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Abstract This paper tests the Political Legislation Cycle theory on French data. The theory predicts a peak of legislative production in the pre-electoral period, when the legislator increases voters' utility in order to be reelected. France is unique in that two elections set up the pace of political life: the presidential and the legislative elections which potentially generate a dual legislation cycle. A hierarchical Poisson model is implemented on a sample containing the monthly legislative production from January 1959 to March 2012. We found that 1) a dual cycle of the production of laws emerges, following both the presidential and the legislative elections, 2) since the constitutional reform of 2000, which synchronized the two elections, the magnitude of the cycle increased, and 3) the President of the Republic does not have an impact on the legislative production, but relies on the government.

Keywords: Political Legislation Cycle - Economic theory of legislation – Political Budget Cycle – Hierarchical Poisson regression

JEL Classification: D72, C49, H61, H62

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1. *Introduction*

The policy-making process requires the production of legislative acts to become effective. Any single decision, from a declaration of war to a cut in a budget item, implies the use of a legislative instrument. The Political Business Cycle literature claims that fiscal policies are sensitive to upcoming elections because incumbents concentrate tax decisions at the end of a legislature in order to increase their probability of being re-elected. In parallel, as a consequence of the redistribution of property rights, the proof has been made that any law is redistributive by nature (Stigler 1971, Tollison 1988). Combining these two arguments, it follows that elections should affect the legislative production as well. Intuitively, we should observe a peak of production of legislation towards the end of the mandate of either the executive or the legislative branch of government – or of both. Such manipulation is the basis of the Political Legislation Cycle (PLC, Lagona and Padovano 2007).

This paper brings two main contributions to the PLC literature. The first is to verify the generality of the PLC theory. As only a few cases have been studied so far, more empirical evidence needs to be provided to have a better understanding of this phenomenon. In particular, Tsebelis (1999) shows that the French and Italian institutional set up are diametrically opposed in matter of government's discretion, with a rather strong executive branch with respect to the legislative in France, and the opposite situation in Italy. Since Lagona et al. (2011) found evidence of a legislative cycle in Italy, demonstrating a similar pattern in the French context would strengthen the generality of the theory.

Second, the French sample allows to test the effects of at least two types of elections on the legislative production, i.e., the presence of a *dual* cycle. The unique mix of presidentialism and parliamentarism that defines the French institutional framework implies that the presidential and the legislative elections set up the pace of the political life. Even if the presidential election remains the main objective of the political parties (Mathieu and Verpeaux, 2004), the President cannot govern without having a supporting majority in the National Assembly. As the two elections were held at different times and intervals before 2002, a dual cycle should occur: one following the legislative election, as in the basic PLC literature, and a second cycle following the presidential election. This duality features should disappear after 2002.

France exhibits other features that can be exploited in the analysis. A direct consequence of the non-simultaneity of the presidential and legislative elections is the possibility to reach an odd situation, called "*cohabitation*", where the President and the prime minister are from two opposite political parties, resulting in a two-headed executive (Poulard 1990, Lewis-Beck 2006). This situation, which occurred in three different occasions, has been eliminated by the constitutional reform of 2000, which imposed that the presidential and legislative elections be held in the same period every five years since 2002, thus making a *cohabitation* unlikely to occur in the future. Our analysis allows to verify the impact of situations of *cohabitation* (and of the reform that removed it) on legislative production and cycles. Also, the continuity of the institutional framework remains (quasi) stable since the birth of the Vth Republic in December 1958, providing a large amount of data. This present Constitution gives to the government sufficient power to implement its policy, allowing for the presence of a dual Political Legislation Cycle.

To explore the French legislative production at the light of the PLC theory, we analyze a newly assembled dataset, which covers, on a monthly basis, the first 13 legislatures of the Vth Republic of France, namely, from 1959 to 2012, providing a total of 639 monthly periods. We focus on the production of voted legislation.

With the use of a hierarchical generalized linear model, the results reveal the existence of a dual cycle of the production of laws, generated by both presidential and legislative elections. Possibly because of this duality, the amplitude of the French legislative cycles is lower than what is observed in the intensively studied Italian case. Observing such cycles in the two extreme cases of the Tsebelis' scale (1999) reinforces the general nature of the PLC theory. Another finding is that the President does not have a direct impact on the production of laws; he relies only on the government and its strategy. Last, the synchronization of the presidential and legislative elections, which implies the synchronization of the cycles, reinforced the magnitude of the peak of production of laws in pre-electoral period, but obviously removed the duality feature.

The rest of this paper is organized as follows. Section 2 reviews the literature of political Cycles. Section 3 describes the dataset and presents the model specification, while section 4 displays the regression analysis. Section 5 concludes.

2. *Related literature*

The idea that election has an impact on the behavior of incumbent politicians is not new. The first attempt to explicitly link the timing of elections with economic outcomes is due to Nordhaus (1975). In his model the link is established through the monetary policy. Albeit appealing, the model presented various shortcomings, mainly the lack of rationality of the voters and the use of the uncertain monetary policy. These critiques gave rise to the Political Budget Cycle literature, pioneered by Rogoff and Sibert (1987) and Rogoff (1990). Following the intuition of Tufte (1978), who expressed the view that redistributive transfers are more efficient to secure votes than monetary policy, Rogoff and Sibert (1987) and Rogoff (1990) allow the incumbent to use the tools directly at his/her disposal: government spending and taxes. It is worth noting that these policies, in most countries, need to pass by a legislative act to become effective; an increase of the legislative production should also occur along the budget cycle. Drazen and Eslava (2004), in line with Rogoff (1990), propose a variation of the standard model based on variations of the total size of the budget, arguing that elections have an impact rather on the composition on the budget, redistributing resources among different items. Again legislation must be approved to modify the tax and expenditures mix as well. Moreover, given the intrinsic redistributive nature of both laws and budgetary decisions[2], the connection between the political legislation cycle and the political budget cycle literature becomes all the more evident. Both legislative and budgetary decisions can be strategically manipulated in order to increase incumbent's reelection odds. What changes is the policy instrument subject to electoral manipulation. The Political Business Cycle identifies the monetary channel, the Political Budget Cycle the budget channel; the Political Legislation Cycle sheds the light on the legislation channel.

