

Punctuated equilibrium in French budgeting processes

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ABSTRACT We use data on French budgeting to test models of friction, incrementalism and punctuated equilibrium. Data include the overall state budget since 1820; ministerial budgets for seven ministries since 1868; and a more complete ministerial series covering ten ministries since 1947. Our results in every case are remarkably similar to the highly leptokurtic distributions that Jones and Baumgartner (2005) demonstrated in US budgeting processes. This suggests that general characteristics of administrative processes create friction, and that these general factors are more important than particular details of organizational design. The legendary centralization and administrative strength of the French state, especially when compared to the decentralized separated powers structure of the US system, where the theory was developed, is apparently not sufficient to overcome cognitive pressures causing friction. Further, our French data cover a wide range of institutional procedures and constitutional regimes. The similarity of our findings across all these settings suggests that administrative structures alone are less important than the cognitive reasons discussed in the original model.

KEY WORDS Agenda-setting; budgeting; France; incrementalism; public policy; punctuated equilibrium.

INTRODUCTION

There are two possible reasons for punctuated equilibrium (PE) findings in the distribution of the sizes of changes in annual budgets: institutional friction and cognitive overload. We investigate government spending in France and present strong evidence that the cognitive explanation is more powerful than the institutional one. We look at the history of French state spending since 1820 and more detailed spending patterns for seven ministries since 1868 (and for three additional ministries since 1947). In every case we find similar results, showing the signature pattern of high kurtosis that is characteristic of a PE process. The findings provide strong support for the cognitive friction model developed by Jones and Baumgartner (2005) for the United States (US) case. The similarity

of findings in France to what was found in the US is remarkable. The similarity of the results we show across historical periods in France during which institutional structures were dramatically different suggests that institutional procedures are less important than cognitive factors in explaining the friction model.

The core issue we address is very simple: no matter what the institutional design, all modern governments face a dizzying array of thousands of real and potential problems. The complexity of the tasks which governments are asked to take on is so great that proportionate response to all the various problems is impossible. Of course, institutional design may have a strong effect on the efficiency of organizational response; some institutions are more efficient than others. Comparing findings across two systems with such different institutional designs as France and the US allows us effectively to control for institutional design. Further, our French data cover a range of historical periods during which France had a wide variety of constitutional systems, with greater or lesser powers for the executive in controlling the budget unilaterally. If institutional design drives budgetary efficiency, we should see important differences between France and the US and across historical periods in France. If bounded rationality is a more important explanation, then we would expect similar findings of high kurtosis in budgetary processes no matter where we look. Our findings point strongly to a single explanation for the PE findings we observe: the overwhelming complexity of the issues of public policy with which all governments deal.

The US system of weak parties, separation of powers, federalism, and the shared powers of the legislative and executive branches in the realm of budgeting make it simple to understand the high institutional costs of decision-making there. That system was designed to require concurrent majorities that may often be absent; without them the status quo policy remains until pressure builds sufficiently to break the log jam. Thus the model of heavy institutional friction that Jones and Baumgartner (2005) laid out is easily understandable in the US context. The original theory laid out two possible explanations for the PE findings of high kurtosis. The first has to do with cognitive complexity; the idea here is simply that governments deal with thousands of problems simultaneously, that these problems are typically poorly understood, that the solutions available to solve them are often subject to great uncertainty, and that different politically relevant actors have diverse preferences and priorities. With no clear indicators of the severity of the problems, the feasibility of the solutions, or how to set priorities among them, the system places a premium on 'attention-shifting', namely rapid review and routine continuation of status quo policies with only marginal adjustment for most issues most of the time, but much more serious reconsideration of a smaller number of policies that cross a threshold of attention. Those issues that grab the attention of high-level government officials typically do so because of serious problems. In that situation the status quo policy may not automatically be replicated; rather, more fundamental changes may be made (or new programmes

created). While high-level attention is focused on a subset of all the available issues, others are necessarily relegated to the politics of routine review and reaffirmation of the status quo. The combination of little change for those issues below the threshold but possible dramatic change for those above the threshold leads to an overall distribution of policy changes which corresponds with the PE model: relative stability for most issues most of the time interspersed with occasional dramatic punctuations.

Translated into budgetary processes, the model implies that the overall distribution of budget changes will have a characteristic shape: a high central peak, few cases in the moderate 'shoulders' of the distribution, and many cases far out in the extremes. A more efficient process, including a purely incremental model in which there is no friction but in which policy-makers update proportionately to the severity of the problems they face, would create a statistically normal or Gaussian distribution of budget changes. Jones and Baumgartner (2005) demonstrate that an incremental model, leading to a purely Gaussian distribution, is characteristic, in fact, of a fully rational, comprehensive and proportionate-response model. This has yet to be observed.

