prevent an annual budget adoption and this can lead to monthly budgeting (e.g., continuing resolutions) until a budget is finally passed.

The budgetary procedure illustrates the complexities of the relationships between legislative and executive powers in the EU. But Enderlein et al. (2005: 22) note that the EU procedure does not seem to be any simpler than budgetary processes in the US. In a sense, EU institutions are likely to exhibit some friction by the multiplication of committees that prepare, control and enforce budgets. Some authors (Robinson et al., 2007) argue that punctuated policy changes can be

observed through the organizational design of bureaus. In any case, increased bureaucratization of the EU budgetary procedures in response to increasing complexity in the decision-making environment may lead to increased friction. The higher the level of friction, the greater the tendency to under-react to moderate changes in the environment; below some threshold of urgency, under-response is the norm (perpetuating the status quo policy with only minor adjustments), over-response follows from the time and effort it may take in a highly bureaucratized system to create a new program or significantly revised budgetary allocation. When the budget is finally allocated, or the new agency created, an initial spurt of activity may be far greater than the immediate policy need. So bureaucratization may increase the friction associated with the system, and this should be observable in the pattern of changes in policy outputs over time. Highly bureaucratized institutional settings are also slow to recede from policy areas once programs are established, even if the social need that justified them in the first place has diminished or disappeared altogether.

*Some expected empirical patterns*

According to the punctuated equilibrium thesis and the European budgetary process, we are able to test two hypotheses. Following from the PE theory, because of the complexity of the issues related to EU policies over time, comprehensively rational reactions may be impossible. Therefore our first hypothesis is simply that:

*Hypothesis 1: EU budgets are highly punctuated.*

This can be assessed simply by comparing the distribution of changes to the Normal curve.

Secondly, because the institutional design of the EU differs from national states in which theories of budgetary incrementalism have been tested previously, and the literature provides little guidance about whether the EU should be more or less efficient in its allocations, we present three separate hypotheses on the same question, with conclusions that would follow from each. First, EU processes may be *less* punctuated than national budgets because of the limited competencies of the EU and the commission-dominated process. This would imply more efficient institutional procedures. Second, EU processes may be *more* punctuated than national budgets because of the need to coordinate among so many member states present in the Council and the highly bureaucratized nature of EU procedures. This would then imply less efficient procedures in Brussels than in national states. Finally, EU processes may be *roughly equivalent* to national budget processes, which are themselves already quite complex. This would imply that EU institutional design is no less efficient than in the member states or that institutional design is significantly less important in explaining kurtosis in budgetary outcomes compared to cognitive explanations.

*Hypothesis 2a: Annual changes in EU budgets by category will be less punctuated than those of national state budgets.*

*Hypothesis 2b: Annual changes in EU budgets by category will be more punctuated than those of national state budgets.*

*Hypothesis 2c: Annual changes in EU budgets by category will be roughly equally punctuated as those of national state budgets.*

As there is a growing literature at the national and subnational levels, results from our study of the EU budget can easily be compared with these to see if the multiple levels of governance

associated with the EU's status as an international organization or supranational government cause it to differ substantially from other public entities.

## European Budgetary Data and Results

*Presentation of data*

The European budget presents a continuous growth since the beginning of the European integration. More accurately, the general EU budget has multiplied by more than 700 between 1967 and 2005 (in constant euros). Even if the growth has been very great, the 2005 EU budget still corresponded to less than 1% of the European GDP and, or 232 euros by inhabitant.

< insert Figure 1 about here >

Figure 1 shows the size of the EU budget in billions of constant 2005 euros, the annual percentage change in spending, and indicates the years of enlargement. Three remarks are obvious: dramatic and relatively constant growth, declining variance in the level of annual growth, and little impact of the budget to particular instances of enlargement, as the years of enlargement are not typically associated with greater increases in spending than other years.

Among available spending data, we have used two distinct series: time-series (1967-2005) for main EU policies on the one hand, and more detailed categories of spending during a short period (2000-2006), on the other. Data come from official sources as indicated in our appendix, and all have been adjusted for inflation.

The first series display the main headings of spending according to a functional classification. They include a) EAGGF Guarantee Fund (the main pillar of the common agriculture policy, CAP), b) structural funds (including the European Regional Development Fund [ERDF], the

Cohesion Fund, the Economy Solidarity Fund, and the Financial Instrument for Fishery Guidance), c) Research expenditures, d) External Action expenditures, e) Administration expenditures, f) Pre-accesion expenditures, g) the European Development Fund (EDF), h) the European Coal and Steel Community (ECSC), and i) other.

< insert Figure 2 about here >

The functional structure of the budget is highly stable. The CAP corresponds to the main part of the budget, even if its relative proportion has diminished over time. The second main part of the budget is the structural funds and among these the ERDF is the more expensive. The figure makes clear the dominance in relative terms of these two budgetary foci as a percentage of total EU spending over the past decades.