Lagona and Padovano (2007) proposed the first conceptualization of the PLC. They consider the level of 'effort' exerted by the different parties of a government coalition, a high effort being associated with a large number of passed bills. In periods

[2] The economic theory of legislation postulates that any law benefits to a group of voters at the expense of all the others, even laws that are far from being explicitly related to finance or economics. To illustrate this point, the French Parliament voted a bill in 2010 making compulsory the installation of a smoke detector in every home. Behind the will to reduce the number of death due to fire, this law also proceeds to a transfer of wealth from the house owners to the smoke detector producers. If laws did not play such role, there would not be so many lobbyists in the neighborhood of the parliaments.

free from electoral constraints, parties do not have sufficient incentives to compete. It implies that they implicitly agree on a low effort. As the election approaches, however, each member of the coalition is induced to break the cartel in order to gather a maximum of suffrages. This triggers the start of a competition among the coalition parties, leading to high effort and thus to a peak of legislative production in the pre-electoral period. A cycle emerges in the production of laws, following the same pattern as in the political budget cycle. The model provides further empirical restrictions, such as the presence of a peak of legislative production before the election if and only if election is held at the expected date and an increase of the magnitude of the cycle as the number of parties in the government coalition increases.

In the same vein, Padovano and Petrarca (2012) extend the analysis, focusing not only on the timing of legislation production, but also on the choice of the legislative tools used by the government-legislator. In the line of Aidt et al. (2011), the government faces two types of voters: unorganized voters and pressure groups. To achieve its reelection, the government has two kinds of tools at its disposal: laws and decrees. Laws are assumed to be common knowledge for all the voters; on the other hand, only pressure groups are aware of the production of decrees. Another source of information asymmetry is the competence of the government, which is only self-observed. The resolution of the model implies that in equilibrium, the government tends to produce more decrees in the first part of the mandate, favoring the pressure group interests in order to signal its competence and ensure fundraising for the upcoming election. Then, in the second part of the mandate, the government operates a change in its legislative behavior, focusing on the production of laws that are visible to all the voters; reelection is conditioned to the supply of a critical utility level to the voters. These two driving forces lead to the creation of two opposite cycles, with a peak of production of decrees at the beginning of the government, and a peak of production of laws towards the end of the legislature.

When tested on Italian data, Lagona et al. (2011) find evidence of such opposite cycles, giving strong support to the PLC theory. With a different empirical model, Brechler and Gersl (2011) point out a legislation cycle in the production of laws related to transfer expenditures, generated by legislative election, in the Czech Republic. In the vein of the PLC theory, Kovats (2009) observes such pattern at the European Parliament too, with a second parallel cycle being driven by the reallocation of the agenda power.

Even if nothing in the theory limits the predictions to a parliamentary system, most of the tests have analyzed the role of parties in legislatures. It would therefore be interesting to test the model on a sample where the executive branch is institutionally more relevant, such as France's semi-presidential system. The French Parliament is known in political science as "weak legislature", dominated by the government (Hubert 1996, Elgie and Griggs 2000). Using a 'veto players' approach, Tsebelis (1999) shows that France and Italy are at odds in matter of government constraints. In the Italian Republic, the government has to play tight in its relationship with a powerful parliament, whereas the French government benefits of an important leeway to pursue its policy. According to the statistics provided by the National Assembly website (*www.assemblee-nationale.fr*), roughly 90% of the passed bills are of government initiative. Moreover, the government controls both the legislative outcomes and the timing of the process, as well as the agenda setting (Mathieu and Verpeaux, 2004). Several attempts to model the French legislative production have been proposed in political science (for instance, Conley 2011), but did not satisfyingly consider the conditioning role of elections. This paper aims at filling this gap, in the light of the PLC theoretical framework.

3. Data analysis

3.1. The French Institutional context. This article makes use of a newly assembled dataset, specifically built for the purpose. A detailed description of the database is available in Gavoille (2013). It covers the period from the first effective month of parliamentary work in January 1959 to the end of the XIIIth legislature in March 2012 on a monthly frequency, providing 639 periods in total. Over the period covered by the sample, 5 Presidents, 13 legislatures, 19 prime ministers and 34 governments successively took place, providing a high heterogeneity of contexts, with left-wing majorities following right-wing ones, single-governing parties coming right after coalition governments, as well as dissolutions of the National Assembly by the President, equivalent to an early call of the legislative election (see Figure 1). Such dissolution occurred on five occasions, making the length of a legislature varying from 14 (the IIIrd legislature, 1967-1968) to 60 months, the natural duration. This feature is of particular interest, as the PLC theories foresee that a cycle should not occur if the election is not held at the expected time. The heterogeneity of contexts, combined with the

characteristics and stability of the institutions, provide an ideal case for empirically testing the PLC.

The semi-presidentialist system makes France a unique institutional case (Shugart, 2005). Since 1962, the President is elected with the direct universal suffrage. He appoints the prime minister, who is accountable before the *Assemblée Nationale*. Thus, the choice of the prime minister is in practice constrained by the composition of the National Assembly. According to the Constitution, there is no hierarchy link between the President and the prime minister. Positively, the prime minister is under the authority of the President; however, in three occasions the President faced a prime minister from the other political coalition: this is the case of the "*cohabition*". Such a situation mainly arises due to a difference of length between the presidential mandate (7 years) and the deputies' mandate (5 years), leading to asynchronous elections. To minimize the limits to government activity, a political party needs to win both elections. This suggests that a dual cycle may emerge, coinciding one with the presidential elections, the other with the legislative ones.

[Figure 1 around here]

For each month, the total number of legislative acts requiring a vote in the *Assemblée Nationale*, namely laws and "*ordonnances*", is reported, as shown in Figure 2. This latter type of legislation consists in a momentary delegation of power from the Parliament to the government, which writes the text and directly submits it to the vote of the *Assemblée Nationale*. Figure 2 depicts the monthly legislative production over the sample, the vertical lines representing the legislative and presidential elections. The pattern of production is highly volatile, due to non-continuous parliamentary sessions, ranging from 0 to 90 laws per month. A change in the pattern occurs in 1995, when the schedule shifted from two ordinary sessions per year to a unique ordinary session, with the consequence to spread the production of laws over the months. The highest peaks of legislative production occur towards the end of the legislatures, especially when the legislature lasts its natural length.

[Figure 2 around here]

The total number of laws is taken into account for several reasons. First, if we state, following Stigler (1971), that all laws are redistributive by nature, there is no reason to proceed to any selection of laws by "type". Second, any disaggregation would require the evaluation of the analyst, inevitably arbitrary in the choice and application of

the criteria, thus becoming easily censurable[3]. And last, as suggested by Rodgers (2005), rejecting all the individually "insignificant" legislation cannot be satisfying: such laws can turn out to have a significant impact when aggregated. Rejecting them as a whole would thus be spurious. Furthermore, this paper limits the analysis to the cycle of *voted* legislation; decrees are excluded from the sample because data about them are problematic. To summarize, In France there exists two types of decrees: 'stand-alone decrees' and 'application decrees', that are promulgated in order to specify the technical details of the voted laws. There is no way to sort the two types of decrees, except by proceeding to an individual check – a painstaking endeavor, since on average there are more than 230 decrees promulgated each month in the period under consideration. On the other hand, considering the total number of decrees would be spurious, since an increase in the number of voted laws implies an increase of decrees too, giving rise to potentially misleading results.