The second process that could explain these results is institutional friction. In contrast to cognitive friction or bounded rationality, institutional friction differs across organizational settings. Some organizational designs may be more efficient than others. Where institutions are particularly efficient, the only friction associated with the process would be that stemming from bounded rationality. On the other hand, if institutions themselves add additional friction to the process, then the overall friction of the process would be further exaggerated. The US system, with its separation of powers, veto players, federalism, supermajorities, and shared control of the budget between the President and Congress, was designed to inhibit policy changes in response to every whim and marginal shift in public opinion or elite preferences. In fact, different institutional processes within American government were shown to have different levels of friction, clear evidence that institutional processes themselves, not only bounded rationality, affect the process (see Jones and Baumgartner 2005; see also Jones *et al.* 2003). In fact, it is possible that institutional procedures may *reduce* rather than enhance the friction or inefficiencies associated with complex decision-making processes. The Efficient Market Thesis, after all, is based on the idea that a market of millions of independent decision-makers will be more efficient in its aggregate outcomes than any individual decision-maker. Organizational theorists have focused on standard operating procedures, institutional missions, identification with the means and other factors that make us expect that institutional decision-making will increase friction rather than lower it, however. But institutions may certainly differ among themselves in terms of their efficiency.

Compared to the US system of separated powers and federalism, the French system was designed with entirely different goals in mind. Many of the ideas in the agenda-setting and PE literatures appear foreign and perhaps irrelevant in the parliamentary context, at least on the surface. Venue shopping is more

limited, elite civil service corps play a more important role, the executive branch has much greater say in budgeting, and parties ensure a consistency in government policy that one does not expect in the US. France demonstrates all these characteristics quite powerfully; indeed the constitutional structure of the Fifth Republic was designed specifically to ensure executive dominance and autonomy. France therefore represents a polar opposite case from the US, where the findings of PE in budgeting were first reported.

We take advantage of these substantial differences to lay out a strong test of the theory. First of all, does France exhibit spending patterns characteristic of a PE process? Since the theory was developed and the first findings came from the US with its exceptional institutional design, there is no a priori reason why it must exist at all in another specific institutional framework such as that of France. Second, we take advantage of the many different data series we have that include an overview of almost 200 years of French history, a more detailed look at 130 years, and finally a more intensive scrutiny of the past fifty years, including analyses restricted only to the current Fifth Republic. If we find substantial differences across historical periods, by levels of aggregation, or if the French figures are systematically different from previous findings in the US, then we can investigate further the institutional differences that account for this variation. On the other hand, if our findings are consistent across datasets, then it means that bounded rationality, not institutional design, is the most important contributing factor.

Our findings are that French budgeting is extremely punctuated no matter where we look. Overall levels are on a par with those found in the US and high levels of friction are apparent in every historical period and at every level of aggregation. The findings provide powerful testimony to the generalizability of the PE finding and suggest that its most important driving force is the architecture of human cognition rather than any particular institutional feature of governments.

BUDGETARY INCREMENTALISM, PUNCTUATED EQUILIBRIUM AND EMPIRICAL ANALYSIS

While the US and the French institutional structures and budgeting processes are starkly different, both systems must deal with an ever-changing mix of social, economic, political and international issues constantly rising and falling in intensity at different rates. US congressional committees hold thousands of hearings each year on hundreds of different topics, and executive branch officials simultaneously implement policies ranging from farm subsidies to large-scale war. Similarly, French civil servants operate policies in hundreds of different areas covering the full range of activities from delivering the mail to space research and genomic mapping. There are no simple gauges to tell decision-makers which problems are most severe, which concerns affect the public the most, or which have the greatest chance of being solved. Rather, in both systems, there are never-ending debates about these very questions.

Jones and Baumgartner (2005) laid out the reasons why, through a process of 'attention-shifting', we should expect individuals and governments alike, when dealing with such complex environments, to distribute their attention in fits and starts.

Most issues, most of the time, are treated within the realm of specialized policy communities and operate well below the 'radar screen' of political leadership. With little attention to them, policy at Time_t is largely determined by adherence to the status quo, or the policy that had been adopted Time_{t-1}. (This policy is itself, of course, often a simple reaffirmation of a previous policy, that of Time_{t-2}.) But when major problems arise within that issue area, then higher level attention may be called for. The very emergence of the issue as a 'new' problem (or a newly severe one) may imply that the previously chosen solutions did not work, or perhaps even that the previous understanding of the nature of the problem itself was faulty. Through these mechanisms, issues selected for attention are often the objects of significant changes in policy outputs but the vast bulk of issues at any given time are carried on with great deference to the status quo. Policy tomorrow may differ quite dramatically from the policy of yesterday in those few areas that pass a threshold of urgency and attention, but the vast bulk of the issues are simply carried forward with minimal adjustment from the previous period. This model of 'hyper-incrementalism' combined with punctuations is at the heart of the Jones and Baumgartner model of PE. The model allows for very simple tests based on analyses of the entire distribution of changes in annual policy outputs such as budgets as we will do here.

Jones and Baumgartner 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 programmes and no single process determines any more than a few of them together, their combination must mathematically be distributed normally, at least in annual percentage changes, as we analyse 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 show a random walk in time—policies are based on the status quo, altered 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. We therefore have a very simple test that may be applied to any consistently defined series of policy outputs.