The second set of series is more detailed because they benefit from the new system of financial accountability (ESA 1995) from 2000 to present. Each series contains 29 subcategories and are reported between 2000 and 2006 (i.e. six annual change measures for each of the series).[3]

< insert Figure 3 about here >

As with the historical data, the recent series, aggregated by policy domain in Figure 3, show the weight of the agricultural and regional policies in the EU budget. Moreover, the shares of each domain stay relatively stable since 2000. These initial observations make clear why incrementalism, with its focus on the dominance of the status quo, has been so appealing to

[3] The 29 subcategories are: Administration; Agriculture and rural development; Budget and audit; Civil liberties, security and justice; Competition; Development and relations with ACP countries; Economic and financial affairs; Education and culture; Employment and social affairs; Energy and transport; Enlargement; Enterprise; Environment; External relations; Fight against fraud; Fisheries; Health and consumer protection; Humanitarian aid; Information society; Internal market; Pensions; Policy coordination and legal advice; Press and communication; Regional policy; Research; Reserves; Statistics; Taxation and customs union; Total Commission; Trade

analysts of budgetary data. In the next section we look deeper into these series to see if they are characterized by stability or by a combination of stability and dramatic change.

*Results and comments*

We examine for each of these budget series the distribution of annual changes at the functional level (with more or less detail according to what is available for each series) in order to measure the level of punctuation. For that we calculate the distribution of annual rate of change, and we carefully control for rival hypotheses (such as changes to the budget due to enlargement) by conducting various robustness tests on our results by excluding particular years or series from the analysis to assess whether the results could be due to any rival or artifactual causes (see appendixes 1 and 2). For example, in those years when the EU has welcomed new members, large changes in particular budget categories could be expected, and these would be unrelated to any cognitive or institutional friction but simply explained by enlargement. We construct histograms of annual change data showing the number of budget categories with changes ranging from a decline of 50 percent to an increase of 150 percent or more, and we superimpose a normal distribution with an equivalent variance. Statistical tests follow this graphical presentation. Figures 4 and 5 provide an overview of the density distributions for the two main series (omitting enlargement years and some incomparable data points, as explained in the Appendix).

< insert Figures 4 and 5 about here >

Figure 4 strongly confirms the existence of punctuated changes over time for the long historical series and Figure 5 shows that the same is true for the more detailed series available for a shorter time period. No matter which way we look at the EU budget, the large central peak and large

numbers of outliers in both figures confirm the leptokurtic distribution. In both cases, not only does the central peak have a higher value than (normally) expected, but the moderate "shoulders" of the distributions are weaker (under the normal curve), and the number of outliers is substantial.

The value of the data presented in Figure 5, which breaks the series down by policy area but presents only six years of data is that it provides the opportunity to compare how the EU Commission behaves both in respect to large policy domains (Figure 4) and in more detailed policy areas (Figure 5). It could be concluded that the recent period (2000-2006) is more prone to severe policy changes because of the arrival of new member States and then more opportunities to attract attention on new demands and lead to the creation of new programs. But we do not include budget series for these enlargement years in Figures 4 and 5, and the budget punctuations remain.

Tables 1 and 2 give statistical evidence of the results that confirm what can be seen graphically in Figures 4 and 5. Following the prescription of Henderson (2006) and after the graphical and the l-kurtosis analyses, we use the Shapiro-Wilk and Shapiro-Francia tests to demonstrate the non Normality of the distributions. Table 1 shows that the kurtosis (and the related l-kurtosis) values are substantial in every case. Values for the detailed policy series appear substantially higher than those for the more general budgetary categories, confirming the difference between Figures 4 and 5. But all series are far from Normal. Table 2 includes statistical tests for Normality; all the series are significantly different from Normal.

< insert Tables 1 and 2 about here >

These results of non Normality are robust since whatever we include or exclude the potentially problematic data this report is still confirmed. These tests make clear that the pattern of punctuations we observe in the data cannot be due to enlargement years or administrative changes in the definition of the functional categories, since we find similar results when we include or exclude all such cases, as we do in the Appendix.

According to the theory of Jones and Baumgartner (2005) who demonstrate that an incremental model, leading to a purely Gaussian distribution, is characteristic, in fact, of a fully rational, comprehensive, and proportionate-response model, it seems that EU Commission can not be categorized as a fully rational actor. Beyond this institutional feature, the intervention of European Parliament in EU budgetary process increases the odds of friction near Strasbourg in addition to what is expected to be achieved in Brussels. But it appears that the EU is not substantially different from national states in the levels of kurtosis inherent in its decision-making processes. We therefore confirm Hypotheses 1 and 2c from our list above.