Figure 3 shows the production of laws per government according to the elapsed time since its appointment. "P" and "L" indicate respectively presidential and legislative elections held at the end of the government, when expected. Even if 34 governments have been officially in power over the sample, only 27 are considered in the analysis. The reason is that some governments lasted less than a month, in the in-between the presidential and the legislative elections, but remained in power in the same format after the legislative election. We consider these two governments as just one. The line on each square represents a simple regression of the total number of laws on the months elapsed since appointment of the government. The PLC theory suggests that we should observe a peak of legislative production in the period before a planned election. Considering both legislative and presidential elections, such situation occurred 12 times (government Pompidou 2, Pompidou 3, Messmer 1, Barre 2, Barre 3, Fabius, Chirac 2, Beregovoy, Balladur, Jospin De Villepin and Fillon 3. In 4 cases, an unambiguous positive trend is observable, while the regression line is quasi-horizontal in 5 cases. Three cases are left which feature a negative relationship, namely the Messmer 1, the Beregovoy and the De Villepin governments. These three governments are particular cases. The former, lead by Messmer, lasted only a couple of month between July 1972 and March 1973. The government lead by Beregovoy between April 1992 and March 1993, was not supported

[3] For instance, in political science, Mayhew (1991), proposed a methodology for disentangling "important" from "minor" laws in the US. Reassessing Mayhew's work, Kelly (1993) obtains opposite conclusions.

by an absolute majority in the National Assembly. The coalition composed of PS and MRG parties held 275 seats out of 577. The latter is the government De Villepin, which lasted two years between 2005 and 2007. During this period, an overwhelming movement of popular protest opposed a proposed reform of labor contracts, paralyzing the functioning of the government; eventually, internal squabbles between the prime minister and the future President Nicolas Sarkozy, then Minister of the Interior, reinforced the paralysis (Chevallier et al., 2012). All in all, however, neither descriptive statistics nor simple univariate regressions are enough to reveal the underlying process in a clear-cut way. A test of the full PLC theory is required.

[Figure 3 around here]

3.2. Description of the variables. To respect the *ceteris paribus* conditions, two subsets of covariates are considered in the empirical model, as shown in Table 1: the PLC variables, directly derived from the theoretical model, and a set of controlling factors.

[Table 1 around here]

As for the first subset of covariates, the PLC theory predicts a low point of legislative production during the first months of a government and a peak of activity in the months preceding the election. We use two dummies to check for this dynamics: first *STARTGOV* takes the value of 1 for the first months of a new government and 0 otherwise. A negative sign is expected. As a generality test, two alternative lengths are considered: 6 and 12 months. In a similar way, *ENDLEGI* indicates the last months of a legislature when the end is known in advance. The two same alternative durations are successively used[4]. The end of a government does not need to be introduced, as the natural end of a government is linked to the end of the legislature. Two more variables are introduced in the model to see whether the semi-presidential nature of the French institutions generates a dual cycle. *STARTPRES* is a dummy variable capturing the effect of the first months of a newly elected President, while *ENDPRES* takes into account the effect linked to the end of a presidential mandate, when the end of the mandate is at the

[4] In the Italian context, Lagona et al. (2011) focus instead on a three-month period, but such a length is not relevant in the French context, as for several occasions a vacancy period of about three months precedes the election.

natural limit. If a dual cycle exists, the presidential cycle should affect the production of laws in the same way as the normal legislative cycle.

The set of control variables contains a battery of variables that may have an impact on the legislative production. Two variables are derived from the war of attrition literature (Alesina and Drazen, 1991). H_t measures the homogeneity of the governing coalition weighted by the fragmentation of the opposition (Lagona and Padovano, 2007), computed as follows:

$$HT_t = HG_t \times (1 - HO_t),$$

where $HG_t = \sum_{g=1}^{G} f_{gt}^2$ and $HO_t = \sum_{g=1}^{O} f_{ot}^2$,

with f_{gt} and f_{ot} the relative frequencies of the number of the seats respectively held by the governing and opposition coalition in the *Assemblée Nationale* at time *t.* This index ranges from 0 to 1; a value close to 1 indicates a high homogeneity of the governing coalition, which faces an extremely heterogeneous opposition. A unified government facing a disorganized opposition in the National Assembly is supposed to have more leeway to manipulate the legislative outcome. This index is therefore expected to have a positive impact on the production of legislation. The second variable of this category is *NMIN*, the number of ministers composing the government. Minister refer here to all the different types of ministers: "*ministre d'Etat*", "*ministre*", "*ministre délégué*" and "*secrétaire d'Etat,* as all are registered in the composition of the government promulgated by the President. An important number of ministers is more likely to imply an increase of legislative production, as it suggests a more fragmented government where presumably all ministers aim at signaling their competence by fostering legislative initiatives. Table 2 summarizes the expected sign on each covariate.

[Table 2 around here]

Some variables suggested by the "quality of politician literature" (Besley 2005, Galasso and Nannicini 2010) are also introduced in the model. The experience of the government is taken into account through four different variables. *EXPPARL* and *EXPMIN* are the average length (in years) spent by the ministers respectively on the benches of the Parliament (both *Assemblée Nationale* and *Sénat*) and in previous governments. A high level of experience implies a better knowledge of the cogs of the legislative process, and thus should make the approval of laws easier. The parliamentary experience also implies the personal successes of government members in electoral

races, and so a better valence, as elections play the role of filters of competence (Galasso and Nannicini, 2010). *EXPPREM* is the experience that the prime minister gained during previous and present governments. As the leader of the executive branch, experience seems crucial to successfully implement policies. In line with the two previous variables, we expect a positive impact of *EXPPREM* on the production of laws. The fourth experience variable is *MEANAGE*, which represents the average age of the government members. The impact of this variable is ambiguous. On the one hand, age can be thought as an overall proxy of experience of the cabinet. If so, its impact on legislative production should be positive. On the other hand, age can be negatively correlated with legislative activism, if we consider that motivation and energy decrease over the years. *MEANAGE* and *EXPPARL* are only mildly correlated ($\rho = 0.49$), so both can be considered together. Finally, *ENA* counts the number of ministers who graduated from the prestigious *Ecole Nationale d'Administration*. The omnipresence of the *énarques* in the highest levels of the public administration led to the creation of the neologism "énarchie". It is interesting to see what is their impact on the production of laws, if impact there is.

