



HAL
open science

Individuals matter : three essays on French politicians

Nicolas Gavaille

► **To cite this version:**

Nicolas Gavaille. Individuals matter : three essays on French politicians. Economics and Finance. Université de Rennes, 2015. English. NNT : 2015REN1G011 . tel-01239925

HAL Id: tel-01239925

<https://theses.hal.science/tel-01239925>

Submitted on 8 Dec 2015

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



THÈSE / UNIVERSITÉ DE RENNES 1
sous le sceau de l'Université Européenne de Bretagne

pour le grade de
DOCTEUR DE L'UNIVERSITÉ DE RENNES 1

Mention : Sciences économiques

Ecole doctorale Sciences de l'Homme, des Organisations
et de la Société

présentée par

Nicolas Gavaille

préparée à l'unité de recherche CREM (UMR6211)
Centre de Recherche en Économie et Management
Faculté des sciences économiques

**Individuals matter :
Three essays on
French politicians**

**Thèse soutenue à Rennes
le 25 juin 2015**

devant le jury composé de :

Étienne Farvaque

Professeur, Université de Lille 1

Rapporteur

Vincenzo Galasso

Professeur, Università Bocconi

Rapporteur

Yvon Rocaboy

Professeur, Université de Rennes 1

Examineur

Fabio Padovano

Professeur, Université de Rennes 1

Directeur de thèse

This Ph.D. thesis should not be reported as representing the views of University of Rennes 1. The views expressed are those of the author and do not necessarily reflect those of the University.

L'Université de Rennes 1 n'entend donner aucune approbation ni improbation aux opinions émises dans cette thèse. Ces opinions doivent être considérées comme propres à leur auteur.

Acknowledgements

These last four years have been full of learning, both at the academic and at the human level. I am slowly starting to understand that the real output is not to be found in the following pages. Writing a thesis is definitely not an easy task, so I would like to express my gratitude to all of those who supported me through this adventure.

First of all, I am deeply indebted to my supervisor, Professor Fabio Padovano. Many of his lessons are now constitutive of my thinking. In particular, I understood that an article must be conceived as Franck Lloyd Wright conceived his buildings, and that an introduction should be structured as Beethoven's 5th symphony. I am proud to have written my thesis under his supervision. He made me grow as a researcher, but not only.

I am glad and honored that Étienne Farvaque, Professor at the University of Lille 1, Vincenzo Galasso, Professor at the Bocconi University, and Yvon Rocaboy, Professor at the University of Rennes 1, accepted to review this thesis. I also would like to thank my coauthors Jean-Michel Josselin, Professor at the University of Rennes 1 and Marijn Verschelde, postdoctoral fellow at KU Leuven, for their infinitely many good ideas. I benefitted from optimal working conditions thanks to the CREM. I especially would like to thank Benoît Le Maux, Professor at the University of Rennes 1, for his many comments and suggestions, and Fabien Moizeau, Professor at the University of Rennes 1, who enabled me to travel a lot to develop my skills.

I want to thank the administrative staff of the CREM and of the University of Rennes 1. I have a special thought for Anne L'Azou, who is probably the best problem solver ever. I also thank Danièle Moret-Bailly, for helping me with the data since my master studies. Of course, I cannot forget all the PhD students who made the working atmosphere so pleasant, and who are now more than colleagues, in particular Guillaume 'Fuego' Beaurain, Clément Dheilly, Ewen Gallic, Gabin Langevin, Julien Lecumberry, Emmanuel Peterle and all the other members of the ProJEcT association, without forgetting our holy *Boulette d'Argent*. We definitely had nice time. I do not forget my friends

Pierre, Philippe, Aude and *Maître* Pierre, who all contributed in a way or another to this thesis.

Finally, and most importantly, I have to say how lucky I am to receive such a support from my family. I am sincerely grateful to my parents, my grandmother, and my two favorite sisters. Last but definitely not least, I owe a lot to the one who pushes me to do my best, Andra. *Tas ir beigās prologa, pirmā nodaļa sākas tagad.*

Résumé en français

De l'importance des individus: trois essais sur les hommes politiques français

L'objectif de cette thèse est d'introduire de manière explicite les caractéristiques personnelles des décideurs publics dans l'analyse de différents processus politiques français. Chacun des trois chapitres composant cette thèse soulève une problématique différente, ayant pour point commun l'attention particulière dédiée au rôle joué par les *individus* politiques. De manière assez surprenante, l'idée que les individus, et non uniquement les institutions, impactent les politiques publiques n'a commencé à se développer en économie politique qu'assez récemment, la première introduction explicite de la compétence individuelle d'un élu politique dans un modèle théorique étant [Rogoff and Sibert \(1988\)](#). A travers ces trois essais, le but est de fournir des nouveaux éléments contribuant à la compréhension de la relation entre les individus décideurs et les politiques publiques. Trois types d'élus politiques français sont successivement étudiés: les maires, les ministres et enfin les députés de l'Assemblée Nationale. En tant que tel, cette thèse vise également à fournir une vue assez large des décideurs politiques français.

Grâce à sa richesse et à ses spécificités, le contexte institutionnel français est un terrain d'investigation idéal pour une analyse empirique. Pour citer quelques exemples, la France compte plus de la moitié des municipalités de l'Union Européenne, la V^e Constitution est l'archétype même du système semiprésidentiel, et différentes idéologies se sont succédées au pouvoir. Cependant, d'un point de vue quantitatif, le cas français reste largement inexploré. Une raison évidente est tout simplement le manque de données disponibles. Une contribution majeure de cette thèse est le développement de trois jeux de données originaux, chacun sous-tendant un chapitre différent.

Le premier chapitre étudie la relation entre la taille d'une juridiction et l'information acquise par les électeurs lors des élections. Alors que les modèles d'agence politique considèrent l'information des électeurs comme exogène, une littérature émergente s'intéresse aux déterminants du niveau d'information acquis par les électeurs. Cette

littérature suggère que la taille de la juridiction y joue un rôle majeur. De par l'hétérogénéité des villes françaises, le contexte municipal français permet de vérifier empiriquement un tel lien. L'idée est de d'étudier comment les déterminants de la probabilité de réélection d'un maire évoluent en fonction de la taille de la municipalité. Pour ce faire, nous considérons les caractéristiques personnelles du maire (tels que son âge, son sexe) comme étant de l'information de mauvaise qualité (c'est-à-dire qu'elles ne renseignent pas sur la politique conduite par le maire), et nous développons une mesure de l'information de qualité basée sur l'influence du maire sur la politique d'investissement municipal durant son/ses mandats. Le principal résultat de ce chapitre est que conformément à la prédiction théorique, l'information de qualité joue un rôle de plus en plus important dans la probabilité de réélection du maire à mesure que la taille de la municipalité diminue. Une contribution importante de cette étude est la mise en évidence du fait que les décideurs ont une prise directe sur les résultats politiques à l'intérieur d'un même cadre institutionnel, là où les études précédentes se basent sur des comparaisons internationales (Besley et al., 2010, Dreher et al., 2009, Jones and Olken, 2005). Nous observons que les maires ont effectivement une influence personnelle sur la politique d'investissement municipal, mais contrairement aux études précédentes, aucun lien n'apparaît entre les caractéristiques personnelles du maire et son influence. Cela indique que notre mesure *ex post* de l'influence du maire est déconnectée de ses caractéristiques individuelles, soulevant des questions quant à l'utilisation souvent faite des caractéristiques individuelles dans la littérature empirique.

Après avoir mis en évidence le fait que les élus ont une influence personnelle sur les politiques publiques au niveau local, le second chapitre s'intéresse quant à lui au gouvernement central français et à sa production législative entre 1958 et 2012. La théorie du cycle législatif politique (Lagona and Padovano, 2008) suggère que le gouvernement peut manipuler la production législative de manière stratégique afin d'augmenter sa probabilité de réélection, de sorte que l'on devrait observer un pic de production législative durant la période précédant les élections. L'objet de cette analyse est de confronter cette prédiction théorique au cas français. Par rapport aux études empiriques existantes, ce chapitre se distingue par deux innovations majeures. Premièrement, de par

la nature semi-présidentielle de la V^e République, la vie politique française au niveau national est rythmée à la fois par les élections nationales et les élections législatives. Par conséquent, la production législative est susceptible de suivre un double cycle. Deuxièmement, nous intégrons pour la première fois dans ce type d'analyse les caractéristiques des membres du gouvernement, ces dernières étant susceptibles d'influencer les politiques menées par le gouvernement (Dreher et al., 2009, Jones and Olken, 2005). L'analyse révèle l'existence d'un double cycle de production législative, généré à la fois par les élections législatives et présidentielles. Nous observons également que la stratégie législative mise en place est liée aux caractéristiques des membres du gouvernement. Un autre résultat notable est le fait que le Président n'affecte pas directement la stratégie législative mise en place par le gouvernement, ce qui est cohérent avec le fait que nous n'observons aucun changement significatif de la production législative lors des périodes de cohabitation. Finalement, la synchronisation des élections législatives et présidentielles à partir de 2002 a eu pour conséquence la fusion des deux cycles en un cycle unique de magnitude plus importante.

Le troisième chapitre examine le lien entre la compétition électorale et la sélection politique. Dans les deux précédents chapitres, nous avons observé que l'identité du décisionnaire est liée aux politiques menées. Cela implique que tous les politiciens ne sont pas de la même qualité. Il est donc nécessaire d'élaborer un processus de sélection politique efficace, permettant de recruter un personnel politique de meilleure qualité. La compétition électorale est susceptible d'avoir un impact sur la qualité des candidats recrutés par les partis politiques (Galasso and Nannicini, 2011). Le but de ce chapitre est d'étudier la relation entre la compétition électorale et la qualité des élus dans le cas des députés de la V^e République de 1958 à 2012. Premièrement, nous innovons en proposant une nouvelle mesure de la qualité des politiciens, basée sur leur productivité. Pour cela, nous avons collecté dans les archives de l'Assemblée Nationale des informations sur l'activité individuelle de chaque député année par année. A partir de ces données, un indicateur composite nonparamétrique est utilisé afin d'obtenir une mesure de productivité englobant les différentes facettes du travail parlementaire.

Deuxièmement, nous n'imposons aucune forme fonctionnelle entre la compétition électorale et la productivité des députés en utilisant un cadre empirique totalement nonparamétrique, permettant d'exploiter la richesse de la base de données. Enfin, grâce à cette méthode nous pouvons étudier très simplement la manière dont la relation entre compétition et productivité évolue au cours du temps et des législatures, ce qui n'a jamais été fait jusqu'alors. Les résultats indiquent que les députés élus dans des circonscription *a priori* plus compétitives ont une productivité plus importante, toute chose égale par ailleurs. Cependant, nous observons que si l'intensité de cette relation a augmenté jusque dans les années 80, elle est depuis en constante diminution.

Finalement, les Appendices A, B et C proposent une description détaillée de chacune des trois bases de données construites. En plus de fournir des indications sur la constructions des variables et de préciser les sources, ces appendices présentent le cadre général dans lequel elles ont été construites ainsi que quelques utilisations potentielles pour de futures recherches.

Bibliography

- Besley, T., Persson, T., Sturm, D., 2010. Political competition, policy and growth: Theory and evidence from the US. *Review of Economic Studies* 77, 1329–1352.
- Dreher, A., Lamla, M., Lein, S., Somogyi, F., 2009. The impact of political leaders' profession and education on reforms. *Journal of Comparative Economics* 37, 169–193.
- Galasso, V., Nannicini, T., 2011. Competing on good politicians. *American Political Science Review* 105 (1), 79–99.
- Jones, B., Olken, B., 2005. Do leaders matter? National leadership and growth since world war II. *Quarterly Journal of Economics* 120 (3), 835–864.
- Lagona, F., Padovano, F., 2008. The political legislation cycle. *Public Choice* 134 (3-4), 201–229.
- Rogoff, K., Sibert, A., 1988. Elections and Macroeconomic Policy Cycles. *Review of Economic Studies* 55 (1), 1–16.

Contents

Acknowledgements	iv
Contents	xi
List of Figures	xvii
List of Tables	xix
General Introduction	1
1 What do you know about your mayor? Voter’s information choice and jurisdiction size	11
1.1 Introduction	11
1.2 Related literature	14
1.3 The French municipal context	19
1.4 Proxying high-quality information	21
1.5 The relationship between high and low quality information	29
1.6 Quality of information and probability of reelection	35
1.6.1 The municipal Vote-Popularity function	35
1.6.2 Regression with the whole set of municipalities	38
1.6.3 Regressions according to jurisdiction size	40
1.7 Alternative explanations	46
1.8 Conclusion	49
2 Legislative cycles in semipresidential systems	61
2.1 Introduction	61
2.2 Related literature and theoretical background	64
2.3 The French institutional context	67
2.3.1 The V th Constitution	67

2.3.2	The legislative process	69
2.4	The legislative production	72
2.5	Description of the variables	77
2.6	Empirical analysis	83
2.6.1	The hierarchical Poisson model	83
2.6.2	Regression results	88
2.6.3	Experience and cycles	93
2.6.4	Alternative explanations	97
2.6.5	Premature dissolution of the legislature and resignation of gov- ernments	99
2.6.6	Synchronization of elections	100
2.7	Conclusion	102
3	Electoral competition and political selection: a nonparametric analysis	111
3.1	Introduction	111
3.2	Theoretical framework	114
3.3	The French institutional and political context	117
3.3.1	Institutional context	117
3.3.2	Political context	118
3.4	Data and measurement	120
3.4.1	Measuring quality	121
3.4.2	Measuring political competition	125
3.4.3	Control variables	128
3.5	Nonparametric regression approach	131
3.6	Regression results	135
3.6.1	Preliminary analysis	135
3.6.2	Base model	137
3.6.3	Who are the ‘ghost deputies’?	145
3.6.4	Controlling for reverse causality: the freshman subsample	146
3.6.5	Disentangling selection from incentives	149
3.6.6	Variation of the relationship over time	151
3.7	Conclusion	153
	General Conclusion	163
A	Mayors in France: a database (2000-2012)	171
A.1	Mayors’s personal characteristics	173
A.2	Demographics	175
A.3	Municipal budget variables	176

A.4	Conclusion	176
A.5	List of variables	177
B	Government members, political context and legislative production in France: a database (1959-2012)	181
B.1	Personal characteristics of government members	182
B.2	Aggregate data	184
B.2.1	Institutional and political variables	184
B.2.2	Composition of the government	186
B.3	Production of legislation	188
B.4	Sources and Data Collection	189
B.5	Conclusion	189
B.6	List of variables	189
C	The Deputies of the French Vth Republic: a database (1959-2012)	195
C.1	Demographics	197
C.2	Political experience	199
C.3	Political competition	199
C.4	Legislature framework	200
C.5	Parliamentary work	201
C.6	Conclusion	202
C.7	List of variables	204

List of Figures

- 1.1 Distribution of mayor effects 30
- 1.2 Coefficient of mayor effects in rolling regression 1 42
- 1.3 Coefficient of mayor effects in rolling regression 2 43
- 1.4 Distribution of Mayor effects by population size 48
- 1.5 Kernel densities estimates 49

- 2.1 Chronology of the Vth Republic 74
- 2.2 Monthly production of laws 76
- 2.3 Legislative production per government 78
- 2.4 Caterpillar Plots 89
- 2.5 STARTGOV*EXPPARL interaction 94
- 2.6 ENDLEGI*EXPPARL interaction 95
- 2.7 STARTPRES*EXPPARL interaction 96
- 2.8 ENDPRES*EXPPARL interaction 97

- 3.1 Herfindahl index over legislatures 127
- 3.2 Baseline model results 139
- 3.3 Year model 140
- 3.4 The increase of deputies' productivity over time 143
- 3.5 Reelection incentives 152
- 3.6 Effect of competition over time 154

- C.1 Table Nominative 203

List of Tables

- 1.1 Municipalities’ summary statistics 22
- 1.2 Infrastructure ratio and unemployment 24
- 1.3 Estimation of mayor effects 28
- 1.4 Mayors’ characteristics summary statistics 31
- 1.5 The impact of Mayors’ personal characteristics on investment policy . . 33
- 1.6 Vote-Popularity function summary statistics 36
- 1.7 Sample representativeness 39
- 1.8 Vote-Popularity regression results - whole sample 41
- 1.9 Vote-Popularity function - small-cities sample 44
- 1.10 Vote-Popularity function - large-cities sample 45
- 1.11 Mayors’ characteristics and investment policy, by municipal size 47
- 1.12 Municipal variables 52
- 1.13 Mayors’ personal characteristics 53
- 1.14 Vote-Popularity function variables 54

- 2.1 Summary statistics 79
- 2.2 Expected signs 82
- 2.3 Anova tests for hierarchical levels 87
- 2.4 Main regression results 91
- 2.5 Cohabitation robustness check 92
- 2.6 Verification of the alternative explanation 99
- 2.7 Placebo test 101
- 2.8 Synchronization of elections 103

- 3.1 Correlation of activity items 123
- 3.2 Correlation of competition measures 125
- 3.3 Probability to Swing 128
- 3.4 Descriptive statistics 130
- 3.5 Comparison of competition measures 136
- 3.6 Individual activity items 138
- 3.7 Control variables - Full sample - time: legislatures 142
- 3.8 Control variables - Full sample - time: years 144

3.9	Ghost deputies	147
3.10	Control variables - Freshmen sample - time: legislatures	148
3.11	Control variables - Freshmen sample - time: years	150

General Introduction

There is a broad consensus among political scientists that Abraham Lincoln has been one of the greatest president of the United States. The transition from Stalin to Khrushchev significantly impacted life conditions of USSR citizens, and there is some evidence that the political ability of Louis *XVI* was lower than that of Louis *XIV*. At a smaller scale, mayor of Lille Pierre Mauroy deeply transformed the city during his period in office, deputy Aristide Briand carried the law of separation between the French state and the Church on his shoulder, and minister Robert Badinter played a decisive role in the abolition of death penalty in France.

The public choice literature emphasized the role of institutions in shaping the behavior of purely self-interested politicians. Within the same set of rules, decision-makers can however behave differently and deliver different performances. *Individuals*, and not only institutions, matter.

Surprisingly, this idea has been introduced in political economy quite recently, since the first theoretical models allowing politicians to differ in competence date back to [Rogoff and Sibert \(1988\)](#) and [Rogoff \(1990\)](#), who aim at explaining pre-electoral policy manipulations¹. They define competence as the quantity of public good an incumbent can provide for a given level of resources. This explicit acknowledgment that politicians have idiosyncratic characteristics generated a new generation of political agency models, which combine both adverse selection and moral hazard issues. Contrary to

¹Allowing individuals to differ in their ability is however nothing but new, see for instance [Roy \(1951\)](#).

earlier works ([Barro, 1973](#), [Ferejohn, 1986](#)), these models conceive elections not only as a disciplining mechanism, but also as a selection device ([Banks and Sundaram, 1993](#), [Besley and Case, 1995](#), [Besley, 2006](#), [Persson and Tabellini, 2002](#) among many others): if politicians differ in *quality*, institutions should be designed to enhance the selection of incumbents of the good type.

The role of institutions in political selection is often investigated within a citizen-candidate framework ([Osborne and Slivinski, 1996](#), [Besley and Coate, 1997](#)). This model removes the categorization of agents between politicians and citizens by considering that politicians are selected among the set of citizens who decide to run for elections. As quality is not equally distributed among citizens, the determinants of the pool of candidates, such as the wage of politicians ([Besley, 2004](#), [Caselli and Morelli, 2004](#), [Messner and Polborn, 2004](#) for instance), reservation quotas ([Chattopadhyay and Duflo, 2004](#)) or the maturity of democracy ([Gehlbach et al., 2010](#)), are of primary interest. Instead of focusing on the offer of politicians, a few recent papers focus on the demand-side ([Mattozzi and Merlo, 2010](#), [Galasso and Nannicini, 2011, 2015](#)). Since parties play a gate keeping role in many context, they investigate the recruitment strategy of political parties and the factors that can incentivize them to recruit good candidates.

This large and rapidly growing theoretical literature focusing on the quality of the decision-maker however faces two major issues. First, bringing this theoretical literature to the empirical side is not straightforward and several issues have to be raised. To operationalize such a vague concept as the one of quality is challenging. The theory associates quality with several (naïve) dimensions like competence, honesty and motivation, which are hard to observe and even more to measure. To overcome this problem, three different strategies have been proposed. First, some papers adopt some *ex ante* measures of quality, like income, education and experience ([Baltrunaite et al., 2014](#), [De Paola and Scoppa, 2011](#), [Kotakorpi and Poutvaara, 2011](#)). If these variables may capture some cognitive ability, they do not take into account the multidimensional nature of quality. A second possibility to capture quality is to measure it *ex post*: politicians of good quality are simply those who performed well while in office ([Jones and Olken, 2005](#),

Besley et al., 2011, Gagliarducci and Nannicini, 2013). This requires to select some policy outcomes that are unequivocally related to a good or a bad performance, which is not always easy. As quality is estimated, there is also room for model misspecifications leading to flawed conclusions. Third, an important number of studies prefers to avoid referring to quality, and investigate more modestly how individual characteristics are related to policy outcomes in politics (Besley et al., 2011, Moessinger, 2014, Hayo and Neumeier, 2013, 2014) but also in other non-market activities (Gohlman and Vaubel, 2007, Farvaque et al., 2011 for inflation targeting, Fiorino et al., 2007, 2015, Franck, 2009 for the judiciary) as well as in corporate finance (Bertrand and Schoar, 2003). This approach however departs from the theoretical framework and the choice of the characteristics introduced in the analysis is often *ad hoc* (Hayo and Neumeier, 2012).

The political selection literature is confronted to a second major issue: what are the transmission mechanisms between the quality of the decision-maker and economic outcomes? If Jones and Olken (2005) establish a causal effect of national leaders on GDP growth, the mechanism converting leader's quality into good economic performance remains unspecified. As they themselves state, 'looking at [economic] growth sets the bar for individual leaders quite high'. The transmission chain from the quality of the decision-maker to growth (or to any other indicator of real economic performance) is long, complex and noisy, especially at the national level. To our knowledge, Besley et al. (2005) and Dreher et al. (2009) are the only two papers proposing a transmission mechanism from individual quality to policy outcome. The former explain that incumbents of good quality are less influenced by special interest groups. The latter argues that leaders influence the adoption of growth-enhancing reforms.

The purpose of this thesis is to explicitly introduce the decision-maker into the empirical analysis of different political processes within the French context. Each of the three chapters raises a specific problematic, with the concern to dedicate a careful attention to the role played by *individual* politicians. Through these three essays, we aim at providing new evidence contributing to the understanding of the relationship between individuals and outcomes. We successively study three different government levels: the

municipal level, the central government level and the parliamentary level. As such, it constitutes an attempt to depict a consistent overview of the French political decision-makers. The French institutional context provides a variety of unique features making it an ideal ground for empirical analysis: the country encompasses more than half of the total number of municipalities in the European Union, the *Vth* Constitution defines the archetype of the *semipresidentialist* system, and different ideological majorities alternated in power, just to name a few. Nevertheless, the French case however remains largely unexplored. A reason for this is the lack of available data. A major contribution of this thesis is the development of three original datasets underpinning the three chapters.

The **first chapter** studies the relationship between the size of a jurisdiction and the information that voters acquire to cast their vote. If political agency models consider voters' information as exogenous, an emerging literature investigates the endogenous acquisition of information of the electorate. This literature explains that the size of the jurisdiction is likely to impact the quality of the information that voters acquire. We use the French municipal context to empirically verify this theoretical prediction. We study how the determinants of the reelection probability of the incumbent mayor change when the size of the jurisdiction varies. To do so, we define incumbent mayors' observable personal characteristics (such as age and gender) as low quality information, and proxy high quality information by an estimate of the incumbent's personal influence on the investment policy of the municipality during his/her mandate. An important contribution of this study is to evidence that decision-makers are linked with policy outcomes within a similar institutional context, contrary to international comparisons (Besley et al., 2011, Dreher et al., 2009, Jones and Olken, 2005). We find that mayors do matter for investment policy, but contrary to several aforementioned papers, we cannot explain this influence by their personal characteristics. This suggests that our *ex post* measure of mayor's influence is disconnected from *ex ante*, independent individual characteristics. This raises the issue of the relevance of the personal characteristics that are considered in the empirical literature. Further work should focus on the condition for these variable to be relevant, and reinforce their theoretical rationale.

After pointing out that individuals in office matter for policy outcomes at the local level, we then move on to a higher level of government and study in the **second chapter** the legislative production of the French governments. The political legislation cycle theory posits that governments may strategically manipulate the legislative production in order to increase its reelection, such that we should observe a peak of legislative production in the pre-electoral period. As stated above, several empirical papers established a link between the identity of the leader and economic outcomes, but the transmission channels are not clearly identified yet. The legislative channel may play such a role: individuals can have different skills in producing legislation, which is redistributive by nature (Tollison, 1988). Hence, it might impact aggregate macroeconomic outcomes, as observed by (Jones and Olken, 2005). We contribute to the literature by introducing personal information concerning the members of the governments, and provide evidence that the personal characteristics of the government members do affect the legislative output.

The **third chapter** investigates the relationship between electoral competition and political selection over time. In the first two chapters, we observed that the identity of decision makers matters for policy outcomes. It implies that all politicians are not of the same quality. It thus becomes necessary to design an efficient political selection process. Electoral competition is also likely to play such a role (Galasso and Nannicini, 2011, 2015). First, we innovate by using productivity as a measure of quality. As we gathered information on the many aspects of deputies' work, we use a nonparametric composite indicator of deputy activity that fully acknowledges the multidimensional nature of parliamentary work. Second, we do not impose any assumption between the relationship between electoral competition and political selection by using a fully nonparametric framework, exploiting the very large size of the dataset. Third, this method allows us to study for the first time the evolution of the relationship between electoral competition and political selection over time. Our results show that deputies elected in a priori contested districts have a higher overall productivity, with the intensity of this relationship reaching its peak in the 80's, but turning insignificant since the 2000's.

Finally, a precise description of the datasets underpinning the empirical analysis is provided in Appendix A, B and C. In addition to a description of the variables and the datasources, they provide an introduction to their purpose, the context of their creation and potential alternative uses.

Bibliography

- Baltrunaite, A., Bello, P., Casarico, A., Profeta, P., 2014. Gender quotas and the quality of politicians. *Journal of Public Economics* 118, 62–74.
- Banks, J. S., Sundaram, R. K., 1993. Moral hazard and adverse selection in a model of repeated elections. *Political Economy: Institutions, Information, Competition, and Representation*, 295–311.
- Barro, R. J., 1973. The control of politicians: an economic model. *Public choice* 14 (1), 19–42.
- Bertrand, M., Schoar, A., 2003. Managing with style: The effect of managers on firm policies. *Quarterly Journal of Economics* 118 (4), 1169–1208.
- Besley, T., 2004. Paying politicians: theory and evidence. *Journal of the European Economic Association* 2 (2-3), 193–215.
- Besley, T., 2006. *Principled agents? The political economy of good government*. Oxford University Press.
- Besley, T., Case, A., 1995. Does electoral accountability affect economic policy choices? Evidence from gubernatorial term limits. *The Quarterly Journal of Economics* 110 (3), 769–798.
- Besley, T., Coate, S., 1997. An economic model of representative democracy. *The Quarterly Journal of Economics* 112 (1), 85–114.
- Besley, T., Montalvo, J., Reynal-Querol, M., 2011. Do educated leaders matter? *Economic Journal* 121, 205–227.
- Besley, T., Persson, T., Sturm, D., 2005. Political competition and economic performance: Theory and evidence from the united states. Tech. rep., National Bureau of Economic Research.

- Caselli, F., Morelli, M., 2004. Bad politicians. *Journal of Public Economics* 88 (3), 759–782.
- Chattopadhyay, R., Duflo, E., 2004. Women as policy makers: Evidence from a randomized policy experiment in india. *Econometrica* 72 (5), 1409–1443.
- De Paola, M., Scoppa, V., 2011. Political competition and politician quality: evidence from italian municipalities. *Public Choice* 148 (3-4), 547–559.
- Dreher, A., Lamla, M., Lein, S., Somogyi, F., 2009. The impact of political leaders' profession and education on reforms. *Journal of Comparative Economics* 37 (1), 169–193.
- Farvaque, E., Hammadou, H., Stanek, P., 2011. Selecting your inflation targeters: Background and performance of monetary policy committee members. *German Economic Review* 12 (2), 223–238.
- Ferejohn, J., 1986. Incumbent performance and electoral control. *Public choice* 50 (1), 5–25.
- Fiorino, N., Gavaille, N., Padovano, F., 2015. Rewarding judicial independence: Evidence from the italian constitutional court. *International Review of Law and Economics* forthcoming.
- Fiorino, N., Padovano, F., Sgarra, G., 2007. The determinants of judiciary independence: Evidence from the italian constitutional court (1956–2002). *Journal of Institutional and Theoretical Economics JITE* 163 (4), 683–705.
- Franck, R., 2009. Judicial independence under a divided polity: A study of the rulings of the french constitutional court, 1959–2006. *Journal of Law, Economics, and Organization* 25 (1), 262–284.
- Gagliarducci, S., Nannicini, T., 2013. Do better paid politicians perform better? disentangling incentives from selection. *Journal of the European Economic* 11 (2), 369–398.

- Galasso, V., Nannicini, T., 2011. Competing on good politicians. *American Political Science Review* 105 (1), 79–99.
- Galasso, V., Nannicini, T., 2015. So closed: Political selection in proportional systems. Tech. rep., IGIER working paper.
- Gehlbach, S., Sonin, K., Zhuravskaya, E., 2010. Businessman candidates. *American Journal of Political Science* 54 (3), 718–736.
- Gohlman, S., Vaubel, R., 2007. The educational and occupational background of central bankers and its effect on inflation: An empirical analysis. *European Economic Review* 51 (4), 925–941.
- Hayo, B., Neumeier, F., 2012. Leaders' impact on public spending priorities: The case of the german laender. *Kyklos* 65 (4), 480–511.
- Hayo, B., Neumeier, F., 2013. Political leaders' socioeconomic background and public budget deficits: Evidence from oecd countries. *MAGKS Joint Discussion Paper*.
- Hayo, B., Neumeier, F., 2014. Political leaders' socioeconomic background and fiscal performance in germany. *European Journal of Political Economy* 34, 184–205.
- Jones, B., Olken, B., 2005. Do leaders matter? National leadership and growth since world war ii. *Quarterly Journal of Economics* 120 (3), 835–864.
- Kotakorpi, K., Poutvaara, P., 2011. Pay for politicians and candidate selection: An empirical analysis. *Journal of Public Economics* 95 (7–8), 877–885.
- Mattozzi, A., Merlo, A., 2010. Mediocracy. *PIER working paper* 13-010.
- Messner, M., Polborn, M., 2004. Paying politicians. *Journal of Public Economics* 88 (12), 2423–2445.
- Moessinger, M.-D., 2014. Do the personal characteristics of finance ministers affect changes in public debt? *Public Choice* 161 (1-2), 183–207.
- Osborne, M. J., Slivinski, A., 1996. A model of political competition with citizen-candidates. *The Quarterly Journal of Economics* 111 (1), 65–96.

-
- Persson, T., Tabellini, G. E., 2002. Political economics: explaining economic policy. MIT press.
- Rogoff, K., 1990. Equilibrium political budget cycles. *American Economic Review* 80 (1), 21–36.
- Rogoff, K., Sibert, A., 1988. Elections and macroeconomic policy cycles. *The Review of Economic Studies* 55 (1), 1–16.
- Roy, A. D., 1951. Some thoughts on the distribution of earnings. *Oxford economic papers* 3 (2), 135–146.
- Tollison, R. D., 1988. Public choice and legislation. *Virginia Law Review* 74 (2), 339–371.

Chapter 1

What do you know about your mayor? Voter's information choice and jurisdiction size

1.1 Introduction

The literature on political agency relies on the idea that voters make their electoral choice on the basis of signals about the behavior of the incumbent politician¹ ([Besley, 2006](#), [Persson and Tabellini, 2002](#) among many others). All these models consider the quality of these signals as exogenous. This information however comes at a cost, requiring time and effort to gather and process it. The quality of the information a voter acquires can be seen as the result of a choice of the same kind as choosing for whom to vote. A growing theoretical literature focuses on the endogenous acquisition of information. The quality of political information a voter acquires may depend on ideology ([Larcinese, 2007](#), [Oliveros, 2013](#)), on social interactions ([Aldashev, 2010](#)), on voter ethics ([Feddersen and Sandroni, 2006](#)), but also on the size of the electorate

¹This chapter is based on a paper written with Jean-Michel Josselin and Fabio Padovano.

([Martinelli, 2006, 2007](#), [Triossi, 2013](#)): the larger the electorate, the worse the quality of acquired information.