## Conclusion

The results of our paper support not only evidence of punctuated policy change but seem recurrent in time for main categories of expenditures (agriculture, regional development, research, external action) since 1968. By focusing on more detailed series provided by the new accountability system, we have shown evidence of similar pattern of punctuated equilibria for sub-policies (34 categories) between 2000 and 2007. As a consequence, these results are a good indication of the limited capacity of EU budgetary institutions to overcome the cognitive friction

that they face in such a complex policymaking environment. Indeed, the larger and larger European Union has to deal with an increasing number of problems whose complexity prevents institutions from reacting proportionally to their intensity. In this sense the EU is highly similar to national governments where previous studies have also shown high levels of friction.

These results are relevant taking into account the recent debate about European budget reform. Since 2002 many calls for reform of the procedures governing the finances of the EU have been referenced in both academic (Sapir, 2003 and Enderlein et al. 2005) and institutional reports (European Parliament, 2003). Besides the legal difficulties associated with implementing a budgetary reform that guarantees efficiency and legitimacy, the debate is clearly oriented towards the lack of European integration and the need for enhanced decision-making powers in budgetary matters. Rather expecting an institution promoting comprehensive rationality in budget procedure, our results offer an alternative to such difficulties and put forward the high level of institutional friction in which EU Commission, EU Council and European Parliament operate. In other words, we have observed for the first time that European budgets for different policies are substantially punctuated as has been empirically demonstrated in other countries as well. Further research into the reasons why EU budgeting processes seem so similar in their outputs to those found in various nation-states is clearly warranted; our findings suggest that the main reasons for these PE results must be associated with the inherent complexity of the environments within which governments operate, not their particular institutional design. This suggests that institutional reforms may not be effective in generating more "rational" policy allocations.

Further developments of this first study are envisaged in two directions. First, we plan to compare output series (budgets) with inputs series (evaluation indicators). The objective should consist in verifying how EU institutions integer in their decision-making in time *t* the consequence of results observed in time *t-1*. A second future research aims at combining the recent developments in spatial econometrics to fix fiscal mimicking within EU and the nature of friction. Indeed, by analyzing whether each EU member reacts positively or negatively to the actions of its neighbours, we can assess whether such fiscal mimicking processes help explain the friction we have observed within EU budgetary processes.

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## Appendix

### 1- Budgetary and Economic Data

Retrospective data (1958-2000) come from the document titled “The Community budget: The facts in figures” published by the Directorate-General for Budgets (2000). Office for Official Publications of the European Communities, *Luxembourg*, 2000.
For the 2001-2007 period, data come from the document titled “Budget Général de l’Union européenne pour l’exercice. Synthèse chiffrée” published by the *Commission Européenne et la Direction Générale du Budget, Office des Publications Officielles des Communautés Européennes, Luxembourg.* All these publications are available from the following website: http://europa.eu/pol/financ/index_en.htm

All data were initially expressed in real terms. We have used a consumer price index (CPI) delivered by OECD for the 1968-2005 period. Demographic data have been extracted from Eurostat database and population reference is established on January 1st of each year. Concerning the European consumer price index, we have constructed for each year an index from the OECD statistical series which is weighted by ratio of the population of each country compared with the overall population in Europe.

### 2- Definition of main policy area of European budget (2000-2006):

The first series corresponds to categories of policy area adopted by the Directorate General of Budget since 2000. The activity-based budgeting approach, in application since the 2004 budget procedure, offers an integrated view of the Commission's resources of all types, and of the institution's political priorities by policy area and activity. These categories have slightly changed between 2001 and 2002 for six among them. Categories “energy” and “transport” have been aggregated after 2001, “audit” is separated from the “budget” and “direct research” from the “research” since 2001. In sum, we present below the 29 categories:

1. Economic and financial affairs
2. Enterprise
3. Competition
4. Employment and social affairs
5. Agriculture and rural development
6. Energy and transport
7. Environment
8. Research and direct research
9. Information society
10. Fisheries

11. Internal market
12. Regional policy
13. Taxation and customs union
14. Education and culture
15. Press and communication
16. Health and consumer protection
17. Civil liberties, security and justice
18. External relations
19. Trade
20. Development and relations with ACP countries
21. Enlargement
22. Humanitarian aid
23. Fight against fraud
24. Policy coordination and legal advice
25. Administration
26. Budget and audit
27. Statistics
28. Pensions
29. Reserves

### 3- Long time Series (1968-2005): Definition of Community expenditure by main heading

The second series corresponds to expenditures categories adopted by DG Budget since 1958 and corresponds to the heading directions and activities of the European Union. We have kept the seven following categories:

1. **EAGGF Guarantee Section**: European Agricultural Guidance and Guarantee Fund Guarantee Section. It corresponds to the main financial instrument of the Common Agriculture Policy (CAP).
2. **Structural Funds**: Cover structural operations, including operations as:
    - ERDF (European Regional Development Fund
    - ESF (Economic Solidarity Fund)
    - Cohesion Fund (implemented in 1993)
    - FIFG (Financial Instrument for Fisheries Guidance)
3. **Research:** Includes expenditures on training, education, youth policy, culture, audiovisual media, various social operations which cannot be financed by the Structural Funds — in particular the ESF — and information and communication.
4. **External Action**: This subsection covers a range of activities involving various types of assistance and financial instruments, as well as expenditures on energy, nuclear safeguards and the environment.
5. **Administration**
6. **Repayments and other**
7. **Total general budget.** The total budget does not include the following expenditures:
    - **EDF**: European Development Fund: help dedicated to developing countries.
    - **ESCS**: European Coal and Steel Community: one of the three original European communities (with economic community) which has disappeared.
    - **EAEC**: European Atomic Energy Community (Euratom): one of the three communities whose budget is no longer autonomous and details since 1969.