A macroeconomic indicator is also inserted into the model, to control for the impulse that the state of the economy gives to legislative production. To this end we introduce *GDP*, which is the lagged quarterly GDP growth rate. A high GDP growth rate, synonym of good economic conditions, should reduce the pressure on the government to introduce reforms and therefore the necessity to legislate; at the opposite, a low or negative growth rate should urge the government to find some answers, increasing the legislative production. The lag is set to 8 months because it corresponds to the average length between the deposit of project of law and its vote. On the other hand *COHAB* captures the effect of the *cohabition* on the production of laws. The resulting tensions that characterize the activity of the executive are expected to have a negative impact on the production of laws. Finally, *VAC* denotes the months during which no session was held. The expected sign is unequivocally negative.

4. Regression Analysis

4.1. Model specification. The non-normal nature of the response variables suggests the use of an empirical specification in the family of the generalized linear models (MacCullagh and Nelder, 1989). Alone, the control variables introduced in the model cannot allow for satisfying results, as the political game obeys to rules that cannot

be fully controlled. To take this unobserved heterogeneity into account, a hierarchical Poisson model is adopted, allowing departures from the intercept according to each hierarchical level. Data are initially clustered in 4 hierarchical levels:

$$Months \subset Governments \subset Legislatures \subset Presidents.$$

The legislative production count for month t is thus written y_{tglp}, denoting government g, legislature l and presidency p, with $t = 1 \dots t_{glp}$, $g = 1 \dots G_{lp}$, $l = 1 \dots L_p$ and $p = 1 \dots P$. Such latent structure implies that each level is a potential source of unexplained heterogeneity. Hence, the estimating model allows for a different legislative strategy for different governments, considering, at the same time, the impact of the present legislature and the personal effect of the President on the production of laws, thus modeling a synthesis of the political context. Another feature of this model is that it considers overdispersion of the response variable (Alfo and Trovato, 2004), a phenomenon which is likely to occur here, because of the vagaries of political and legislative decisions. The choice of a Poisson law thus stays relevant. The model can thus be written as:

$$\log(y_{tglp}) = \beta X_{tglp} + \theta_{glp} + \varphi_{lp} + \varepsilon_p \,, \qquad (1)$$

with $\theta_{glp} \sim N(0, \sigma^2)$, $\varphi_{lp} \sim N(0, \rho^2)$, and $\varepsilon_p \sim N(0, \tau^2)$,

where θ_{glp} stands for the government random effect, φ_{lp} represents the legislature effect and ε_p denotes the President effect. These random components allow for a departure from the expected number of voted laws, which is specific for each government, each legislature and each President. To illustrate the ins and outs of this specification, let us consider the case of the government led by De Villepin (2005-2007). The model allows this government to have a different expected number of voted laws to that of the previous government, led by Raffarin. This departure is specific to the government, as both governments were in power under the same legislature and same President. The government following De Villepin, which also differs in the expected legislative production, stood under a different legislature and a different President (in this case, Nicolas Sarkozy). Here, heterogeneity comes from 3 different sources: the specific characteristics of the government, the characteristics of the newly elected legislature and the traits of President.

To assess the specification of the model, a series of caterpillar plots, showing the conditional modes of the random effects, are provided in Figures 4-6. The plots verify to

what extent the random effects are different from 0. The horizontal bars represent the 95% prediction intervals with the levels of the grouping factor arranged in increasing order of the conditional mean. The result is unambiguous concerning legislation and government. The President level however does not seem to be useful for the model, as the prediction interval is never significantly different from 0. A battery of Anova tests confirms this observation. In a first step, a model with only legislature as hierarchical level is opposed to the same model with both legislature and government as grouping factors. The introduction of the second hierarchical level significantly improve the model (p-value<0.1). In a second step, the model with the two hierarchical levels is compared to the model with presidential level as a third grouping factor. The Anova test confirms what is suggested by Figure 6 (p-value=0.9), and the presidential hierarchical level is rejected. This result, surprising at first sight, can find an explanation if we consider the President sets the course and the prime minister chooses the strategy to implement the policy chosen by the President (Mathieu and Verpeaux, 2004).

[Figures 4 to 6 around here]

4.2. Regression results. The previous subsection suggests the adoption of a model specified as follows:

$$\log(y_{tgl}) = \beta_0 + \beta_1 ENDGOV_{tgl} + \beta_2 STARTGOV_{tgl} + \beta_3 ENDPRES_{tgl} + \beta_4 STARTPRES_{tgl} + \beta_5 HT_{tgl} + \beta_6 NMIN_{tgl} + \beta_7 GDP_{tgl} + \beta_8 COHAB_{tgl} + \beta_9 VAC_{tgl} + \beta_{10} MEANAGE_{tgl} + \beta_{11} MEANEXPPARL_{tgl} + \beta_{12} MEANEXP5_{tgl} + \beta_{13} MEANEXP1ST_{tgl} + \beta_{14} ENA_{tgl} + \theta_{gl} + \varphi_l \quad . \qquad (2)$$

The estimation results are reported in Table 3. Data series reporting the quarterly GDP growth rate are available only since April 1960. The 8 months lag implies a starting point on December 1960, which limits the total number of counts to 616 periods. Two alternative measures of the PLC variables are successively used. First, *ENDLEGI* and *STARTGOV* are set to 6 months (model 1 of Table 3), and then fixed to 12 months (model 2). Then the same process is implemented according to *ENDPRES* and *STARTPRES* (models 3 and 4 of Table 3). First of all, both variables related to the PLC theoretical framework vary as the model predicts: the last months of a government have a positive

impact on the legislative production, while the beginning of a government has the opposite effect. Moreover, the variables related to the presidential cycle follow a similar pattern. The only exception is *ENDPRES* in model 4, which shows a negative but not significant sign. These results allow us to conclude that there is, indeed, a dual cycle in the French legislative production. The non-significance of *ENDPRES* when set to 12 months (model 3 and 4) suggests that the legislative cycle is spread over a longer period than the presidential cycle. Otherwise, the four models provide very close estimates. The impact of the PLC variables appears more significant in the second model, which is also the model that performs the best according to the information criteria. The presidential and legislative cycles seem to have a magnitude of the same range when elections are coming. Everything else equal, the legislative production increases by roughly 17% (exp(0.162)=1.17) in the last year of the legislature, while this increase reaches 13% during the 6 last months of the presidential mandate. By comparison to the results obtained by Lagona et al. (2011) in the Italian case, the estimates of the size of the legislative cycles appear smaller in the French case. This is somewhat surprising, as the French government is known to have a stronger discretionary power (Tsebelis, 1999). It has to be kept in mind that two cycles occur in France; this probably dilutes the impact that we should observe if the two elections were held simultaneously.