The aim of this chapter is to empirically investigate how the quality of information that voters use to cast their vote in the French municipal elections depends on the size of the population of the jurisdiction. The incentive for a rational ignorant voter to invest in information acquisition decreases as the size of the electorate increases, as expressed by [Downs \(1957\)](#). Voters might consequently be more prone to rely on low-cost (but less relevant) information instead of more sophisticated (but of higher quality) information to make their electoral choice when the population is large ([Martinelli, 2006](#)). To verify this implication, we define two strands of information of different quality that voters may use to decide whether to reelect the incumbent mayor or not. We then study the variation of their respective relevance when the size of the jurisdiction varies.

First, we consider as ‘low quality’ information a set of mayor’s personal characteristics, such as age, gender, occupation and the like. Politicians’ personal observable characteristics are the most-readily available information, and a rich literature explains that voters may rely on such information to make their electoral choice despite an accuracy that might be low ([Bartels, 1996](#), [McDermott, 1998, 2005](#), [Mechtel, 2014](#), [Popkin, 1994](#)).

Second, we use an approach *à la* [Bertrand and Schoar \(2003\)](#) to estimate a proxy for high quality information based on the past decision-making of the incumbent. It consists in isolating a mayor’s personal influence on the infrastructure policy of the jurisdiction over the years in office by estimating ‘mayor effects’. Simply taking municipal policy outcomes would not be a satisfying proxy of high quality information, as it would imply that mayors have a total control on these outcomes. The Bertrand and Schoar approach allows us to separate the mayors’ personal influence on municipal performance from other municipal specific or time-related characteristics. Voters cannot obtain such information in a straightforward way, which requires an important effort to acquire. This

information is directly linked with the assumption that politicians should be held responsible for their actions while in office and as such it provides a high quality signal for voters.

To identify the information that voters use when electing their mayor, we start by showing that no link can be established between the estimated influence of the mayors on the investment policy and their personal characteristics, indicating that those two sets of information are orthogonal. We then estimate a vote-popularity (VP) function (Nannestad and Paldam, 1994, Paldam, 2008) which simultaneously encompasses the two types of information. It allows observing which type of information voters take into account to cast their vote. Finally, we check whether the set of information that voters use differs between small and large jurisdictions as demonstrated in the theoretical literature (Martinelli, 2006, 2007, Triossi, 2013).

The empirical investigation rests on the case of French municipalities. Our original dataset, especially built for this analysis, encompasses the 896 French mainland *communes* of more than 10,000 inhabitants over the period 2000-2012 for a total of 11,648 observations. This dataset provides detailed and comprehensive information about all these municipalities, such as demography, distribution of income and composition of the municipal budget that we will use to isolate mayor-effects. It also comprehends observable characteristics of mayors that voters may use as information, such as age, gender and occupation. A full description of the dataset is provided in Data Appendix A.

The French municipal context is relevant for many reasons. First, contrary to international comparisons that are predominant in the literature (Besley et al., 2011, Dreher et al., 2009, Jones and Olken, 2005), the homogeneous institutional framework provides the same set of tools and prerogatives to the mayors. This allows making meaningful and reliable comparisons amongst jurisdictions. Second, the large number of municipalities and the high population heterogeneity provides an adequate ground for testing the

evolution of the information acquisition with respect to population. Third, at the difference of the national level, it is reasonable to assume that voters can evaluate the quality of policies at the local level (Veiga and Veiga, 2007). Finally, municipal elections are the second for electoral turnout in France, right after the presidential ones, showing the high interest of the citizens in municipal affairs.

Our results clearly indicate that mayor-effects only affects election outcome in small-sized municipalities, and its impact decreases as the size of the municipality increases. This lends empirical support to the theoretical argument expressing that the quality of information decreases as the size of the jurisdiction increases (Martinelli, 2006, 2007, Triossi, 2013), in line with the *rational ignorant* voters model (Downs, 1957). On the other hand, despite a disconnection between personal characteristics (low-quality information) and the mayor effect (high-quality information) on infrastructure spending, both sets of information play a significant role in the choice of voters when they cast their vote.

The rest of the chapter is organized as follows. Section 2 presents the related literature. Section 3 describes the French municipal context. The construction of the proxy for high quality information is introduced in Section 4. We assess the orthogonality of the two sets of information in Section 5, and implement the vote-popularity functions in Section 6. Section 7 concludes.

1.2 Related literature

This analysis relies on different strands of literature. We start by the electoral accountability literature and link it to the models of endogenous acquisition of political information. We then move on to an overview of the literature on ‘information shortcuts’, i.e., on the use of observable personal characteristics of politicians as electoral information. Finally, we introduce the literature on municipal elections.

Political agency models assign two main functions to elections (Besley, 2006). First, they can be viewed as a disciplining device (Barro, 1973, Ferejohn, 1986, Persson and Tabellini, 2002). Voters reward or punish the incumbent according to his/her past policy-making. If the incumbent fails to provide a minimum level of utility to the pivotal voter, she will fail to be reelected. On the opposite, if the utility threshold is reached, the incumbent will stay in office. Second, elections can play the role of a selection device (Banks and Sundaram, 1993, Besley and Case, 1995, Besley, 2006, Persson and Tabellini, 2002): voters have to select the best candidate for the upcoming period. It implies that not all politicians are of the same quality. Those modern agency models thus combine adverse selection with moral hazard issues. Voters do not have perfect information on the type of incumbent, and must choose whether to reelect or not the incumbent according to the information they possess. In most of the models, voters are assumed to know the state of the economy, which is affected by the level of competence of the incumbent but also by a random shock that voters do not observe (as in Besley and Case, 1995 and Persson and Tabellini, 2002 for instance). Voters have to infer from this partial information the competence level of the incumbent. The level of information of voters is thus considered as fixed and determined exogenously. The level of information of a voter however can be seen as the result of a choice which leads to another strand of the literature.

Some recent papers aim at endogenizing the amount of information a voter gathers. One of the first papers to propose a formal model with endogenous acquisition of information in elections is Martinelli (2006). His model can be seen as a formalization of Downs (1957)'s rational ignorant hypothesis: since each individual voter is aware that a single vote has a negligible probability to affect the outcome of the election, he/she has little incentive to acquire information, which requires a certain amount of time and effort and is hence costly. When the size of the electorate increases, the expected gain of voting decreases, resulting in a decrease of the incentive to acquire information. Martinelli (2006) describes an election between two candidates A and B . Voters' preferences depend on the state of the nature for the next period, which can be of two types, z_A and z_B . In state z_A (respectively z_B), all voters prefer A (respectively z_B) in office. Voters do

not know the state of the nature. Initially, they have a probability of $\frac{1}{2}$ to select the right candidate, but they can acquire information of quality x (with $x \in [0, \frac{1}{2}]$) at a given cost $C(x)$ increasing in x . Acquiring information is thus costly, but investing in information increases the probability for a voter to make the right electoral choice. In equilibrium, all voters acquire the same quality of information, but this quality is decreasing as the size of the electorate increases. Because the policy implemented by the winning candidate has the characteristics of a public good (to the extent that voters who supported the defeated candidate cannot be excluded from the policy), this mechanism is consistent with [Olson \(1965\)](#)'s theory of group action: the effort of citizens to invest in information will be eroded by free-riding problems.

[Martinelli \(2007\)](#) proposes a variation of the previous model. Here, the cost of information is heterogenous amongst voters. A voter faces a binary choice: to acquire or not information of a fixed quality, whereas in the previous model the choice was about the quality of the information (which was modeled as a continuous variable). Here, information quality does not depend on the size of the electorate. Contrary to [Martinelli \(2006\)](#), in equilibrium only a small fraction of the electorate is informed, while in the previous paper all voters have the same (poor) information. [Triossi \(2013\)](#) extend [Martinelli's](#) model to allow voters to differ in their ability to process information, and less skilled voters must invest more effort to gather the same level of information. The less skilled the voters, the less information they acquire. In order to study abstention, [Oliveros \(2013\)](#) and [Larcinese \(2007\)](#) allow not only voters to differ in their skills but also in their preferences, providing voters with different incentives to acquire information, respectively in a game-theoretic (as all the aforementioned papers) and decision-theoretic context.

In all the models of endogenous acquisition of information, voters acquire information till the marginal cost equalizes the marginal benefit. They however consider that benefit is derived from the probability to be the pivotal voter, which quickly converges to 0 as the size of the electorate increases. Even for a small cost of information, the marginal cost would exceed the marginal benefit. To overcome this limitation, [Feddersen and Sandroni \(2006\)](#) develop a model in which voters are *ethical*, i.e., are motivated

by a sense of civic duty and not by the probability to be pivotal. There are three types of voters: partisans for candidate *A*, partisans for candidate *B* and independents. Partisans always prefer their favorite candidate, but independent voters all prefer *A* or *B* depending on the state of the nature. Voters choose to acquire (or not) a costly signal correlated with the state of the nature. Ethical voters determine their behavior according to the best outcome for the voter's type group. Suppose that a candidate *A* benefits from a higher number of partisans than *B*. The uninformed independent voters will split into two groups: the first group will vote for *B* to cancel out *A*'s electoral advantage; the second group will abstain. Thus, the outcome of the election is determined by the fraction of *informed* independent voters. In the model of [Aldashev \(2010\)](#), incentives for voters to acquire costly information even in large scale elections are driven by social interactions. Voters' satisfaction increases when they can exchange political opinions with another voter in a randomly formed couple. This exchange is satisfying to a voter only when she faces another politically informed voter. The choice of a voter to acquire information consequently increases the probability that other voters decide to do the same. In both [Feddersen and Sandroni \(2006\)](#) and [Aldashev \(2010\)](#), the share of informed citizens in equilibrium depends on the cost of information. This cost is linked with the size of the jurisdiction. As the size of the jurisdiction increases, the budget structure is likely to become more complex ([Turnbull and Mitias, 1999](#), [Wagner, 1976](#)), resulting in a higher cost of obtaining policy relevant information, reducing the share of voters acquiring high-quality information and leading back to the results of [Martinelli \(2006\)](#)

More and more voters might consequently ground their electoral choice on low-quality information as the size of the jurisdiction increases. A vast literature suggests that voters may take 'information shortcuts', i.e., personal characteristics of politicians such as age and gender, to infer the competence of the candidates instead of acquiring costly political information. Based on individual polls, [McDermott \(1998\)](#) shows that candidates' gender and race significantly affect electoral decisions. She finds that individuals perceiving themselves as liberal are more likely to vote for a female and for a black candidate than individuals perceiving themselves conservative. [Sigelman](#)

et al. (1995) finds that Black and Hispanic candidates are perceived as less competent by White voters. McDermott (2005) and Mechtel (2014) focus on occupation, respectively with individual and aggregated data. Both conclude that candidates with a socially renowned occupation benefit an electoral advantage. Candidate's beauty is investigated by Antonakis and Dalgas (2009) and Berggren et al. (2010). Antonakis and Dalgas (2009) show the pictures of the candidates qualified for the second round of the 2002 French legislative elections to children. Children are then asked to select which of the two candidates they would select as the captain of their boat. It turns out that the probability of correctly predicting the electoral outcome on the basis of the choice of the captain is as high as 0.71. Similarly, Berggren et al. (2010) ask participants to evaluate beauty, competence, likability, trustworthiness and intelligence on the basis of campaign pictures of Finnish politicians. They find that beauty is the most relevant predictor of electoral success. The major issue with such information is the potentially low quality of the signal they provide. Bartels (1996) shows that voters with a low level of political information, basing their vote on candidates' observable characteristics, vote significantly differently from voters reporting a high level of information. As we shall see in Section 4, in line with Bartels (1996), our measure of high-quality information is orthogonal to mayors' personal characteristics.

According to this theoretical framework, we should observe that the reelection probability of a mayor depends more on high-quality information (mayor effects on investment policy) as the size of the municipality decreases, and more on low-quality information (personal characteristics of the incumbent) as the size of the jurisdiction increases. We now move on to a presentation of previous related studies focusing on the French municipal level.

Several papers investigate the French municipal case. Charlot and Paty (2007) use a sample of 834 municipalities over the period 1993-2003 to study the determinants of municipal tax setting. They observe a significant mimicking behavior between the French municipalities when they choose their local business tax rate. Similarly, Foucault et al. (2008), exploiting a dataset covering 90 municipalities with a population higher

than 50,000 inhabitants from 1983 to 2002, observe spending interactions among neighboring municipalities. Interestingly, they also document spending interactions between municipalities for which the mayors share the same political affiliation. This highlights the importance of the mayor in the municipal policy-making process. They also reveal the presence of a spending cycle driven by elections. Using a sample of 104 French municipalities from 1989 to 2001, [Dubois and Paty \(2010\)](#) show that voters reward their mayor if the municipal housing tax is lower than in municipalities with similar demographics. ([Frère et al., 2013](#)) study the impact of inter-municipal cooperation on municipal spending, exploiting a set of 1,895 municipalities over the 1994-2003 period. They conclude that there is no significant impact. Closely linked to our inquiry, [Cassette et al. \(2013\)](#) are interested in the determinants of the share of votes for the incumbent mayor. Their dataset encompasses 821 municipalities of more than 10,000 inhabitants over the period 2000-2009, it however do not include detailed mayors' characteristics, except a binary variable indicating whether the mayor holds a national mandate in parallel (which is very common in France) and the duration of the mayor in office. Finally, [Cassette and Farvaque \(2014\)](#) investigate the impact of the level of debt on the reelection probability of incumbent mayors in the 2008 municipal elections. To do so, they use a sample containing data about municipalities of more than 3,500 inhabitants. Mayors tend to have more difficulties to be reelected if the municipal level of debt increases. The institutional context and the role of the mayor are described more in details in the following section.

1.3 The French municipal context

Municipalities form the lowest tier of the subnational government structure, below the *Département* (100 units) and the *Région* (22 units²). The main specificity of the French municipalities is their very large number, which amounts to 36,700 communes, almost half of the total of local jurisdictions of the whole European Union. Their size is highly

²In 2016, the number of regions should decrease to 13.

heterogeneous: with a median population of 410 inhabitants, the range spreads from 1 in Rochefourchat to more than 2.2 million in Paris³. The various attempts to reduce the number of municipalities from the 1970's have all failed, due to a lack of support or even to an all-out opposition from the citizens. Historical reasons can explain this attachment to municipalities: rooted in the Carolingian (and since then remarkably stable) parishes, they are the result of an administrative division planned right after the 1789 revolution, and their borders have roughly remained the same since then. The context of their creation also explains the strictly equal statute of the municipalities, which benefit from the same prerogatives (Paris, Lyon and Marseilles being the only exception).

Municipal elections determine the composition of the municipal council, which in turns elects the mayor. Elections are held in two rounds, with a system of lists, and a clearly identified leader. The lists that obtain more than 10% of the votes in the first round qualify for the second round, except if a list obtains more than 50% of the votes, thereby immediately winning the election. The winning list (at the first or second round) obtains 50% of the seats, and the rest of the seats are attributed proportionally to the share of votes obtained among all the lists, including the winning one. This mechanism is designed to grant the mayor a clear majority. For instance, a party winning the election with 50.01% of the votes will receive 75% of the seats⁴. The mayor also enjoys an important discretion. He/she controls the agenda of the municipal council meetings while having the right to take part in the vote, and is responsible for the execution of the deliberations. The opposition is not granted any institutional role, and only a simultaneous resignation of one third of the municipal council can bring the mayor down. The mayor's mandate usually lasts six years and there is no term limit. Over the period 2000-2012 that is covered by our dataset, two elections have been held, in 2001 and 2008. For the mayors elected in 2001, their mandate has been extended by one year in order to avoid a political overload, as 2007 was already a year of presidential and parliamentary elections.

³There are actually six *communes* where there is not a single inhabitant. They were entirely destroyed during the First World War and are considered as 'dead for the Nation'.

⁴The list obtains half of the seats for being the list receiving the highest number of votes. As its score is 50%, the list will also obtain 50% of the remaining seats, so 75% of the seats in total.

Being a mayor encompasses a large range of prerogatives. He/she is in charge of the supervision of public contracts, of the preparation of the budget, of the management of the municipal estate and heritage, and is the executive manager of municipal employees. The mayor has also the power to produce municipal decrees. The prerogatives of municipalities are many. They range from services physically linked to houses, such as water, garbage disposal and local roads, to amenities provided to their inhabitants, cultural facilities, local schools and local transportation. The importance of municipalities is such that they account for almost 60% of total local public expenditures in France, approximately 10% of the French GDP. Municipal revenues are drawn from two main items: grants and local taxes. Central government grants represent roughly one third of the revenues, the main one being called *Dotation Globale de Fonctionnement*, a lump sum grant computed in order to reduce territorial fiscal inequalities. A bit less than half of the revenues come instead from local taxes. In 2008, a reform suppressed an important source of revenue, the *Taxe Professionnelle*, a local business tax, and replaced it by a grant. Borrowing and local fees compose the rest of the revenues. On the spending side, current expenditures represent from one half to three quarters of total spending. An important limitation to the discretionary power of the municipality is a rule imposing that current expenditures cannot be financed by borrowing. Except from this and from a few other rules aiming at avoiding too rapid increases in municipal levies, municipalities enjoy a quite large fiscal discretionary power. There is thus room to maneuver and one can expect that the mayor may indeed exert some influence on the fate of his or her municipality, which we exploit to measure high-quality information that voters may acquire.

1.4 Proxying high-quality information

The first step of the analysis consists in constructing a proxy for the high-quality information that voters may acquire. Directly using municipal outcomes would be misleading, since those outcomes are also the product of the municipal environment and as such such would not necessarily capture the mayor's past policy. Within this environment,

we consider that the personal influence a mayor has on the performance of his/her municipality is a good proxy for high quality information. This *a posteriori* evaluation is consistent with the accountability theoretical framework, as voters are assumed to base their electoral choice on the past performance of their representatives.

For this purpose, we have gathered an original dataset that encompasses the 896 municipalities in mainland France that had more than 10,000 inhabitants in 2011. Paris, Lyon and Marseille are excluded, as the organization of these municipalities is slightly different: in addition to the mayor, these cities are divided in *arrondissements* (districts) with a delegated mayor for each, benefitting from their own prerogatives. This dataset contains information about municipal budget but also about the identity of the mayors, covering the period 2000-2012 and providing 11,648 observations in total. Table 1.1 presents the summary statistics.

TABLE 1.1: Municipalities' summary statistics

	Observations	Mean	Std. Dev.	Min	Max
Population	11648	29828.41	35512.41	7697	447396
Median income	11648	17269.99	4282.196	8107	44493
Unemployment	11648	4.614	1.481	1.352	27.009
Regional GDP growth	11648	3.03	2.051	-4.228	8.525
Unemployment ratio	11648	0.540	0.160	0.138	3.577
<i>INVSHARE</i>	11648	0.296	0.091	0.009	0.909

To be suitable for this analysis, the benchmark for municipal performance has to be a valence issue, i.e., one that reaches a broad consensus among voters on what has to be done, as it is assumed in political agency models (Besley, 2006, Galasso and Nannicini, 2011). Using a politically cleaving issue, however important it may be, would not be appropriate for our purpose. It would imply that some voters judge the influence of a mayor on municipal performance positively, while some others judge it negatively,

depending on the relative advantage that they derive from it. Hence, the incumbent cannot be unequivocally judged on cleaving issues. For instance, the instrument adopted to finance infrastructure, i.e. debt or taxes, is unlikely to reach such a consensus because some voters will prefer to increase taxes whereas some others will prefer to increase debt.

The share of infrastructure spending over total municipal spending is a good benchmark⁵. There is a consensus in the recent literature that public infrastructure spending, unlike current expenditures, is growth enhancing (Bom and Ligthart, 2013, Pereira and Andraz, 2010, Romp and De Haan, 2007), even at the local level ((Kemmerling and Stephan, 2002). The latter, using a panel of large German cities, show that public capital significantly increases private production. Besley et al. (2010) also use this variable to measure the policy stance of US states government. Considering that municipalities are key players in local development and that municipal investment accounts for 35% of total public investments in France, this ratio also makes sense in our context.

To provide some evidence that the infrastructure spending ratio is correlated with local development in the French municipal context, we simply regress the municipal unemployment rate in year t on the lagged values of the infrastructure ratio, controlling for municipal fixed-effects. Results are provided in Table 1.2. The infrastructure ratio is denoted by *INVSHARE*, *L1.INVSHARE* stands for its one-period lag, and so on. This simple model provides support to the assumption that the share of infrastructure spending in the total municipal spending favors local development. *INVSHARE* being a ratio, on which the mayor does not have a total control, results can be interpreted as follows: an increase of 0.01 of the ratio is associated with a decrease of ranging from 0.007 to 0.01 percentage point the next year. The effect is thus, and as one might have expected, marginal, but this simple (and obviously *naïve*⁶) result however supports the

⁵The difference between investment spending and infrastructure spending in the official accounting process is that the debt service is included in investment spending, not in infrastructure spending. From now on, we use both expressions equivalently.

⁶A full test of the impact of public investment spending on local growth is out of the scope of this chapter. In addition, the data necessary to replicate the common strategy adopted by this literature is unfortunately not available at the municipal level in France.

consideration of *INVSHARE* as a valence policy since unemployment is on top of voting concerns according to many polls over the period. We interpret a high value of this ratio as a signal of high municipal performance.

TABLE 1.2: Infrastructure ratio and unemployment

endogenous: local unemployment	(1)	(2)	(3)	(4)
L1. <i>INVSHARE</i>	-0.7313*** (0.1042)	-0.7200*** (0.0997)	-0.9325*** (0.1130)	-1.0578*** (0.1216)
L2. <i>INVSHARE</i>		-0.6952*** (0.0941)	-0.7136*** (0.0916)	-0.9760*** (0.1015)
L3. <i>INVSHARE</i>			-0.5965*** (0.1062)	-0.6869*** (0.1067)
L4. <i>INVSHARE</i>				-0.2587* (0.1217)
Observations	10752	9856	8960	8064
Municipal fixed-effect	YES	YES	YES	YES
R2	0.8190	0.8181	0.8152	0.8174
F-Test p-value	<0.001	<0.001	<0.001	<0.001

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

We estimate proxies for high-quality information that voters may acquire using the approach of [Bertrand and Schoar \(2003\)](#). It consists in estimating the influence of a mayor on the infrastructure ratio through the introduction in the regression equation of a set of dummy variables representing each mayor. With the aim to isolate the personal influence of CEOs of American firms, [Bertrand and Schoar \(2003\)](#) build their sample around the CEOs who worked in more than one firm over their period of study in order to disentangle firm specific from CEOs effect. This cannot be exactly reproduced in a political context, as it is unlikely that a politician has been mayor of two different cities⁷. Instead we focus on municipalities for which more than one mayor has been

⁷There are however two occurrences of such a situation in our dataset.

in office over the period. [Bertrand and Schoar \(2003\)](#) use this alternative approach as a robustness check and obtain the same results as in their favorite specification. As they argue, this alternative approach makes the estimated CEO effects more likely to be affected by unobserved time-varying phenomena. In the political context, however we do not have the choice.

We apply a logistic transformation to the endogenous variable to take into account that it is a ratio bounded by construction between 0 and 1 ([Wooldridge, 2010](#)). The endogenous variable is then: $\log\left(\frac{INVS HARE}{1-INVS HARE}\right)$. This ensures that predicted values lie between 0 and 1. Again, results obtained without this transformation are qualitatively similar. Finally, we account for serial correlation by clustering the error term at the municipal level.

The model we estimate can be written as follows:

$$INVS HARE_{it} = \alpha_i + \gamma_t + \beta X_{it} + \lambda_m + \epsilon_{it}, \quad (1.1)$$

where $INVS HARE_{it}$ stands for the logistic transformation of the investment ratio of municipality i at time t , α_i are municipality fixed-effects, γ_t are year effects, X_{it} is the set of time-varying municipal level variables likely to affect our measure of performance, λ_m is the set of mayor dummies and ϵ_{it} is an error term. These dummy variables representing mayors take the value of 1 when a specific mayor is in office and 0 otherwise. For instance, former President Nicolas Sarkozy was the mayor of Neuilly-Sur-Seine between 1983 and May 2002. As our sample starts in 2000, the dummy associated with Sarkozy takes the value 1 for 2000 and 2001 and 0 thereafter.

To allow for the identification of mayor effects, we have to exclude from the analysis 319 mayors who stayed in office for the entire sample period in order to disentangle mayor from municipal effects. To avoid perfect collinearity, one mayor per municipality must also be removed. We have systematically removed the mayor who stayed the

shortest time in office. Mayors who stayed in office less than a year are excluded as well. We finally end up with a total of 715 individual mayor effects. Concerning the coding of mayor dummies, and knowing that elections are held in March, we include the electoral year as a part of the mandate of the newly elected mayor. The reason is that the budget can still be largely amended after March. All the results however remain qualitatively similar when holding the previous mayor responsible for the electoral year.

The estimated coefficients associated with mayor variables can be interpreted as measures of the leader's influence on municipal performance under the condition that we simultaneously hold constant municipality- specific and time-varying phenomena. For this purpose, aside from the municipality and year fixed-effects (respectively α_i and γ_t), we introduce a vector of time-varying variables X_{it} . The first three variables are standard in the literature (Bergstrom and Goodman, 1973, Borcharding and Deacon, 1972, Turnbull and Mitias, 1999): the logarithm of population, the logarithm of municipal median income, and the main grant (*Dotation Globale de Fonctionnement, DGF*) received from the central government per capita. The municipal unemployment rate is also included, as it depicts the economic and social situation. Finally, two variables aiming at capturing the economic environment of the municipality are also included. The first is the regional GDP growth, which reflects the high regional heterogeneity from one region to another. The second is the ratio of the local unemployment level over the district unemployment (Unemployment Ratio) level. It allows comparing the situation of the municipality with respect to its direct neighbors. In addition to these six variables, we also control for the membership to one of the ten types of *Intercommunalités*, which consists in cooperation among neighboring municipalities and thus can affect the municipal investment policy. The sources and the precise definition of the variables are provided in Data Appendix A.

It has to be noted that unfortunately we cannot introduce lagged or differenced variables in the model due to the limitation of the dataset. Introducing such variables would require to drop the first year of the sample, 2000. Hence, we would be left with mayors on the period 2001-2012. During this period, elections took place in 2008. It implies

that during this period we have a maximum of two mayors over the period. As we need to eliminate a mayor per municipality in order to disentangle the mayor effect from the municipal effect, and as we are interested in the mayors' reelection probability in the 2008 elections, we would eliminate mayors of the 2008-2012 period. The resulting sample would suffer of a strong bias: it would be exclusively composed of mayors who did not run or failed to be reelected in 2008.

Table 1.3 reports estimations of equation 1.1 *via* OLS. Model 1, 2 and 3 allow for clusters at the municipal level. Model 1 only includes municipal and year effects but no time-variant variables nor mayor effects; Model 2 adds the time-varying variables, but not the mayor effects. The set of mayor effects is introduced in Model 3. A comparison of the R^2 indicates that most of the variance in the infrastructure policy can be explained by the municipal individual effects. It confirms that considering the overall infrastructure ratio alone would not be a high-quality information about the mayor. The adjusted- R^2 only slightly increased when the time-varying variables are introduced. Only the grant per capita and the regional growth are significantly related to *INVSHARE*. The non-significance of the population and income variables is probably due to their low-variability for most of the municipalities, and their effect is captured by the municipal fixed-effects. To complete these results, Model 4 is exactly the same as model 3, except that clusters are set at the regional level, to take into account potential common shocks at the regional level. The only difference is that the logarithm of the median income turns significant. Finally, Model 5 introduces two additional variable: whether the mayor is a leftist, and the share of seats supporting the mayor in the municipal council. These two variables allow to capture the municipal specific context more precisely, hence to isolate the mayor effect more cleanly. The coefficient correlation between the set of mayor effects obtained in Model 3 and in Model 5 is equal to 0.97, and all the results presented later on are qualitatively similar using either set.

The introduction of the mayor dummies improves the predictive power of the model, as the R^2 increases by 2.4 percentage points. Interestingly, this improvement is of similar magnitude as in [Bertrand and Schoar \(2003\)](#) after the inclusion of CEO effects. This

TABLE 1.3: Estimation of mayor effects

endogenous: INVSHARE	(1)	(2)	(3)	(4)	(5)
Ln(Population)	-	-0.1423 (0.1636)	-0.1434 (0.1667)	-0.1434 (0.0953)	-0.1965 (0.0963)
Ln(Median income)	-	-0.3679 (0.2750)	-0.5381 (0.3321)	-0.5381* (0.2204)	-0.5521* (0.2250)
DGF grant	-	0.4452*** (0.1292)	0.4622*** (0.1280)	0.4622*** (0.1049)	0.4575*** (0.1029)
Unemployment	-	-0.0062 (0.0132)	-0.0145 (0.0147)	-0.0145 (0.0192)	-0.0159 (0.0187)
Regional GDP growth	-	0.0055* (0.0024)	0.0050* (0.0025)	0.0050 (0.0027)	0.0051 (0.0027)
Unemployment ratio	-	-0.0437 (0.0821)	-0.0875 (0.0883)	-0.0875 (0.1019)	-0.0873 (0.0980)
Left	-	-	-	-	0.0062 (0.0268)
ShareSeats	-	-	-	-	-0.0703 (0.1129)
Observations	11648	11648	11648	11648	11596
Municipal fixed-effects	YES	YES	YES	YES	YES
Year fixed-effects	YES	YES	YES	YES	YES
Municipal cooperation dummies	NO	YES	YES	YES	YES
Mayor effects	NO	NO	YES	YES	YES
Cluster	Municipal	Municipal	Municipal	Regional	Regional
Adjusted-R ²	0.4611	0.4702	0.4943	0.4943	0.4948
F-Test p-value	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
F-Test p-value for Mayor effects	-	-	-	< 0.001	< 0.001

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

confirms that mayors do have an influence on the investment policy of municipalities: individuals matter. The relevance of the mayor effects is also confirmed by the F-test, which strongly rejects the null hypothesis that all the mayor dummies are equal to 0. The mean effect is 0.010, with a lower and upper bound at -0.235 and 0.230 respectively. Only 98 mayor effects are not statistically significant at the conventional 5% level. The distribution of the mayor effects is displayed in Figure 1.1. The solid line represent the normal distribution for the mean and the standard deviation of the mayor effects.

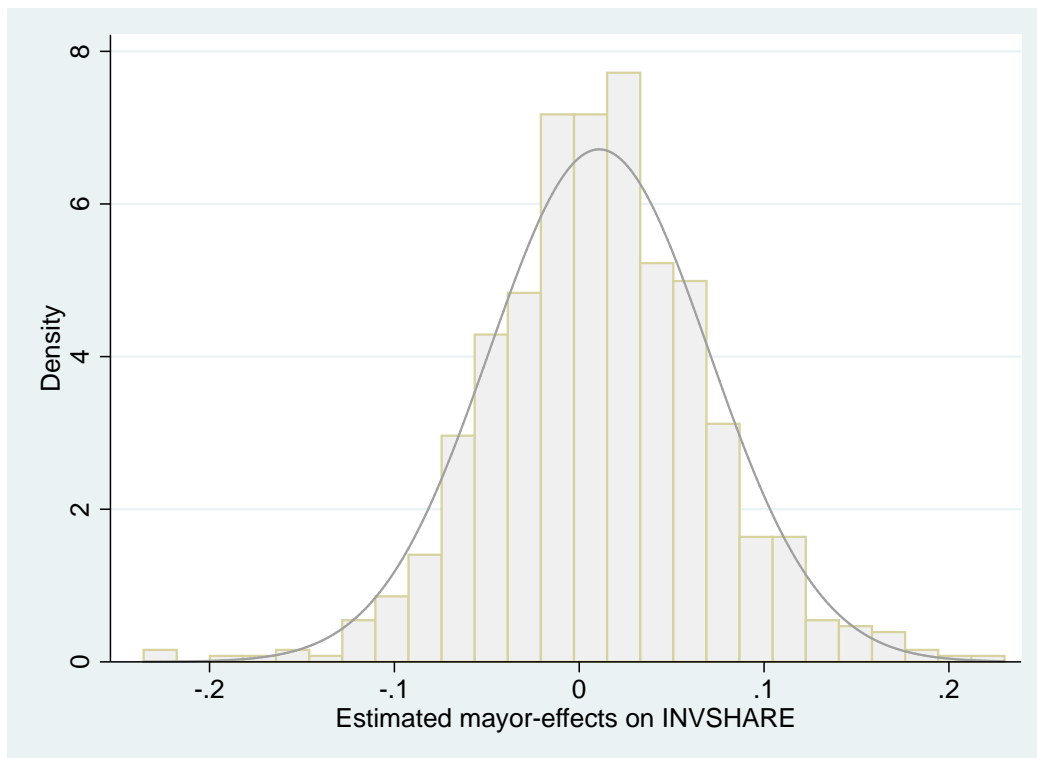
Anecdotally, President Nicolas Sarkozy has a positive impact on *INVS HARE* and thus appears to have a positive influence of the performance of his city. Gérard Dalongeville, who was mayor of Hénin-Beaumont between 2001 and 2009 before he was suspended for incompetence after an huge scandal and condemned to 4 years of prison for corruption, has a mayor-effect located in the extreme lower-tail of the distributions, unintentionally reinforcing the validity of our measure of high-quality information.