BUDGETING PROCESSES IN FRANCE

We present data on French budgeting back to 1820, a period during which French constitutional structures and budgetary procedures changed many times, sometimes violently. Our data begin with the budgets of the *Restauration* period (1815–1830), and continue through the Monarchy of July (1831–1847), Second Empire (1851–1870), Third Republic (1871–1939), Vichy (1940–44), the Fourth Republic (1945–1958), and the Fifth Republic (1958–). The period includes several wars, foreign occupations, and a set of constitutional regimes ranging from Monarchy and Empire to parliamentary-centred democracy and the current executive-centred democratic system. We present more detailed information about specific ministerial budgets from 1868, also covering several different constitutional regimes. Finally, we show data on ten distinct ministerial series from the period after 1947. All data series stop in 2002, the most recent year for which they are available.

Over the period of our study, a wide range of constitutional and administrative procedures affected the budgetary process in France. These have varied substantially over time in response to constitutional regime changes as well as administrative reforms (for detailed descriptions of French budgetary processes see Adam *et al.* 2003; Isaia and Spindler 1986; Kott 2004; Le Guen *et al.* 1988; Sine 2006; Théret 1995). Compared to the US, however, there is much more substantial centralized control of budgets by a single principal: the Minister of Finance acting on behalf of the government. Nowhere is there the type of separation of powers or decentralized and complicated budgetary process as has been the norm in the US. On the other hand, the process of budgeting even in a centralized system is not straightforward. Complex trade-offs must routinely be made across hundreds of spending categories in reaction to thousands of shifting variables. There are many reasons to expect the French state, with its substantial autonomy, to be more efficient than the US state in making these complex trade-offs. After all, a single centralized actor has the authority to set the budget.

In French parliamentary history, the control of public spending has been at the core of continuing struggles between the executive and legislative branches. The main challenge was to institutionalize the control of public spending, and in fact much of the historic struggle on this topic had nothing to do with Parliament, but rather concerned the autonomy of individual ministries to set their own spending levels, free from any central controls. Over time, they were subordinated first to the Ministry of Finance and at some times to the Parliament. In this evolving context of greater central control, even the place of local authorities (e.g. cities) was clarified only in 1892 (Third Republic) by

a separation between national public spending and local spending financed through vertical transfers. Here we give a quick overview of the development of central control over budgeting matters.

Budgeting before the Third Republic

The long history of budgetary law and public finance shapes the relationships between legislative and executive branches of the French state since 1789 (see Isaia and Spindler 1986). Before 1789, no budget was adopted and no ministry was controlled in its spending choices. In 1812 the Parliament (*Assemblée Nationale*) gained new powers through the creation of a Finance Law which was regularly voted after the beginning of the fiscal year. In 1814, the Minister of Finance Le Baron Louis changed the budgetary process by delegating to the *Assemblée Nationale* some new principles of budgetary law. From this point on the government became responsible for preparing and executing the budget while Parliament had powers of approval and oversight.

Even if there was constitutional authority for Parliament to play an important role in the budgetary oversight as early as 1814, there remained powerful information asymmetries and few resources allowing Parliament to play a serious role in the process. The *Cour des Comptes* (Court of Accounts) was created by Parliament in 1807, but it lacked great powers in the early years. Further limiting the role of Parliament, the government presented the entire state budget to Parliament at once, forcing a single vote on the entire document, in a process that lasted until 1817 (Cf. Art. 151 of the Law of 25 March 1817). Beginning with the Monarchy of July in January 1831, the annual Finance Law was divided into multiple categories (more than 170 categories or chapters, including 338 subsections), with each one the object of a separate vote. During the Third Republic this system was continued and dramatically expanded. In 1900, there were 1,090 separate chapters in the budget; in 1959, approximately 4,000. During the Fifth Republic these numbers declined to 'only' 800 separate chapters in 2005 (see Sine 2006). While a single vote deprived Parliament of a significant role in the process, the multiplication of separate chapters of the budget led Parliament to delegate discussion of it to a Finance Committee and to have votes on only the main chapter headings, a process that lasted until 2001. Thus the budget debate was devolved mostly only to experts, not the entire Parliament.

We can summarize this situation by saying that from the *Restauration* period to the beginning of the Third Republic, the government consistently dominated Parliament in budgetary matters. Disputes within the government were substantial, of course, both between the individual ministries which steadily lost power to the Ministry of Finance as well as between the civil bureaucracy (in particular the Ministry of Finance) and the military. During this period, including during the Monarchy of July as well as the Second Empire, various institutional reforms steadily enhanced the powers of Parliament in this process, however. Indeed, the control of public spending, the ability to amend, the vote by subsections,

a posteriori review of expenditures, and the political responsibility of government created ever greater opportunities for Parliament to play a more important role in budgetary politics over the decades.¹ Thus, in spite of the substantial political instability and the rapid succession of so many regimes of widely differing character (fifteen regimes from 1789 to 1870), there was a steady progression of greater central budgetary control (housed in the Ministry of Finance) followed by increased parliamentary powers as well. The birth of the Third Republic would bring much greater political stability (sixty-nine years, by far the longest French constitutional regime), as well as further developments of the powers of Parliament, leading paradoxically to the centralization of power by the Ministry of Finance.