[Table 3 around here]

Concerning the control variables, HT shows the expected positive sign. The production of laws is made easier when a homogenous government faces a fragmented opposition. Also, the number of ministers is shown to have a significant impact on the production of laws, suggesting the presence of a war of attrition also among the government members. Logically, there is a strong negative impact of holidays on the number of approved bills.[5] The lagged GDP growth rate has a negative impact on the legislative output too. This suggests that during economic crises, with a low GDP growth rate, the government feels obliged to introduce reforms and thus to legislate. Surprisingly, the *cohabitation* does not seem to have a real significant impact on the legislative production, even if the sign of the estimate is negative. This result is in line with the fact that the introduction of presidential hierarchy level is not meaningful. This

[5] The expected number of laws during off months is not zero, due to the structure of the data. The counts laws reports the bills officially promulgated. Between the vote and the president's signature, there can be a short delay (usually less than two weeks) that explains why in a very few cases some laws are approved while there is no parliamentary session.

lends support to the idea that only the government is in charge of the "legislative strategy", namely, of the choice of when to propose and approve a law. The President, coherent with his/her constitutional mandate, decides the general policy.

The results concerning the experience variables provide apparently contradicting results. A government composed of older ministers tends to produce fewer laws, suggesting that old age is correlated with lower legislative activism. But at the opposite, the experience gained by the simple ministers in the parliament has a positive effect on the legislative outcome. A possible explanation is that parliamentary experience gives a better knowledge of the cogs of the Parliament, facilitating the legislative production. At the same time, the effect of ministerial experience is different at the government level (positive) and at the prime minister level (negative), although, the coefficients are very close to 0 for both variables. A possible explanation the case that cabinet minister are more directly involved in making legislation pass through parliament than the prime minister. The prime minister in turn may use experience as a way to be more efficient in the overall policy implementation, resulting in a lower amount of laws necessary to satisfy the voters. Lastly, a high number of *énarques* in the government seems to mitigate the production of laws. Two possible explanations can be addressed. First, it is possible that their high competence makes them more efficient in the policy making, so that they do not need to produce a large amount of laws to achieve the reelection goal of the government. A more cynical explanation is that they are simply not extraordinarily competent. Bertrand et al. (2006) show that having an *énarques* as CEO of private companies is correlated with a lower performance of a company.

A typical counterargument to the PLC theory is the so-called 'rush to the end'. The government may want to adopt as much policies as possible before eventually quitting the power. This would result in a peak of legislative production. If this were the case, the pace of the legislative process, from the deposit of the bill to the final vote, would tend to be quicker as the elections become near. Table 4 provides details about this duration for the XIIth and XIIIth legislatures, those for which data about the timeline of legislation are available. These legislatures are also "normal" legislatures, encompassing different governments and without *cohabitation*. The presidential elections were held in April 2007 and April 2012, both followed by legislative elections in June. The two last years of the periods do not show an acceleration of the legislative process. Concerning the XIIth legislature, even if there is a slight decrease of the average time needed to approve a law

between 2006 and 2007, this value is still higher than that of 2003. The standard deviation leads to the same conclusion, as they are in same range for all the years of the legislature. The XIIIth legislature shows an increase of the length of the legislative process through the years, and the average delay during 2012 is equal to the average delay of 2010. All in all, the pace of legislative production remained fairly constant throughout the legislature, providing no evidence of a "rush to the end". *A contrario*, this corroborates the explanation provided by the PLC theory.

[Table 4 around here]

A further check to assess the validity of our results is then provided. *ENDLEGI* is replaced by *ENGOV*, which is a dummy variable built at the exact opposite of *ENGLEGI*: it takes the value of 1 during the last 12 months of all the governments that are not taken into account in *ENDLEGI*, so to say the final period of all the governments that did not occur before planned elections. It includes governments that have been dismissed by the President and governments facing an early call of the legislative and presidential elections. To confirm the theory, *ENDGOV* should not have any impact on the legislative production. The results are provided in Table 5. As expected, *ENDGOV* is not statistically significant, and furthermore shows a negative sign. All the other variables display similar coefficients as above. It thus tends to confirm that only the occurrence of planed election positively impacts the number of voted legislative acts.

[Table 5 around here]

In 2000, a constitutional reform downshifted the presidential mandate from 7 to 5 years, resulting in the synchronization of the presidential and legislative elections. This should decrease the probability of occurrence of a new *cohabitation*, but most of all it is supposed to put an end to the arrhythmia of the Vth Republic, whereby governments were actually in full power only in the interval between two national elections, that were usually a presidential and a legislative one, and not for five or seven years, the natural length respectively of deputy and presidential mandate (Chevallier et al., 2012). This reform fundamentally changed the strategies of the political parties (Dupoirier and Sauger, 2010), and *de facto* precludes the possibility of a dual PLC. But did the synchronization of elections increase the magnitude of the cycle? To answer to this question, the sample is divided in two subsamples. The first covers the 1959-2002 period, while the second encompasses the period since the first synchronous elections. The results are displayed in Table 6, using the same set up as model 2, as it was the best

performing model. The 2002-2012 subsample contains only 118 observations and 2 election periods; the result should be then cautiously interpreted. *ENDLEGI* and *ENDPRES* are now merged. It worth mentioning that the coefficient of *HT* may seem very surprising; it surely comes from the fact that this variable takes only two different values over the period contained in the subsample. The coefficient of *ENDPRES* is much higher than before, suggesting an increase of the magnitude of the pre-election manipulation. The production of laws is on average 31% higher (exp(0.276)=1.31). As a comparison, in Italy, the increase of legislative production reaches 90% (Lagona et al. 2011). This result seems to contradict Tsebelis (1999). The peak of production is however much shorter in Italy than in France, as the peak is observed only during the last three months of the legislature. Last, the first months of the presidency are not as plagued by an inactivity period as it used to be. Interestingly, the beginning of a government is no longer significant. This suggests that the presidential cycle absorbed the legislative cycle.

[Table 6 around here]

5. Conclusion

This article implements for the first time the PLC theory to the French case, using a newly assembled dataset covering the monthly counts of legislative production from 1959 to 2012 and providing detailed characteristics of the composition of the government as well as personal information about the ministers. France fits tight to the hypothesis underlying the theoretical model proposed by Padovano and Petrarca (2012), as the government has an important leeway to implement its legislative strategy. The PLC theory claims that the production of laws significantly increases when election draws near, in order to provide a sufficient level of utility to the voters thus gaining their votes. We exploit the original context of the French institutions, in which two major elections set up the pace of the political life: the legislative and the presidential elections.

The empirical model points out the presence of a dual cycle, driven by both elections. *Ceteris paribus*, the *Assemblée nationale* votes 17% more laws during the last year of a legislature. This phenomenon does not seem to come from a legislative "rush to the end", giving more weight to the proposed explanation. The magnitude of the cycle appears lower than what has been found in Italy. The presence of a double cycle may provide an explanation, as the interval between elections is shortened compared to

other countries. The constitutional reform of 2000, which had the consequence to synchronize the legislative and presidential period, mechanically linked the two PLCs. Even if the reform is too recent to draw a definitive conclusion, it seems that it led to a reinforcement of the peak of legislative production during the last 6 months before the election, when it is held on expected time. Another key finding concerns the role of the President. Even if the Constitution assigns the highest importance to this role, it does not directly interfere in the selection of the legislative production strategy; it remains at the discretion of the government. This may also explains why *cohabitation*, a very specific trait of the French institutions, does not have a consequence on the legislative outcome.