1.5 The relationship between high and low quality information

The second step of the analysis consists in studying the relationship between the proxy for high-quality information, based on the influence of the mayor on infrastructure spending policy, to personal observable characteristics, which we consider as low-quality information. We use two alternative methods. The aim is to check whether there exists a systematic relationship between the two types of information. First, we check whether mayors' characteristics are associated with the performance of the municipality. Second, we regress the estimated mayor-effects on the set of mayors' observable characteristics.

To that end, our database provides detailed personal characteristics for more than 80% of the 1,620 mayors who held office between 2000 and 2012 in the 896 cities of

FIGURE 1.1: Distribution of mayor effects



our sample. These data, described in details in Data Appendix A, come from a variety of sources: mayor's personal websites, issues of Who's Who in France, press reports, but also mails and phone calls to municipal administrations and occasionally directly to mayors. Summary statistics are provided in Table 1.4. Variables can be divided in three sets.

The first set encompasses individual characteristics, such as age, gender and whether the mayor is alumnus of the *École Nationale d'Administration*, the prestigious school from which most French politicians come (e.g., Presidents Valéry Giscard d'Estaing, Jacques Chirac and François Hollande graduated from ENA). Age is introduced in order to capture the potential generational difference in policy-making. In the corporate context, older managers are likely to be more conservative (Bertrand and Schoar, 2003, Chevalier and Ellison, 1999). Similarly, gender is often found to be correlated with low

TABLE 1.4: Mayors' characteristics summary statistics

	N. Obs.	Mean	Std. Dev.	Min	Max
Woman	1619	0.080	0.271	0	1
Age	1490	54.34	9.83	25	84
ENA	1619	0.028	0.166	0	1
Member of Parliament	1619	0.163	0.369	0	1
Experience	1616	7.674	8.325	1	42
Education	1506	0.192	0.394	0	1
Healthcare	1506	0.122	0.328	0	1
Legal	1506	0.056	0.230	0	1
Manager	1506	0.179	0.384	0	1
Business	1506	0.089	0.285	0	1
Engineer	1506	0.057	0.232	0	1
Public sector	1506	0.398	0.4896	0	1

risk-taking (Dwyer et al., 2002). Finally, being an ENA *alumni* can act like an experience bonus. At the opposite, it might cause an overconfidence of the mayor. Bertrand et al. (2006) observe a negative correlation between the performance of French companies and the fact that the CEO is an *énarque*. We will also see in the next chapters that the ENA effect is rather ambiguous.

Political variables are included in a second set: whether the mayor is member of the Parliament⁸ and the years of experience as a mayor. It has to be noticed that age and

⁸The *Assemblée Nationale* and the *Sénat* are the two chambers of representatives. As we shall see in the next chapters, the first one has precedence over the second in case of divergence; the second one is often regarded as representative of local governments as senators are elected by mayors and local government councilors.

experience are only weakly correlated (the correlation coefficient is equal to 0.3). Various studies introduce experience as an explanatory variable for political outcomes. For instance, [Dreher et al. \(2009\)](#) find that the probability to implement a reform decreases with the time spent in office, and [Moessinger \(2014\)](#) observes that the debt-to-GDP ratio is smaller if the finance minister stays in office for an additional year. Similarly, being a member of the Parliament implies a greater political experience. Multiple-office holding is very frequent in France, especially for the mayor-deputy couple, as we shall see in chapter 3. Also, having connexions with the political sphere at the national level might help a mayor to obtain specific grants, potentially affecting the infrastructure spending ratio.

The third set contains variables about the mayor's previous occupation. We focus on the six groups of occupation that reach the threshold of 5% of the total number of observations. These six categories cover more than 65% of total observations, as described in Table 1.4: education, healthcare, legal, business, manager and engineers. These categories are likely to develop specific skills, which may be helpful in governing a municipality. For instance, a mayor with a legal background may have developed rhetorical and persuasion skills that affect his/her governing style ([Besley et al., 2011](#)). Occupation is also a proxy for education, a data that we have not been able to gather for mayors. [Farvaque et al. \(2011\)](#) and [Gohlman and Vaubel \(2007\)](#) have shown that previous occupation of central bankers affect their inflation target. We also add the variable *Public* that takes the value of 1 if the mayor is coming from the the public sector (whatever the occupation). [Braendle and Stutter \(2013\)](#) suggest that elected public servants differ in their incentives, their cost and their intrinsic motivation from politicians coming from private sector.

To check whether mayors' observable characteristics are related to municipal performance, we follow the standard method used in the literature ([Bertrand and Schoar \(2003\)](#), [Dreher et al. \(2009\)](#), [Moessinger \(2014\)](#) among others) by estimating the following equation:

$$INVS HARE_{it} = \alpha_i + \gamma_t + \beta X_{it} + \lambda W_{it} + \epsilon_{it}, \quad (1.2)$$

TABLE 1.5: The impact of Mayors' personal characteristics on investment policy

Endogenous Variable:	<i>INVSHARE</i>	Mayor-effects
Woman	0.019 (0.029)	0.007 (0.007)
Age	-0.001 (0.001)	-0.0004 (0.0003)
ENA	0.008 (0.058)	-0.0003 (0.0152)
Member of Parliament	0.007 (0.016)	-0.0009 (0.0060)
Experience	0.002 (0.001)	0.0000 (0.0003)
Education	-0.023 (0.031)	-0.008 (0.007)
Healthcare	0.063 (0.033)	0.012 (0.008)
Legal	0.042 (0.042)	-0.002 (0.013)
Business	-0.014 (0.040)	-0.016 (0.009)
Manager	-0.011 (0.028)	-0.0001 (0.006)
Engineer	-0.023 (0.040)	0.0006 (0.010)
Public sector	0.028 (0.027)	0.002 (0.006)
Ln(Population)	-0.152 (0.168)	-
Ln(Median Income)	-0.553* (0.273)	-
DGF grant	0.417*** (0.132)	-
Unemployment	-0.005 (0.013)	-
Regional GDP growth	0.005* (0.002)	-
Unemployment ratio	-0.058 (0.082)	-
Observations	10765	648
Model	LSDV	WLS
Municipal fixed-effects	YES	-
Year effects	YES	-
Municipal cooperation dummies	YES	-
Adj-R2	0.467	-
F-Test p-value	<0.001	-

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

where W_{it} is the vector of personal observable characteristics of the mayors in municipality i at time t . Results are provided in table 1.5. The time-varying municipal variables behave in the same way as in step 1, with comparable coefficients and significance, except the median income that now turns significant. Concerning personal observable characteristics, it is very hard to depict a clear storyline, since no variable is significant. The adjusted- R^2 decreases compared to Model 2 presented in the previous table, which did not encompass the personal characteristics. These results suggest that the two sets of information are orthogonal: the low-quality signal are totally uninformative about the investment policy of the mayor.

To confirm that personal observable characteristics are (at best) weakly related to the policy-making of the mayors, we also use a second approach. It consists in regressing the mayor effects estimated in the previous step on the set of personal characteristics as follows:

$$ME = \alpha + \beta W + \epsilon \quad (1.3)$$

where ME stands for the estimated mayor effects obtained with equation 1.1. To take into account the measurement error of the mayor effects, we estimate Equation 1.3 using Weighted Least Squares (WLS), with weight equal to the inverse of the standard error of the independent variable (Bertrand and Schoar, 2003, Greene et al., 2009, Saxonhouse, 1976). It aims at giving more weight to the more precise estimates.

Results are provided in the third column of Table 1.5. Here again, no clear pattern emerges, as no explanatory variable is ever significant. We are aware that with this approach we may face a potential selection bias, as we cannot compute mayor effects for mayors who have been in office all over the years covered by the sample. These mayors might have specific characteristics, explaining their longevity. This reinforces the need to relate influence and characteristics through two different approaches, as we actually do. To sum up, no clear connection can be established between what voters may use as ‘information shortcuts’ and the proxy of high-quality information estimated *à la*

Bertrand and Schoar. We exploit this orthogonality to check the respective influence (if any) of the two information channels in the vote-popularity function.

1.6 Quality of information and probability of reelection

In the first step of this analysis, we have shown that mayors do have an impact on the performance of municipalities. This influence is taken as a measure of high quality information that voters may wish to acquire. The second step indicated that such information cannot be inferred from observable characteristics. With the help of a vote-popularity function, we now try to uncover the type of information that voters actually use. If voters reward past policy-making in the ballot, then mayor effects should be positively associated with the electoral performance of the incumbent. On the other hand, acquiring this sophisticated information is costly and voters may rest their choice on the personal observable characteristics of incumbents, which is an immediately available information.

1.6.1 The municipal Vote-Popularity function

The dataset encompasses the electoral outcome of the municipal elections held in 2008. Amongst the 715 mayors for whom we obtained a measure of competence in the first step of the analysis, 402 ran for reelection in 2008. The dataset provides complete information for 359 of them (see Table 1.6 for summary statistics). The representativeness of the sample, which considerably shrank, is assessed in Table 1.7. It reports the mean of all the variables considered in the VP function, as well as the standard deviation in parentheses, for different samples. The column 'Sample' provides information about the municipalities included in the VP function. The column 'Running Incumbent' displays the same for all the municipalities where the incumbent ran for reelection. The column 'All municipalities' shows these elements for the whole 896 French municipalities of more than 10,000 inhabitants. There is no major difference between the three sample.

TABLE 1.6: Vote-Popularity function summary statistics

	N. Obs.	Mean	Std. Dev.	Min	Max
Vote-share	402	0.494	0.134	0.122	0.883
Vote-margin	402	0.151	0.218	-0.378	0.767
Mayor-effects	402	0.015	0.062	-0.235	0.230
Women	402	0.114	0.318	0	1
Age	375	57.650	9.288	33	84
ENA	402	0.034	0.183	0	1
Member of Parliament	402	0.112	0.289	0	1
Experience	401	4.568	6.999	1	36
Education	380	0.173	0.379	0	1
Healthcare	380	0.139	0.346	0	1
Legal	380	0.039	0.194	0	1
Manager	380	0.194	0.396	0	1
Business	380	0.094	0.293	0	1
Engineer	380	0.044	0.206	0	1
Public Sector	380	0.413	0.493	0	1
Right-wing	402	0.544	0.498	0	1
N. Candidates	402	3.855	1.537	2	11
Share of seats	392	0.782	0.041	0.685	1
Unemployment	402	4.683	1.919	1.521	27.009
Debt change	402	0.014	0.468	-2.240	2.319

The only noticeable difference concern both Experience and Member of Parliament. In our final sample, mayors have less experience than in the full sample, and hold less often a parliamentary seat. This can be explained by the fact that we had to exclude mayors who stayed in office over the whole period, because in their case we could not disentangle the mayor effect from the municipal effect. As these experienced, ‘long term’ mayors are also more likely to hold other official mandates, the share of mayors holding a parliamentary seat is lower in our final sample.

The vote-popularity function that we estimate can be written as:

$$VP = \alpha + \gamma ME + \phi W + \beta X + \epsilon \quad (1.4)$$

where VP denotes the electoral popularity of the mayor measured through two classic indicators [Paldam \(2008\)](#): the share of votes obtained by the mayor at the first round of the elections and the vote margin computed as the difference between the vote share of the incumbent and the runner up (or the incumbent and the winner if the incumbent is defeated) at the decisive round. The first measure being bounded between 0 and 1, we again use the logistic transformation as explained above. ME represents the mayor effects obtained above in the first step. In addition to this competence measures, W is the set of mayors’ observable characteristics that voters may potentially use as information to cast their vote. It includes the same variables as in the previous subsection: age, gender, ENA, member of parliament, experience and the occupation dummies. We also add the squared experience to allow for non-linearity and to capture potential effect of erosion of power or voters’ fatigue ([Cassette et al., 2013](#)). X contains the classic regressors used in vote-popularity functions ([Nannestad and Paldam, 1994](#), [Paldam, 2008](#)). First, it includes two variables aiming at capturing the municipal specific context: the change in debt per capita since the previous election (as in [Brender, 2003](#) for instance) and the level of unemployment, which is a classical vote-popularity variable. It is often reported that voters blame elected officials for unemployment ([Paldam, 2008](#)), hence we expect unemployment to reduce the electoral performance of the incumbent. Second, X includes the number of candidates running for the election. It can be thought of as a measure of the political competition occurring during this election. A mayor facing

a high number of competitors would be less likely reelected (Cassette et al., 2013). To complete this measure, we introduce the share of seats of the municipal council supporting the mayor, which is directly linked with the previous level of political competition. We expect this variable to have a positive effect on the reelection prospects of the mayors. Finally, political ideology is introduced through a dummy variable taking the value of 1 when the incumbent mayor is a right-wing politician. The 2008 municipal elections took place in the context of the abrupt ending of Nicolas Sarkozy's honeymoon in face of the financial crisis, which followed his election as President of the Republic in 2007. Right-wing mayors are thus expected to face more difficulties to be reelected.

1.6.2 Regression with the whole set of municipalities

As a preliminary step, we estimate equation 1.4 using the whole set of municipalities. Table 1.8 provides regression results. The two alternative measures of mayor's popularity depict the same picture. The high-quality information variable has the expected sign, indicating that voters reward mayors having a positive influence on municipal performance and is statistically significant. Interestingly, voters also use several mayors' personal characteristics, even though these variables have been previously shown to be uninformative about mayors' policy-making. This suggests that a part of the electorate relies on low-quality information. As in the case of US governors Besley (2006), older mayors face more difficulties to get reelected. As in Cassette et al. (2013), the effect of experience is non-linear, even if not significant. Being an experienced mayor is at first rewarded by the electorate, but this effect is decreasing over the years. The idea is that, as time goes by, voters begin to be tired of having the same mayor, so that highly experienced mayors find it increasingly harder to be reelected⁹. Women are less likely to be reelected than men. This is in line with Fréchette et al. (2008) and De Paola et al. (2010), respectively studying French legislative elections and Italian municipal elections. The occupation of the mayor is not found to have an effect on his/her reelection ratio, contrary to the results of Mechtel (2014) in the case of German local elections

⁹Recall that age and experience are only weakly correlated, with a correlation coefficient of 0.3.

TABLE 1.7: Sample representativeness

	Sample	Running incumbent	All municipalities
Number of cities	402	771	896
Population	31,012.05 (37,920.13)	30,098.34 (36,379.87)	29,952.9 (35,749.86)
Median income	17,595.43 (3,982.776)	17,873.09 (4,094.02)	17,870.97 (4,143.48)
Unemployment	3.729 (10.207)	3.668 (10.150)	3.646 (10.128)
Infrastructure	0.311 (0.093)	0.306 (0.088)	0.306 (0.087)
Debt/hab	1.062 (0.718)	1.013 (0.649)	0.996 (0.635)
Share of seats	0.786 (0.060)	0.796 (0.058)	0.794 (0.056)
Right	0.555 (0.497)	0.535 (0.499)	0.540 (0.498)
Age	56.643 (9.321)	57.933 (8.487)	58.957 (8.825)
Exp	10.151 (7.576)	12.631 (8.014)	13.025 (8.306)
Women	0.106 (0.309)	0.079 (0.270)	0.081 (0.273)
Parliament	0.153 (0.361)	0.208 (0.406)	0.198 (0.399)
ENA	0.034 (0.183)	0.029 (0.170)	0.026 (0.161)
Education	0.163 (0.370)	0.173 (0.379)	0.179 (0.384)
Healthcare	0.131 (0.338)	0.124 (0.330)	0.123 (0.329)
Legal	0.039 (0.194)	0.052 (0.224)	0.054 (0.226)
Business	0.089 (0.285)	0.090 (0.287)	0.085 (0.280)
Manager	0.186 (0.389)	0.181 (0.385)	0.176 (0.381)
Engineer	0.044 (0.206)	0.062 (0.242)	0.060 (0.237)
Public	0.389 (0.488)	0.391 (0.488)	0.390 (0.488)

but in accordance with [Berggren et al. \(2010\)](#). Only incumbents coming from the legal sphere and those coming from the public sector encounter more difficulties to be reelected.

Concerning political control variables, the national context played an important role in our empirical setting as the mayors aligned with the presidential political wing are heavily penalized, as expected. Mayors who enjoyed a large majority at the municipal council are also more easily reelected. The number of competitors opposed to the mayor plays an ambiguous role. It has a positive impact on the vote-margin, but a negative one on the share of votes obtained at the first round, even if not statistically significant. It seems that the incumbent suffers from a dilution of the votes at the first round, but at the decisive round voters come back with their support. Municipal unemployment and debt are not significantly related with the electoral performance of the mayor, but the signs are those expected.

1.6.3 Regressions according to jurisdiction size

Finally, we investigate whether voters use different sets of information when they belong to municipalities of different sizes. Theoretically, the high-quality information should have a stronger impact as the size of the jurisdiction decreases. Voters in large-sized municipalities could therefore be expected to rely more on information shortcuts, and less on the evaluation of incumbent mayors' policy.

The high population heterogeneity of the French municipalities allows for this investigation. We first sort municipalities by population, and implement a rolling regression over subsamples of 200 municipalities: the first subsample is composed of the 200 smallest municipalities; the second subsample takes municipalities from the second smallest to the 201th smallest, and so on till the last subsample includes the 200 largest municipalities. For each subsample, we then regress successively the vote-margin and the share of votes at the first round as in Equation 1.4. The coefficient associated with

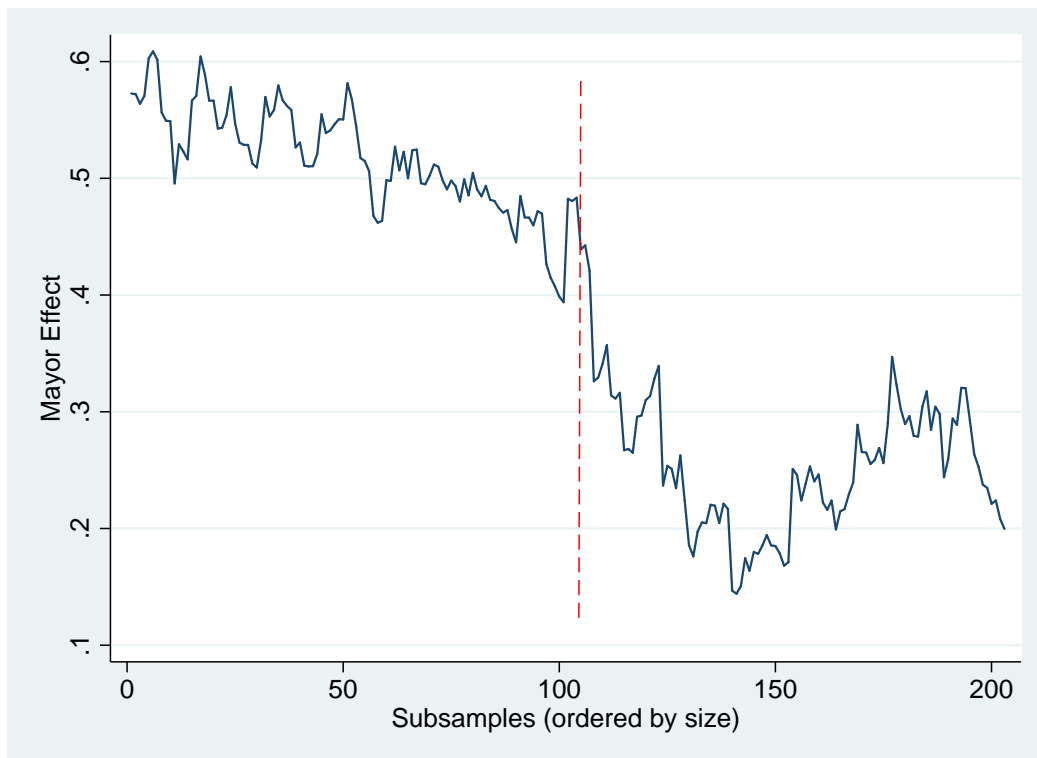
TABLE 1.8: Vote-Popularity regression results - whole sample

	(1)		(2)	
	Vote-margin		Vote-share	
Mayor-effects	0.3440*	(0.1585)	0.8956*	(0.4458)
Women	-0.0777*	(0.0327)	-0.2201*	(0.0935)
Age	-0.0049***	(0.0013)	-0.0152***	(0.0036)
ENA	0.0461	(0.0556)	0.1476	(0.1495)
Member of Parliament	-0.0008	(0.0314)	-0.0069	(0.0698)
Experience	0.0164*	(0.0069)	0.0200	(0.0222)
Experience ²	-0.0199**	(0.0064)	-0.0289	(0.0210)
Education	0.0051	(0.0381)	0.0248	(0.1041)
Healthcare	-0.0166	(0.0385)	-0.1027	(0.1095)
Legal	0.0027	(0.0464)	-0.0370	(0.1472)
Business	0.0274	(0.0356)	0.0739	(0.1036)
Manager	-0.0072	(0.0287)	0.0410	(0.0779)
Engineer	0.0461	(0.0576)	-0.0861	(0.1048)
Public	-0.0353	(0.0300)	-0.0908	(0.0801)
Right	-0.0775***	(0.0233)	-0.1963**	(0.0652)
Share of Seats	0.9721***	(0.2336)	2.7398***	(0.6880)
N. Candidates	0.0391***	(0.0092)	-0.0161	(0.0294)
Unemployment	-0.0028	(0.0052)	-0.0121	(0.0130)
Debt change	-0.0138	(0.0209)	-0.0370	(0.0600)
Observations	359		359	
R ²	0.2648		0.2288	
F-Test p-value	<0.001		<0.001	

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

FIGURE 1.2: Coefficient of mayor effects in rolling regression 1



the mayor effect is collected for each regression and is reported in Figure 1.2 and 1.3 respectively for the vote-margin and the vote-share. As expected, the coefficient associated with the high-quality information proxy sharply decreases as the size of the municipality increases for both the vote-share and the vote-margin.

We then split the sample of the 375 mayors running for reelection in two subsamples: those running for office of municipalities with a population higher than 20,000 inhabitants, and those running for municipalities with a population lower than 20,000 inhabitants. On figures 1.2 and 1.3, the dashed vertical line represents the subsample having a mean population of 20,000. The 20,000 inhabitant threshold is used by the central administration for the computation of the *DGF* grant, but is also a threshold for the size of the municipal council, as the number of members increasing from 29 to 33 in municipalities with more than 20,000 inhabitants. Finally, adopting this threshold allows splitting the sample in two subsamples of equal size.

FIGURE 1.3: Coefficient of mayor effects in rolling regression 2



Results for the small-cities sample and the large-cities sample are respectively displayed in Table 1.9 and 1.10. Overall, the results greatly differ between subsamples. The most important result is that the policy-based information stays significant in small municipalities while turning insignificant in large-sized municipalities. This provides evidence that the agency problem is reduced when the size of the jurisdiction is small since voters acquire information of higher quality. Of course, this result does not point out a causal effect of the jurisdiction size on voters' information, but more modestly a correlation. Such a correlation, to the best of our knowledge, has never been observed in the literature.

Yet, voters in small jurisdictions do not abstain from using low-quality information. Age and gender are significant in small municipalities; only age is in the large-size municipalities. It is interesting to note that women face more difficulties to get reelected in small municipalities. This is in line with [De Paola et al. \(2010\)](#), who show that the

TABLE 1.9: Vote-Popularity function - small-cities sample

	(1)		(2)	
	Vote-margin		Vote-share	
Mayor-effects	0.5331*	(0.2558)	1.4390*	(0.7015)
Woman	-0.1107**	(0.0400)	-0.2556*	(0.1150)
Age	-0.0046*	(0.0019)	-0.0111*	(0.0052)
ENA	0.0344	(0.0786)	-0.0152	(0.2586)
Member of Parliament	0.1361*	(0.0591)	0.2770	(0.1885)
Experience	0.0152	(0.0089)	0.0186	(0.0290)
Experience ²	-0.0243**	(0.0082)	-0.0382	(0.0274)
Education	-0.0062	(0.0533)	-0.0925	(0.1485)
Healthcare	0.0354	(0.0612)	0.0738	(0.1633)
Legal	0.0534	(0.1041)	0.1333	(0.3025)
Business	0.0294	(0.0575)	0.0387	(0.1556)
Manager	-0.0015	(0.0437)	0.0624	(0.1152)
Ingeneer	-0.0359	(0.0703)	-0.1652	(0.1353)
Public	0.0063	(0.0438)	0.0582	(0.1167)
Right-wing	-0.0731*	(0.0357)	-0.1937*	(0.0963)
Share of seats	0.8315**	(0.2868)	2.6995**	(0.8396)
N. candidates	-0.0218	(0.0221)	-0.3493***	(0.0661)
Unemployment	0.0069	(0.0053)	0.0218	(0.0130)
Debt change	-0.0631	(0.0335)	-0.1496	(0.0947)
Observations	180		180	
R2	0.3079		0.3824	
F-Test p-value	<0.001		<0.001	

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE 1.10: Vote-Popularity function - large-cities sample

	(1)		(2)	
	Vote-margin		Vote-share	
Mayor-effects	0.1779	(0.1737)	0.3434	(0.4406)
Women	-0.0354	(0.0523)	-0.1157	(0.1253)
Age	-0.0035*	(0.0016)	-0.0136**	(0.0042)
ENA	-0.0033	(0.0692)	0.1349	(0.1070)
Member of Parliament	-0.0311	(0.0325)	-0.0556	(0.0620)
Experience	0.0099	(0.0099)	0.0062	(0.0276)
Experience ²	-0.0113	(0.0093)	-0.0102	(0.0264)
Education	0.0157	(0.0502)	0.0976	(0.1240)
Healthcare	-0.0562	(0.0420)	-0.1706	(0.1136)
Legal	-0.0728	(0.0420)	-0.3291**	(0.1168)
Business	-0.0304	(0.0354)	-0.0834	(0.1064)
Manager	-0.0551	(0.0323)	-0.1032	(0.0792)
Ingeneer	0.0104	(0.0913)	-0.2217	(0.1309)
Public	-0.0718*	(0.0350)	-0.1811*	(0.0830)
Right-wing	-0.0400	(0.0275)	-0.0230	(0.0653)
Share of seats	1.2844***	(0.3461)	2.9995**	(0.9076)
N. Candidates	0.0681***	(0.0083)	0.1245***	(0.0175)
Unemployment	-0.0120	(0.0079)	-0.0471**	(0.0175)
Debt change	0.0101	(0.0280)	-0.0273	(0.0669)
Observations	179		179	
R2	0.4030		0.3892	
F-Test p-value	<0.001		<0.001	

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

introduction of gender quotas in Italian municipal election had a stronger impact in the share of elected women in large municipalities than in small ones. Member of the Parliaments obtain *ceteris paribus* a higher margin of victory only in small municipalities. This result provides an interesting new element on the debate about the electoral advantage of multiple office-holding. On the one hand, Previous studies observe that deputies holding a municipal office increase the probability to win parliamentary elections Foucault (2006), François (2006). On the other hand, Casette et al. (2013), Casette and Farvaque (2014) show that mayors who simultaneously mayors benefit of an electoral advantage. Even if we are restrained to a rather limited sample, our results indicate that this advantage might depend on the size of the jurisdiction. A possibility to explain this puzzle might be that mayors benefit of a gain in visibility when they also hold a national mandate, while in large municipalities they already are visible enough in the medias. In large-sized municipalities, voters also tend to be skeptical about mayors coming from a legal or public occupation. Interestingly, a high unemployment rate reduces votes for the incumbent at the first round. When comparing the effect of the number of opponents, it has to be noted that the effect differs between small and large municipalities: the difficulty for an incumbent to be reelected increases when the number of opponents increases in small municipalities, but the opposite is found in large municipalities.

1.7 Alternative explanations

An alternative explanation to the fact that mayor effects turns significant in the small-municipalities subsample could be that mayors in small cities have a more important discretionary power on the investment policy than in large municipalities. To verify that it is not the case, we compare in Figure 1.4 the distributions of mayor effects in the two subsamples and provide the kernel density estimates for the large and small municipalities subsamples in 1.5. They reveal that mayor effects are slightly higher in large municipalities than in small ones. However, a mean comparison test concludes that there is no significant difference in the mean of the subgroups.

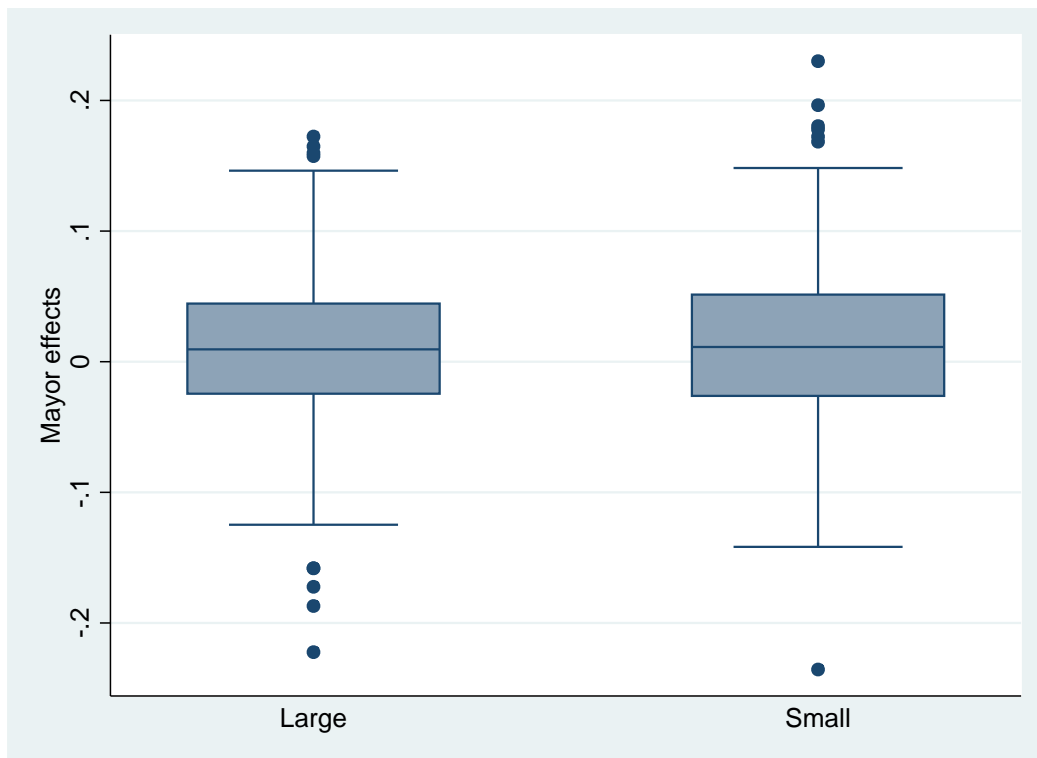
TABLE 1.11: Mayors' characteristics and investment policy, by municipal size

endogenous: <i>INVSHARE</i>	Small municipalities	Large municipalities
Women	0.0269 (0.0423)	-0.0029 (0.0393)
Age	-0.0029 (0.0015)	0.0005 (0.0015)
ENA	0.1450 (0.1393)	-0.0452 (0.0639)
Member of Parliament	0.0121 (0.0279)	0.0019 (0.0212)
Experience	0.0024 (0.0017)	0.0018 (0.0014)
Education	0.0568 (0.0418)	-0.0734 (0.0406)
Healthcare	0.0417 (0.0535)	0.1336*** (0.0356)
Legal	0.0547 (0.0885)	0.0745 (0.0447)
Business	0.0286 (0.0498)	-0.0227 (0.0633)
Manager	0.0132 (0.0404)	0.0099 (0.0343)
Ingeneer	-0.0224 (0.0577)	0.0221 (0.0579)
Public	-0.0198 (0.0360)	0.0880* (0.0353)
Municipal fixed-effects	YES	YES
Year fixed-effects	YES	YES
Time-varying municipal controls	YES	YES
Municipal cooperation dummies	YES	YES
Observations	5524	5241
R2	0.4438	0.4979
F	7.6563	6.1044
F-Test p-value	<0.001	<0.001

Standard errors in parentheses

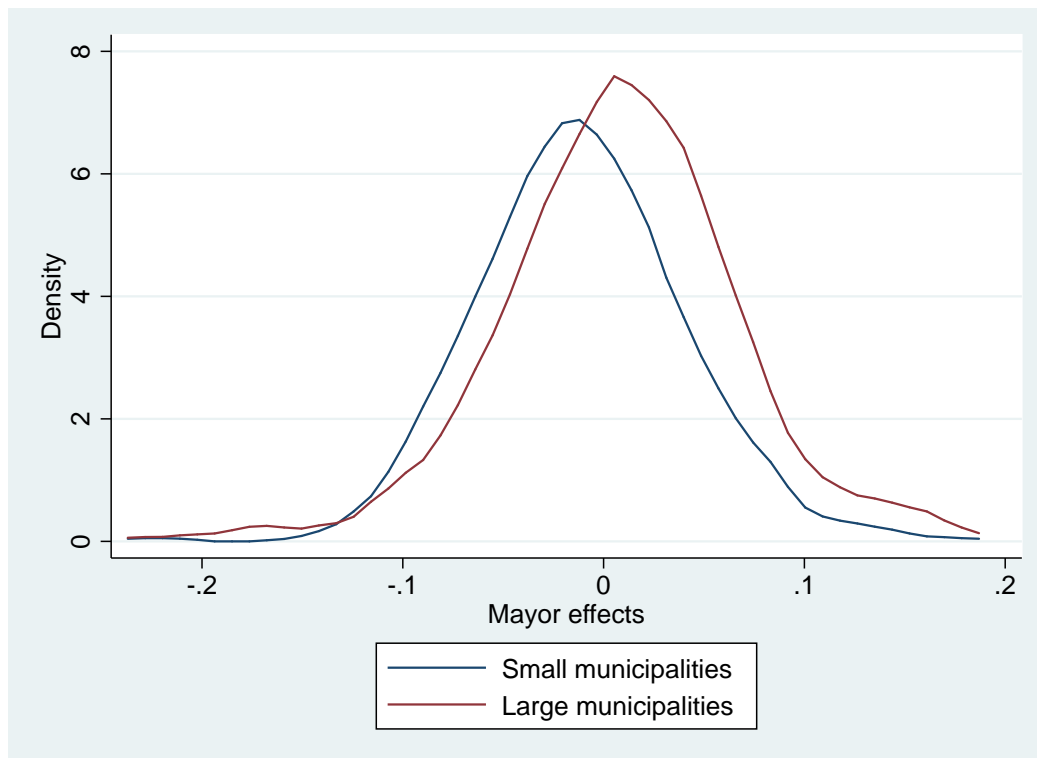
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

FIGURE 1.4: Distribution of Mayor effects by population size



One might think that personal characteristics of the mayor are more informative in small than in large jurisdictions. It would imply that voters do not acquire higher-quality information, but that low-quality information is more relevant in those municipalities. To rule out this hypothesis, we regress the municipal investment ratio on municipalities characteristics and on mayors' personal characteristics as in equation 1.2 (Section 5). Results are provided in Table 1.11. It indicates that personal characteristics are not more relevant cues on investment policy of the mayor than in large municipalities. At the opposite, two occupational dummies turn significant for the large municipalities sample. Both healthcare professional and public servants are associated with a higher share of infrastructure spending. It is interesting to note that as shown in Table 1.10, public servants are however less likely to be reelected, suggesting that using such a cue is misleading.