Budgeting during the Third and the Fourth Republics

The birth of parliamentarism in the Third Republic reinforced substantially the role of Parliament as compared to the government. This led to substantial fears within the government and particularly the Ministry of Finance that MPs would play an opposition strategy and possibly not approve the Finance Law, resulting in the state grinding to a halt. The government maintained powerful constitutional provisions preventing too much parliamentary control; one example is the '*douzièmes provisoires*' (monthly continuing resolutions), short-term Finance Bills automatically enacted and allowing the executive branch to continue functioning (based on the government's proposed budget) in any period during which Parliament had not passed the Finance Law. (This constitutional technique was used ten times between 1920 and 1934, a period of substantial political turbulence.) This constitutional guarantee for the government and its Ministry of Finance lasted until 1959 when it was replaced by the constitutional period of parliamentary vote limited to forty days, at which point the government's proposal becomes the Finance Law if Parliament has not passed it. To this day, in other words, the French executive enjoys constitutional powers unlike anything imaginable in the US.

During the Fourth Republic, the Ministry of Finance was opposed to some parliamentary initiatives that allowed the Finance Committee to propose its own budget bill. Indeed, the annual Finance Law became the object of much of the political struggle during this time, with many Chairmen of the Parliamentary Finance Committee seeing the destabilization of the government as their best possible route to being named Minister of Finance following the next cabinet reshuffle (and this often occurred). To put an end to these conflicts, the Fourth Republic saw some extraordinary circumstances where, for example, the Prime Minister served simultaneously as Minister of Finance (Henri Queuille in 1948, Edgar Faure in 1952; Raymond Barre also served in the Fifth Republic from 1976 to 1978).

During both the Third and Fourth Republics budgetary debates in Parliament were often vociferous. Even if cabinets showed greater stability during the Third Republic than in the Fourth, the budget forced the

government to negotiate with the parliamentary groups. These debates were often not conclusive and it was common for the Finance Law not to be passed or for only as little as 3 to 5 per cent of the budgetary credits to be allocated before the end of the prescribed period for parliamentary debate. Continuing resolutions were the norm and debate often focused only on new marginal allocations and not the 'stock' of credits from previous years (95 to 97 per cent of the annual budget) (see Sine 2006: 110). This provides some explanation for budgetary drift leading only to incremental adjustments in the budget as parliamentary agreements were difficult to forge. As we will see below, these characteristics also introduce substantial friction into the process even though the government maintains much more power in these negotiations than in the US.

Budgeting in the Fifth Republic

Under the Fifth Republic, budgetary procedures have included the distinction between initial public allocations (*crédits initiaux*) and actual public spending (*dépenses réelles*). Each year during the budgetary debate in October, the government announces the size of budget to be voted by Parliament. In this face-to-face encounter, the main actor is the Minister of Finance who attempts to convince MPs about the budget choices and the credibility of such choices. But once enacted, the budget may stray from the initial level due to macroeconomic changes, prediction errors, and executive branch preferences, among other reasons. Within the executive branch, the Minister of Finance acts as a final decision-maker and single most powerful budgetary player. Kott (2004) describes in detail how the Ministry of Finance has succeeded in concentrating financial expertise as a strategic asset to negotiate not only with Parliament but also with other ministries. The process is largely controlled by the Finance Ministry.

Substantial negotiations characterize the French budgetary process, first between the individual ministries and the Ministry of Finance. Second, the government knows that the budget is likely to be passed because by definition it enjoys a parliamentary majority (typically a large one due to the two-ballot electoral system used in the Fifth Republic as opposed to proportional representation used in the Third and Fourth Republics). The role of the Ministry of Finance has been further enhanced through recent European Union macroeconomic constraints that authorize the Ministry itself to make substantial budgetary cuts in order to meet EU-imposed requirements for overall state spending. Finally, no prime minister can accept the political cost of a failed Finance Law, and, for reasons laid out below, they typically do not have to.

The Fifth Republic is a presidential regime and its budgeting process is very concentrated. Whereas budgeting in the US is a complex negotiation between executive agencies, the Office of Management and Budget (OMB), the President and various congressional committees, the process is much simpler in France.² The current constitution distinguishes two steps in the budgeting process: the preparation and the vote. The executive branch controls the first stage

completely, and it dominates the second stage as well. Indeed, Article 40 of the 1958 French Constitution restricts the power of Parliament: '*Bills and amendments introduced by members of Parliament (MPs) shall not be considered when their adoption would have as a consequence either a diminution of public revenues, or the creation or increase of public expenditures.*' Moreover, the MPs or the parliamentary committees are not involved in the first stage which is a negotiation between the ministers and the Minister of Finance, the Prime Minister taking the final decision in the event of dissension. This process is designed specifically to reduce the role of MPs in the budgetary process and, since the government has always the majority in Parliament, it strictly controls the legislative agenda of the MPs. Hence the changes introduced by Parliament during the budgeting process tend to be minute, as the executive branch can decide whether to accept or rule out of order any proposal having an effect either to reduce tax receipts or increase levels of public expenditure (that is, virtually everything a Member of Parliament might want to consider). Moreover, removing the legislature from the process means that a single bureaucratic entity plays a significant role in public decision-making. Finally, there is only one principal in the French system – the Prime Minister. By contrast, in the US, by design, there are competing principals.