The parallel with Italy is relevant to more than one feature. As demonstrated Tsebelis (1999), France and Italy are antagonistic in matter of constraints pressing on the government. While the Italian government has to deal with a lot of institutional and political barriers, the French government benefits from a much wider freedom. Observing a Political Legislation Cycle in these two contexts suggests the idea that such cycle are potentially observable in the full spectrum of the classification proposed by Tsebelis and corroborate the generality if the PLC theories. To confirm this statement, further empirical applications are needed in order to allow international comparisons. Also, a reassessment of the effect of the constitutional reform of 2000 on the emphasis of the cycle will be necessary in the future, to confirm (or not) the present conclusion with the passing of time.

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Figure 1. Chronology of the Vth Republic

President	De Gaulle											Pompidou					Giscard d'Estaing				
Legislature	1st				2nd					3rd	4th					5th					
Governmt	Debré				Pompidou 1	Pompidou 2			Pompidou 3	Pompidou 4	Couve de Murville	Chaban Delmas		Messmer 1	Messmer 2	Messmer 3	Chirac 1	Barre 1	Barre 2		
Year	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	

			Mitterrand													Chirac	
6th			7th				8th		9th						10th		
Barre 3			Maurroy 1 Maurroy 2		Mauroy 3	Fabius		Chirac 2	Rocard 1 Rocard 2			Cresson	Beregovoy	Balladur		Juppé 1 Juppé 2	
1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996

											Sarkozy					
11th					12th						13th					
Jospin					Raffarin 1 Raffarin 2		Raffarin 3	De Villepin			Fillon 1 Fillon 2	Fillon 3				
1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	

Figure 2. The monthly production of laws (1959-2012)