FIGURE 1.5: Kernel densities estimates



1.8 Conclusion

In this chapter, we performed an analysis aiming at identifying the set of information used by voters in their electoral choice according to the jurisdiction size. Political accountability models suppose that voters base their vote according to the past policy choices implemented by the incumbent politician. A recent literature suggests that voters acquire information of decreasing quality as the size of the population increases. Voters may prefer to rely on low-quality information, such as politicians' personal characteristics. The share of voters relying on such information is likely to increase as the size of the jurisdiction increases.

We tested this hypothesis on a newly created dataset of the French municipalities covering the period 2000-2012. The French municipal context suits well for such an

analysis, as it provides a large amount of heterogeneous observations within a homogeneous institutional framework.

In this framework, we have proxied in a first step high-quality information that voters may acquire. This high-quality information is based on the personal influence of the mayor on the investment policy, consistently with the political agency framework. We confirm that mayors effectively do have an influence on the investment policy of their municipality. Second, we studied how this high-quality information may be related to mayors' personal characteristics, which is considered as low-quality information in the literature, but failed to find any systematic link. We then tried to connect our measure of high-quality information directly to the mayor's characteristics, but again, no pattern emerged. This suggests that using observable characteristics as information shortcuts to gauge mayors' policy is irrelevant in the case of the French mayors (which does not mean that voters would not use it when they cast their vote). The third step has consisted in evaluating the impact of both sets of information on the reelection probability of the mayors, in order to identify the information that is used by voters. We found that voters reward mayors exerting a positive influence on the municipal investment policy only in small municipalities, as predicted by the theory. Some personal characteristics are however correlated with the electoral performance of the incumbent in municipalities of all size. Age and gender are the most frequently pieces of low-quality information that voters use.

Our result can also be put in perspective with the literature investigating the link between decentralization and government responsiveness. For instance, [Faguet \(2004\)](#) establishes a causal impact of decentralization on government responsiveness in Bolivia. Most notably, the investment policy of local governments changed significantly after decentralization. [Khemani \(2001\)](#) compares voter behavior in local versus national elections in India. She finds that the 'vigilance' of voters and government accountability in local elections increases when the level of government comes closer to voters. There is also evidence that decentralization may decrease corruption ([Bardhan and Mookherjee, 2006](#)). These studies investigate the difference in accountability among different

levels, different tiers of government. Our result suggest that even *within* the same tier of government, the size of the jurisdiction matters. This provides support to the claim of [Brennan and Buchanan \(1980\)](#) that the quality of the democratic functioning should not be thought independently from the size of the jurisdiction.

Finally, the computation of mayor effects revealed that mayors exerted an idiosyncratic influence on the municipality they are in charge. In the next chapter, we will deepen the analysis of the personal influence of politicians in a different context. After focusing on the lowest tier of government, we now move on to the highest level of government to verify whether individuals matter too at the other extremity of the scale of government levels: the case of central government ministers

Appendix A. Description of the variables and datasources.

TABLE 1.12: Municipal variables

Variables	Description	Sources
Population	Municipal population (estimation for the period 2001-2007).	INSEE, own computation.
Median income	Median income per consumption unit in the municipality.	INSEE.
Unemployment	Share of unemployed population over total municipal population.	INSEE.
Regional GDP growth	Nominal regional GDP growth deflated by consumer price index.	INSEE, own computation.
Unemployment ratio	Ratio of municipal unemployment level over district (department) unemployment level.	INSEE, own computation.
INVSHARE	Ratio of infrastructure spending over total expenditures.	Ministère de l'Intérieur, own computations.

TABLE 1.13: Mayors' personal characteristics

Variables	Description	Sources
Woman	Dummy variable indicating the gender, equal to 1 if the observation is a woman.	Own computation.
Age	Age of the mayor.	Own investigations (websites of the mayors, Who's Who in France (several editions), direct calls, etc...)
ENA	Dummy variable indicating the ENA alumni, equal to 1 if the observation is graduated from that school.	Own investigations.
Member of Parliament	Dummy variable indicating the mayor is simultaneously a member of Parliament, equal to 1 if this is the case.	Assemblée Nationale website.
Experience	Experience (in years) of the mayor at the head of the municipality.	Own investigations.
Education	Dummy variable indicating if the mayor worked in the field of education.	Own investigations.
Healthcare	Dummy variable indicating if the mayor worked in the field of health.	Own investigations.
Legal	Dummy variable indicating if the mayor worked in the legal field.	Own investigations.
Manager	Dummy variable indicating if the mayor worked as a manager.	Own investigations.
Business	Dummy variable indicating if the mayor ran a business.	Own investigations.
Engineer	Dummy variable indicating if the mayor worked as an engineer.	Own investigations.
Public Sector	Dummy variable indicating if the mayor worked in the public sector.	Own investigations.

TABLE 1.14: Vote-Popularity function variables

Variables	Description	Sources
Reelected	Dummy variable indicating if the mayor succeeded in re-election.	Ministre de l'Intérieur
Right	Dummy variable indicating the political wing, equal to 1 if the observation is from the right wing.	Ministre de l'Intérieur
Vote-Margin	Difference between the share of votes of the incumbent mayor and the share of votes of the runner-up (in case of reelection) or the winner (in case of defeat).	Ministre de l'Intérieur, own computation.
N. Candidates	Number of candidates running for the elections.	Ministre de l'Intérieur, own computation.
Debt Change	Change in the debt per inhabitant between 2001 and 2008 elections.	Ministre de l'Intérieur, own computation.

Bibliography

- Aldashev, G., 2010. Political information acquisition for social exchange. *Quarterly Journal of Political Science* 5 (1), 1–25.
- Antonakis, J., Dalgas, O., 2009. Predicting elections: Child’s play! *Science* 323 (5918), 1183–1183.
- Banks, J. S., Sundaram, R. K., 1993. Moral hazard and adverse selection in a model of repeated elections. *Political Economy: Institutions, Information, Competition, and Representation*, 295–311.
- Bardhan, P., Mookherjee, D., 2006. Decentralization, corruption and government accountability. *International handbook on the economics of corruption* 6, 161–188.
- Barro, R. J., 1973. The control of politicians: an economic model. *Public choice* 14 (1), 19–42.
- Bartels, L. M., 1996. Uninformed votes: Information effects in presidential elections. *American Journal of Political Science* 40 (1), 194–230.
- Berggren, N., Jordahl, H., Poutvaara, P., 2010. The looks of a winner: Beauty and electoral success. *Journal of Public Economics* 94 (1), 8–15.
- Bergstrom, T. C., Goodman, R. P., 1973. Private demands for public goods. *The American Economic Review* 63 (1), 280–296.
- Bertrand, M., Kramarz, F., Schoar, A., Thesmar, D., 2006. Politicians, firms and the political business cycle: Evidence from france. Unpublished working paper. University of Chicago.
- Bertrand, M., Schoar, A., 2003. Managing with style: The effect of managers on firm policies. *Quarterly Journal of Economics* 118 (4), 1169–1208.
- Besley, T., 2006. *Principled agents? The political economy of good government*. Oxford University Press.

- Besley, T., Case, A., 1995. Does electoral accountability affect economic policy choices? Evidence from gubernatorial term limits. *The Quarterly Journal of Economics* 110 (3), 769–798.
- Besley, T., Montalvo, J., Reynal-Querol, M., 2011. Do educated leaders matter? *Economic Journal* 121, 205–227.
- Besley, T., Persson, T., Sturm, D., 2010. Political competition, policy and growth: Theory and evidence from the us. *Review of Economic Studies* 77 (4), 1329–1352.
- Bom, P. R., Ligthart, J. E., 2013. What have we learned from three decades of research on the productivity of public capital? *Journal of Economic Surveys* 28 (5).
- Borcherding, T. E., Deacon, R. T., 1972. The demand for the services of non-federal governments. *American economic review* 62 (5), 891–901.
- Braendle, T., Stutter, A., 2013. Political selection of public servants and parliamentary oversight. *Economics of Governance* 14 (1), 45–76.
- Brender, A., 2003. The effect of fiscal performance on local government election results in israel: 1989–1998. *Journal of Public Economics* 87 (9), 2187–2205.
- Brennan, G., Buchanan, J. M., 1980. *The power to tax: Analytical foundations of a fiscal constitution*.
- Cassette, A., Farvaque, E., 2014. Are elections debt brakes? evidence from french municipalities. *Economics Letters* 122 (2), 314–316.
- Cassette, A., Farvaque, E., Héricourt, J., 2013. Two-round elections, one-round determinants? Evidence from the french municipal elections. *Public Choice* 156 (3-4), 563–591.
- Charlot, S., Paty, S., 2007. Market access effect and local tax setting: evidence from french panel data. *Journal of Economic Geography* 7 (3), 247–263.

- Chevalier, J., Ellison, G., 1999. Are some mutual fund managers better than others? Cross-sectional patterns in behavior and performance. *The journal of finance* 54 (3), 875–899.
- De Paola, M., Scoppa, V., Lombardo, R., 2010. Can gender quotas break down negative stereotypes? Evidence from changes in electoral rules. *Journal of Public Economics* 94 (5), 344–353.
- Downs, A., 1957. *An economic theory of democracy*. New York: Harper and Row.
- Dreher, A., Lamla, M., Lein, S., Somogyi, F., 2009. The impact of political leaders' profession and education on reforms. *Journal of Comparative Economics* 37 (1), 169–193.
- Dubois, E., Paty, S., 2010. Yardstick competition: which neighbours matter? *The Annals of Regional Science* 44 (3), 433–452.
- Dwyer, P. D., Gilkeson, J. H., List, J. A., 2002. Gender differences in revealed risk taking: Evidence from mutual fund investors. *Economics Letters* 76 (2), 151–158.
- Faguet, J.-P., 2004. Does decentralization increase government responsiveness to local needs? Evidence from bolivia. *Journal of public economics* 88 (3), 867–893.
- Farvaque, E., Hammadou, H., Stanek, P., 2011. Selecting your inflation targeters: Background and performance of monetary policy committee members. *German Economic Review* 12 (2), 223–238.
- Feddersen, T., Sandroni, A., 2006. Ethical voters and costly information acquisition. *Quarterly Journal of Political Science* 1 (3), 287–311.
- Ferejohn, J., 1986. Incumbent performance and electoral control. *Public choice* 50 (1), 5–25.
- Foucault, M., 2006. How useful is the cumul des mandats for being re-elected? empirical evidence from the 1997 french legislative elections. *French Politics* 4 (3), 292–311.

- Foucault, M., Madies, T., Paty, S., 2008. Public spending interactions and local politics. empirical evidence from french municipalities. *Public Choice* 137 (1-2), 57–80.
- François, A., 2006. Testing the 'baobab tree' hypothesis: The cumul des mandats as a way of obtaining more political resources and limiting electoral competition. *French Politics* 4 (3), 269–291.
- Fréchette, G. R., Maniquet, F., Morelli, M., 2008. Incumbents' interests and gender quotas. *American Journal of Political Science* 52 (4), 891–909.
- Frère, Q., Leprince, M., Paty, S., 2013. The impact of intermunicipal cooperation on local public spending. *Urban Studies* 51 (8), 1741–1760.
- Galasso, V., Nannicini, T., 2011. Competing on good politicians. *American Political Science Review* 105 (1), 79–99.
- Gohlman, S., Vaubel, R., 2007. The educational and occupational background of central bankers and its effect on inflation: An empirical analysis. *European Economic Review* 51 (4), 925–941.
- Greene, W. H., Hornstein, A. S., White, L. J., 2009. Multinationals do it better: Evidence on the efficiency of corporations' capital budgeting. *Journal of Empirical Finance* 16 (5), 703–720.
- Jones, B., Olken, B., 2005. Do leaders matter? National leadership and growth since world war ii. *Quarterly Journal of Economics* 120 (3), 835–864.
- Kemmerling, A., Stephan, A., 2002. The contribution of local public infrastructure to private productivity and its political economy: Evidence from a panel of large german cities. *Public Choice* 113 (3-4), 403–424.
- Khemani, S., 2001. *Decentralization and Accountability: Are voters more vigilant in local than in national elections?* Vol. 2557. World Bank Publications.
- Larcinese, V., 2007. Does political knowledge increase turnout? Evidence from the 1997 british general election. *Public Choice* 131 (3-4), 387–411.

- Martinelli, C., 2006. Would rational voters acquire costly information? *Journal of Economic Theory* 129 (1), 225–251.
- Martinelli, C., 2007. Rational ignorance and voting behavior. *International Journal of Game Theory* 35 (3), 315–335.
- McDermott, M. L., 1998. Race and gender cues in low-information elections. *Political Research Quarterly* 51 (4), 895–918.
- McDermott, M. L., 2005. Candidate occupations and voter information shortcuts. *Journal of Politics* 67 (1), 201–219.
- Mechtel, M., 2014. It's the occupation, stupid! Explaining candidates' success in low-information elections. *European Journal of Political Economy* 33, 53–70.
- Moessinger, M.-D., 2014. Do the personal characteristics of finance ministers affect changes in public debt? *Public Choice* 161 (1-2), 183–207.
- Nannestad, P., Paldam, M., 1994. The VP-function: A survey of the literature on vote and popularity functions after 25 years. *Public Choice* 79 (3-4), 213–245.
- Oliveros, S., 2013. Abstention, ideology and information acquisition. *Journal of Economic Theory* 148 (3), 871–902.
- Olson, M., 1965. *The logic of collective action: public goods and the theory of groups*. Harvard University Press.
- Paldam, M., 2008. Vote and popularity functions. In: *Readings in Public Choice and Constitutional Political Economy*. Springer, pp. 533–550.
- Pereira, A., Andraz, J., 2010. On the economic effects of public infrastructure investment: A survey of the international evidence. *Département des sciences économiques, document de travail* 108.
- Persson, T., Tabellini, G. E., 2002. *Political economics: explaining economic policy*. MIT press.

- Popkin, S. L., 1994. *The reasoning voter: Communication and persuasion in presidential campaigns*. University of Chicago Press.
- Romp, W., De Haan, J., 2007. Public capital and economic growth: A critical survey. *Perspektiven der Wirtschaftspolitik* 8 (S1), 6–52.
- Saxonhouse, G. R., 1976. Estimated parameters as dependent variables. *The American Economic Review* 66 (1), 178–183.
- Sigelman, C. K., Sigelman, L., Walkosz, B. J., Nitz, M., 1995. Black candidates, white voters: Understanding racial bias in political perceptions. *American Journal of Political Science* 39 (1), 243–265.
- Triossi, M., 2013. Costly information acquisition. Is it better to toss a coin? *Games and Economic Behavior* 82, 169–191.
- Turnbull, G. K., Mitias, P. M., 1999. The median voter model across levels of government. *Public Choice* 99 (1-2), 119–138.
- Veiga, L. G., Veiga, F. J., 2007. Political business cycles at the municipal level. *Public Choice* 131 (1-2), 45–64.
- Wagner, R. E., 1976. Revenue structure, fiscal illusion, and budgetary choice. *Public Choice* 25 (1), 45–61.
- Wooldridge, J. M., 2010. *Econometric analysis of cross section and panel data*. MIT press.

Chapter 2

Legislative cycles in semipresidential systems

‘Either to catch the attention of public opinion or to respond to the demands of different social groups, political action has taken the form of a legislative gesticulation’

Renaud Denoix de Saint-Marc, member of the French Constitutional Court, 2001.

2.1 Introduction

The process of policy-making requires the approval of legislative acts to become effective¹. Any decision, from a declaration of war to a cut in a budget item, implies the use of a legislative instrument. The economic theory of legislation has long ago shown that, as a consequence of the redistribution of property rights, all laws are redistributive by nature, even when they are not directly related to the budget policy (Croley and Levi-Faur, 2011, Stigler, 1971, Tollison, 1988). Any law benefits a group of voters at the expense of all the others, even laws that are far from being explicitly related to finance

¹This chapter is based on a paper written with Fabio Padovano.

or economics. To exemplify this point, the French Parliament voted a bill in 2010 making compulsory the installation of a smoke detector in every home². Behind the will to reduce the number of deaths 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 produce such effects, there would not be so many lobbyists in the neighborhood of the parliaments.

This feature creates a link with another strand of literature based on the redistributive characteristics of policy decisions, namely the Political Budget Cycle literature, which claims that fiscal policies are sensitive to upcoming elections, because incumbents concentrate tax and spending decisions at the end of a legislature in order to increase their probability of being re-elected. Combining these two arguments, it follows that elections should affect the process of legislative production too. 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 both. Such manipulation is the basis of the Political Legislation Cycle (PLC, [Lagona and Padovano, 2008](#)).

By analyzing the French legislative production over more than half a century, this chapter brings four main contributions. First, the French context allows testing the effects of at least two types of elections on the legislative production, i.e., the potential presence of a dual cycle. The mix of presidentialism and parliamentarism that defines the French institutional framework implies that the presidential and the legislative elections set the pace of political life in a similar way as the Presidential and Congressional elections do in the United States. As the two elections were held at different times and intervals before 2002, a dual cycle may occur: one connected to the legislative elections, as in the standard PLC literature, and a second cycle related to the presidential elections. Furthermore, we explore the impact of the constitutional reform of 2000 that synchronized the two electoral events.

Second, a direct consequence of the non-simultaneity of the presidential and legislative elections is the possibility to reach an odd situation, the so-called *cohabitation*,

²Law n° 2010-238 of May, 9th 2010.

where the President and the prime minister are from two opposite political parties. This results in a sort of divided government or ‘two-headed executive’ (Poulard, 1990, Lewis-Beck, 1997). This situation occurred in three different occasions. The constitutional reform of 2000, which reduced the length of the presidential mandate from 7 to 5 years, effectively synchronized the presidential and the legislative elections, which started to be held in the same period since 2002. A *cohabitation* should thus become much less likely (although in principle not impossible). Our analysis allows to verify the impact of situations of *cohabitation* (and of the reform that made it unlikely to occur again) on legislative production and cycles.

Third, by testing the PLC on a semipresidential system, we attempt to verify the generality of the PLC theory. Only a few cases have been studied so far, mainly based on Italian legislative data (Lagona and Padovano, 2008, Lagona et al., 2014); more empirical evidence needs to be provided to have a better understanding of this phenomenon. Furthermore, Tsebelis (1999) shows that the French and the Italian institutional frameworks are at odds in matters of government’s discretion, with a rather strong executive branch with respect to the legislative in France, and the opposite situation in Italy. Because of these diametrically opposite setups, finding a similar pattern of legislative production consistent with the PLC theory also in the French case would strengthen the generality of the PLC theory.

Fourth, we have seen in the previous chapter that individuals in office may matter. An aim of this chapter is to verify whether personal characteristics of the individuals composing the government also exert an influence on the legislative output. We introduce in the analysis personal information on the members composing the successive governments, such as the mean age and experience of the ministers. Jones and Olken (2005) and Congleton and Zhang (2013) establish a link between the identity of the national leader and economic outcomes, and Besley et al. (2011) show that the level of education of the leaders matter for growth. Dreher et al. (2009) moreover provides evidence that the personal characteristics of the leaders impact the probability to implement a reform. The channel through which personal characteristics are connected

to economic growth remains to be identified. By introducing details about government members, we want to study whether the legislative production can play such a transmission mechanism.

To explore the French legislative production at the light of the PLC theory, we analyze a newly assembled dataset, which covers the first thirteen legislatures of the Vth Republic of France, from 1959 to 2012, on a monthly basis, providing a total of 639 periods. We focus on the production of legislation approved by the Parliament. Exploiting a hierarchical Poisson model, the results reveal the existence of a dual cycle of the production of laws in France, generated by both the presidential and the legislative elections. The personal characteristics of the members of the government but also the number of ministers are found to influence the legislative output. The President does not have a direct impact on the production of laws; rather, he relies on the government for that. This is consistent with the other finding that *cohabitation* does not quantitatively impact the legislative production. Lastly, the synchronization of the presidential and legislative elections merged the two cycles into one of greater magnitude equivalent to sum of the two.

2.2 Related literature and theoretical background

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 several shortcomings, mainly the lack of rationality of the voters and the use of the uncertain monetary policy, but also a lack of empirical support Alesina (1997), Drazen (2001). These critiques gave rise to the Political Budget Cycle (PBC) literature, pioneered by Rogoff and Sibert (1988) 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 (1988) 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; a cycle of legislative production should thus also occur along the budget cycle. This model gave rise to a vast empirical research, most of the papers providing support to the theoretical foundation of the PBC (see for instance [Akhmedov and Zhuravskaya, 2004](#), [Brender and Drazen, 2005](#) [Shi and Svensson, 2006](#), [Veiga and Veiga, 2007](#) among many others). [Drazen and Eslava \(2005\)](#), 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 on the composition of the budget, redistributing resources among different items. Again legislation must be approved to modify the tax and expenditures mix as well. Given the intrinsic redistributive nature of both laws and budgetary decisions, 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 \(2008\)](#) proposed the first conceptualization of the PLC. They consider the level of legislative 'effort' exerted by the different parties of a government coalition, a high effort being associated with a large number of passed bills. In periods free from electoral constraints, parties do not have sufficient incentives to compete for votes and collude in a rent-seeking oriented cartel. Implicitly they agree on a low 'legislative effort'. As the election approaches, each member of the coalition has an incentive 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 a high legislative 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 only if the 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.

[Padovano and Petrarca \(2013\)](#) extend this 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 and Veiga \(2011\)](#), 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 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 interests of pressure groups in order to signal its competence and to ensure fundraising for the upcoming election. Then, in the second part of the mandate, the government focuses on the production of laws that are visible to all 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 mandate, and a peak of production of laws towards the end of the legislature. As we shall see below, the hypothesis underlying this theoretical model are met in the French case: the government has a perfect control of the legislative agenda and control the timing of the legislative process, allowing it to choose the type of legislative act to implement.

When tested on Italian data, [Lagona et al. \(2014\)](#) find evidence of such opposite cycles, giving strong support to the PLC theory. With a different empirical model, [Brechtler and Geršl \(2014\)](#) point out a legislation cycle in the production of laws related to transfer expenditures, generated by legislative elections 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. Lastly, [Goetz et al. \(2014\)](#) focus on the impact of staggered legislature in Germany and

Japan. They show that the parliamentary activity of German Länders is also related to the electoral cycle of the other Länders.

Even if nothing in the theory limits the predictions to a parliamentary system, most of the empirical tests have analyzed the role of parties in parliamentarism legislatures. It would therefore be interesting to apply the model on a sample where the executive branch is institutionally more relevant, such as France's semipresidential system. Several attempts to model the French legislative production have been proposed (for instance [Conley, 2011](#) and [Magni-Berton, 2008](#)), but none has ever considered the conditioning role of elections. This paper aims at filling this gap, in the light of the PLC theoretical framework.

2.3 The French institutional context

2.3.1 The Vth Constitution

The French Vth Republic was born in 1958 in the chaotic context of the Algerian crisis. The parliamentary system of the IVth Republic was plagued by parties struggles that resulted in government instability: 24 governments took place over 11 years. The emergency of the situation and the institutional inability to provide a solution to Algeria's fight for independence lead the Parliament to allow General De Gaulle to write a new constitution. The resulting system makes France a unique institutional case³ ([Shugart, 2005](#)). According to [Duverger \(1980\)](#), three specific features make the Vth Republic a typical semipresidential system. First, the President is popularly elected, since 1962. Second, the Constitution gives considerable authority to the President. Third, there exists a Prime Minister and a cabinet, subject to the confidence of the National Assembly.

³ '[...] a mix of a popularly elected and powerful presidency with a prime minister heading a cabinet subject to assembly confidence' ([Shugart \(2005\)](#), p.323).

The President is the key figure of the political system, even more so since 1962 with the election of the President *via* direct universal suffrage. Unlike in the United States, there is no limit to the number of mandates for the President. Article 8 of the Constitution stipulates that the President appoints (and *de facto* can dismiss) the Prime Minister, who is accountable before the *Assemblée Nationale*, i.e. the legislative branch⁴. The President is only accountable to voters, and has the power to dissolve the National Assembly, resulting in an early call of legislative elections.

The French Parliament is known as a 'weak legislature', dominated by the government Huber (1996), Elgie et al. (2013). To avoid the instability of the IVth Republic, deputies are elected in a two-round majority system that limits the number of parties composing the National Assembly. This also prevents the creation of momentaneous and unstable coalitions between antagonist parties that may force the government to resign. Even when a single party obtains the majority of the seats (which is a common set up), a coalition is formed with the traditional allies of this party. For instance, historically, the successive center-right parties have always supported right-party governments. As an evidence of this coalition stability, since 1958, only the first Pompidou government has been brought down by a motion of censure⁵. In this respect, the President's power to dissolve the National Assembly is also an important dissuasive factor. Finally, the opposition does not have important institutional tools to contest the government policy (Ponthoreau, 2004).

The French executive branch is a quite powerful one. Using a 'veto players' approach, Tsebelis (1999) shows that the French government benefits of the most important leeway to pursue its policy. According to the statistics provided by the National Assembly website (www.assemblee-nationale.fr), more than 90% of the passed bills are proposed by the government, showing that the government controls the legislative

⁴The *Sénat*, which is the second chamber, is not taken into account in the present analysis, as the Constitution gives the final word to the National Assembly in case of disagreement (see Tsebelis (1999) for instance)

⁵The conflict within the majority concerned the project to adopt the universal direct suffrage for the election of the President.

outcomes. Moreover, the government holds an important agenda setting power, which allows it to control the timing of the legislative process, as well as the agenda setting of the Parliament (Mathieu and Verpeaux, 2004). This feature makes the French context perfectly in accordance with the theoretical framework of Padovano and Petrarca (2013).

The Constitution does not *de jure* establish a hierarchical link between the President and the Prime Minister. Positively, the Prime Minister is under the authority of the President. In three occasions, however, the President has faced a Prime Minister from a party opposite to his own; this is the so-called *cohabitation*. Such a situation mainly arises due to a difference of length between the presidential mandate (7 years until 2002, 5 years thereafter) and the deputies' mandate (5 years). The lack of synchronicity between the two elections creates the possibility that legislative elections be won by a party opposite to that of the incumbent President, especially because the legislative elections were then considered as 'mid-term' elections (Gschwend and Leuffen, 2005). If his party loses the legislative elections, the President must select a Prime Minister of the winning party, who will form a government benefitting of a supporting majority in the National Assembly. The Prime Minister thus becomes *de facto* the head of the executive. On the other hand, when a newly elected President faces a hostile National Assembly, the tradition is to dissolve the chamber in order to get a new legislative majority.

The *cohabitation* theoretically imposes limits to the government activity, and thus can be thought as a form of divided government (Lewis-Beck, 1997, Tsebelis, 1999). To minimize these limits, a political party needs to win both elections. This suggests that a dual cycle may emerge, one coinciding with the presidential elections, the other with the legislative one.

2.3.2 The legislative process

The Constitution explicitly defines the domains of competence of the Parliament and of the government in matter of legislation. Article 34 delimitates the various matters

in which the Parliament can produce laws, while Article 37 states that the government has the prerogative to produce decrees concerning all other matters. The President and the Prime Minister are granted with the power to produce decrees. This power can be delegated to the minister concerned with the decree. Concerning the production of law, the initiative belongs to the Prime Minister and the Parliament (Article 39). If a bill is proposed by the government, it is denoted *projet de loi* (project of law). Their elaboration is entrusted to one or several ministers under the control of the Prime Minister or the President. After being validated by the *Conseil des Ministres* (Council of Ministers), a project of law is introduced in the *Assemblée Nationale* or in the *Sénat*. A bill originating from a member of the Parliament is denoted *proposition de loi* (proposition of law), and is filed in the Chamber of membership of the author. Depending on the year, from 75 to 90% of the effective production of law are originating from the government.

Both *propositions* and *projets* are then submitted to the relevant committee (which respects the political proportion of the Chamber) for a preliminary study. Three outcomes are possible: the text is accepted, amended then accepted, or rejected. If accepted, the bill must be written down on the agenda for a discussion in the Chamber. Interestingly, the agenda is determined by the *Conférence des Présidents* (Conference of Presidents, Article 48), which is a council handled by the government (Mathieu and Verpeaux, 2004). The government has *de facto* the control of the timing of the legislative process, which is an assumption underpinning the PLC theory.

Once accepted by the committee and written down on the agenda, the next step is a general discussion of the bill in the initial Chamber. Each article is discussed and submitted to the vote of the members of the Chamber, as well as the amendments referring to this article. The amended text is then sent to the second Chamber for another discussion. If the second Chamber validates the text without the slightest change, the bill is adopted and transmitted to the President of the Republic for its promulgation. If some points are subject to revision, the concerned articles are sent back to the initial Chamber for a further discussion.

These travels between the two Chambers is virtually endless. In case of conflict between the two Chambers, the government can implement a ‘fast track’ procedure. It consists in the creation of a *Commission Mixte Paritaire*, a joint committee composed of 7 deputies and 7 senators. Their role is to find a final agreement (Article 45-C). If no agreement is reached after this special committee, the government can give the ‘last word’ to the National Assembly (Article 45), which *de facto* supports the government. The government consequently controls the legislative outcome (Mathieu and Verpeaux, 2004). Article 44 and 49-3 grant the government with additional tools. The former consists in an ‘all or nothing’ vote, aiming at speeding the legislative process. The latter has a similar aim, but links government responsibility to the outcome of the vote. In case of rejection, the government is dismissed. This is unlikely to happen, since the National Assembly supports the policy of the government (Mathieu and Verpeaux, 2004). On average, 95% of the bills initiated by the government are converted into laws (Magni-Berton, 2008).

The theoretical model of Padovano and Petrarca (2013) supposes that the government can freely choose among the legislative tools, i.e., laws and decrees. Yet, Articles 34 and 37 dissociate what is a concern of law to what is a concern of decrees. Theoretically, the nature of the topic constrains the choice between a law and a decree. But in practice, such a separation between the field of laws and decrees is tenuous. The respect of the respective prerogatives relies on the Parliament and the government altogether. If the Parliament reckons that a decree overlaps their prerogatives, Article 61 confers the possibility to go to the Constitutional Court in order to cancel the illegitimate decree. Similarly, the government can refer to Article 41 to reject a law on the ground of its inadmissibility. The jurisprudence supports a flexible separation at the discretion of the government, adjusting the reading of the Constitution to the political context (Maus, 1984). As an illustration, in 1982 the government of Pierre Mauroy decided to impose a wage freeze to limit inflation. At the light of the unpopularity of such a decision, the government strategically used a law to share the responsibility with the Parliament, while the Constitution suggested that it relied on the domain of decrees. A growing number of laws pertains to the rule (Mathieu and Verpeaux, 2004).