### 4- Robustness of the non Normality results

To test the robustness of our results and to insure that they do not follow from the definition of our series, we use several scenarios.

< insert Table 3 and 4 about here >

For the short series, figure 6 and tables 3 and 4 present the distribution of changes according to three scenarios in order to test for various issues of robustness of our findings to various rival hypotheses that may affect some of our series.
Test 1 excludes all data points for the enlargement year (2004) and six additional observations within four series (energy and transport, budget and audit, research, and total) where changes were made to the definition of these categories. Test 2 excludes all data points for the enlargement year 2004. Finally Test 3 includes all data. Combined, these results demonstrate that our findings are robust and cannot be caused by the inclusion or exclusion of any particular data points or annual values.

< insert Figure 6 about here >

Concerning the historical series, we have retained the 1968-2005 period (and not 1958-2005) because there was not sufficiently exploitable data between 1958 and 1968. Further, rapid growth in the budget in the early years could be due to very low initial values. Figure 7 presents data according to four scenarios. Test 4 excludes enlargement years (1973, 1981, 1986, 1995 and 2004) and four subcategories ("structural funds", "total payments", "other" and "Grand total") which are the sums of other series ("structural funds", "total payments", and "Grand total") or because it is a miscellaneous series ("other"), made up of the aggregation of other budgetary categories. Such aggregations could potentially produce artifactual results. Test 5 maintains only the enlargement years. Test 6 excludes only the enlargement years but maintains the other categories excluded in Test 4. Finally Test 7 presents all data. The similarity of all these presentations again shows the robustness of our results.

< insert Figure 7 about here >

These results confirm our first results about the non Normality of the distribution that are not affected by enlargement of the EU or by administrative changes in the definition of the series.

Table 1: Summary statistics

| | Obs. | Mean | St dev. | Skewness | Kurtosis | L-Kurtosis |
|---|---|---|---|---|---|---|
| *Policy Area (2000-2006)* | 130 | 9.23 | 28.46 | 5.55 | 39.95 | 0.545 |
| *Long time-series (1967-2005)* | 312 | 82.87 | 1069.88 | 17.52 | 308.59 | 0.838 |

See appendix for detailed description of each series. Kurtosis values above 3 indicate leptokurtosis; l-kurtosis is a scale-free measure of the same concept; values above 0.123 indicate leptokurtosis.

Table 2: Normality tests: Shapiro-Wilk (W and V) and Shapiro-Francia (W' and V')

| | Obs. | W | V | Pr | W' | V' | Pr |
|---|---|---|---|---|---|---|---|
| *Policy Area (2000-2006)* | 130 | 0.44 | 57.26 | 0.000 | 0.43 | 64.05 | 0.000 |
| *Long time-series (1967-2005)* | 312 | 0.04 | 210.61 | 0.000 | 0.04 | 226.42 | 0.000 |

Table 3: Summary statistics for the robustness tests

| | Obs. | Mean | St dev. | Skewness | Kurtosis | L-Kurtosis |
|---|---|---|---|---|---|---|
| *Policy Area (2000-2006)* | | | | | | |
| Test 1 | 130 | 9.23 | 28.46 | 5.55 | 39.95 | 0.545 |
| Test 2 | 150 | 8.11 | 27.64 | 5.12 | 40.44 | 0.558 |
| Test 3 | 180 | 29.20 | 190.16 | 9.79 | 103.18 | 0.812 |
| *Long time-series (1967-2005)* | | | | | | |
| Test 4 | 312 | 82.87 | 1069.88 | 17.52 | 308.59 | 0.838 |
| Test 5 | 361 | 75.02 | 994.77 | 18.85 | 357.13 | 0.818 |
| Test 6 | 444 | 83.26 | 981.78 | 17.31 | 317.24 | 0.839 |
| Test 7 | 513 | 76.15 | 913.57 | 18.62 | 366.58 | 0.820 |