This does not mean that the process is transparent or perfectly efficient in France. Rather, the debates are simply transferred to the executive branch. The preparation of the annual budget is a fundamental concern to each minister, the Minister of Finance, the Prime Minister and the President. The process starts with a review of economic forecasts from the Budget Minister, focusing on expected tax revenues based on economic projections and current tax law. These fiscal issues are discussed inside the Cabinet. Based on these discussions, the Prime Minister sends to each minister a 'guidance letter' (*lettre de cadrage*), based on which the minister makes his initial budget request. These initial budget requests are then the object of discussion between the individual ministers and the Minister of Budget, with the Prime Minister and possibly the President making the final decisions. In fact, no matter what the limited role may be of Parliament, the French Prime Minister must still arbitrate among the competing and often incommensurate demands of thousands of programmes within the purview of the various executive ministries, just as the OMB does in the United States. Following this arbitration, the Prime Minister sends to each minister a 'ceiling letter' (*lettre de plafond*) indicating the total amount they are authorized to request. From this date, ministers negotiate the distribution of the funds inside their ministries, which are overseen and verified by the Budget Minister. The final version of the budget document is adopted in the Cabinet (*conseil des ministres*).

The results of this executive-centred process are that the Prime Minister always maintains ultimate authority over his ministers, the Budget Minister and Parliament. A single principal with supreme autonomy monopolizes the budgetary process. Moreover, the capacity of the ministers is weakened by the fact that a great part of their budget is unspent obligations carried forward from previous years (*services votés*) or is taken up in personnel costs (e.g. the

pay of civil servants). The Prime Minister maintains substantial control over the available budgetary margin of manoeuvre. All in all, then, it is clear that in spite of long-term trends towards greater parliamentary control over the past two centuries, the most important feature of French budgeting is the strong centralized control in the hands of the Prime Minister and his Ministers of Budget and Finance. The current process in France is as centrally controlled as it seems possible to imagine in a democracy.

DATA AND RESULTS

We present three different series of budgetary data: overall state spending since 1820; ministerial-level spending since 1868; and a more detailed ministerial series starting in 1947. All series stop in 2002, the most recent year available. Data come from official sources, and all have been adjusted for inflation and to delete any calculations of annual changes in years in which substantial accounting or classification changes occurred. Figure 1 shows overall state spending in France since 1820 as well as the annual percentage change.

Using inflation-adjusted (2002) French Francs, the dark line in Figure 1 documents movement from a total state budget in 1820 of 14.6 million Francs to a final figure of 1.684 billion Francs: growth by a factor of 115 over the period.

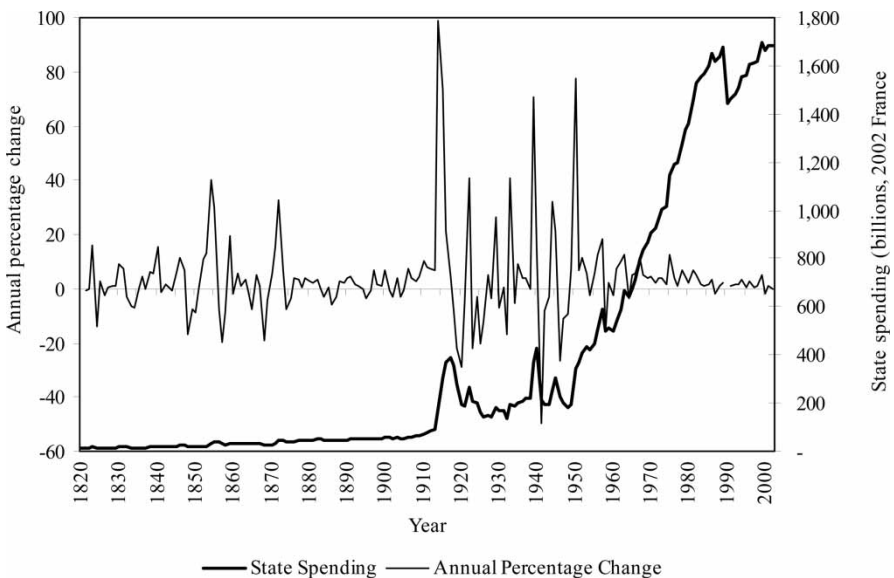


Figure 1 State spending in France, 1820–2002

Note: Figure 1 shows overall state spending in billions of 2002 Francs. The large decline in 1990 is an artefact of budgetary accounting rules imposed by the European Union. No percentage change score is calculated for that year, and we do not include this observation in subsequent analyses.