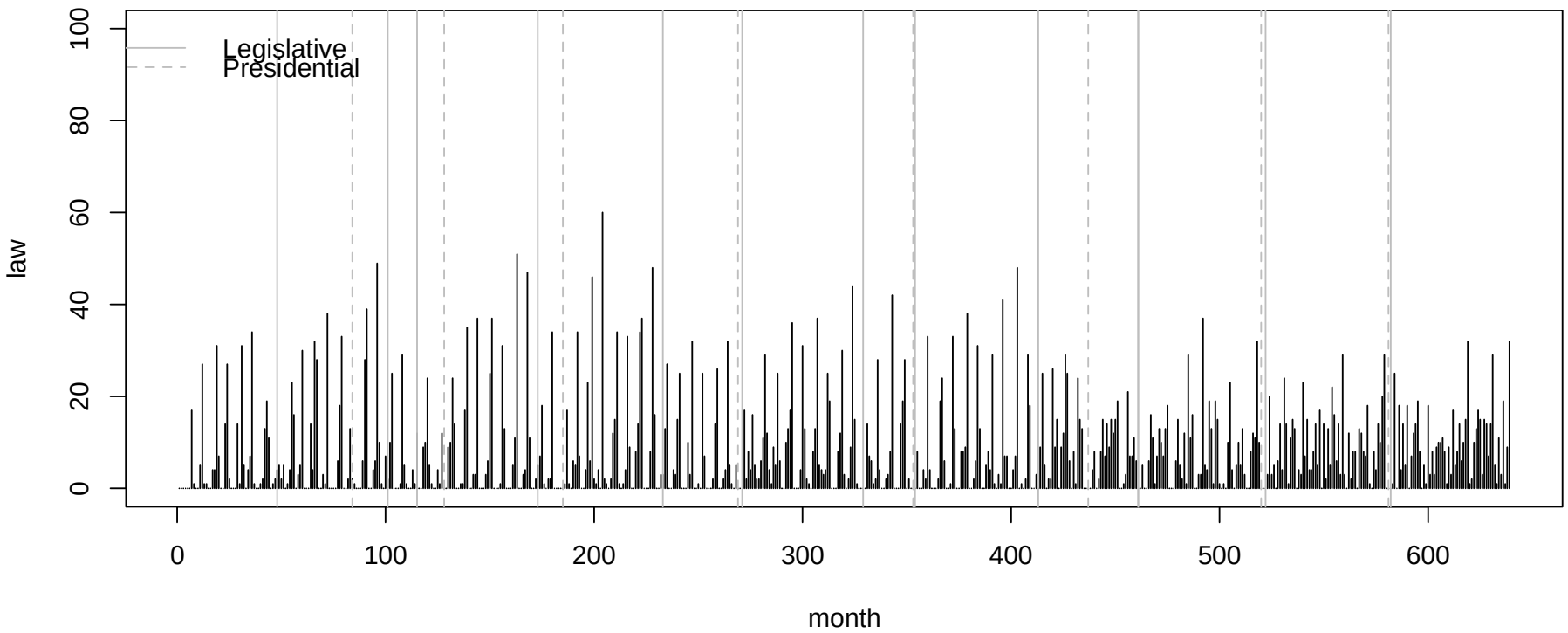

Figure 3. Legislative Production per Government

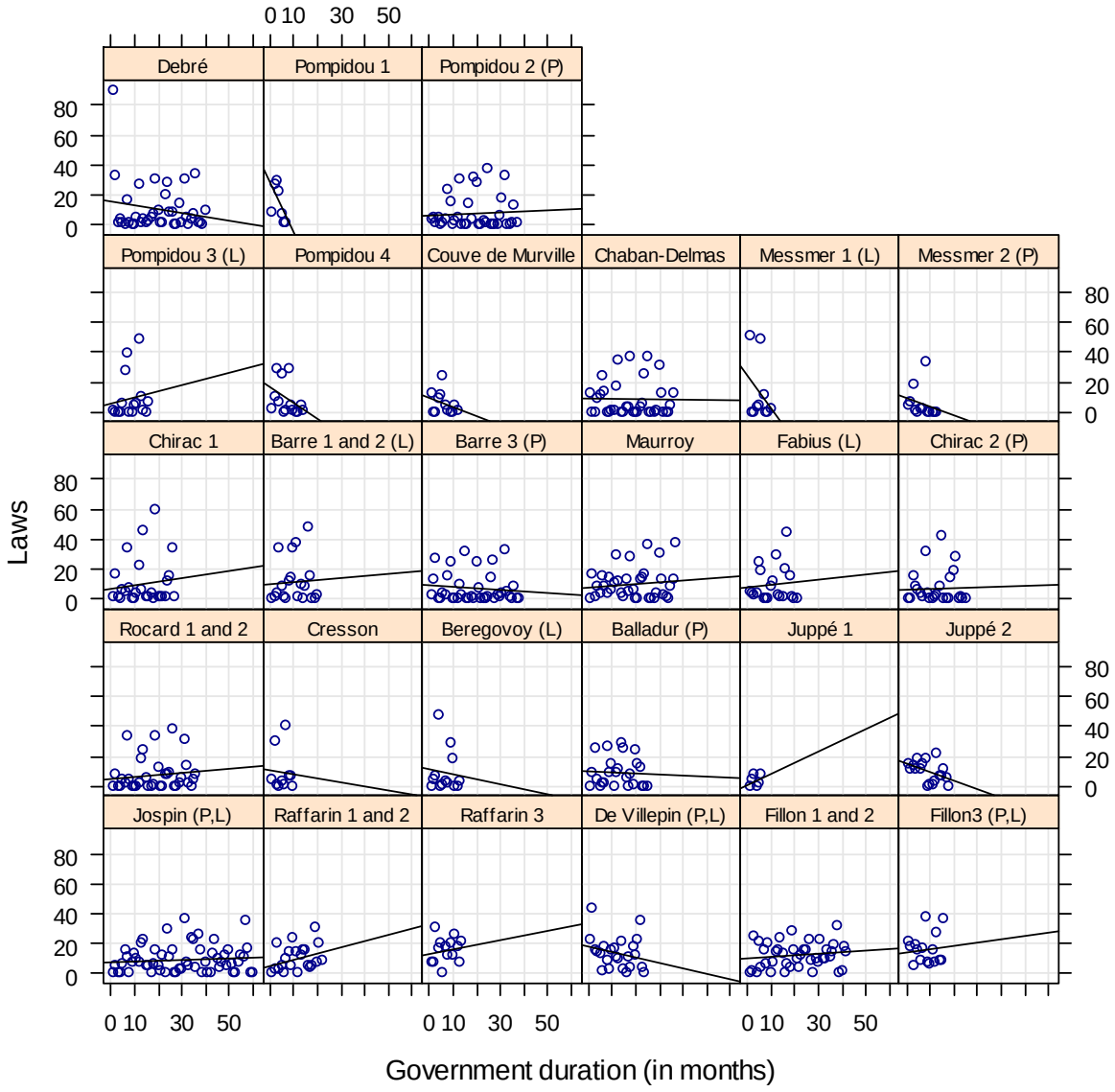

Figure 4. Government caterpillar plot

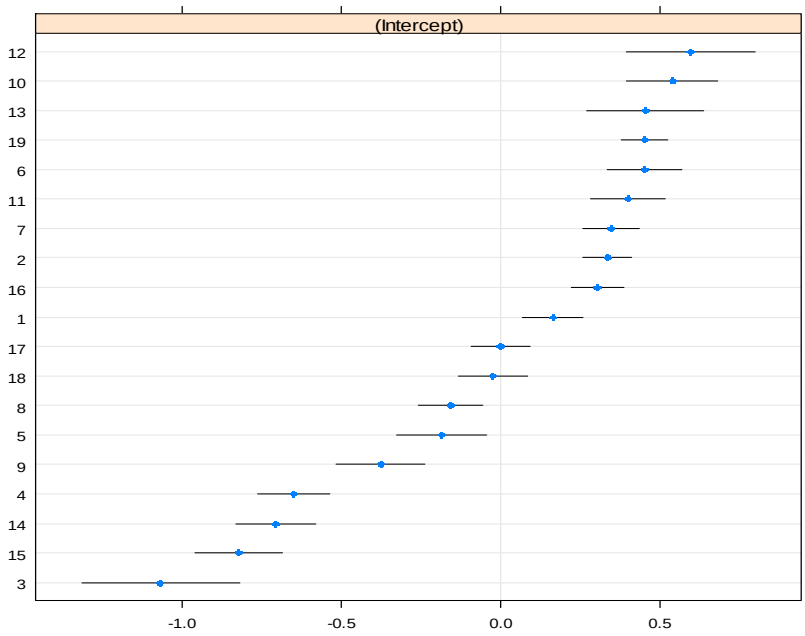

Figure 5. Legislature caterpillar plot

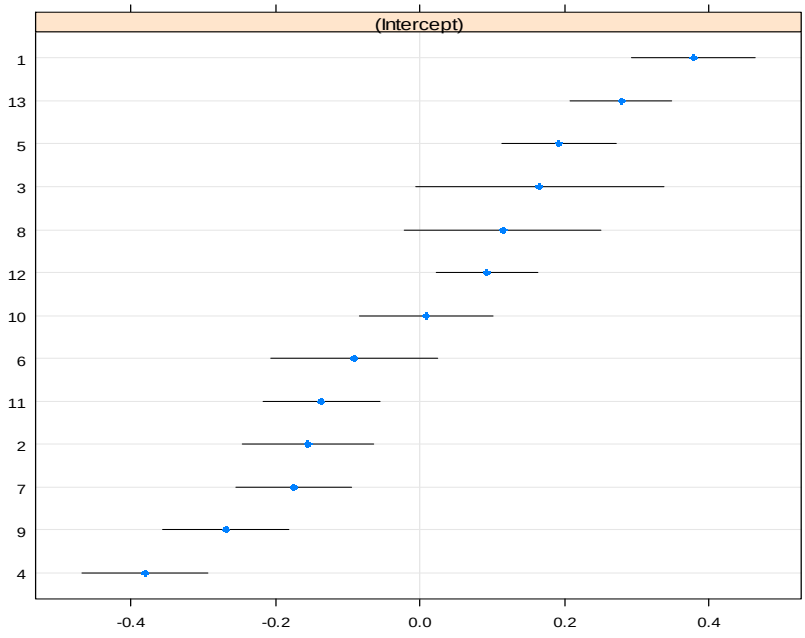

Figure 6. President caterpillar plot

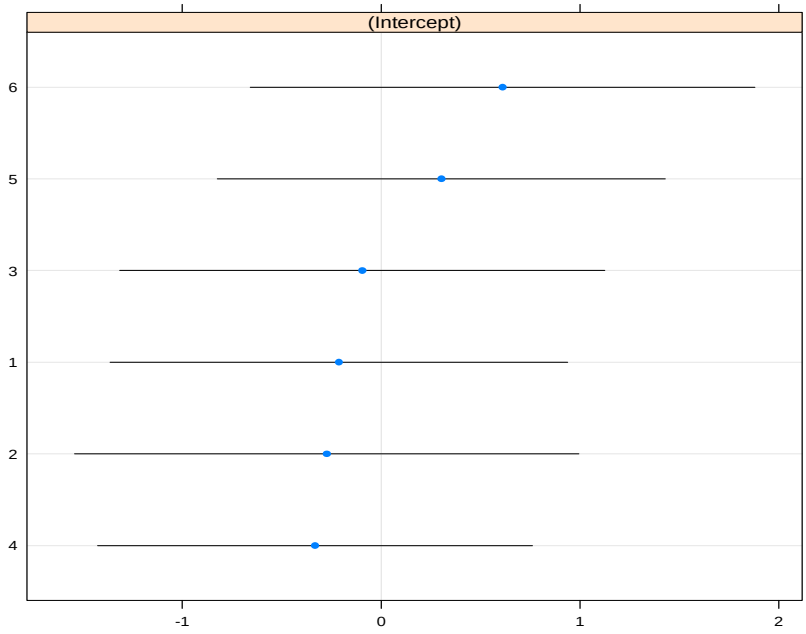

Table 1. Summary Statistics

	Observations	Mean	Median	Min	Max
Laws	639	9.668	5	0	90
Nmin	639	35.97	37	21	50
Meanage	639	51.48	51.74	48.67	55.36
ENA	639	6.365	6	1	14
ExpPar	639	5.806	5.964	2.20	9.51
ExpMin	639	29.21	28.03	1	58.48
ExpPrem	639	61.21	56.00	1	152
Ht	639	0.33	0.35	0.12	0.54
GDP	616	0.707	0.70	-7.6	11.40
Dummy variables :					
StartGov	639				
EndLegi	639				
StartPres	639				
Endpres	639				
Vac	639				
Cohab	639				

Table 2. Expected impacts

	Expected sign
Laws	
Nmin	+
Meanage	+/-
ENA	+/-
ExpPar	+
ExpMin	+
ExpPrem	+
Ht	+
GDP	-
Dummy variables :	
StartGov	-
EndLegi	+
StartPres	-
Endpres	+
Vac	-
Cohab	-

Table 3. Main Regression Results

	Model 1	S.E.	Model 2	S.E.	Model 3	S.E.	Model 4	S.E.
EndLegi6	0.162	(0.058)***	-	-	0.189	(0.056)***		
StartGov6	-0.043	(0.041)	-	-	-0.149	(0.040)***		
EndLegi12	-	-	0.159	(0.003)**	-	-	0.208	(0.057)***
StartGov12	-	-	-0.082	(0.040)*	-	-	-0.074	(0.046)
EndPres6	0.099	(0.060).	0.122	(0.057)*	-	-	-	-
StartPres6	-0.609	(0.074)***	-0.618	(0.070)***	-	-	-	-
EndPres12	-	-	-	-	0.021	(0.054)	-0.043	(0.057)
StartPres12	-	-	-	-	-0.207	(0.054)***	-0.222	(0.059)
Ht	2.532	(0.463)***	2.486	(0.457)***	2.729	(0.481)***	2.560	(0.460)***
Vac	-0.640	(0.034)***	-0.648	(0.034)***	-0.642	(0.034)***	-0.646	(0.034)***
Nmin	0.027	(0.008)***	0.023	(0.008)**	0.032	(0.008)***	0.022	(0.008)**
MeanAge	-0.096	(0.030)**	-0.096	(0.031)**	-0.111	(0.032)***	-0.079	(0.030)**
ExpParl	0.155	(0.036)***	0.153	(0.036)***	0.158	(0.040)***	0.151	(0.037)***
ENA	-0.038	(0.017)*	-0.034	(0.017)*	-0.037	(0.019).	-0.036	(0.018)*
ExpMin	0.008	(0.003)**	0.005	(0.003).	0.008	(0.003)**	0.004	(0.003)