Finally, it is interesting to note that the legislative production is especially likely to be strategically manipulated in France. As stated by the great constitutionalist Guy Carcassonne, ‘any topic of the TV news is virtually a law’ (Carcassonne, 2005). He explains that the potential impact of a bill in the media is an important driver of the decision to undertake or not a legislative work. This phenomenon is likely to be enhanced in pre-electoral period, the government having more incentives to signal its competence and its capacity to provide answers to citizens’ concerns during this period, creating a cycle of the legislative production as described in Padovano and Petrarca (2013). This mechanism potentially works for both the legislative and the presidential elections. As legislative agenda-setter, the government should always implement this strategy, whether the situation is a *cohabitation* or not. Before legislative elections, the government should always signal its competence to facilitate the reelection of deputies of the majority supporting it. The same should apply before presidential elections, independently of the presidential context. In a normal situation, when the government and the President belong to the same party, they both are associated and the President take credit for the legislative action. In case of *cohabitation*, the government still has incentives to signal itself in order to maximize the probability for the party to win the election. In this odd political context, the government is effectively the head of the executive, and is recognized as such by voters. Interestingly, the three different Prime Ministers of *cohabitation* periods were themselves candidates for the presidential elections (Jacques Chirac in 1988, Edouard Balladur in 1995 and Lionel Jospin in 2002).

2.4 The legislative production

Our analysis exploits a newly assembled dataset, specifically built for the purpose of this analysis. A detailed description of the database is available in the Data Appendix 2. It covers the period from the first effective month of parliamentary activity of the Vth Republic, namely in January 1959, to the end of the XIIIth legislature, in March 2012. The frequency of the data is monthly, which results in a total of 639 observations.

This ensures 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 dissolutions occurred on five occasions, making the length of a legislature to vary 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 fails to be held at the expected time, since the government cannot change its legislative strategy before unanticipated elections. The heterogeneity of contexts, combined with the characteristics and the stability of the institutions, provides an ideal case for empirically testing the PLC.

Directly derived from the [Padovano and Petrarca \(2013\)](#) theoretical model, we aim to test two main hypotheses:

Hypothesis 1: ceteris paribus, the production of laws reaches a low point in the first months after the appointment of a new government and attains a peak in the last months of a legislature when the legislative elections are held at the expected time.

The second hypothesis makes use of a special feature of the semipresidential system of France. As expressed above, the political life is cadenced by two national elections, the legislative and the presidential ones. Consequently, a second cycle should emerge in the production of laws, associated with the presidential elections:

Hypothesis 2: ceteris paribus, the production of laws reaches a low point in the first months after presidential elections and reaches a peak in the last months of a presidency when presidential elections are held at the expected time.

For each month, the total number of legislative acts that require a vote in the *Assemblée Nationale*, namely laws and *ordonnances*, is reported in Figure 2. An *ordonnance* 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*

FIGURE 2.1: Chronology of the Vth Republic

President	Pompidou				Giscard d'Estaing																					
Legislature	2nd		3rd	4th	5th																					
Government	Debré		Pompidou 3	Pompidou 2	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																										
6th	7th		8th		9th		10th		Chirac																	
Barre 3		Maurroy 1		Maurroy 2		Maurroy 3		Fabius		Chirac 2		Rocard 1		Rocard 2		Cresson		Bérégovoy		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		Fillon 3																				
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											

Nationale. Figure 2 depicts the monthly legislative production for the full sample; the vertical lines represent the legislative and the presidential elections. The pattern of production is highly volatile, ranging from 0 to 90 laws per month. The maximum production in a month occurred in the very first month of the Vth Republic, January 1959. All these laws were actually *ordonnances*, as the context imposed the promulgation in emergency of specific legislations. A slight change of rhythm of the legislative production takes place in 1995, when the parliamentary schedule shifted from two ordinary sessions per year (from October to December and from April to June) to a unique ordinary session (from October to June). This implies less ‘holidays’ months during the year. Extraordinary sessions can be added to the ordinary sessions, when the political circumstances so require. Despite the name, such kind of session is quite common, as 60 extraordinary sessions have taken place between 1958 and 1995. Finally, the graph shows that the highest peaks of legislative production indeed occur towards the end of the legislatures, especially when the legislature lasts its natural length (for instance in 1967).

Several reasons lead us to consider the total number of laws as the variable of interest⁶. First, as all laws are redistributive by nature (Stigler, 1971), there is no reason to proceed to any selection of laws by ‘type’. Second, any disaggregation would require the evaluation of the analyst, inevitably involving discretion in the choice and application of the criteria, which would make the end results easily contestable. For instance, Mayhew (1991) proposed a methodology for disentangling ‘important’ from ‘minor’ laws in the US. Reassessing Mayhew’s work with a different methodology, Kelly (1993) obtains opposite conclusions. And last, as suggested by Rogers (2005), rejecting all the individually ‘insignificant’ legislation is not satisfactory, as such laws can turn out to have a significant impact when aggregated. Rejecting them as a whole would therefore be spurious. Furthermore, this paper limits the analysis to the cycle of approved *voted* legislation. Decrees are excluded from the sample because data about them are problematic. The point is that there are two types of decrees in France: ‘stand-alone decrees’

⁶ Transposition of European directives are however not taken into account as their approval is purely mechanical.

and ‘application decrees’. The latter 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, especially of the application type, thus opening the way to potentially misleading results. We thus focus exclusively on the production of voted legislation.

FIGURE 2.2: Monthly production of laws

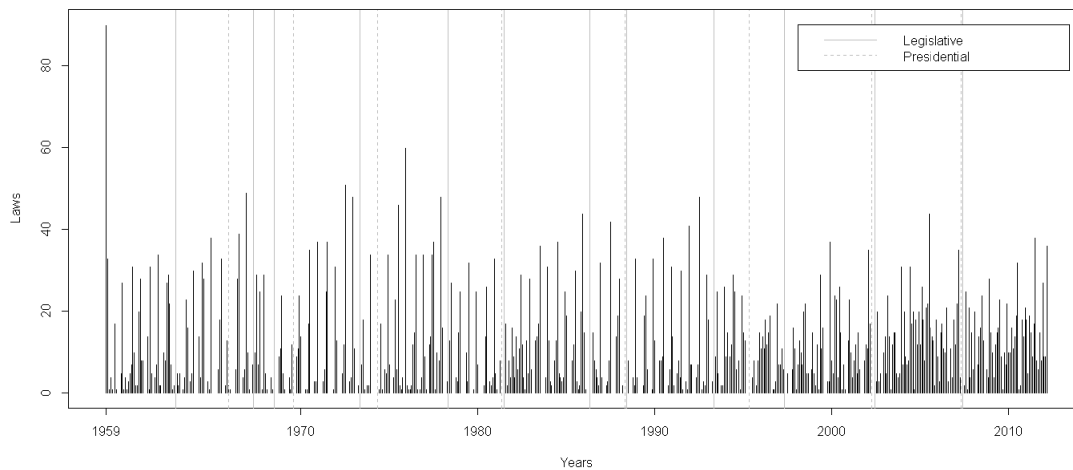


Figure 3 shows the production of laws per government according to the elapsed time since its appointment. ‘P’ and ‘L’ indicate respectively presidential and legislative elections held at the end of the government, when expected. Even if 34 governments have been officially in power over the sample, only 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 and with the same people after the legislative election. Although officially these are reported as two distinct governments, we consider them as just one. The line on each square represents a simple regression of the total number of laws on the months elapsed since appointment

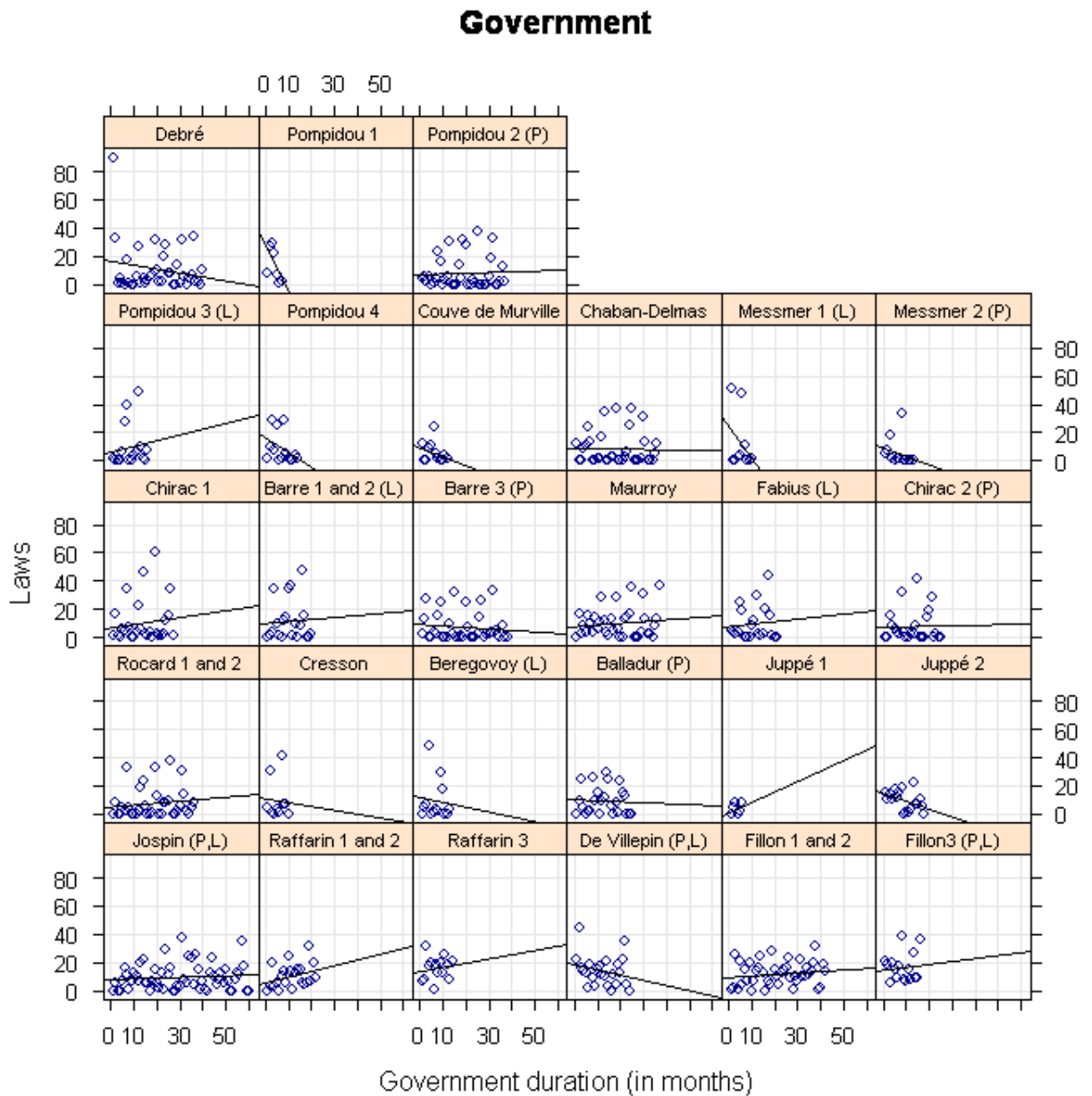
of the government. The PLC theory suggests that we should observe a peak of legislative production in the period before a planned election. Considering both legislative and presidential elections, such a situation occurs 12 times (government Pompidou 2, Pompidou 3, Messmer 1, Barre 2, Barre 3, Fabius, Chirac 2, Bérégovoy, 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 that feature a negative relationship, namely the Messmer 1, the Bérégovoy and the De Villepin governments. These three governments are indeed peculiar. The Messmer 1 government lasted only a few months between July 1972 and March 1973. The Bérégovoy government, in place between April 1992 and March 1993, was not supported by an absolute majority in the National Assembly. The last one is the De Villepin government, which lasted two years between 2005 and 2007. During this period, an overwhelming movement of popular protest opposed a proposed labor market reform, effectively paralyzing the entire activity of the government; eventually, internal squabbles between the prime minister (and future President) Nicolas Sarkozy, then Minister of the Interior, reinforced the stalemate (Chevallier et al., 2012). All in all, however, neither descriptive statistics nor simple univariate regressions are enough to reveal in a clear-cut way whether the French legislative production is sensitive to electoral concerns. A test of the full PLC theory is required.

2.5 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.

As for the first subset of covariates, the PLC theory predicts a low point of legislative production during the first months of activity of a government, and a peak of activity in the months preceding the elections, provided that the election time is known in advance. We use two dummies to check for this conditions: first, *STARTGOV* takes the value of 1 for the first months of a new government and 0 otherwise. A negative sign is

FIGURE 2.3: Legislative production per government



expected, as each government is expected to focus on the production of decrees to the detriment of voted legislation during this period. To capture the impact of legislative elections on the legislative strategy of the government, the variable *ENDLEGISL* is

TABLE 2.1: 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
EXPPARL	639	5.806	5.964	2.20	9.51
EXPMIN	639	29.21	28.03	1	58.48
EXPPREMIN	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
HOLIDAY	639	0.323	0	0	1
COHAB	639	0.175	0	0	1

introduced. This variable indicates the last months of a legislature, when the end is known in advance. The natural end of the legislature, together with the natural end of the presidential mandate, represents the time horizon of the government. A dismissal of the government during the legislature is assumed to be unexpected and thus it is not taken into account, as the theory suggests. As a generality test, two time alternative lengths are successively considered for *STARTGOV* and *ENDLEGISL*: 6 and 12 months. Two more variables are introduced in the model to check whether the semipresidential nature of the French institutions generates a dual cycle: *STARTPRES* is a dummy variable that captures the effect of the first months of a newly elected President; *ENDPRES* takes into account the effect linked to the end of a presidential mandate, when the end of the mandate is at the natural limit. The end of the presidential mandate, just like the end of the legislature, imposes to the standing government to resign. If a dual cycle exists, the presidential cycle should affect the production of laws in the same way as the standard parliamentary legislative cycle.

The set of control variables proxies for phenomena that may have an impact on legislative production. Table 2 summarizes the expected sign for each covariate. Two are derived from the war of attrition literature (Alesina and Drazen, 1991). *HT* measures the homogeneity of the governing coalition relative to that of the opposition (Lagona and Padovano, 2008), computed as $HT_t = HG_t \times (1 - HO_t)$, where $HG_t = \frac{\sum_{g=1}^G f_{gt}^2}{\sum_{g=1}^G f_{gt}}$ and $HO_t = \frac{\sum_{o=1}^O f_{ot}^2}{\sum_{o=1}^O f_{ot}}$. f_{gt} and f_{ot} are the relative frequencies of the number of the seats respectively held by the governing and opposition coalition in the *Assemblée Nationale* at time t . The *HT* index ranges from 0 to 1. A value close to 1 indicates a situation where a highly homogeneous governing coalition faces an extremely fragmented opposition. In this case the government is supposed to have more leeway to manipulate legislative outcomes. The *HT* is therefore expected to be positively correlated with the production of legislation, as it indicates a level of political competition favouring the government. The second variable of this category is *NMIN*, the number of ministers that composes the government⁷. A larger number of ministers is more likely to imply an increase of legislative production, as each minister presumably aims at signaling his/her competence by fostering legislative initiatives.

Other controls are suggested by the ‘quality of politicians’ literature (Besley, 2005, Galasso and Nannicini, 2011), as explained in the previous chapter. The experience of the government is proxied 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 various features of the legislative process, which should make the approval of laws easier. The parliamentary experience also implies the personal successes of government members in electoral contests, and so a better valence, since elections play the role of filters of competence as we shall see in the next chapter. *EXPPREMIN* 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. It is also interesting to verify whether

⁷ ‘Ministers’ refer here to all their different types existing in French politics: ‘ministre d’État’, ‘ministre’, ‘ministre délégué’ and ‘secrétaire d’État’, as all are registered in the composition of the government promulgated by the President.

the influence of a single individual is correlated with the legislative output, as all the other personal characteristic variables are aggregated at the government level. In line with the two previous variables, we expect a positive impact of *EXPPREMIN* on the production of laws. The fourth experience variable is *MEANAGE*, which represents the average age of the members of the government. The impact of this variable is ambiguous. On the one hand, age can be interpreted as an overall proxy for experience; 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 decreases over the years while the attachment to the status quo possibly increases. *MEANAGE* and *EXPARL* 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 *École Nationale d'Administration*. The omnipresence of the in the highest levels of the public administration led to the creation of the neologism *énarchie* applied to French politics. 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 the legislative production. To this end we introduce the covariate *GDP*, which is the lagged quarterly GDP growth rate. A high GDP growth rate, synonym of good economic conditions, is expected to reduce the pressure on the government to introduce reforms and therefore the necessity to legislate. Conversely, a low or negative growth rate should urge the government to find solutions, 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.

COHAB captures the effect of the *cohabitation* on the production of laws. In line with the veto-players model, the greater tensions that characterize the activity of a divided government are expected to exert a negative impact on the production of laws. An alternative interpretation is that, in this situation, the Prime Minister receives the support of the National Assembly needed to implement his/her policy while the President does not

have powerful means to oppose it⁸. If so, the *cohabitation* should not have an impact on the legislation production. Our approach thus has the merit to provide a quantitative answer to this old political science debate (see [Pierce, 1991](#) for instance). Finally, *HOLIDAY* denotes the months during which no parliamentary session was held. The expected sign is unequivocally negative.

TABLE 2.2: Expected signs

	Expected sign
LAWS	
NMIN	+
MEANAGE	+/-
ENA	+/-
EXPPARL	+
EXPMIN	+
EXPPREMIN	+
HT	+
GDP	-
Dummy variables:	
STARTGOV	-
ENDLEGISL	+
STARTPRES	-
ENDPRES	+
HOLIDAY	-
COHAB	-

⁸ To this respect, the most famous example of technical presidential opposition to the government policy occurred in 1986, when President Mitterrand (left wing) refused to sign three *ordonnances* supported by the Prime Minister Chirac (right wing), making use of a point of the Constitution for which the interpretation is still controversial in the political science and legal literatures.

2.6 Empirical analysis

2.6.1 The hierarchical Poisson model

The empirical model needs to take into account a specific issue: the outcome variable of interest is a count of events. The legislative production has a lower bound at zero and accepts only integers. To tackle the non-normal nature of the response, we use a model specifically dedicated to count data: a hierarchical Poisson model. We introduce first the standard Poisson model and then move on to the extension that we implement.

The standard Poisson model is of the class of the Generalized Linear Models (GLM, McCullagh and Nelder, 1989). This class of models, also encompassing standard linear and logistic models for instance, extends the linear modelling framework to endogenous variables that are not normally distributed. More specifically, a GLM model is made up of three elements: a linear predictor and two functions (a link function and a variance function). First, the linear predictor takes the form:

$$\eta_i = \beta_0 + \beta_1 x_{1i} + \dots + \beta_p x_{pi}, \quad (2.1)$$

where x_{ji} denotes the explanatory variable j for observation i , with $j = 1, \dots, p$ and $i = 1, \dots, n$. Second, the link function describes the relationship between the conditional expected value of the response variable Y_i (i.e., $E[Y_i|\eta_i] = \mu_i$) to the linear predictor:

$$g(\mu_i) = \eta_i. \quad (2.2)$$

Third, the last element is a variance function describes how the variance $Var(Y_i)$ depends on the mean:

$$Var(Y_i) = \phi V(\mu_i), \quad (2.3)$$

where ϕ is a constant dispersion parameter. For instance, in the case of a simple linear model for which $\epsilon \sim N(0, \sigma^2)$, the linear predictor is $\eta_i = \beta_0 + \beta_1 x_{1i} + \dots + \beta_p x_{pi}$, the link function is $g(\mu_i) = \mu_i$, the variance function is $V(\mu_i) = 1$ and is $\phi = \sigma^2$. The main problem with this specification in our case is that the range of Y , i.e. the number of approved legislation, is restricted. The situation here is comparable to the estimation of a model with a binary outcome with a linear probability model instead, say, a logit model (which is also a GLM with the logistic function as link function). To overcome this issue, we assume that the endogenous variable follows a Poisson distribution with parameter λ :

$$Y_i \sim \text{Poisson}(\lambda_i) \quad (2.4)$$

$$\text{with } Pr(Y_i|\lambda) = \frac{e^{-\lambda}\lambda^{Y_i}}{Y_i!}, \quad Y_i = 0, 1, 2, \dots \text{ for } \lambda > 0.$$

The mean and the variance can be shown to be:

$$\mu_i = E[Y_i|x_i] = \lambda_i \quad \text{Var}(Y_i) = \lambda_i. \quad (2.5)$$

So the variance function is $V(\mu_i) = \lambda_i$ and $\phi = 1$. The link function should map from $(0, \infty)$ to $(-\infty, \infty)$, as λ has to be non-negative. The most ‘popular’ choice is ([Gelman and Hill, 2006](#)):

$$g(\mu_i) = \log(\eta_i) \text{ or equivalently } \mu_i = \exp(\eta_i). \quad (2.6)$$

It means that in the Poisson model the link function is simply the logarithm. With this construction, η rather than μ obeys to the linear model. This construction ensures that μ_i is always positive, whereas the standard linear model, which assumes $\eta_i = \sum \beta_j x_{ji}$, can become negative for some parameter combinations and covariate combinations ([McCullagh and Nelder, 1989](#)). Finally, [Wooldridge \(2010\)](#) explains that the

linear model becomes a sufficiently close to the Poisson model if the mean of the response variable is above 30. As we can see in Table 2.1, the mean of the legislative output is below 10, reinforcing the need to take into account the count data nature of the endogenous variable.

To model the legislative production process, a second issue to take into account is that the consideration of only the control variables described above may not yield satisfying results, as the political game obeys to rules that these variables cannot capture. The political context is likely to influence the expected outcome of the legislative production. As a result, the number of legislative acts over a specific month is not statistically independent from the number of acts voted in the preceding and following months. This conflicts the assumption of independence across observations assumed by a standard Poisson model (and by a standard linear model too). For instance, the legislative production is likely to depend on the legislative strategy of a specific government, violating the independence assumption.

A model with a hierarchical structure can help to deal with this dependence. Such a latent structure implies that each hierarchical level is a potential source of unexplained heterogeneity. The hierarchical Poisson models is a member of the family of the Generalized Linear Mixed Models (GLMM). GLMM models consist in incorporating random effects into the linear predictor of a GLM, allowing to model correlated data within the context of GLM (McCulloch and Neuhaus, 203). If the random effects are nested, the model is said to be hierarchical. Four hierarchical levels are initially considered:

$$\textit{Months} \subset \textit{Governments} \subset \textit{Legislatures} \subset \textit{Presidency}.$$

The legislative production count for months t is thus written y_{tglp} , denoting government g , legislature l and presidency p , with $t = 1 \dots T_{glp}$, $g = 1 \dots G_{lp}$ and $p = 1 \dots P$. In our case, the set of random effects are nested within each other, justifying the name of ‘hierarchical’ Poisson model.

The Poisson distribution moreover implies that the mean is equal to the variance (so $\lambda = \mu = Var$), which is a restrictive assumption often violated [Winkelmann \(2008\)](#). In the case of underdispersion ($\mu > Var$) or overdispersion ($\mu < Var$), the variance matrix is not estimated correctly, resulting in biased standard errors (but the parameters are correctly estimated). The introduction of random effects helps to deal with this issue by introducing additional variation in the model beyond what would be predicted from the Poisson distribution alone ([Gelman and Hill, 2006](#)). In our case, 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. Hence, the model allows for different legislative strategies randomly varying across governments, considering, at the same time, the situation of the present legislature and the personal effect of the President of the Republic on the production of laws. This modeling structure allows to represent the political context in which the legislature is enacted in the most comprehensive possible way. The model can be written as:

$$Y_{tglp} | \lambda_{tglp} \sim Poisson(\lambda_{tglp}) \quad (2.7)$$

with canonical parameter $\lambda_{tglp} = E[Y_{tglp} | x_{tglp}, \theta_{glp}, \delta_{lp}, \kappa_p]$ modeled as follows:

$$\log(\lambda_{tglp}) = \beta X_{tglp} + \theta_{glp} + \delta_{lp} + \kappa_p \quad (2.8)$$

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

X_{tglp} is the set of covariates, θ_{glp} stands for the government random effects, δ_{lp} represents the legislature effects and κ_p denotes the President effects. To illustrate the mechanics 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 with respect to the previous government, led by Raffarin. This departure is specific to the government, as both governments were in power under the same legislature and the 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 three different sources: the specific characteristics of the government, the characteristics of the newly elected legislature and those of the President.

TABLE 2.3: Anova tests for hierarchical levels

Hierarchical levels	AIC	logLik	Anova (Pr(> Chisq))
Legislature	6754.0	-3361	-
Government, Legislature	6740.1	-3353	6.499e-05 ***
President, Government, Legislature	6742.1	-3353	0.9997

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

To assess the specification of the model, a series of caterpillar plots are provided in Figures 4a-4c. For each group, say, each government, the plot shows the deviation of the mean predicted outcome for the months within this government (blue point) from the (centered) mean predicted outcome for the entire sample. 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 with respect to the legislation and the government: the 95% confidence zone does not encompass 0 (i.e., the expected outcome for this group is not significantly different from the expected outcome for the whole sample) for most of the legislatures and governments. This confirms that these two levels actually affect the legislative production. The President level, on the other hand, does not seem to be relevant, as the prediction interval is never significantly different from 0. A battery of Anova tests confirms this observation (see Table 3). In a first step, a model with only the legislature as hierarchical level is compared to the same model with both the legislature and the government as grouping factors. The introduction of the second hierarchical level significantly improves the model (p -value <0.1). In a second step, the model with the two hierarchical levels is compared to the model with the presidential level as a third grouping factor. The Anova test rejects the relevance of the presidential level (p -value=0.9), as Figure 4c already suggested. This result confirms the view that the President sets the general course of the government action,

namely what policies are to be implemented; it is then to the prime minister to choose the strategy to implement the policies chosen by the President (Mathieu and Verpeaux, 2004). In other words, when to pass a given legislation through the National Assembly is, by and large, a decision of the government.

2.6.2 Regression results

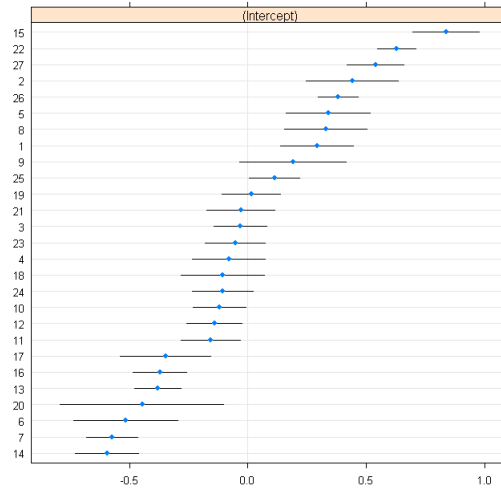
The previous subsection suggests the adoption of a model specified as follows:

$$\begin{aligned} \log(\lambda_{tgl}) = & \beta_0 + \beta_1 \text{ENDLEGISL}_{tgl} + \beta_2 \text{STARTGOV}_{tgl} + \beta_3 \text{ENDPRES}_{tgl} \\ & + \beta_4 \text{STARTPRES}_{tgl} + \beta_5 \text{HT}_{tgl} + \beta_6 \text{NMIN}_{tgl} + \beta_7 \text{GDP}_{tgl} + \beta_8 \text{COHAB}_{tgl} \\ & + \beta_9 \text{HOLIDAY}_{tgl} + \beta_{10} \text{MEANAGE}_{tgl} + \beta_{11} \text{EXPPARL}_{tgl} \\ & + \beta_{12} \text{EXPMIN}_{tgl} + \beta_{13} \text{EXPPREMIN}_{tgl} + \beta_{14} \text{ENA}_{tgl} + \theta_{gl} + \delta_l \quad (2.9) \end{aligned}$$

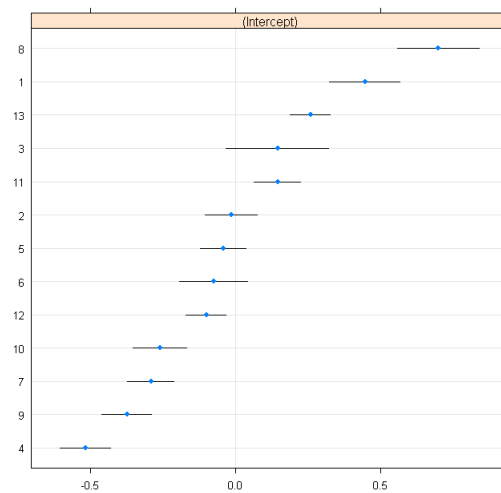
Estimation results are reported in Table 4 through Restricted Maximum Likelihood (REML). The standard maximum likelihood estimator is known to be biased in the GLMM context, and the REML helps to reduce the bias (Pinheiro and Bates, 2000). Data series reporting the quarterly GDP growth rate are available only since April 1960. The 8 months lag determines a starting point for the analysis on December 1960, which limits the total number of counts to 616 periods. We estimate four successive models, using alternative measures of the PLC variables. The specificities of the presidential and legislative elections might result in the adoption of legislative strategies of different duration to maximize the reelection probability⁹. Model 1 sets the length of the dummies *STARTGOV*, *ENDLEGISL*, *ENDPRES* and *STARTPRES* to 6 months. The estimated coefficients show the expected sign for those four variables: there is indeed a peak of legislative production before both presidential and legislative elections, associated with a legislative gap at the beginning of a presidency and during the first months after the appointment of a new government. *STARTGOV* is however not significant. Model 2 increases the length of the cycle following legislative elections up to 12 months,

⁹In the specific case of *cohabitation*, the government seeks 'election' at the presidential election, since the president is from the opposite political wing.

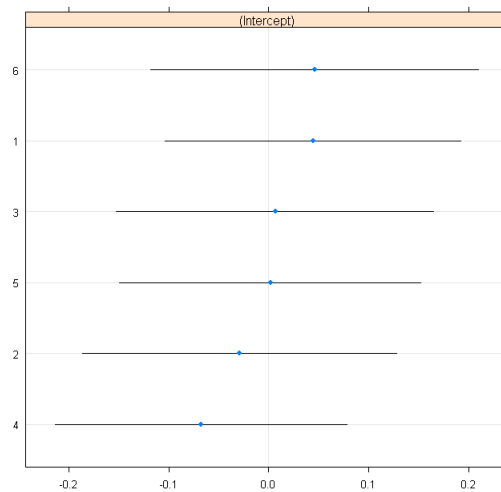
FIGURE 2.4: Caterpillar Plots



(a) Government level



(b) Legislature level



(c) President level

while keeping *ENDPRES* and *STARTPRES* to 6 months. As in Model 1, the sign of the four PLC variables is as expected and significant. This strongly confirms our two empirical hypotheses, namely that a dual cycle is generated according to both the presidential and the legislative elections. Model 2 is also the one that performs best according to information criteria (AIC=6740). 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. Model 3 gives results in the same vein, setting up *STARTGOV* and *ENDLEGISL* to 6 months and *ENDPRES* and *STARTPRES* to 12 months. Again, the sign are the expected ones. The positive impact of the last months of a presidency on the legislative outcome is however not significantly different from 0. By contrast with the results of Model 2, this suggests that the one driven by the presidential elections is shorter than the length of the cycle generated by the legislative elections. Finally, Model 4 sets up *STARTGOV*, *ENDLEGISL*, *ENDPRES* and *STARTPRES* to 12 months. None of the PLC variables dedicated to the presidential elections are significant, while *STARTGOV* and *ENDLEGISL* behave as in the previous models. Comparing the results of the four models therefore suggests that the legislative PLC is longer and greater than the presidential one.

As for the control variables, *HT* shows the expected positive sign. The production of laws is easier when a more homogenous government faces a more fragmented opposition¹⁰. Also, the number of ministers shows a significant positive impact on the production of laws, suggesting the presence of a signaling game also among the government members. Logically, there is a strong negative impact of holidays on the number

¹⁰Alternatively, we used a simple Herfindahl index representing the homogeneity of the cabinet: a higher homogeneity leads to a significantly higher legislative output. All the other results remain basically unchanged under this alternative specification, and are available upon request.