Of course, crises such as the two World Wars are plainly evident in the graph, as is the dramatic rise in spending in the post-1950 period. The lighter line in Figure 1 shows annual percentage changes in spending. Here we see periods of substantial volatility in spending associated with major conflicts, a period of great budgetary stability (and little growth) between the Franco-Prussian War and the buildup to the First World War, and a substantial decline in variability after the beginning of the Fifth Republic. Wars and constitutional instability clearly make their marks, and this is no surprise. We can also see a great decline in annual variation in spending after 1950; state spending is considerably less volatile since then compared to previous historical periods, when it was not unheard of for the entire budget to grow or to contract by over 50 per cent. Such huge shifts no longer occur, a finding similar to what Baumgartner and Jones have discovered in the US. Volatility in France was very high right up until this period, however, and Figure 1 shows a 70 per cent increase in state spending in 1950, in the thick of post-war reconstruction efforts.³

We are interested in the distribution of the sizes of annual percentage changes. The theory calls for a simple comparison of a frequency distribution of annual percentage changes to compare it with a normal distribution. Given the obvious importance of war and constitutional instability in France, we also want to be certain that whatever dramatic budgetary shifts we do observe are not solely related to these causes, and we do so below. Figure 2 presents the same

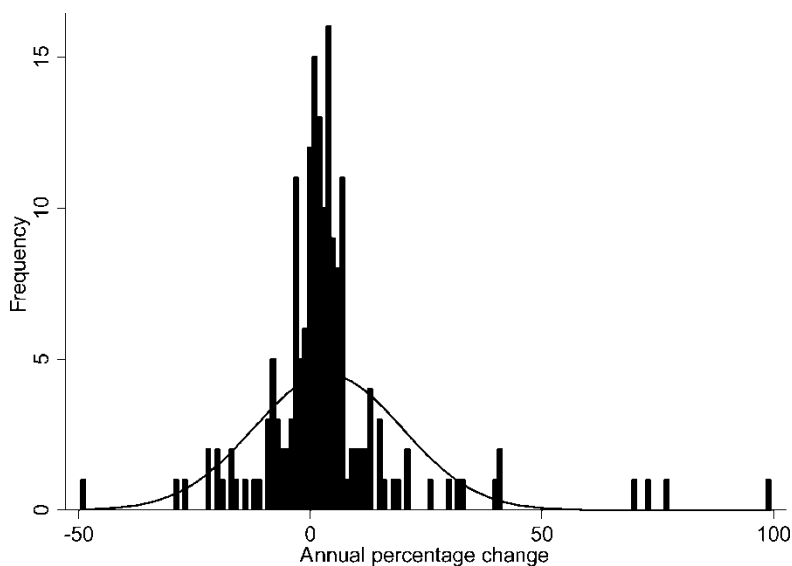


Figure 2 Distribution of annual percentage changes in French state spending, 1820–2002

Note: Figure 2 shows the number of changes of each size, in 1 per cent increments. Data are based on those presented in Figure 1.

data as in Figure 1 as a frequency distribution, showing the number of cases with change within each size range, from a decline of 50 per cent to an increase of 100 or more.

Figure 2 makes clear that French state growth has been highly punctuated over time. The huge central peak of the distribution documents the high proportion of total changes in the range of -10 to $+10$ per cent, and the comparison with the overlaid normal curve is obvious. Compared to the normal curve, there are more cases in the peak, fewer in the 'shoulders' and many more outliers. We can provide more evidence about the PE nature of budgeting in France by looking in more detail at individual ministerial series, though these are not available for as many years. We were able to gather detailed ministerial-level spending data for ten different ministries, as described in Table 1. We have seven series beginning in or around 1868 and ten series for the post-1947 period.

We have been careful to adjust these series for the inevitable problems of shifting ministerial portfolios including in our calculations only those annual changes based on the identical baseline; that is, we deleted cases where

Table 1 Detailed ministerial budget series available

<i>Data series</i>	<i>Beginning</i>	<i>End</i>	<i>Years covered</i>	<i>Missing or inconsistent values</i>	<i>Total N</i>
Economy and Finance	1868	2002	135	3	132
Education	1868	2002	135	6	129
Public Works and Transportation	1868	2002	135	7	128
Justice and Interior Affairs	1868	2002	135	2	133
Defence	1868	2002	135	2	133
Agriculture	1869	2002	134	3	131
Industry and Trade, Research and Technology	1881	2002	122	15	107
Social Affairs	1947	2002	56	2	54
Housing	1947	2002	56	4	52
Veterans	1947	2002	56	2	54
Total			1,099	46	1,053

Note: Data are available for the years and ministries indicated. Data are generally missing for 1941 and 1942 for all data series. Individual series also have various individual years missing as well. We have excluded from our analysis any years in which substantial reorganizations of ministerial functions make calculations incomparable to the previous year. This affects a total of 7 data points over the entire series: Finance 1990; Education 1960, 1965, 1975, 1982; Public Works 1969 and 1982. We are left with a total of 1,053 observations, as Table 1 indicates.

substantial reorganizations of ministerial boundaries occurred (Table 2 provides details on this). We can confidently compare budgetary changes for the remaining data to see if these detailed series present a similar pattern to that shown in Figure 2. Figure 3 shows that indeed they do.