ExpPrem	-0.005	(0.001)**	-0.005	(0.001)***	-0.006	(0.002)**	-0.003	(0.001)*
Cohab	-0.030	(0.200)	-0.057	(0.197)	-0.076	(0.237)	0.029	(0.201)
GDP	-0.058	(0.014)***	-0.059	(0.014)***	-0.060	(0.014)***	-0.058	(0.014)***
AIC	6745		6740		6801			6812
LogLike	-3355		-3353		-3383			-3389
L1	616		616		616			616
L2	27		27		27			27
L3	13		13		13			13

***, **, *, and . indicate significance at 0.1%, 1%, 5% and 10% level, respectively.

Table 4. Legislative process 2002-2007

	2002	2003	2004	2005	2006	2007
Laws	36	122	95	113	90	54
Average delay	8,86	7,14	10,6	10,46	10,72	8,62
max	41	37	38	48	48	43
min	1	0	0	0	0	1
SD	10,16	6,31	9,40	6,30	8,087460513	7,27

	2007	2008	2009	2010	2011	2012
Laws	60	102	84	122	116	39
Average delay	6,183	6,96	7,95	9,59	9,65	9,58
max	41	41	40	54	42	38
min	1	0	1	1	0	1
SD	7,209	7,77	5,83	7,92	7,69	9,35

Table5. Robustness check results

	Coef.	S.D.
Endgov	-0.002	(0.041)
StartGov12	-0.105	(0.041)*
Ht	2.203	(0.448)***
Vac	-0.648	(0.034)***
Nmin	0.031	(0.009)***
MeanAge	-0.113	(0.032)***
ExpPar	0.165	(0.037)***
ENA	-0.049	(0.019)*
ExpMin	0.006	(0.003)*
ExpPrem	-0.005	(0.001)**
Cohab	-0.074	(0.226)
GDP	-0.062	(0.014)***
AIC	6747	
LogLike	-3357	
L1	616	
L2	27	
L3	13	

***, **, *, and . indicate significance at 0.1%, 1%, 5% and 10% level, respectively

Table 6. Subsamples regression results

	Before 2002	S.D.	After 2002	S.D.
EndLegi12	0.390	(0.069)***	-	-
StartGov12	-0.171	(0.046)***	-0.119	(0.105)
EndPres6	0.169	(0.070)*	0.276	(0.115)*
StartPres6	-0.682	(0.085)***	-0.395	(0.133)**
Ht	3.466	(0.514)***	-12.995	(3.429)***
Vac	-0.703	(0.037)***	-0.276	(0.091)**
Nmin	0.0004	(0.011)	0.007	(0.010)
MeanAge	0.137	(0.037)***	0.237	(0.072)**
ExpPar	0.100	(0.043)*	0.526	(0.104)***
ENA	0.002	(0.021)	0.101	(0.061).
ExpMin	0.0009	(0.003)	-0.006	(0.006)
ExpPrem	-0.007	(0.001)***	-0.028	(0.006)***
Cohab	-0.228	(0.222)	-	-
GDP	-0.061	(0.015)***	0.011	(0.065)
AIC	5924		742.4	
LogLike	-2945		-357.2	
L1	498		118	
L2	22		5	
L3	11		-	

***, **, *, and . indicate significance at 0.1%, 1%, 5% and 10% level, respectively.