TABLE 2.4: Main regression results

	Model 1	Model 2	Model 3	Model 4
ENDLEGISL	0.162 (0.058)***	0.159 (0.003)**	0.189 (0.056)***	0.208 (0.057)***
STARTGOV	-0.043 (0.041)	-0.082 (0.040)*	-0.149 (0.040)***	-0.074 (0.046)
ENDPRES	0.099 (0.060).	0.122 (0.057)*	0.021 (0.054)	-0.043 (0.057)
STARTPRES	-0.609 (0.074)***	-0.618 (0.070)***	-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)***
HOLIDAY	-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)
EXPREMIN	-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

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

of approved bills¹¹. The lagged GDP growth rate has a negative impact on the legislative output too. This suggests that during economic crises, when the GDP growth rate is low, the government feels obliged to introduce reforms and thus it legislates more. The *cohabitation* does not seem to have a real significant impact on the legislative production, even though the sign of the estimate is negative as expected. One might however think that because of the short duration of these periods (respectively March 1986-May 1988, March 1993-May 1995 and June 1997-April 2002), the PLC variables capture the explanatory power of *COHAB*. To check whether it is the case, we run the same model as above but removing the PLC variables. Results are provided in Table ???. Even with this specification, *COHAB* remains insignificant, reinforcing the result. Such a result is also consistent with the fact that the introduction of a presidential level in the hierarchical model is not relevant. It lends empirical support to the idea that only the government is in charge of the ‘legislative strategy’, namely, of the choice of when to propose and to approve a law, which is directly relevant for the PLC.

TABLE 2.5: Cohabitation robustness check

	Estimate	Std. Error	z-value	Pr(> z)
Cohab	0.232	0.250	0.927	0.353
Controls	YES			
Gov level	YES			
Legislature level	YES			
N. OBS	616			

A government composed of older ministers tends to produce fewer laws, suggesting that old age is correlated with reduced legislative activism. A high number of *énarques* in the government is associated with a lower production of laws. Two possible explanations can be proposed. First, their high competence makes them more efficient in the policy making process, 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

¹¹The expected number of laws during off months is not zero, due to the structure of the data. The counts of laws report the bills officially promulgated. Between the vote and the president’s signature, there can be a short delay (usually less than two weeks), which explains why in a very few cases some laws are approved while there is no parliamentary session.

are simply not extraordinarily competent¹². Ministerial experience is associated with a higher legislative outcome: a government composed of ministers accustomed to hold such positions tend to produce more laws. At the same time, the effect of ministerial experience is different (negative) at the prime minister level. A possible explanation is that cabinet ministers are more directly involved in making legislation pass through parliament than the prime minister. The prime minister in turn may use his/her experience as a way to be more efficient in the overall policy implementation, resulting in a lower amount of laws needed to satisfy voters. The coefficients for *EXPMIN* and *EXPREMIN* are however very close to 0.

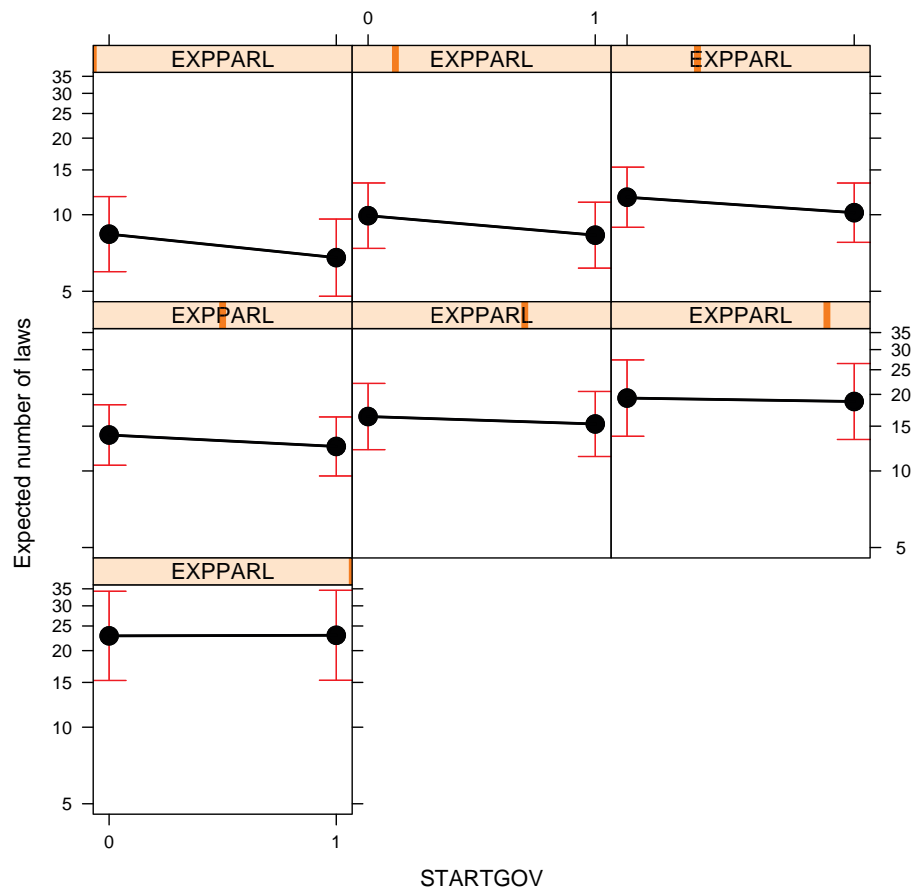
2.6.3 Experience and cycles

The overall parliamentary experience of the government members seems to play a strong effect on the legislative production. A possible explanation is that parliamentary experience gives a better knowledge of the cogs of the legislative branch, which facilitates the legislative production. To investigate this point more in details, we run Model 2 this time including interaction terms between the four PLC variables and *EXPPARL*. Results are displayed through a set of four figures plotting the expected legislative outcomes when the PLC variable is equal to 0 and to 1 for different levels of *EXPPARL*, setting all the other covariates at their median value. The level of *EXPPARL* increases over the different quadrants, from its minimum value (2.20 years) to its maximum (9.51), and it is indicated by the orange sign on the *EXPPARL* space.

Figure 2.5 shows a very interesting result: the gap of legislative production at the beginning of a new government decreases as the overall experience of the ministers is important. For highly experienced government, there is even no difference at all in the legislative production between the very first months and the rest of their tenure. This

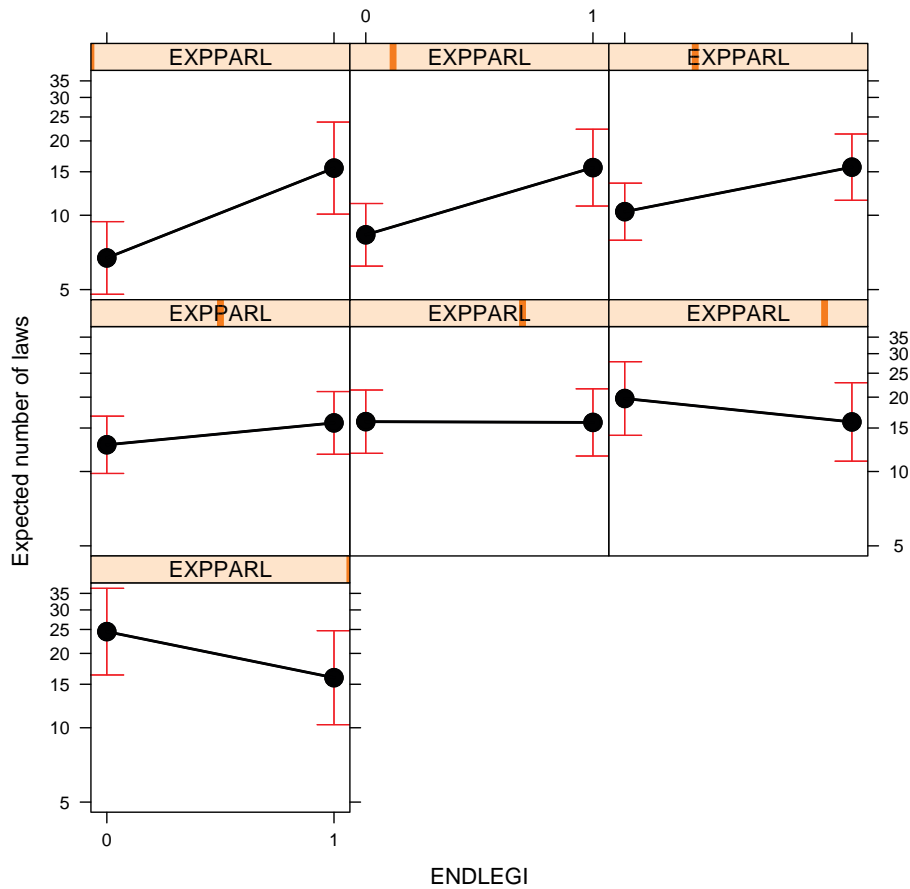
¹²Bertrand et al. (2006) show that having an *énarque* as the CEOs of private companies is correlated with a lower performance of a company.

FIGURE 2.5: STARTGOV*EXPPARL interaction



can be driven by two mechanisms. First, there can be learning process for unexperienced governments. Understanding the details of the legislation process, the differences between the *de facto* and the *de jure*, requires some time. Second, the PLC theoretical models are signaling games. According to them, the decrease of legislative production during the first months of the government is due to the need for the government to signal its competence to interest groups. Experienced governments are more likely to have an established reputation, hence decreasing the need for signaling. Concerning the pre-electoral period, the results shown in Figure 2.6 are also striking. They reveal a strong interaction between experience and the peak of production in the final months before

FIGURE 2.6: ENDLEGI*EXPPARL interaction



elections. Less experienced governments engage in an important increase of the legislative output. This increase is however lower and lower when the level of experience increases. For very experienced government, the effect of elections is even negative: they tend to produce less legislation before elections. We thus observe an interesting pattern: very experienced governments do not have a reduced legislative activity at the beginning of their tenure, but slow down just before the election. This feature should receive a proper investigation in future research.

For the presidential cycle, results are less surprising. Figure 2.7 shows that experience does not impact the magnitude of the post-electoral gap. Whatever the overall level of experience, there is always a lower legislative production during this period. The same appear for the period before presidential elections: the expected number of laws is higher before elections whatever the level of experience, as show in Figure 2.8.

FIGURE 2.7: STARTPRES*EXPPARL interaction

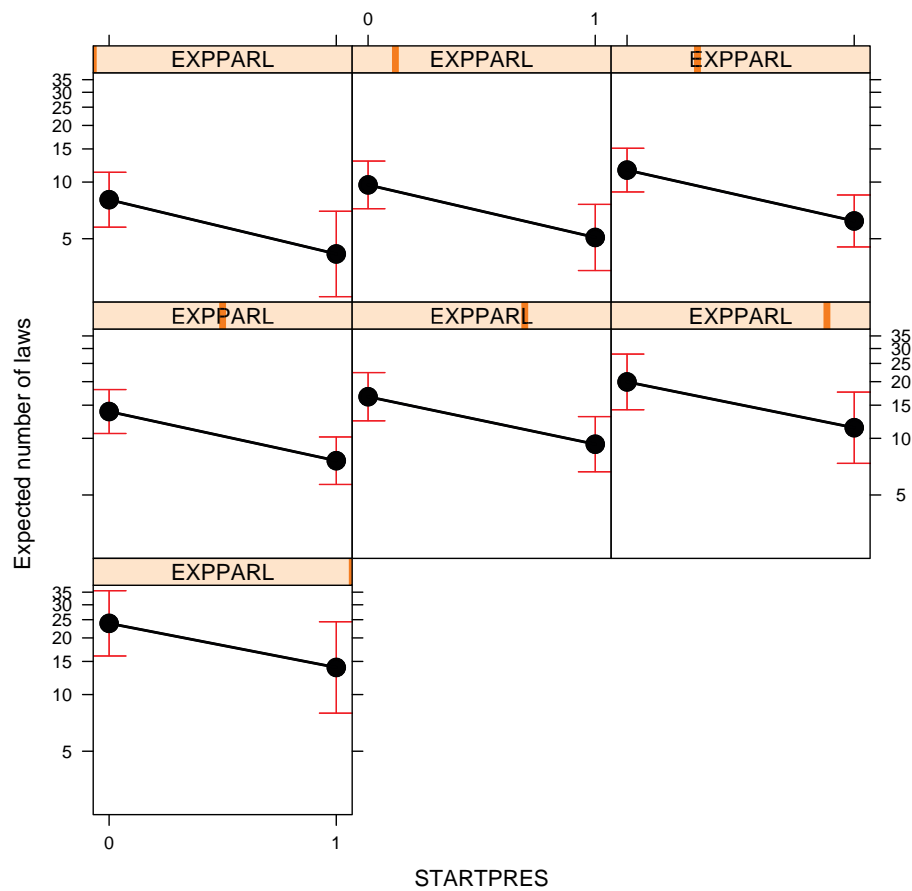
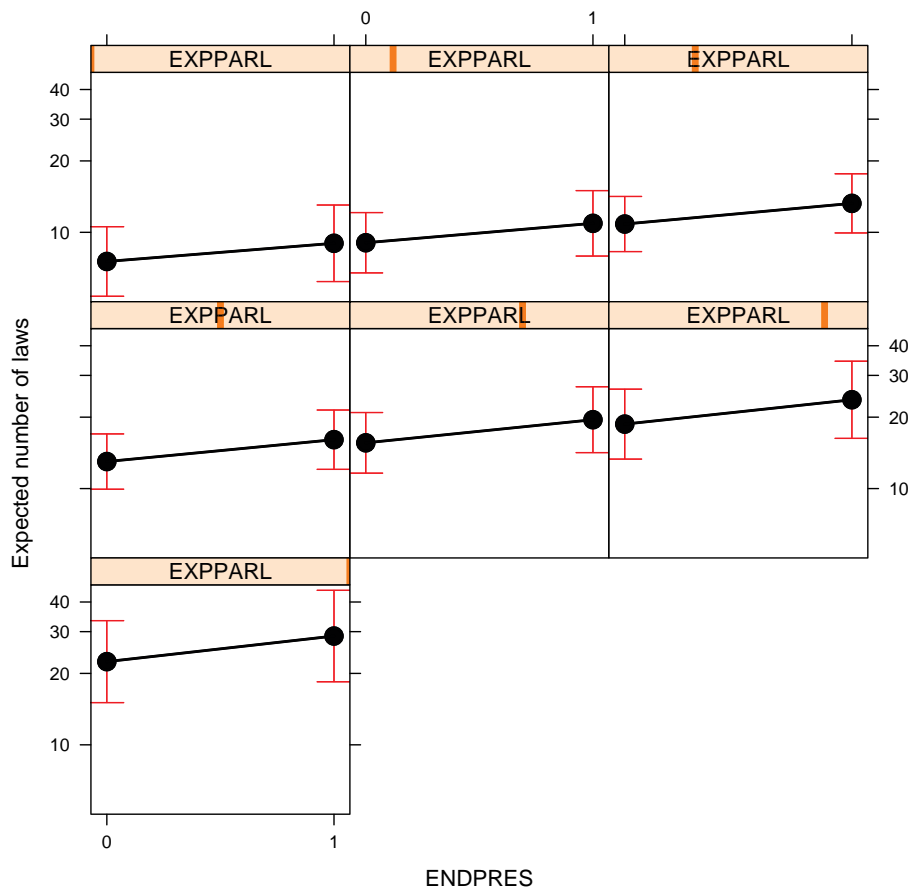


FIGURE 2.8: ENDPRES*EXPPARL interaction



2.6.4 Alternative explanations

Before concluding that these results lend further support the PLC theory, one must rule out possible problems of observational equivalency. A typical counterargument to the PLC theory is the so-called ‘rush to the end’ hypothesis, which suggests that the government may want to approve as many laws as possible before quitting power to avoid the risk that the unapproved laws decade with the end of the legislature. This would also result in a peak of legislative production, just like in the PLC theory. For the ‘rush to the end’ hypothesis to hold, the pace of the legislative process, from the proposal of the

bill to the final vote, should be quicker as the elections draw near¹³. Table 5 provides details about this duration for the XIIth and XIIIth legislatures, the only two for which data about the timeline of legislation are available. The presidential elections were held in April 2007 and April 2012, both followed by legislative elections in June. The last two years of the legislatures do not show any 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 deviations lead to the same conclusion, as they remain in the same range for all the years of the legislature. The XIIIth legislature even shows an increase of the length of the legislative process through the years, and the average delay in 2012 is equal to the average delay of 2010. All in all, the pace of legislative production remained quite constant throughout the legislature, providing no evidence of a ‘rush to the end’ and corroborates the explanation provided by the PLC theory.

In the same vein, one might think that this peak of production is driven by the fact that developing a legislative text requires time. This would provide an alternative explanation to a potential peak of legislative production before the legislative elections: the rate of approval of laws before the end of a legislature mechanically increases because the texts are only achieved in this period. But observing a peak of legislative production not only by the end of the legislature, but also before presidential elections, which may occur in the middle of the legislature, excludes this explanation.

Finally, a similar argument may explain the period of low legislative production following the appointment of a new government. After its appointment, developing law proposals takes time, resulting in a lower amount of laws being approved. *A contrario*, this argument corroborates the theoretical assumption that the government controls the timing of the legislation process. If that was not the case, the continuity of the work of the Parliament should ensure a stable legislative production that should not be impacted by the nomination of a new government.

¹³Projects of law (proposed by the government) that are not passed yet do not turn null and void as the legislatures ends, contrary to proposition of laws (proposed by deputies). There is no ‘wash-up’ period as for instance in the UK.

TABLE 2.6: Verification of the alternative explanation

	2002	2003	2004	2005	2006	2007
Laws	36	122	95	113	90	54
Average time to approve	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	9,4	6,3	8,08	7,27
	2007	2008	2009	2010	2011	2012
Laws	60	102	84	122	116	39
Average time to approve	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

2.6.5 Premature dissolution of the legislature and resignation of governments

The dissolution of the National Assembly, provoking an early call of legislative elections, is assumed to be unexpected in our analysis. This is a realistic assumption since such events are generally driven by political crises. The PLC theory predicts that a premature end of a legislature should not be associated to peaks of legislative production, as the government cannot modify the legislative strategy as elections approach (Lagona and Padovano, 2008). The same applies to governments that have resigned. We can then implement a placebo test to further assess the validity of our results. To do so, we introduce the variable *ENDGOV*, which takes the value of 1 during the last 12 months of all the governments that ended prematurely. This variable thus encompasses both governments that have been dismissed by the President and those that faced an early

call of the legislative or presidential elections. The estimated model can be written as follows:

$$\begin{aligned} \log(\lambda_{tgl}) = & \beta_0 + \beta_1 ENDGOV_{tgl} + \beta_2 STARTGOV_{tgl} + \beta_3 HT_{tgl} + \beta_4 NMIN_{tgl} \\ & + \beta_5 GDP_{tgl} + \beta_6 COHAB_{tgl} + \beta_7 VAC_{tgl} + \beta_8 MEANAGE_{tgl} + \beta_9 EXPPARL_{tgl} \\ & + \beta_{10} EXPMIN_{tgl} + \beta_{11} EXPPREMIN_{tgl} + \beta_{12} ENA_{tgl} + \theta_{gl} + \phi_l \quad (2.10) \end{aligned}$$

To confirm the theory, *ENDGOV* should not have a significant impact on the legislative production, i.e., no peaks of legislative production should take place. The results are provided in Table ???. As expected, *ENDGOV* is not statistically significant, while all the other variables keep their signs. This results confirm that, in line with the PLC theory, only the occurrence of planned elections has a positive impact on the number of voted legislative acts¹⁴.

2.6.6 Synchronization of elections

Finally, the dataset allows to test for the effects of the constitutional reform of 2000 on the PLC. That reform shortened the presidential mandate from 7 to 5 years, resulting in the synchronization of the presidential and the legislative elections beginning with the year 2002. This should decrease the probability of occurrence of a new *cohabitation* since voters are unlikely to change their views in the span of one month. Furthermore this reform 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 of a legislature and of a presidential mandate respectively (Chevallier et al., 2012). This reform has fundamentally changed the strategies of the political parties (Dupoirier and Sauger, 2010), and *de facto* it precludes the possibility

¹⁴We also performed the same test for unexpected presidential elections (that occurred in 1969 and 1974). Results show a decrease of the legislative activity before elections, essentially due to the events of 1968 preceding De Gaulle's resignation in 1969.

TABLE 2.7: Placebo test

	Coef.
ENDGOV	-0.002 (0.041)
STARTGOV	-0.105 (0.041)*
HT	2.203 (0.448)***
HOLIDAY	-0.648 (0.034)***
NMIN	0.031 (0.009)***
MEANAGE	-0.113 (0.032)***
EXPPARL	0.165 (0.037)***
ENA	-0.049 (0.019)*
EXPMIN	0.006 (0.003)*
EXPPREMIN	-0.005 (0.001)**
COHAB	-0.074 (0.226)
GDP	-0.062 (0.014)***
AIC	6747
LogLike	-3357
L1	616
L2	27
L3	13

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

of a dual PLC. A possible consequence of the elimination of the dual cycle is an increase of the magnitude of the cycle generated by the electoral period. To verify this, the sample is divided in two subsamples. The first covers the 1959-2002 time interval, while the second encompasses the period since the first synchronous elections, namely from May 2002 to 2012¹⁵. The results are displayed in Table 7, using the same specification as in model 2, which was the best performing one. Caution must be exerted in the interpretation of the results for the 2002-2012 subsample, as it contains only 118 observations and 2 election periods. *ENDLEGISL* and *ENDPRES* are merged. The coefficient of *ENDPRES* now appears much larger than before, suggesting that the manipulation of the legislative production is now greater than when there were two cycles. Interestingly, the magnitude of the pre-election peak is about 31% ($\exp(0.276)=1.31$), which corresponds to the sum of the two previous peaks generated by legislative and presidential elections (respectively 17% and 13%). Moreover, the synchronization of elections has reduced the legislative inaction that plagued the beginning of the presidential term. Interestingly, the dummy indicating the beginning of a government is no longer significant, suggesting that, after the constitutional reform of 2000, the presidential cycle absorbed the legislative one. Finally, the negative and very large coefficient of *HT* in the 2002-2012 subsample may seem very surprising compared with the previous regressions; it is likely due to the fact that this variable takes only two different values over the subsample.

2.7 Conclusion

This paper applies the PLC theory to the French case for the first time, using a newly assembled dataset that covers the monthly counts of legislative production from 1959 to 2012 and provides detailed characteristics about the composition of the governments as well as personal information about the ministers. France lends itself well to testing the hypotheses of the theoretical model of [Padovano and Petrarca \(2013\)](#), since the

¹⁵In 1981 and 1988, the presidential and the legislative elections occurred in the same period, due to the fact that Mitterrand used his power to dissolve the National Assembly right after his election in order to obtain a new majority supporting him in the National Assembly.

TABLE 2.8: Synchronization of elections

	Before 2002	After 2002
ENDLEGISL	0.390 (0.069)***	-
STARTGOV	-0.171 (0.046)***	-0.119 (0.105)
ENDPRES	0.169 (0.070)*	0.276 (0.115)*
STARTPRES	-0.682 (0.085)***	-0.395 (0.133)**
HT	3.466 (0.514)***	-12.995 (3.429)***
HOLIDAY	-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)**
EXPPARL	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)
EXPPREMIN	-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	-

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

government has an important leeway to implement its legislative strategy. The PLC theory claims that the production of laws significantly increases when elections draw near, in order to provide a sufficient level of utility to the voters in returns of their votes. We exploit the original context of the French institutions, in which two major elections set the pace of the political life: the legislative and the presidential elections.

The empirical analysis reveals the presence of a dual cycle, driven by both elections. *Ceteris paribus* and with respect to the average, the *Assemblée Nationale* votes 17% more laws during the last year of a legislature when elections are held in the expected period, and 13% more laws during the last 6 months of presidential mandate. This phenomenon does not seem to come from a legislative ‘rush to the end’, giving more weight to the proposed PLC explanation. The constitutional reform of 2000, which synchronized the legislative and the presidential terms, effectively merged the two PLCs into one after this reform. The magnitude of this single cycle is equal to the magnitude of the previous dual cycle.

Another interesting finding concerns the role of the President. Even if the Constitution assigns the supreme importance to this role, the President does not directly affect the legislative production strategy; the choice of when to pass a given law remains at the discretion of the government. This may also explain why the *cohabitation*, a very specific trait of the French institutions, does not have a consequence on the legislative outcomes. The parallel with Italy is relevant in more than one feature. As demonstrated [Tsebelis \(1999\)](#), France and Italy are the extreme ends of the classification of the pressing on the executive branch. While the Italian government has to deal with many institutional and political counterpowers, the French one enjoys a much greater leeway. Observing a PLC in these two contexts suggests that such cycles are potentially observable in the full spectrum of the classification of the government proposed by Tsebelis, including full presidential system such that of the United States. This corroborates the generality of the PLC theories.

The present study raises various further research questions. The strategical use of legislation may be more or less efficient according to the political context. It would be interesting to study the drivers of the magnitude of the cycles. The topics of the additional legislative output is undoubtedly carefully selected by the government, and deserve to be investigated. To this respect, using the data provided by the Comparative Agenda Project (<http://www.comparativeagendas.info/>) seems particularly promising. Checking the timing of adoption of the ideologically motivated policies may allow to verify to what extent politicians are vote-seeking or office-seeking (Strom, 1990). Finally, the peak of legislation is driven by the desire for the government to keep the power. The link between the legislative activity and the electoral outcome needs to be uncovered.

In this chapter, as well as in the previous one, we observed that individuals in office play a role in shaping policy outcomes. It implies that *who* is elected matters, and raises the question about the selection of the leaders. This is precisely the subject of the following chapter.

Bibliography

- Aidt, T., Veiga, F. J. and Veiga, L. G., 2011. Election results and opportunistic policies: A new test of the rational political business cycle model. *Public Choice* 143 (1–2), 21–44.
- Akhmedov, A., Zhuravskaya, E., 2004. Opportunistic political cycles: Test in a young democracy setting. *The Quarterly Journal of Economics* 119 (4), 1301–1338.
- Alesina, A., 1997. *Political cycles and the macroeconomy*. MIT press.
- Alesina, A., Drazen, A., 1991. Why are stabilizations delayed? *American Economic Review* 81 (5), 1170–88.
- Bertrand, M., Kramarz, F., Schoar, A., Thesmar, D., 2006. *Politicians, firms and the political business cycle: Evidence from france*. Unpublished working paper. University of Chicago.
- Besley, T., 2005. Political selection. *The Journal of Economic Perspectives* 19 (3), 43–60.
- Besley, T., Montalvo, J., Reynal-Querol, M., 2011. Do educated leaders matter? *Economic Journal* 121, 205–227.
- Brechler, J., Geršl, A., 2014. Political legislation cycle in the czech republic. *Constitutional Political Economy* 25 (2), 137–153.
- Brender, A., Drazen, A., 2005. Political budget cycles in new versus established democracies. *Journal of monetary Economics* 52 (7), 1271–1295.
- Carcassonne, G., 2005. *La procédure pénale en quête de cohérence*. Tech. rep., Cycle de conférences de la Cour de Cassation.
- Chevallier, J. J., Carcassonne, G., Duhamel, O., 2012. *Histoire de la Ve République: 1958-2012*. Dalloz.

- Congleton, R. D., Zhang, Y., 2013. Is it all about competence? the human capital of us presidents and economic performance. *Constitutional Political Economy* 24 (2), 108–124.
- Conley, R. S., 2011. C'est en forgeant qu'on devient forgeron: Assessing legislative productivity in fifth republic france. *French Politics* 9 (2), 158–181.
- Croley, S. P., Levi-Faur, D., 2011. Beyond capture: Towards a new theory of regulation. In: *Handbook on the politics of regulation*. Cheltenham, UK: Edward Elgar Publishing, pp. 50–69.
- Drazen, A., 2001. The political business cycle after 25 years. In: *NBER Macroeconomics Annual 2000, Volume 15*. MIT Press, pp. 75–138.
- Drazen, A., Eslava, M., 2005. Electoral manipulation via expenditure composition: theory and evidence. Tech. rep., National Bureau of Economic Research.
- Dreher, A., Lamla, M., Lein, S., Somogyi, F., 2009. The impact of political leaders' profession and education on reforms. *Journal of Comparative Economics* 37 (1), 169–193.
- Dupoirier, E., Sauger, N., 2010. Four rounds in a row: The impact of presidential election outcomes on legislative elections in france. *French Politics* 8 (1), 21–41.
- Duverger, M., 1980. A new political system model: semi-presidential government. *European Journal of Political Research* 8 (2), 165–187.
- Elgie, R., Griggs, S., et al., 2013. *French politics: Debates and controversies*. Routledge.
- Galasso, V., Nannicini, T., 2011. Competing on good politicians. *American Political Science Review* 105 (1), 79–99.
- Gelman, A., Hill, J., 2006. *Data analysis using regression and multilevel/hierarchical models*. Cambridge University Press.
- Goetz, K. H., Stecker, C., Willumsen, D., 2014. Staggering and legislative behaviour: The upper chambers of germany and japan. Unpublished manuscript.

- Gschwend, T., Leuffen, D., 2005. Divided we stand—unified we govern? cohabitation and regime voting in the 2002 french elections. *British Journal of Political Science* 35 (4), 691–712.
- Huber, J. D., 1996. *Rationalizing parliament: legislative institutions and party politics in France*. Cambridge University Press.
- Jones, B., Olken, B., 2005. Do leaders matter? National leadership and growth since world war ii. *Quarterly Journal of Economics* 120 (3), 835–864.
- Kelly, S. Q., 1993. Divided we govern? a reassessment. *Polity* 25 (3), 475–484.
- Kovats, L., 2009. Do elections set the pace? a quantitative assessment of the timing of european legislation. *Journal of European Public Policy* 16 (2), 239–255.
- Lagona, F., Maruotti, A., Padovano, F., 2014. Multilevel multivariate modelling of legislative count data, with a hidden markov chain. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*.
- Lagona, F., Padovano, F., 2008. The political legislation cycle. *Public Choice* 134 (3-4), 201–229.
- Lewis-Beck, M., 1997. Who's the chef? economic voting under a dual executive. *European Journal of Political Research* 31 (3), 315–325.
- Magni-Berton, R., 2008. Popularité, élections et marge de manœuvre du gouvernement. une analyse de la production législative en France et en Italie. *Revue internationale de politique comparée* 15 (2), 277–295.
- Mathieu, B., Verpeaux, M., 2004. *Droit constitutionnel*. Presse Universitaire de France.
- Maus, D., 1984. La constitution jugée par sa pratique. réflexions pour un bilan. *Revue française de science politique* 34 (4), 875–909.
- Mayhew, D. R., 1991. *Divided we govern: Party control, lawmaking and investigations, 1946-1990*. Yale University Press.

- McCullagh, P., Nelder, J., 1989. *Generalized linear models*. Chapman and Hall London.
- McCulloch, C. E., Neuhaus, J. M., 203. Generalized linear mixed models. In: *Encyclopedia of Environmetrics*. John Wiley & Sons, pp. 533–550.
- Nordhaus, W. D., 1975. The political business cycle. *The Review of Economic Studies* 42 (2), 169–190.
- Padovano, F., Petrarca, I., 2013. When and how politicians take 'scandalous' decisions? *Constitutional Political Economy* 24 (4), 336–351.
- Pierce, R., 1991. The executive divided against itself: cohabitation in france, 1986–1988. *Governance* 4 (3), 270–294.
- Pinheiro, J. C., Bates, D. M., 2000. *Mixed-effects models in S and S-PLUS*. Springer Science & Business Media.
- Ponthoreau, M.-C., 2004. Les droits de l'opposition en france penser une opposition présidentielle. *Pouvoirs* 108 (1), 101–114.
- Poulard, J. V., 1990. The french double executive and the experience of cohabitation. *Political Science Quarterly* 105 (2), 243–267.
- Rogers, J. R., 2005. The impact of divided government on legislative production. *Public Choice* 123 (1–2), 217–233.
- Rogoff, K., 1990. Equilibrium political budget cycles. *American Economic Review* 80 (1), 21–36.
- Rogoff, K., Sibert, A., 1988. Elections and macroeconomic policy cycles. *The Review of Economic Studies* 55 (1), 1–16.
- Shi, M., Svensson, J., 2006. Political budget cycles: Do they differ across countries and why? *Journal of public economics* 90 (8), 1367–1389.
- Shugart, M. S., 2005. Semi-presidential systems: Dual executive and mixed authority patterns. *French Politics* 3 (3), 323–351.

- Stigler, G. J., 1971. The theory of economic regulation. *The Bell journal of economics and management science* 1 (2), 3–21.
- Strom, K., 1990. A behavioral theory of competitive political parties. *American journal of political science* 34 (2), 565–598.
- Tollison, R. D., 1988. Public choice and legislation. *Virginia Law Review* 74 (2), 339–371.
- Tsebelis, G., 1999. Veto players and law production in parliamentary democracies: An empirical analysis. *American Political Science Review* 93 (3), 591–608.
- Tufte, E. R., 1978. *Political control of the economy*. Princeton University Press.
- Veiga, L. G., Veiga, F. J., 2007. Political business cycles at the municipal level. *Public Choice* 131 (1-2), 45–64.
- Winkelmann, R., 2008. *Econometric analysis of count data*. Springer.
- Wooldridge, J. M., 2010. *Econometric analysis of cross section and panel data*. MIT press.