Figure 3 presents over 1,000 observations of spending changes and again makes clear the high kurtosis level of these data. They are clearly very different from normal.

Together, the data we have presented make clear that French budgets are highly punctuated. Figure 1 may make one wonder, however, if perhaps those large changes occurred only during times of war or instability. If this were the case then the theory would not be supported because the causes of punctuations would be stochastic shocks rather than the normal functioning of government procedures and cognitive architectures as Jones and Baumgartner (2005) suppose. Table 2 shows a statistical summary of the data presented in Figures 2 and 3 for the entire period, excluding the war years, and for the periods associated with different constitutional regimes.

Table 2 shows some large differences in budgeting patterns across the different series we have explored, but each and every series exhibits substantial kurtosis. As was clear from Figures 2 and 3, each of the distributions differs systematically from the normal curve (which would have a kurtosis value of 3). Overall state spending from 1820 shows a kurtosis of almost 15, a value which declines to only 14 when we exclude the years associated with the Franco-Prussian War, the First World War and the Second World War. Each of the other series shows kurtosis values ranging from 20 to over 700, though there are sometimes substantial differences between them.

Table 2 Characteristics of French budget series

<i>Budget and period</i>	<i>N</i>	<i>Mean</i>	<i>St Dev</i>	<i>Skew</i>	<i>Kurtosis</i>	<i>L-K</i>
Overall state spending, 1820–2002	180	3.82	16.04	2.41	14.75	0.567
Overall state spending, excluding war years (1869–70, 1914–18, 1939–44)	167	2.63	11.80	1.85	13.56	0.493
Ministerial series, 1868–2002	1,049	12.58	101.40	21.32	570.24	0.568
Third Republic (1871–1939)	464	10.09	52.78	6.10	54.91	0.452
Third Republic, excluding 1914–18	429	8.39	48.19	6.91	72.91	0.444
Fourth Republic (1946–1958)	124	16.15	61.66	3.92	20.24	0.457
Fifth Republic (1959–2002)	420	6.27	35.33	12.19	192.46	0.518

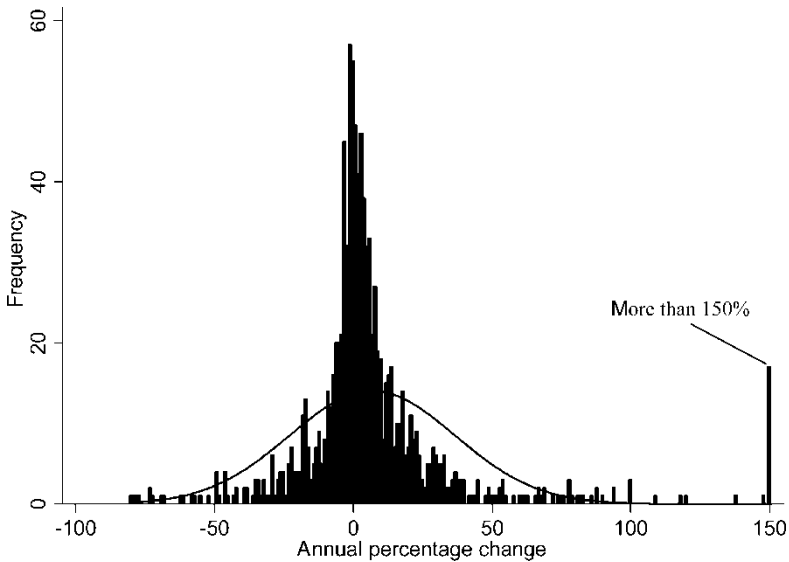


Figure 3 Distribution of annual percentage changes in ten French ministerial budgets, 1868–2002

Note: Figure 3 shows the number of changes of each size in French ministerial budgets. All changes above 150 per cent are collapsed at that value. See Table 1 for an explanation of which ministries are included.

US kurtosis values reported by Jones and Baumgartner (2005: 182) were approximately 60 for the overall state budget from 1800 to 1994 and 85 for a dataset consisting of 62 categories of spending from 1947 to 1996. Breunig (2006) shows L-K scores of .37 for the United Kingdom, .42 for Germany, .47 for Denmark and .49 for the US. French budgetary data are clearly within the range of these other studies (even slightly more highly punctuated, if anything, compared to these other values). No country, it seems, approaches normality in the distribution of changes in its spending priorities over time.

Two points bear a mention in discussing these values. First, wars have obvious effects on budgets, and one need have no complicated theory of bounded rationality or of institutional friction to understand the impact of a major world conflict. This is why we test the robustness of our findings by deleting the war years. This shows that wars do, indeed, inflate the L-K scores slightly, as one would expect. However, the values for French budgets even excluding the war years remain substantial. One cannot attribute the friction we observe in French budgeting to wars; there are internal mechanisms as well.