Table 4: Normality of the robustness tests

| | Obs. | W | V | Pr | W' | V' | Pr |
|---|---|---|---|---|---|---|---|
| *Policy Area (2000-2006)* | | | | | | | |
| Test 1 | 130 | 0.44 | 57.26 | 0.000 | 0.43 | 64.05 | 0.000 |
| Test 2 | 150 | 0.46 | 62.29 | 0.000 | 0.45 | 69.69 | 0.000 |
| Test 3 | 180 | 0.14 | 116.85 | 0.000 | 0.13 | 127.79 | 0.000 |
| *Long time-series (1967-2005)* | | | | | | | |
| Test 4 | 312 | 0.04 | 210.61 | 0.000 | 0.04 | 226.42 | 0.000 |
| Test 5 | 361 | 0.04 | 240.51 | 0.000 | 0.04 | 258.03 | 0.000 |
| Test 6 | 444 | 0.05 | 286.55 | 0.000 | 0.05 | 307.16 | 0.000 |
| Test 7 | 513 | 0.05 | 327.40 | 0.000 | 0.04 | 350.97 | 0.000 |

W and V correspond to the Shapiro-Wilk statistic and W' and V' to the Shapiro-Francia

**Figure 1: evolution of the EU budget (1967 – 2005)**

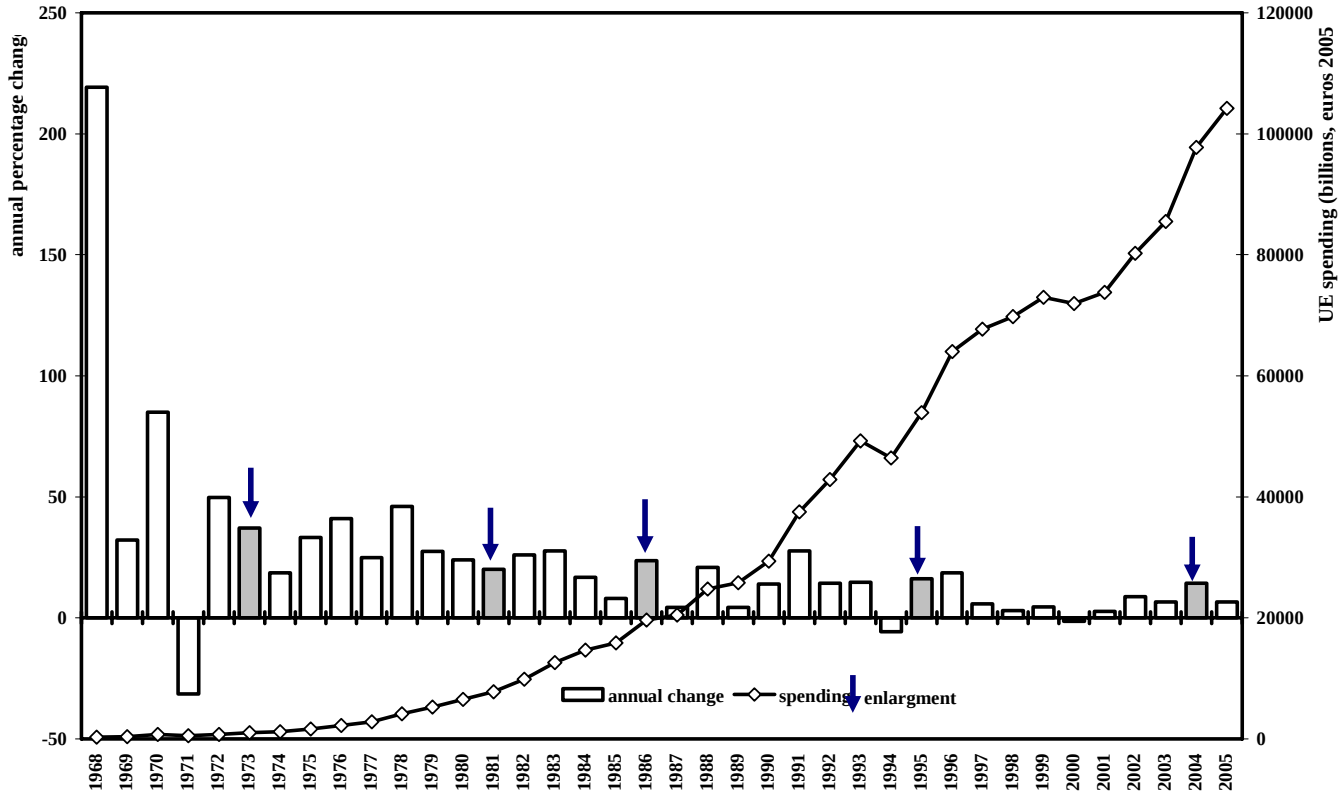


**Figure 2: evolution and structure of the EU budget (1967 – 2005)**

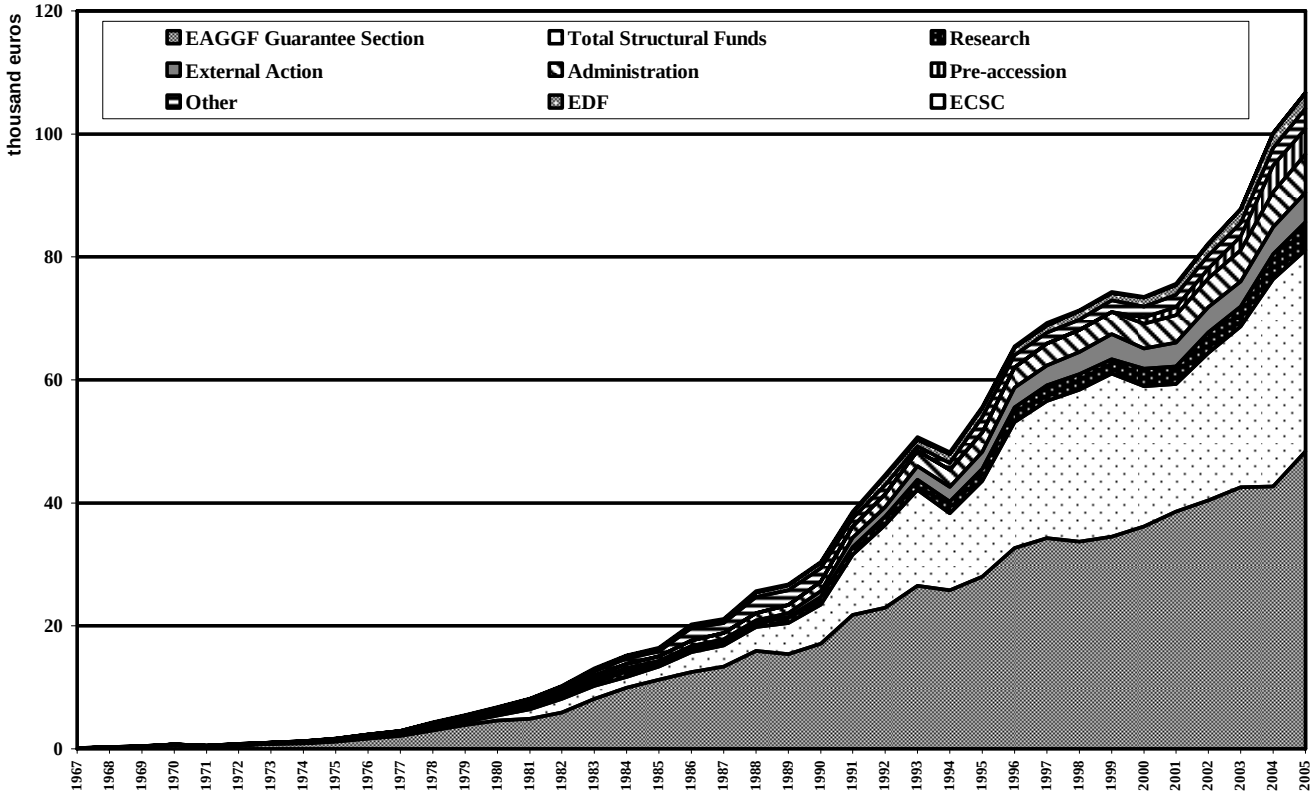


**Figure 3: The main policy domains of the EU budget (2000 – 2005)**

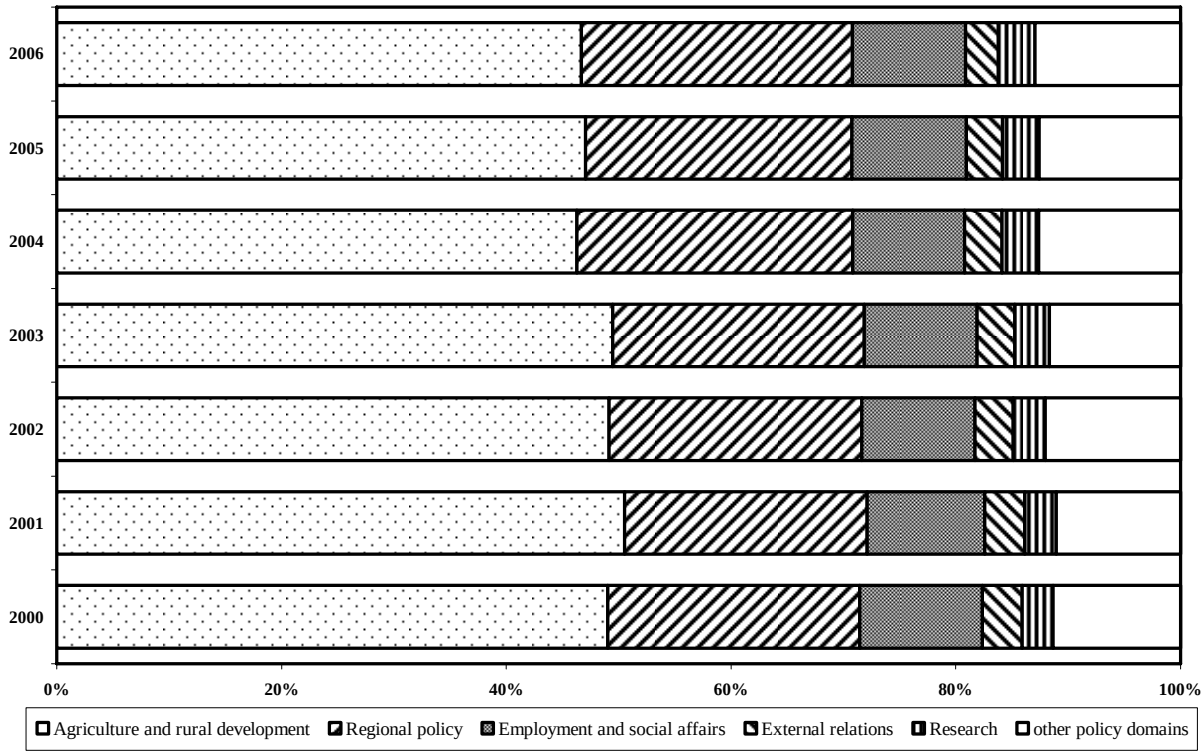