Chapter 3

Electoral competition and political selection: a nonparametric analysis

3.1 Introduction

Individuals matter for economic outcomes¹ (Besley et al., 2010, Dreher et al., 2009, Jones and Olken, 2005). This implies that politicians are not all of the same quality. Admitting differences in quality amounts to saying that the behavior of politicians in office does not only depend on incentives. This emphasizes the need not only to shape institutions in order to discipline incumbents, but also to design efficient political selection mechanisms. Understanding what are the drivers of an efficient political selection mechanism becomes necessary. Several theoretical determinants have been shown to affect political selection: the wage of politicians (Besley, 2004, Gagliarducci and Nannicini, 2013, Mattozzi and Merlo, 2008, Messner and Polborn, 2004, Poutvaara and Takalo, 2007), the transparency of politics (Mattozzi and Merlo, 2007), the institutional flexibility (Acemoglu et al., 2010), and reservation quotas (Besley, 2005, Besley et al., 2013). In addition to a well-known disciplining effect (Stigler, 1972, Becker, 1983 for instance), electoral competition is also likely to enhance this selection process, by

¹This chapter is based on paper written with Marijn Vershelde.

pushing the competing parties to select candidates of higher quality (hence costly to recruit) in order to seduce sufficiently enough unaligned voters to ensure electoral success (Galasso and Nannicini, 2011, 2015).

Only little is known about the empirical relationship between electoral competition and political selection. This chapter extends the empirical investigation of this relationship exploiting a unique dataset focusing on the deputies of the V^{th} French Republic, from its birth in 1958 to the end of the $XIII^{\text{th}}$ legislature in 2012. We innovate in three distinctive ways. First, we provide for the first time a measure of quality based on *productivity*, i.e., on what deputies *do*, which is much more precise than what is usually used in the literature, e.g., absenteeism rate or years of schooling. We gathered from the *Assemblée Nationale*'s archive all the information that has been systematically collected over the years for each deputy and for each year from 1958 to 2012: (i) propositions of law, (ii) oral questions, (iii) reports and (iv) debates in which the deputy has been involved in. From these four aspects of parliamentary work, we compute a composite indicator of productivity using an α -domination estimator, based on Aragon et al. (2006) and Daraio and Simar (2007). As it is a fully nonparametric estimator, no arbitrary weights are imposed on the different activity items.

A second distinguishing feature of our analysis is that we use a nonparametric multivariate generalized kernel regression approach as introduced by Racine and Li (2004). The first advantage of this technique is that contrary to standard parametric methods it does not require any assumption about the relationship between electoral competition and the productivity of deputies. It lets the data '*speak for themselves*'. In particular, this implies that we allow for non-linearities and interactions with the many (discrete or continuous) control variables. Considering the richness of our dataset, which contains detailed information about more than 2,400 deputies for a total of 24,000 observations, this fully flexible approach is of particular interest since quite little is known about the empirical relationship between political selection and electoral competition.

The third major innovation of this chapter consists of fully exploiting the large time span of our dataset to test whether the discussed relationship is time-varying. Stated differently, using the nonparametric methodology, we are able to observe how the relationship between electoral competition and political selection evolved over time. In France as in Europe, the progressive convergence of the competing political platforms over the second part of the *XXth* century, marked by the reconciliation of the left with the market in the early 80's, suggests that the electorate became more ideologically neutral, hence more sensitive to the quality of the candidates (Green, 2007, Knapp and Wright, 2001). By the free interaction between time and political competition measure allowed by the nonparametric approach, we can test whether the intensity of the competition/selection relationship increased (or not) over time. To our knowledge this is the first exploration of drivers of political selection over time.

The French National Assembly is an ideal testing ground in many respects. First, the institutional context remains (quasi) stable since 1958, allowing meaningful comparisons over such a long period. Second, this institutional stability is paired with a highly heterogeneous political context, with left-wing majorities following right-wing ones. Finally, this institutional context fits the theoretical framework of Galasso and Nannicini (2011) which we adopt.

Overall, our results point a clear positive relationship between electoral competition and political selection. Deputies elected in *ex ante* competitive districts exhibit a higher productivity, *ceteris paribus*. This relationship is robust to different specifications. The overall productivity of deputies is continuously increasing over time, but the intensity of the relationship between competition and selection, after having increased till the early 80's, is continuously decreasing since then, and turns insignificant since the beginning of the 2000's. The political context of the 70's and 80's is the closest one to the theoretical hypothesis of the Galasso and Nannicini (2011) model, providing support to their formalization of the link between competition and selection.

The remaining of the chapter is structured as follows. In section 2 we present the theoretical background. Section 3 briefly describes the French political and institutional context. We introduce our measure of electoral competition and of quality together with the dataset in Section 4. Section 5 presents the nonparametric kernel approach. The results are detailed in Section 6, and Section 7 concludes.

3.2 Theoretical framework

Since at least the seminal work of [Downs \(1957\)](#) and [Becker \(1958\)](#), the point has been made that political competition influences economic outcome. More recently, [Besley and Preston \(2007\)](#) as well as [Solé-Ollé \(2006\)](#) have shown that governments elected in a competitive political market tend to be less partisan in their policy-making, respectively in the case of English and Spanish local governments. [Besley et al. \(2010\)](#) goes one step ahead by proposing a model showing that political competition² increases the efficiency of implemented policies: reducing the bias favoring a party enhances the electoral accountability of the government, pushing the incumbent party to reduce its rent by adopting more efficient policies. Exploiting the exogenous shock in the political competitiveness in the US States provoked by the Civil Right Act of 1964, they are able to establish a causal link between political competition and economic performance supporting the theory. [Padovano and Ricciuti \(2009\)](#) confirm these results by studying the case of Italian regions.

The transmission link between competition and the adoption of efficient policy is however left unspecified. Electoral competition is traditionally seen as way to discipline the government, for instance by reducing rent-seeking ([Polo, 1998](#)) or increasing the resistance to lobbies ([Solé-Ollé and Viladecans-Marsal, 2012](#)). But a growing literature emphasizes the importance of the leader's identity. Initially, as we have seen in chapter one, [Bertrand and Schoar \(2003\)](#) show that the identity of the decision maker

²In their view, *political* competition is a long term phenomenon, contrary to *electoral* competition, which is standard party competition.

significantly affects the management of their companies in the context of CEO of American firms. [Jones and Olken \(2005\)](#), followed by [Besley et al. \(2011\)](#), transpose this idea to politics. They establish a causal link between the identity of national leaders and economic performance by investigating the change in GDP growth after the unexpected death of a leader. In the same idea, [Dreher et al. \(2009\)](#) find a correlation between some leader's characteristics and the probability to undertake reforms. [Moessinger \(2014\)](#) shows that the experience of the finance minister is correlated with the public deficit. [Hayo and Neumeier \(2013\)](#) establish a similar link between the socioeconomic background of the national leaders and debt. In the previous chapters, we also found that the identity of the mayor is correlated with the investment spending of the municipality, and that the characteristics of the members of the government are linked to the legislative output. If identity matters, the performance of the government is not only shaped by incentives, but also by the political selection process.

To our knowledge, only [Galasso and Nannicini \(2011, 2015\)](#) and [De Paola and Scoppa \(2011\)](#) exclusively focus on the impact of electoral competition on political selection, respectively in the context of the Italian Parliament and Italian municipalities. While [De Paola and Scoppa \(2011\)](#) show that mayors elected in contested municipalities are *ceteris paribus* more educated, [Galasso and Nannicini \(2011, 2015\)](#) go one step further and show that deputies coming from highly competitive districts exert more effort, respectively in a majoritarian single-member district system and a closed-list system. They are the first to propose (and test) a formal model explicitly relating electoral competition to the quality of elected representatives and attribute a central role to political parties. At the opposite of the citizen candidate model ([Besley and Coate, 1997](#), [Osborne and Slivinski, 1996](#)), this model focuses on the demand side of the political market, which is more suitable for democracies like France where political competition essentially opposes parties³.

³The importance of parties in the selection process has previously been emphasized ([Carrillo and Mariotti, 2001](#), [Caillaud and Tirole, 2002](#), [Mattozzi and Merlo, 2010](#), [Poutvaara and Takalo, 2007](#)).

To sum-up the model, two ideological parties compete in a majoritarian system characterized by plurality rule in single-member districts. Each district is composed of a specific share of party supporters and neutral voters. The former always vote for their favorite party. The latter are uniformly distributed on a left-right spectrum (and thus are more or less close to a specific party). Neutral voters care about the national policy that the winning party will implement, but also about the quality of the elected incumbent in their district. Quality of politicians is assumed to be observable before the elections, by both voters and parties.

Parties can select two types of candidates: loyalists and experts, respectively of low and high quality. An important assumption is that recruiting high quality candidates is costly for parties, for example because of a higher financial compensation for their opportunity cost, or because of a minor dedication to party propaganda. To win the elections, a party needs to win more than 50% of the districts. The distribution of the three types of voters over the districts determines the *ex ante* contestability of each district (*ex ante* since parties base their strategy on this information, before the election). In some districts, the bias in favor of a party is so important that the outcome of the election is certain. In other districts, the parties need to attract votes of the neutral voters, who vote according to a standard probabilistic voting model.

In this set up, parties recruit the same proportion of experts, and allocate them to the most contested districts. This implies that high-quality candidates are confronted to each other. Intuitively, the latter result comes from the fact that allocating an expert to an uncontested district is useless for both parties: the party benefiting of the bias has no interest in recruiting a costly expert since the victory is certain; the same applies for the other party since defeat is unavoidable.

The model shows the conditions for a positive relationship between electoral competition and political selection, which is the main hypothesis that we want to verify. In this framework, one can notice that the magnitude of the relationship is time-varying as the institutional setting (including the party polarization and the share of neutral voters) is

time-varying as well. Insight in the evolution of the relationship over time is important to understand the drivers of political selection, which is the second main concern of this chapter. We carefully discuss the French institutional and political context to consider how the institutional setting fits this framework while being time-varying.

3.3 The French institutional and political context

The institutional and political context described in [Galasso and Nannicini \(2011\)](#) model relies on three specific features. First, the electoral system is a two-round majoritarian system characterized by plurality rule in single-member districts. Second, two parties compete for these elections. Third, parties recruit and allocate their candidates strategically, depending on the contestability of the districts, implying a centralized selection process. We successively describe how the French context fits these three features, before focusing on the evolution of the context over the years.

3.3.1 Institutional context

With a powerful presidency and a prime minister subject to assembly confidence, the French V^{th} Republic can be described as a *semi-presidential system* ([Shugart, 2005](#)) since the adoption of the current Constitution in 1958, as we emphasized in the previous chapter. The President is elected by universal direct suffrage, and nominates the prime minister. The resulting ‘two-headed’ executive ([Lewis-Beck, 1997](#)) makes France a unique institutional case. The Parliament is bicameral, consisting of the *Sénat* and the *Assemblée Nationale*. A bill has to be approved by both chambers to be validated. In case of disagreement between the chambers, the Constitution gives the final word to the *Assemblée Nationale*. The natural length of a legislature is five years. However, the President has the power to dissolve the National Assembly. Dissolution happened on five occasions, hence it is not a rare event. At the opposite, the chamber dismissed a

government only once, in 1962. Contrary to senators, deputies of the National Assembly are elected by universal direct suffrage, motivating our focus on this chamber.

The deputies of the French National Assembly are elected with a two-round majoritarian system. Each constituency elects one deputy. The electoral system corresponds closely to the theoretical framework of [Galasso and Nannicini \(2011\)](#). If no candidate receives more than 50% of the votes at the first round, only candidates obtaining more than 12.5% of the votes in the first round are qualified for the second round. In the vast majority of cases, only two candidates run for the second round. The only exception to these electoral rules is the 1986 elections, which adopted a proportional system⁴.

3.3.2 Political context

The party system can be described as ‘bipolar multipartism’ ([Knapp and Wright, 2001](#), [Knapp, 2002](#)): in line with [Duverger \(1973\)](#), the two-round majoritarian electoral system is a force tending to bipolarisation, but each pole remains multiparty. The governing majority is based on a clear left-wing or right-wing coalition, and does not rely on a pivot party likely to change partner during a legislature, ensuring stability⁵. In a general case, a deputy has to first compete against candidates of the same wing but from different parties in the first round, before confronting the opposite wing candidate at the second round. If this is not a pure two party competition as described in the theoretical model, the mechanism is similar, especially in the 70s and 80s when the ‘overall victory against the opposite camp became less important than regaining a dominant position against allies’ ([Knapp and Wright, 2001](#)).

⁴The reason of this change is purely strategic. François Mitterrand, President since 1981, saw this electoral reform as a way to soften the anticipated upcoming defeat ([Chevallier et al., 2012](#)). The original design came back for the next elections, together with a major redistricting. Since then, the number of deputies has been kept stable at 577.

⁵Centrist parties traditionally supported right-wing governments.

Despite some differences among parties, the candidate selection process is overall highly centralized (Lundell, 20014, Thiébault, 1988). There is no law concerning candidate selection, as it is the case for instance in the United States. The basic organization is a central committee studying and eventually modifying propositions of the local base. The candidate is not necessary originating from the constituency. A *'parachutage'* describes a situation in which a candidate is strategically sent to a constituency with which he/she does not have any previous link with. An illustrative example is the operation 'young wolves' in 1967. The Gaullist party allocated ten young and talented politicians from Paris (among them the future President Jacques Chirac) in constituencies located in the Center-West of France, dominated by the left-wing but winnable. The reaction of the main left-party was to allocate Roland Dumas, a prestigious lawyer, future Foreign Affairs Minister, and Robert Mitterrand, the brother of future president François Mitterrand. This example also provides an anecdotal evidence of the strategic use of candidate selection by parties as well as the convergence of candidates' quality in close races as expressed by the theoretical framework. More recent evidences of such a convergence could be the first election of François Hollande in 1988 against another *énarque* in a rural constituency, or the opposition in the 2012 elections between Jean-Luc Mélenchon, leader of a left-wing party and candidate for presidential election earlier the same year, and Marine Le Pen, leader of the extreme-right party and who also run for presidential election, while the Socialist party selected a university professor and the center-right another *énarque*.

Concerning the time-variation in institutional context, the most noticeable evolution over the second part of the *XXth* century in France is certainly the ideological convergence after the 80's, marked with the reconciliation of the Socialist Party with the market and the rise of the 'Pensée unique' (Knapp and Wright, 2001). According to the theoretical model of Galasso and Nannicini (2011), such an evolution should have decreased ideological voting and produced more competence-based elections (Green, 2007). The selection process of the parties should have been more thorough and careful, resulting in a tighter relationship between electoral competition and political selection.

A second factor that might have impacted the electoral competition/selection process relationship is the continuously increasing volatility of voters over time. The effect of this well documented phenomenon (Drummond, 2006, Ysmal, 1994) is ambiguous. In light of the theoretical model, an increase of the volatility can be associated with an increase of the share of neutral voters. Hence this should enhance the effect of electoral competition on political selection. On the other hand, Knapp (2002) suggest that this might have had the opposite consequence. The increasing volatility leads the power to change hands at every national election between 1981 and 2002. Allocating candidates may have become more difficult since the link between *ex ante* competition and effective competition is less straightforward.

Two other factors may have weakened the competition/selection mechanism. A common evolution of the candidate selection process of all parties is an expansion of their electorate, i.e., the selection process became progressively more collective (Hazan and Rahat, 2010). This collective decision making may be a source of inefficiency concerning the strategic allocation of candidates. Third, the party membership grew up till the early 80's and continuously decreased since then (Knapp, 2002). This implies a declining stock of potential candidates in which parties can recruit. Active partisanship is a way for parties to screen and identify promising politicians (Best and Cotta, 2000).

In sum, a priori it is not clear which were the main drivers of political selection and its relation with electoral competition. An empirical examination is needed to clarify the changing importance of the discussed relation.

3.4 Data and measurement

To study the relationship between political competition and political selection, we constructed a dataset which contains detailed individual information about all the members of the French National Assembly from its first effective working year in 1959 to the end of the *XIIIth* legislature in 2012 at a yearly rate. More details about the construction

of the dataset are provided in Data Appendix 3. We keep only deputies who stayed in office the whole legislature (more than 2,400), for a total of over 24,000 observations.

3.4.1 Measuring quality

Measuring the quality of politicians is not straightforward. A wide theoretical acceptance is a combination of competence and motivation⁶ (Besley, 2006). Motivation and competence are valence issues, which means that voters agree that a higher level of motivation and competence is desirable. Such a broad definition is challenging to operationalize. The existing empirical literature relies on two different strategies. The first strategy consists in using *ex ante* measures of quality, such as schooling and experience (Baltrunaite et al., 2014, Besley et al., 2011, De Paola and Scoppa, 2011, Kotakorpi and Poutvaara, 2011). The link with the theoretical definition of quality is however not direct as these proxies focus on competence, and fail to capture the multidimensional definition of quality. The second strategy consists in measuring the quality of politicians *ex post*, according to their performance in office. But again, measuring the performance of an individual politician is not straightforward. Galasso and Nannicini (2011) use the absenteeism rate, while Gagliarducci and Nannicini (2013) use the vote attendance. As they concede, both measure effort, and not quality.

We innovate by proposing an *ex post* measure of quality which is more precise and complete. For each deputy and for all years, we gathered all of his/her officially registered activity within the National Assembly and measure her *productivity*. To do so, we used the *Tables Nominatives*, a document edited by the National Assembly every year or every legislature summing up the individual activity of each deputy. It contains four items: (i) oral questions, (ii) debates in which the deputy has been significantly

⁶Motivation here is not driven by incentives, but can be related to what Bénabou and Tirole (2003) call ‘intrinsic motivation’. See Besley (2006) for a thorough discussion.

involved in, (iii) propositions of law⁷ and (iv) reports⁸. Gathering this official information also has the advantage of using information that the institution itself selected as relevant, independently from the choice of the analyst. If, following Besley (2006), we consider quality as a composition of effort and competence, this overall activity is a good proxy. The link between overall activity and effort is easy to draw. The link between activity and competence is less direct. It comes from the inner organization of the political groups within the Parliament. Each group is based on a secretary and a board. These organs regulate the activity of their members, from the inscription to the list of the speakers in a debate to the attribution of reporting missions. It is thus necessary for a deputy to demonstrate the quality of his/her work to play an effective role (Davin, 1985, Thiébaud and Dolez, 1988). We thus posit that quality is positively and strongly correlated with the overall level of productivity.

Using each activity item as an endogenous variable separately would be inappropriate, as it could not depict a general overview of a deputy's activity. It excludes for instance the possibility of specialization. Some deputies might be specialist of report writing, while some others might be excellent speakers, hence exclusively focusing on debates. Studying each individual item would lead to consider a very partial and incomplete ranking of deputies, which cannot acknowledge the multidimensional issues of parliamentary activity. Table 3.1 shows the correlation between the different items for all the deputies in the sample. It indicates that 65% of deputies have shown no activity in at least one aspect and 20% fully specialize in one aspect of parliamentary work. It nevertheless shows that the production of different items are positively correlated. In addition, we gathered the attendance rate⁹ of deputies, which is only available for the *XIII^e* legislature, and compute the correlation coefficient with activity items of deputies belonging to this legislature. Table 3.1 also shows that the correlation between

⁷Only propositions of law for which the deputy is the main author are considered, and not all those that he/she cosigned.

⁸When a bill reaches the committee work, a deputy is assigned to study the project, the outcome being the report that we count here. A complete description of the legislative process was provided in the previous chapter.

⁹Attendance is measured by the number of week of attendance per year. This information is provided by the watchdog website www.nosdeputes.fr. There is no information about voting attendance, since deputies can vote in the name of their colleagues.

activity and attendance rate is rather low, confirming the need to use a quality measure which is more complex than attendance.

TABLE 3.1: Correlation of activity items

	Attendance	Reports	Questions	Interventions	Propositions
Attendance	1				
Reports	0.350	1			
Questions	0.346	0.062	1		
Interventions	0.593	0.290	0.447	1	
Propositions	0.140	0.077	0.221	0.267	1

One could simply use a weighted sum, but such weights would however be subjective, and the literature about the French parliament does not provide any information about that. In this chapter, we fully acknowledge deputies as agents that use their inputs to produce the multiple aspects of parliamentary activity by implementing a nonparametric efficiency analysis. An alternative for imposing a priori defined weights is the use of a so called ‘*benefit-of-the-doubt*’ (BoD, after [Melyn and Moesen, 1991](#)) nonparametric composite indicator that allows for an endogenous weighting of the different outputs. This composite indicator is rooted in Data Envelopment Analysis (DEA, [Farrell, 1957](#), [Charnes et al., 1978](#)). DEA uses linear programming tools to measure the relative efficiency of the Decision Making Units (DMU) as they convert their inputs to outputs, without assuming any functional form between inputs and outputs. If such a methodology has been implemented by [François and Weill \(2014\)](#) and [Navarro et al. \(2012\)](#)¹⁰, the important number of extreme values in our data precludes the use of traditional frontier methods such as DEA and BoD models. These nonparametric efficiency methods are based on the computation of the boundary of the attainable set (the so called efficiency frontier), which is extremely sensible to outliers ([Cazals et al., 2002](#)).

¹⁰Both studies aim at studying the effect of multiple-office holding on the activity of French deputies. The timespan of their data is very short: one year for [Navarro et al. \(2012\)](#), one legislature for [François and Weill \(2014\)](#).

To avoid this problem we use an alternative probability-based score used in the operational research literature to measure the multidimensional parliamentary activity. The α -probability measure estimates the probability to not be dominated in activity and is the equal-input variant of the α -efficiency estimator of [Aragon et al. \(2006\)](#) and [Daraio and Simar \(2007\)](#)¹¹. The main advantage of using such a dominance measure is that it does not rely on the estimation of a frontier, which is highly sensitive to outliers as the frontier has to envelop all the observations. This makes the efficiency dominance approach robust to outliers.

The α -performance is estimated as the probability that another observation does not produce more of each output, with y the production of a deputy and $\alpha \in [0, 1]$ with higher values indicating higher activity:

$$\alpha(y) = 1 - S_Y, \text{ with } S_Y = \text{Prob}(Y \geq y). \quad (3.1)$$

Stated differently, the α -measure provides the probability for a deputy not to be *dominated* by another deputy taken randomly. The vector Y is composed of our four outputs of parliamentary activity. The concept of dominance here is similar to the one extensively used in game theory. To illustrate this point, consider a deputy producing $(y_1, y_2, y_3, y_4) = (2, 2, 2, 2)$, with y_1, y_2, y_3 and y_4 respectively denoting reports, questions, propositions of law and debates. This deputy is dominated by a second deputy producing $(3, 2, 2, 2)$, and dominates a third deputy producing $(2, 1, 2, 2)$. Furthermore, compared to a fourth deputy producing $(3, 0, 0, 0)$, the production of each deputy does not dominate the other. The empirical estimation of α -domination measure for a deputy is obtained by computing:

$$\hat{\alpha} = 1 - \hat{S}_Y = 1 - \frac{\sum_i I(Y_i \geq y)}{n}, \quad (3.2)$$

¹¹See e.g. [Tulkens \(2006\)](#) for a discussion of domination-based indicators.

with I the indicator function, taking the value 0 if $Y_i \geq y$ is true, 0 otherwise. By applying the methodology, we obtain a full ranking of deputies according to their overall parliamentary activity without imposing any weight to the different items composing their work and allowing for full specialization. Descriptive statistics of this measure are provided in Table 3.4

3.4.2 Measuring political competition

Various measures of political competition have been used in the literature, from the number of parties competing for an election (Ashworth et al., 2014) to the length a party stayed in office (Skilling and Zeckhauser, 2002). The most commonly used measure is based on the vote-margin, computed between the vote share of the winner and the runner-up (for instance Becker et al., 2009, De Paola and Scoppa, 2011, Padovano and Ricciuti, 2009) or between the vote share of the winner and 50% (Solé-Ollé and Viladecans-Marsal, 2012).

TABLE 3.2: Correlation of competition measures

	Herfindahl	Vote margin 2 nd round	Vote margin 1 st round
<i>Comp</i>	1		
Vote margin 2 nd	-0.231	1	
Vote margin 1 st round	-0.499	0.548	1

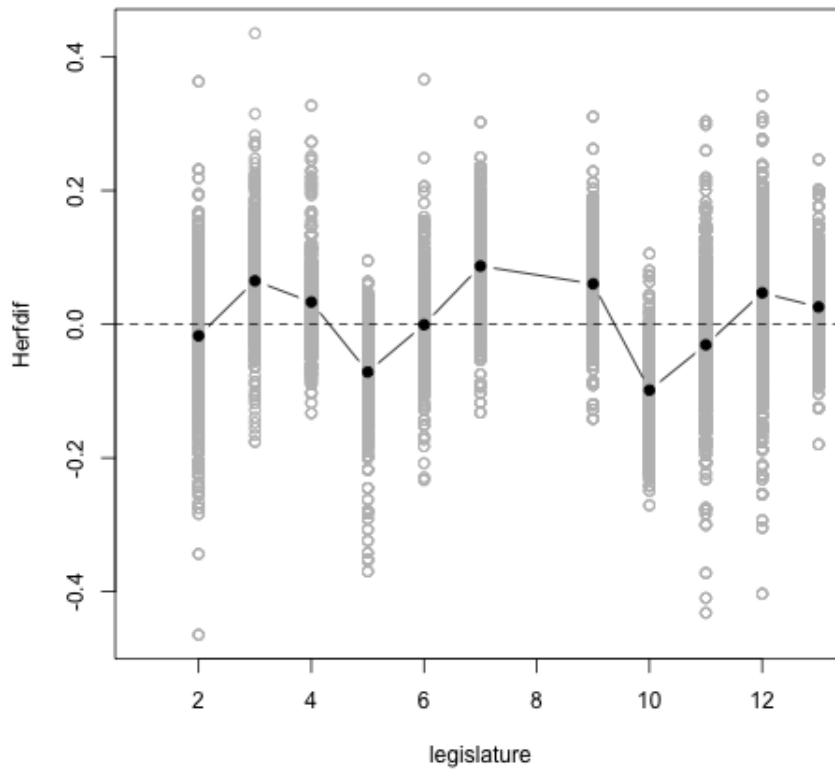
Given the two-round system of the French set up, a possibility could be to use the vote-margin at the decisive round. This might however be spurious because the decisive round is not everywhere the same, some deputies winning the elections at the first round. Using only jurisdictions where elections needed two rounds would considerably reduce the number of observations available, and the voter transference occurring between the two rounds could depict a spurious degree of contestability. An illustrative example is the presidential election of 2002, which exhibits a very similar electoral system. At

the first round, Jacques Chirac obtained only 20% of the votes, while the runner-up, the extreme-right leader Jean-Marie Le Pen, received 17%. Both have been qualified for the second round, and Lionel Jospin, the candidate of the Socialist Party, has been eliminated with 16% of the votes. At the second round, Jacques Chirac won with the dictator-like score of 82% of the votes. The vote margin at the second round would indicate a very low degree of competition. Looking at the first-round score, with three candidates in 4 percentage points, this is obviously not the case. Our favorite measure of political competition C is based on a Herfindahl index based on the first round, as for instance in Ghosh (2010), Larcinese (2014) and De Paola and Scoppa (2011). It is computed as follows:

$$Comp = 1 - \sum_{i=1}^n s_i^2,$$

where s_i is the vote share at the first round obtained by party i , $i = 1, \dots, n$. We compute this measure for each constituency and for each election, using data provided by the Ministry of Interior. To ensure that a Herfindahl-based measure captures the real degree of electoral competition, we compute for each constituency $dif = Comp_t - Comp_{t-1}$, which measures the evolution of the district competitiveness over time and report it in Figure 3.1. The black dots indicate the average value of dif . An average above 0 indicates an increase of electoral competition, while an average below 0 indicates a decrease. The picture is consistent with the political history. For instance, the same parties were competing in 1958 and 1962, resulting in a stagnation of competition; the 1967 elections (*IIIrd* legislature) mark the decline of the bias in favor of Gaullism, which continued in the 1968 elections, opening the elections. The drop observed between the *IVth* and the *Vth* is due to the union and electoral agreement of the Communist and Socialist parties. More recently, the overall increase of competition by the end of the period can be explained by the refusal of the Ecologist Party to renew their agreement with the Socialists in 2002 and the rise of the extreme-right party.

FIGURE 3.1: Herfindahl index over legislatures



The theoretical framework provided by [Galasso and Nannicini \(2011\)](#) implies that electoral competition should be measured *ex ante*: parties use this information prior to elections to recruit and allocate their candidates. Competition for elections at time t is consequently measured by the Herfindahl index at the previous elections. Because of the change in the voting rules for the 1988 elections, we do not have *ex ante* measure of competition for this legislature. The same applies for the first legislature. We also excluded a few constituencies when their borders changed from one election to another. To verify the validity of this *ex ante* measure of competition, we estimate its impact on the probability that a constituency swings. To do so, we estimate a probit model with a

dummy indicating whether the majority changed as endogenous variable and our measure of political competition as explanatory variable. Results are provided in Table 3.3, and clearly show that the higher the *ex ante* competition, the higher the probability for a constituency to swing. Finally, as a last check, we present in Table 3.2 the correlation coefficient between this Herfindahl measure and two possible alternative: the vote-share at the second round and at the first round at the previous election. The three measures depict a similar story: when *Comp* increases, the vote-margin decreases at both round. It thus reinforces the validity of our favorite measure.

TABLE 3.3: Probability to Swing

Endogenous :	Swing
Competition	1.270*** (0.182)
Intercept	-1.302*** (0.251)
Model	Probit
N. Obs	4151

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

3.4.3 Control variables

The dataset contains several variables that are likely to impact the parliamentary productivity of a deputy along with electoral competition. For each deputy, two sets of information are collected. The first set encompasses political variables. The political membership of a deputy is introduced through a variable indicating the political wing (Right, Center and Left), based on the political group to which the deputy belongs. We choose this categorization instead of focusing on individual parties to ensure a continuity over the 53 years of the sample. We also control whether the deputy is in the majority,

and the number of deputies composing the political group. Several papers relate the size of a political group to free-riding behavior of its members (for instance [Le Maux et al., 2011](#) and [Rogers, 2002](#)). The committee to which the deputy is a member might also be important, as the agenda may give much more importance to some issues according to the period, impacting the amount of potential work of the deputies differently among the committees. The experience of deputies in the Parliament, measured in years, is included as well. All this information has been gathered from the *Assemblée Nationale* website¹².

The second set focuses on personal variables. It encompasses civil status information, age and gender, but also occupation before the mandate and simultaneous mayoral mandate. We consider nine categories of occupation covering more than 65% of the deputies: teaching, healthcare, legal, business, academic, farming, politics, engineering and blue collars (industry workers). The dataset also contains the number of years of schooling, computed as the difference between the required number of years to receive the highest diploma obtained by a deputy and six, the age for mandatory school. In addition, a dummy variable indicates whether a deputy is a graduate of *ENA*, the prestigious high administration school from which many French politicians and administrators are graduated. Finally, there is an important debate in France about multiple-office holding and the possibility (or not) to correctly carry out parliamentary duties. A majority of deputies also has local government mandates, especially mayoral responsibilities. We introduce a variable indicating whether the deputy is simultaneously a mayor. This individual personal information comes from various sources: the National Assembly website and archive service, *Who's Who in France* dictionaries, several issues of the Jean Maitron's *Dictionnaire Biographique du Mouvement Ouvrier Français*, press articles, campaign leaflets, deputies' websites, biographies and memoirs (see Data Appendix 3 for more details).

¹²www.assemblee-nationale.fr.