The second point to consider is that there is substantial variation in levels of punctuation across the countries and distributions we have considered. France and the US do not have *exactly* the same L-K scores. German, UK, Danish and American results presented by Breunig also show differences (and his

analysis also shows deviations over time in each country). Different periods in French history exhibit different levels of kurtosis as well. The case of the French Fifth Republic is particularly interesting. This is the constitutional regime which has the greatest concentration of powers in the hands of the central executive branch authorities. The Minister of Finance, working on behalf of the Prime Minister and the President, can set budgets with minimal parliamentary involvement compared to previous constitutional regimes.

On the other hand, French society is more complex than it was during the Third Republic. Government programmes are more diverse, extending into a greater range of activities from housing to transportation, health care, economic management, and foreign and defence affairs. While the centralization of budgetary control should *reduce* institutional friction, since administrative actors have the sole control of budgetary mechanisms, the increased complexity of governmental programmes would have the effect of *increasing* cognitive friction, as it is harder to maintain proportionate response to an ever-increasing number of variables. Of course, there is another possibility. Perhaps the institutional design of the Fifth Republic has been responsible for some increase in friction as relatively isolated bureaucratic fiefdoms have resisted central control, maintaining their independent budgetary priorities while resisting rational economic planning. If this were so it would contradict trends in administrative development towards greater central control over two centuries, as we documented above.

We expect to explore these differences in greater detail in the future. For the purpose of this paper, however, the fundamental point is that every one of the series we have investigated, across all the periods studied, deviates from the normal distribution. Levels of punctuation differ by constitutional regime, historical period, and between periods of war and peace, certainly. But no matter which regime, period or state of international affairs, we consistently see that every budget series is highly punctuated. This appears to be a general law of budgeting.

CONCLUSION

We explored French budgeting processes here and showed that all levels of budgeting, across all historical periods from 1820 up until the present day exhibit the characteristics we expect to see in a PE process based on a friction model. Jones and Baumgartner laid out two possible reasons for the high friction associated with budgeting in the United States: cognitive overload and institutional friction. Our test of various French budgetary data shows that each of these is likely to remain an important avenue for future research. Levels of friction clearly differ across the various datasets and historical periods we have explored. However, our most powerful finding can easily be summed up. That is because the development of the French budgetary process was designed to be a triumph of rationalism. In the country of Descartes, it was expected that the Ministry of Finance would exert significant control over state spending, and it does. Even if this has not been constant over time, certainly in the period of the Fifth Republic there are very few reasons associated with institutional friction to

expect high kurtosis in French budgeting, as compared to the US case. Our finding of high kurtosis values in every series we looked at, including those limited only to the Fifth Republic, is powerful evidence for the cognitive explanation of the friction model.

Institutional variation clearly plays a substantial role in these processes as well, of course, and we have shown substantial variation in the levels of friction across different parts of our study. We will explore these in greater detail in the future. For now, we are left with a simple observation: the legendary centralization of the French state was designed to emphasize Cartesian rationality, in perfect contrast to the separation of powers system in the United States. In the French view, powerful civil servants in the Ministry of Finance, working for the democratically elected government, should have authority over the entire budget. The goal of comprehensive rationality remains elusive, however. Instead, we see the same general pattern of adherence to the status quo until forced to make dramatic adjustments. These are certainly general characteristics of government in the face of overwhelming complexity. Institutional procedures may minimize or exacerbate them, but they cannot make them go away.

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NOTES

- 1 Another factor is clearly relevant here. During this period the popular vote was limited by a poll tax, with only 248,000 people eligible to vote. Until 1848, the owner class acted as a strict controller of public spending as it was opposed to increased taxes, and consequently Parliament was very reticent in authorizing new public spending.
- 2 A significant reform of the French budgeting process, called *Loi Organique relative aux Lois de Finance* (LOLF), was introduced in 2001 and implemented for the 2006 budget.
- 3 These findings suggest a number of important questions, such as the relation of volatility and kurtosis to the overall size of the state. As the modern state has developed,

and its size as a proportion of Gross Domestic Product (GDP) has become more substantial, one may expect more stability. Similarly, the volatility of larger economic processes themselves may have had an impact on the volatility of state budgets. GDP series have become less volatile over history as governments have managed the economy more successfully. We expect to follow up on these issues in subsequent publications and will not explore them fully here.

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NOTE ON BUDGETARY SOURCES

The sources for national-level budgetary data are INSEE (*Institut National de la Statistique et des Etudes Economiques*) *Statistical Handbook* (annual). The historical data (1868 through 1939) are gathered through a retrospective series published in the 1951 *French Statistical Handbook*. All other data have been computed from the annual INSEE Statistical Handbooks. For data after the Second World War, we have used the *Statistical Handbook 1947–1987* published by INSEE. From 1988 onwards, we have used the annual publication of INSEE called *Tableaux de l'Economie Française* which provides a complete presentation of public spending adopted by Parliament through the Finance Law. Total expenditure is made up of separate series for defence and civilian public spending. Each statistical series is originally produced and delivered by the Direction of National Public Accounts (a division of the Ministry of Finance). Data are expressed in current Francs and were then adjusted into constant Francs using the Consumer Price Index (CPI) as supplied in the INSEE publications. Both raw and inflation-adjusted series are available.