**Figure 4: Distribution of the historical series annual percent change (1967-2005)**

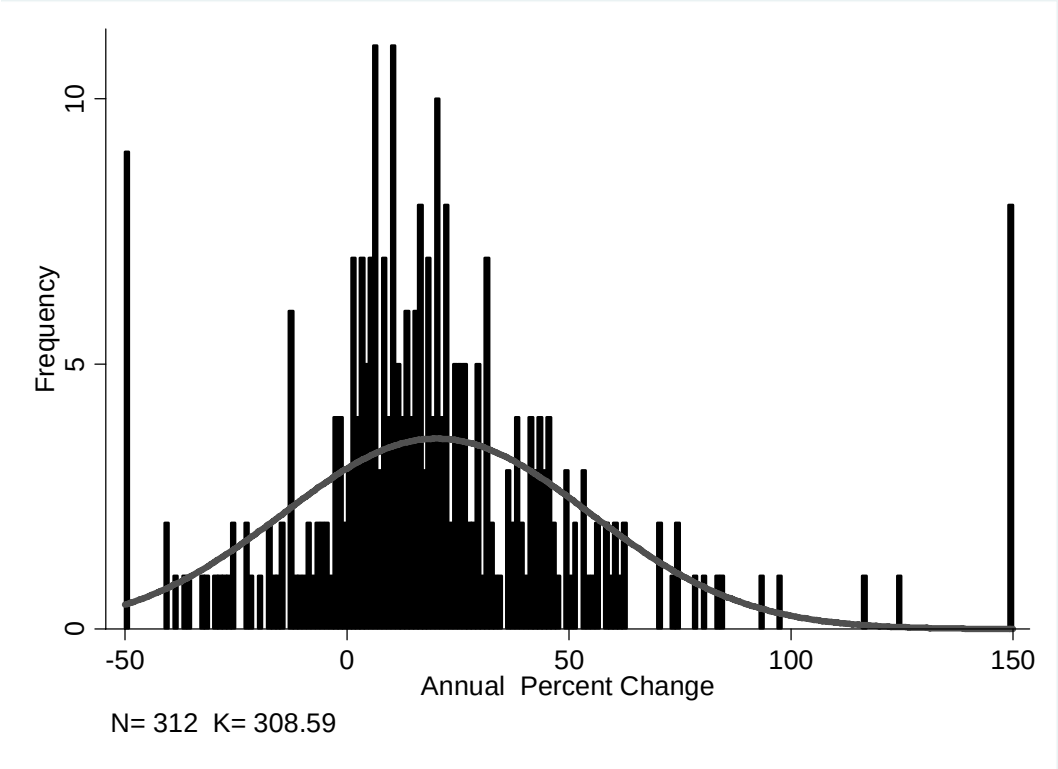



**Figure 5: Distribution of the policy area series annual percent change (2000-2006)**

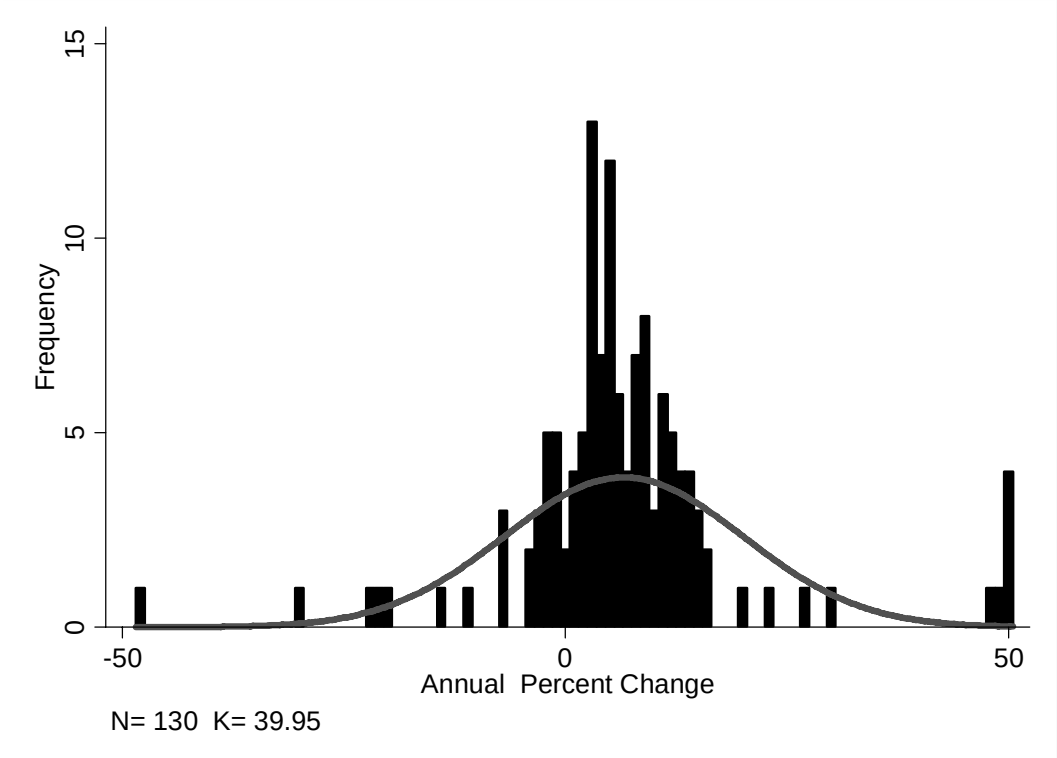
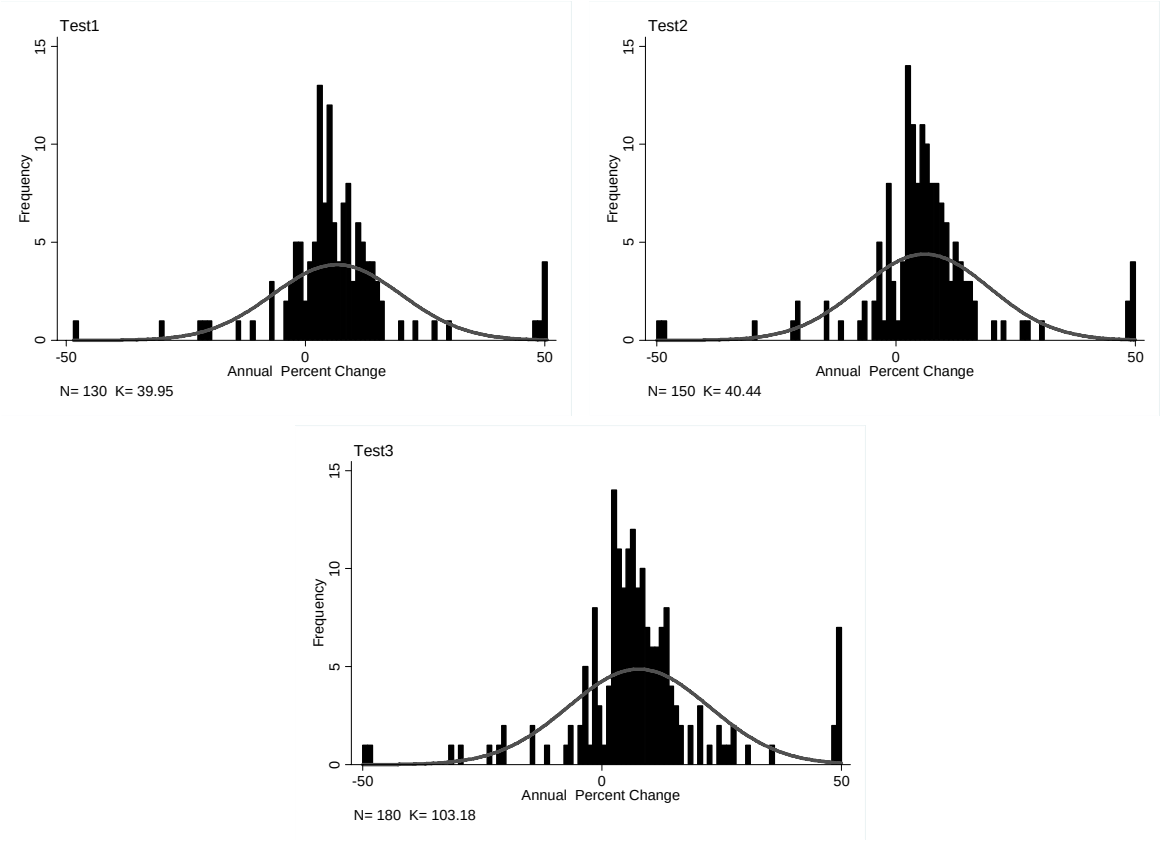


**Figure 6. Robustness Tests for Series by political domains.**



## Figure 7: Robustness Tests for Long Data Series