TABLE 3.4: Descriptive statistics

	Observations	Mean	Min	Max
Propositions	24011	0.602	0	34
Questions	24011	1.154	0	29
Reports	24011	0.681	0	30
Debates	24011	3.243	0	53
Productivity	24011	0.671	0.000	1.000
Competition	20868	0.724	0.206	0.945
Left	24011	0.375	0	1
Right	24011	0.549	0	1
Center	24011	0.075	0	1
Majority	24011	0.610	0	1
Group size	24011	178.5	0	363
Experience	24011	7.798	1	45
Mayor	24011	0.511	1	0
Women	24011	0.059	0	1
Age	24011	53.92	26	93
Schooling	24011	15.36	5	21
ENA	24011	0.044	0	1
Teaching	24011	0.151	0	1
Healthcare	24011	0.119	0	1
Legal	24011	0.091	0	1
Business	24011	0.076	0	1
Academic	24011	0.056	0	1
Farming	24011	0.052	0	1
Politics	24011	0.046	0	1
Engineering	24011	0.041	0	1
Blue collar	24011	0.034	0	1

3.5 Nonparametric regression approach

The empirical model is defined by a $n \times 1$ dependent scalar y (our measure of productivity), a $n \times q$ multivariate regressor x (encompassing our measure of political competition and control variables) and an additive error ϵ :

$$Y_i = g(X_i) + \epsilon_i, \text{ with } i = 1, \dots, n. \quad (3.3)$$

This model can be estimated by imposing a parametric form as we did in the previous chapters, such as a simple linear model:

$$Y_i = \beta_0 + \beta X_i + \epsilon_i, \text{ with } i = 1, \dots, n. \quad (3.4)$$

The problem with this specification is that, if there are non-linearities or interactions in the true model which are not parametrized, the empirical model is misspecified and the estimated coefficients are inconsistent (Henderson and Kumbhakar, 2006). Only little is known about the functional form linking electoral competition to quality, which is here proxied by productivity. In order to avoid to impose *a priori* a functional relationship between the productivity of deputies and electoral competition and hence to stay on the safe side, we implement a nonparametric approach¹³. Such an approach is especially relevant here considering the large size of our sample, as it lets ‘the data speak freely’. A minimum of structure is therefore imposed, as the data-driven methodology directly ‘chooses’¹⁴ the shape of functional form linking productivity to the covariates. There is thus nothing constraining the points to lie along a straight line, or along a low-order polynomial (Deaton, 1989). This means that the effect of electoral competition on political competition is allowed to differ according to the level of electoral competition, but also that electoral competition is allowed to freely interact with the other covariates, e.g. legislature or year effects. We display the results in a graphical way, showing the impact of a covariate on the dependent variable for the different values taken by this covariate.

¹³See Li and Racine (2007) for an extensive overview of the used kernel regression approach

¹⁴As we shall see, the methodology allows to estimate the best fit by making an optimal trade-off between bias and variance.

The empirical model for deputy observations $i = 1, \dots, n$ is defined by a $n \times 1$ dependent scalar α (or $\hat{\alpha}$, our measure of productivity), a $n \times v$ multivariate regressor $x = (x_1, \dots, x_v)$ (encompassing our measure of political competition and control variables) and an additive error ϵ :

$$\alpha_i = g(x_i) + \epsilon_i, \text{ with } i = 1, \dots, n. \quad (3.5)$$

This model can be estimated by imposing a parametric form, such as:

$$\alpha_i = \beta_0 + \beta_1 x_{i1} + \dots + \beta_q x_{iv} + \epsilon_i, \text{ with } i = 1, \dots, n. \quad (3.6)$$

The problem with this specification is that, if there are non-linearities or interactions in the true model which are not parametrized, the empirical model is misspecified and the estimated coefficients are inconsistent (Henderson and Kumbhakar, 2006). Only little is known about the functional form linking electoral competition to quality, which is here proxied by productivity. In order to avoid to impose *a priori* a functional relationship between the productivity of deputies and electoral competition and hence to stay on the safe side, we implement a nonparametric approach¹⁵. Such an approach is especially relevant here considering the large size of our sample, as it lets ‘the data speak freely’. A minimum of structure is therefore imposed, as a data-driven methodology directly chooses the shape of functional form linking productivity to the covariates. There is thus nothing constraining the points to lie along a straight line, or along a low-order polynomial (Deaton, 1989). This in fact means that the effect of electoral competition on political competition is allowed to differ according to the level of electoral competition, but also that electoral competition is allowed to freely interact with the other covariates, e.g. legislature or year effects. The results are thus displayed in a graphical way, showing the impact of a covariate on the dependent variable for the different values taken by this covariate.

The main idea of a nonparametric (generalized) kernel regression is to approximate $E[\alpha_i | x = x_i]$ by means of $\hat{g}(x_i) = E[\alpha_i | x \text{ close to } x_i]$, which implies localization in the direction of x . Following the nonparametric literature, $x_{ik} - x_k$ represents the distance

¹⁵See Li and Racine (2007) for an extensive overview of the used kernel regression approach

between the level of regressor k of deputy i (x_{ik}) and all the observed levels of regressor k (x_k). Bandwidth sizes determine which observations are ‘close’ in terms of x and thus impose the window of localization. A kernel function is a weighting function giving more weight to observations near the observation point. Kernel functions are often chosen to be well-known density functions, but the choice of the kernel function has been shown to be of little importance (Li and Racine, 2007). The choice of the kernel function depends on the nature of the variable, i.e., continuous, unordered and ordered. We use kernel weights (l^c, l^u, l^o) with window widths ($\lambda^c, \lambda^u, \lambda^o$) to specify the weight function for $x = [x^c, x^u, x^o]$, where x^c is a vector of continuous values, x^u is a vector of unordered discrete values and x^o is a vector of ordered discrete values. In particular, we specify a gaussian kernel function l^c to weight the continuous variable x_k^c (see (3.7)). An Aitchison and Aitken (1976) kernel l^u is specified to weight discrete unordered variable x_l^u with c_l categories and $\lambda_l^u \in [0, (c_l - 1)/c_l]$ (see (3.8)). To weight the ordered discrete value x_m^o , we use a Wang and van Ryzin (1981) kernel function with $\lambda_m^o \in [0, 1]$ (see (3.9)).

$$l^c\left(\frac{x_{ik}^c - x_k^c}{\lambda_k^c}\right) = \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}\left(\frac{x_{ik}^c - x_k^c}{\lambda_k^c}\right)^2}. \quad (3.7)$$

$$l^u(x_{il}^u, x_l^u, \lambda_l^u) = \begin{cases} 1 - \lambda_l^u & \text{if } x_{il}^u = x_l^u, \\ \lambda_l^u / (c_l - 1) & \text{otherwise.} \end{cases} \quad (3.8)$$

$$l^o(x_{im}^o, x_m^o, \lambda_m^o) = \begin{cases} 1 & \text{if } x_{im}^o = x_m^o, \\ (\lambda_m^o)^{|x_{im}^o - x_m^o|} & \text{otherwise.} \end{cases} \quad (3.9)$$

To allow for a multivariate regression, we use product kernels (as is common practice). The product kernel of x^c is $W_{\lambda^c}(x_i^c, x^c) = \prod_{k=1}^q (\lambda_k^c)^{-1} l^c((x_{ik}^c - x_k^c)/\lambda_k^c)$. For x^u , the product kernel is defined as $L_{\lambda^u}(x_i^u, x^u) = \prod_{l=1}^r l^u(x_{il}^u, x_l^u, \lambda_l^u)$. The product kernel of x^o is $L_{\lambda^o}(x_i^o, x^o) = \prod_{m=1}^s l^o(x_{im}^o, x_m^o, \lambda_m^o)$. All together, we can specify a Racine and Li (2004)

generalized kernel function as:

$$\mathcal{K}_\gamma(x_i, x) = W_{\lambda^c}(x_i^c, x^c)L_{\lambda^u}(x_i^u, x^u)L_{\lambda^o}(x_i^o, x^o), \text{ with } \gamma = (\lambda^c, \lambda^u, \lambda^o) \quad (3.10)$$

As discussed above, the choice of multivariate bandwidth γ is of crucial importance. On the one hand, a too large bandwidth will produce biased estimates, because it will encompass observations that are far from x_i and consequently less informative about $g(x_i)$. On the other hand, reducing the bandwidth leads to an increase in the variance of the estimates, because the number of observations considered in the neighborhood of x_i decreases. There is thus a trade-off between bias and variance (Li and Racine, 2007). To select the bandwidth, we opt for an often used data-driven approach: the least-squares cross-validation approach¹⁶ (Li and Racine, 2004). It consists in finding the optimal bandwidth by minimizing the asymptotic integrated mean squared error (AIMSE). The least-squares cross-validation thus provides optimal bandwidth based on the minimization of:

$$CV(\gamma) = \frac{1}{n} \sum_{i=1}^n (\alpha_i - \hat{g}_{-i}(x_i))^2 t(x_i). \quad (3.11)$$

where \hat{g}_{-i} is the leave-one-out local-linear kernel estimator of $E(\alpha_i|x_i)$, and $0 \leq t(\cdot) \leq 1$ is a weight function that serves to avoid difficulties caused by dividing by 0 or by the slower convergence rate arising when x_i lies near the boundary of the support of x .

For the purpose of this study, we use a local linear regression which comes down to locally fitting a line – or a linear model if x is multidimensional– for each observation using the observations within the interval determined by the bandwidth, given the kernel weights. In other words, we fit a local linear model through the observations in the neighborhood of observed levels x_i . If the window is large (i.e., very large bandwidth size), the curve will be a smooth straight line and we return to the linear least squares estimator without localization¹⁷. The least squares estimator can thus be seen as a special case of the local-linear estimator (Li and Racine, 2007). If the bandwidth is small,

¹⁶We opt for this approach over the AIC CV approach as the least-squares CV approach is more used in the literature and is faster to compute.

¹⁷This explains why the bandwidth is sometimes called the ‘smoothing parameter’.

non-linearities are allowed for and the curve becomes less smooth. We opt for a local-linear estimator because the local-linear regression has better boundary properties than the local-constant regression (Hall et al., 2007).

The local-linear estimator estimates a local linear relation for each observation point x_i by obtaining a and b in Equation (3.12):

$$\min_{\{a,b\}} \sum_{i=1}^n (\alpha_i - a - (x_i - x)'b)^2 \mathcal{K}_\gamma(x_i, x). \quad (3.12)$$

Note that this equation describes a weighted least squares regression of α_i on $(x_i - x)$ with weights $\mathcal{K}_\gamma(x_i, x)$. That is, the estimator runs for each x_i a regression with weights that are smaller for observations that are far from x_i . We use $x_i - x$ rather than x_i as regressors in order to define the intercept a_i as $g(x_i) = E[\alpha_i | x_i = x]$. That is, $\hat{g}(x_i)$ is the observation-specific constant term of the regression equation.

3.6 Regression results

3.6.1 Preliminary analysis

Before implementing the nonparametric approach, we start by presenting the results obtained with a simple linear model estimated through OLS in Table 3.5. We alternatively use the three potential measures of political competition: the Herfindahl-based measure, the vote-margin at the second round and the vote margin at the first round. For the three successive models, the sign of measure of political competition is as expected. A higher level of *Comp* (implying a higher level of competition) is associated with a higher overall activity. This is also the case for the vote-margins measures: at both the first and the second, an decrease of the vote margin (and hence a higher competition) is associated with higher activity. The vote-margin at the second round is however weakly significant,

contrary to the two other measures. This suggests that the caveats of this measure that we raised when discussing the different measures of political competition are relevant, and reinforces the choice of the Herfindahl measure as our favorite measure.

TABLE 3.5: Comparison of competition measures

	<i>Dependent variable:</i>		
	α measure		
	(1)	(2)	(3)
Comp	0.083** (0.033)		
Margin 2 nd round		-0.0003* (0.0002)	
Margin 1 st round			-0.001*** (0.0002)
Controls	YES	YES	YES
Legislature dummies	YES	YES	YES
Region dummies	YES	YES	YES
Occupation dummies	YES	YES	YES
Committee dummies	YES	YES	YES
Observations	20 867	17 952	20 771
R ²	0.167	0.166	0.169

Note:

*p<0.1; **p<0.05; ***p<0.01

We then run this linear model with each separate activity item as independent variable, instead of our composite indicator. Results are displayed in Table 3.6. Competition is significantly linked only to the number of reports: deputies elected in *a priori* contestable districts tend to produce more reports than other, *ceteris paribus*. Even if the effect is not significant for the other items, it is interesting to note that the sign is not always positive. Considering the controls, the signs are also often conflicting depending on the endogenous variable. If the coefficient associated with Schooling, Age, Mayor and Majority always show the same sign, which is as expected, this is not the case for the others. Even if we will comment the results more precisely in the next subsection, a few results are noticeable. First, more experience is associated with more reports and

more propositions of law, but negatively with the number of questions. It suggests that taking the speech during plenary sessions, for debates or questions to the government, might be used by less experienced deputies as a signaling device. Second, we do not find that mayors focus more on highly visible items (debates and questions), as evidenced by [Bach \(2011\)](#). Whatever the type of activity, multiple-office holding is always associated with a lower production. And third, rightist deputies have a lower production than others except for the propositions of law, which is significantly higher.

3.6.2 Base model

The base model uses our measure of productivity, which is discussed in detail in section 4.1, as the endogenous variable, and includes as explanatory variables the measure of electoral competition, the set of political variables (experience, mayor, committee, group size, majority and the political wing right, center and left) and the set of personal variables (age, gender, occupation, schooling and ENA). We introduce an ordered discrete variable representing the successive legislatures to take into account the political context and the evolution of time. The model also includes an unordered discrete variable to capture potential regional disparities as well as another variable indicating the first year of a legislature, since these years are not complete working years. To check the sensitivity of the results, we run the same model substituting the ordered variable legislature by an ordered variable taking into account years instead of legislatures.

We provide in [Figure 3.2](#) the nonparametric results concerning the effect of electoral competition by showing the estimated level of productivity (bounded between 0 and 1) as a function of the degree of competition, holding the other regressors equal to, respectively, the median for continuous variables and modus for discrete variables, using the VI^{th} legislature (the median one) as the reference legislature. The dotted lines represent the bootstrapped 95% confidence intervals. First of all, electoral competition does have a positive effect on productivity, in accordance with the theoretical prediction of [Galasso and Nannicini \(2011\)](#): the tighter the *ex ante* competition, the more productive the elected official will be. Everything else equal, a deputy elected in the *ex ante* most

TABLE 3.6: Individual activity items

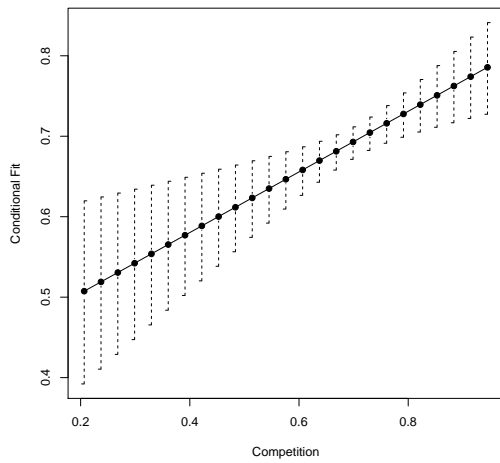
	<i>Dependent variable:</i>			
	Reports	Debates	Questions	Propositions
	(1)	(2)	(3)	(4)
<i>Comp</i>	0.728*** (0.159)	-0.467 (0.367)	0.208 (0.168)	0.181 (0.164)
Schooling	0.032*** (0.004)	0.093*** (0.010)	0.020*** (0.004)	0.026*** (0.004)
Age	-0.006*** (0.001)	-0.028*** (0.003)	-0.016*** (0.001)	-0.013*** (0.001)
Exp	0.020*** (0.002)	-0.0003 (0.005)	-0.009*** (0.002)	0.020*** (0.002)
Mayor	-0.086*** (0.021)	-0.562*** (0.048)	-0.119*** (0.022)	-0.070*** (0.022)
ENA	0.433*** (0.052)	0.488*** (0.121)	-0.137** (0.056)	-0.126** (0.054)
Groupsize	0.001*** (0.0002)	-0.011*** (0.0004)	-0.005*** (0.0002)	-0.002*** (0.0002)
Neutral	-0.204*** (0.050)	-0.894*** (0.116)	-0.177*** (0.053)	0.258*** (0.052)
Right	-0.151*** (0.027)	-0.356*** (0.063)	-0.059** (0.029)	0.369*** (0.028)
Majority	0.575*** (0.030)	0.751*** (0.069)	0.212*** (0.032)	0.082*** (0.031)
Woman	-0.058 (0.045)	0.437*** (0.103)	0.240*** (0.047)	0.065 (0.046)
FirstYear	-0.230*** (0.026)	-0.917*** (0.060)	-0.828*** (0.027)	0.264*** (0.027)
Legislature dummies	YES	YES	YES	YES
Region dummies	YES	YES	YES	YES
Occupation dummies	YES	YES	YES	YES
Committee dummies	YES	YES	YES	YES
Observations	20 867	20 867	20 867	20 867
R ²	0.122	0.176	0.212	0.067

Note:

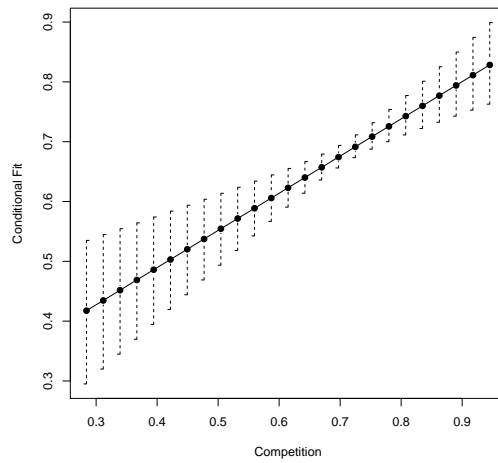
*p<0.1; **p<0.05; ***p<0.01

FIGURE 3.2: Baseline model results

Effect of Competition

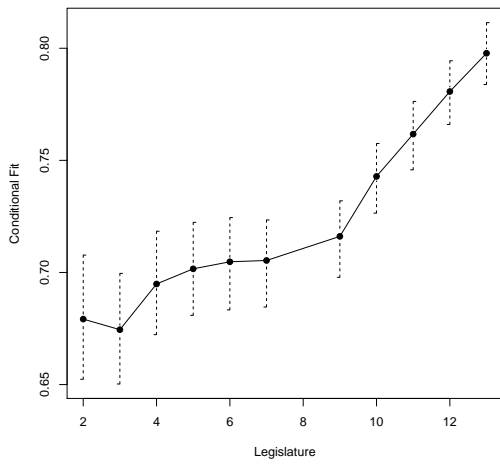


(a) Full sample

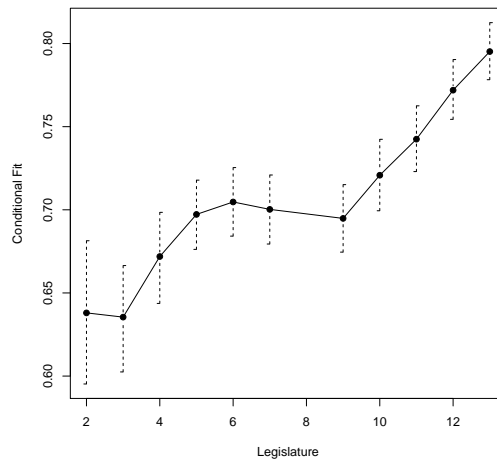


(b) Freshmen sample

Conditional productivity over legislatures



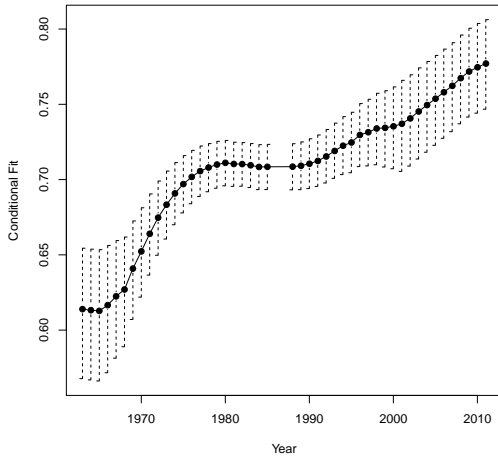
(c) Full sample



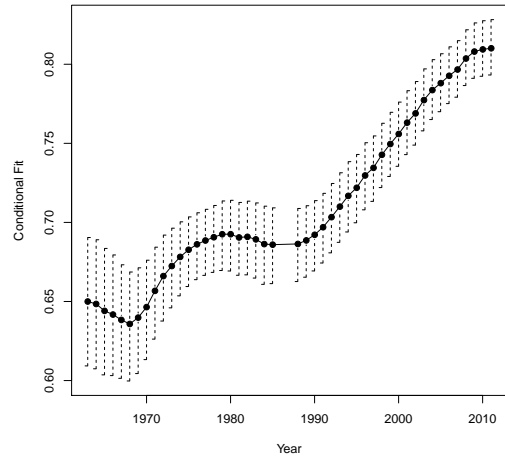
(d) Freshmen sample

FIGURE 3.3: Year model

Conditional productivity over years

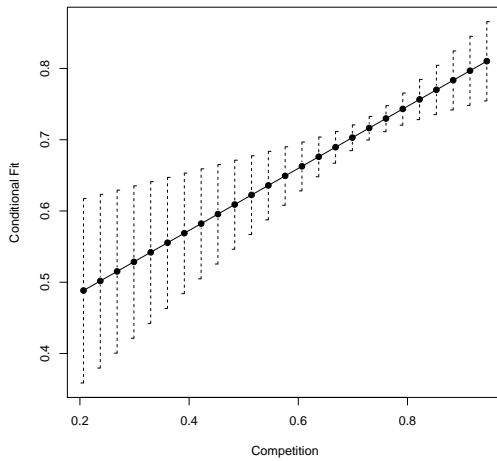


(a) Full sample

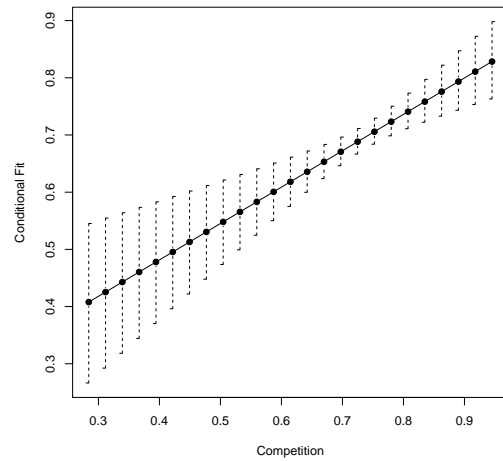


(b) Freshmen sample

Effect of Competition



(c) Full sample



(d) Freshmen sample

contested district is estimated to reach a productivity close to 0.8, while if she is elected in a safe district her productivity is estimated to be at most 0.6. This means that the productivity of deputies can vary by up to 30% depending on the degree of contestability, which is economically highly significant. The relationship is found to be linear. It suggests that there is no threshold above which electoral competition becomes harmful for political selection. This result is confirmed if we replace the legislature variables by year effects, as shown in Figure 3.3.

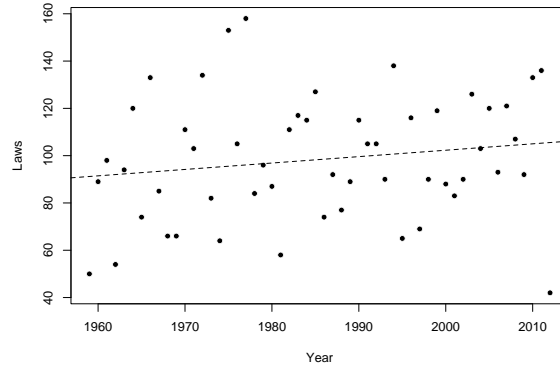
As shown in the lower part of Figure 3.2, the general productivity increased over the legislatures, suggesting an increase of the quality of deputies over time. An alternative explanation of this increase in productivity might be an increase of the legislative production of the Parliament. Since the government controls the agenda, as we have seen in the previous chapter, if the government imposes an increased number of bills on the agenda, deputies might automatically have more activity. We document in Figure 3.4 that the average number of legislative output only slightly increases over time, while the average productivity grew at a much higher pace, increasing from roughly 0.5 to 0.8. In addition, we document that the share of ‘ghost’ deputies, i.e. deputies who do not have any recorded activity has been divided by four in fifty years.

We present the results of the other explanatory variables in Table 3.7. For continuous variables, we report the marginal effect (i.e., the gradient) at the median, the minimum the second and third quartile and the maximum value. For categorical variables, we report the conditional fit according to the value taken by the variable. Values in brackets are the bootstrapped 95% confidence intervals. The * indicates that the confidence interval does not encompass 0 for the continuous variables, and that the confidence intervals do not overlap for categorical categories. This is more stringent definition of significance than a classical formal testing. In addition, we also provide the R-squared statistic, which has the same interpretation as in the parametric framework. It shows the goodness-of-fit of the model.

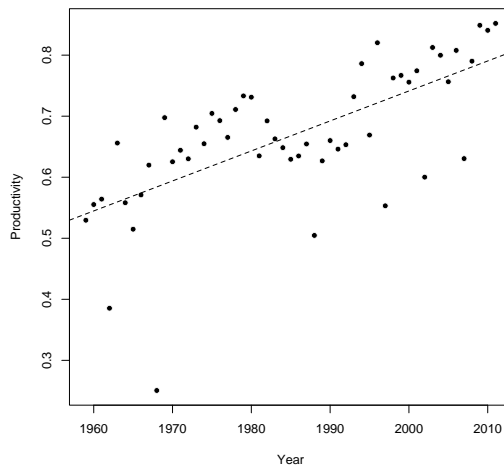
TABLE 3.7: Control variables - Full sample - time: legislatures

	Median	Min.	25%	75%	Max.
	Gradients of continuous variables				
Schooling	3.266* [1.303,5.369]	16.534* [13.739,20.352]	-1.49 [-5.436,2.513]	0.828 [-0.003,1.669]	0.568 [-0.867,2.24]
Age	-0.383* [-0.583,-0.19]	0.093 [-0.174,0.332]	-0.003 [-0.169,0.151]	-0.977* [-1.372,-0.592]	-1.378* [-1.98,-0.787]
Experience	-0.391* [-0.712,-0.09]	-0.126 [-0.4,0.119]	-0.295* [-0.59,-0.028]	-0.389* [-0.732,-0.048]	-0.301 [-0.66,0.082]
Group size	0.005 [-0.005,0.017]	0.005 [-0.005,0.017]	0.005 [-0.005,0.017]	0.005 [-0.005,0.017]	0.005 [-0.005,0.017]
	Conditional fits of categorical variables				
	0	1			
Mayor	0.808 [0.792,0.826]	0.798 [0.783,0.813]			
ENA	0.798 [0.784,0.812]	0.797 [0.784,0.812]			
Majority	0.798 [0.784,0.812]	0.798 [0.784,0.812]			
Sex	0.798 [0.784,0.812]	0.802 [0.788,0.817]			
First year	0.798 [0.785,0.812]	0.72* [0.699,0.742]			
	Left	Neutral		Right	
Left-Right	0.798 [0.783,0.812]	0.777 [0.761,0.794]		0.793 [0.779,0.806]	
Region dummies	Included				
Occupation dummies	Included				
Committee dummies	Included				
R-squared	0.730				
Observations	20867				

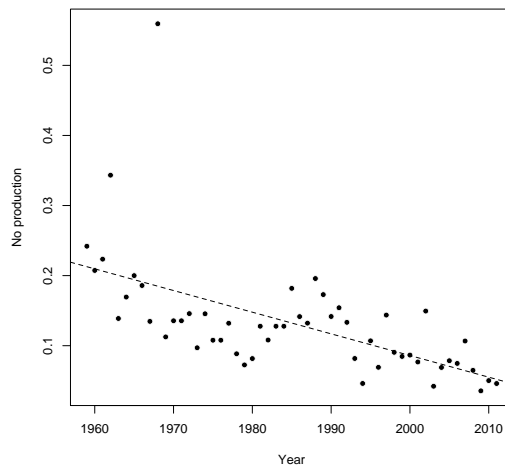
FIGURE 3.4: The increase of deputies' productivity over time



(a) Legislative production



(b) Average productivity



(c) Share of deputies who did not produce anything

Table 3.8: Control variables - Full sample - time: years

	Median	Min.	25%	75%	Max.
	Gradients of continuous variables				
Schooling	1.975* [1.122,2.83]	1.975* [1.122,2.83]	1.975* [1.122,2.83]	1.975* [1.122,2.83]	1.975* [1.122,2.83]
Age	-0.131 [-0.378,0.121]	0.091 [-0.134,0.312]	0.005 [-0.225,0.237]	-0.314* [-0.583,-0.039]	-0.528* [-0.821,-0.231]
Experience	-0.399* [-0.718,-0.099]	-0.399* [-0.718,-0.099]	-0.399* [-0.718,-0.099]	-0.399* [-0.718,-0.099]	-0.399* [-0.718,-0.099]
Group size	0.015 [-0.004,0.036]	-0.058* [-0.072,-0.043]	-0.016* [-0.03,-0.001]	0.042* [0.017,0.068]	0.059* [0.029,0.091]
Conditional fits of categorical variables					
	0	1			
Mayor	0.801 [0.783,0.822]	0.777 [0.747,0.808]			
ENA	0.777 [0.75,0.804]	0.777 [0.752,0.803]			
Majority	0.77 [0.736,0.802]	0.777 [0.75,0.805]			
Sex	0.777 [0.749,0.808]	0.78 [0.752,0.81]			
First year	0.777 [0.75,0.804]	0.725 [0.699,0.751]			
	Left	Neutral	Right		
Left-Right	0.777 [0.748,0.806]	0.775 [0.756,0.793]	0.79 [0.77,0.811]		
Region dummies	Included				
Occupation dummies	Included				
Committee dummies	Included				
R-squared	0.789				
Observations	20867				

In line with [Besley et al. \(2011\)](#), who show that more educated leaders are associated with better economic outcome, we find that schooling is positively correlated with our measure of quality. But the effect of an additional year of schooling is only important for low levels of schooling. There is also an interesting non-linearity in the impact of age: if one additional year does not significantly impact deputies' productivity for young deputies, the impact becomes significant starting with the median age, and an extra year has an increasing negative impact on productivity. The impact of experience on productivity is negative and not linear¹⁸: a marginal year of experience only matters for intermediate levels of experience. Finally, we do not find that group size exerts any effect on productivity, contrary to the free-riding in legislature hypothesis.

Concerning categorical variables, results suggest that deputies who are simultaneously mayors tend to have a lower level of productivity, even if this is not a significant effect. This result is consistent with [Bach \(2011\)](#), who fails to establish a causal impact of multiple office-holding on parliamentary activity. The three following variables, i.e. ENA, Majority and Sex, do not turn significant either. Similarly, we cannot say that deputies of a specific political group tend to be more productive than others.

3.6.3 Who are the 'ghost deputies'?

This subsection focuses on the 'ghost deputies', i.e., deputies who do not have any recorded activity during a year. We have seen in Section 6.2 that despite an important decrease over the years there are still about 8% of the deputies who are in this situation. We investigate whether there are some specific characteristics that are associated with this absence of production. This can be seen a robustness check of our main specification, since we categorize the activity of deputies between 'the worst' and the others instead of using a continuous measure of productivity. To do so, we create the dummy variable 'Ghost' which takes the value 1 when a deputy do not have any activity during the year. The mean of this variable is 0.1195. We then introduce this variable in a Probit

¹⁸The correlation coefficient between age and experience is mild (0.49).

model as a dependent variable. The same variables as in the standard model are used as regressors. Results are displayed in Table 3.9. The results are consistent with what we previously observed: deputies elected in *a priori* contested districts are less likely to have a null production. Similarly, the more educated a deputy, the less likely he/she is to be in this case. Age and experience are however associated with a higher probability to be a ghost deputy, as are the size of the political group (consistently with the free-riding in legislature literature, e.g. Rogers, 2005) and the fact of being in the first year of the legislature.

3.6.4 Controlling for reverse causality: the freshman subsample

The results from the base model might suffer from an endogeneity problem. In the case of deputies running for reelection, the lagged measure of competition might be influenced by the unobservable characteristics of those deputies. As they were already in office and taking part in the political competition, their personal characteristics might have affected the degree of competition, implying a potential reverse causality issue: it is because ‘good’ politicians are running in a district that competition is tight, and not the opposite as we claim.

To mitigate this issue and considering the lack of instrumental variables available, we restrict our sample to deputies being elected for the first time, for a total of more than 7,500 observations. Results are presented in Figure 3.2 and Table 3.10. The positive and linear relationship between electoral competition and productivity still holds in this context. Despite the reduced number of observations in the sample, the confidence intervals are much narrower, reinforcing the relationship between electoral competition and productivity. The increasing productivity over time is also observed in this subsample, even with the model including year dummies instead of legislature ones (see Figure 3.3).

Concerning control variables, most of the results obtained with the whole sample are confirmed. Schooling is again strongly and positively correlated with productivity, and

TABLE 3.9: Ghost deputies

	<i>Dependent variable:</i>
	ghost
Comp	-0.469** (0.190)
Schooling	-0.024*** (0.005)
Age	0.019*** (0.002)
Exp	0.005** (0.002)
Mayor	0.081*** (0.025)
ENA	-0.211*** (0.078)
Groupsize	0.002*** (0.0002)
Neutral	0.098 (0.060)
Right	-0.051 (0.033)
Maj	-0.088** (0.038)
FirstYear	0.070** (0.030)
Observations	20 867
Occupation dummies	YES
Committee dummies	YES
Legislature dummies	YES
Region dummies	YES
Log Likelihood	-6 704.428

Note: *p<0.1; **p<0.05; ***p<0.01

TABLE 3.10: Control variables - Freshmen sample - time: legislatures

	Median	Min.	25%	75%	Max.
	Gradients of continuous variables				
Schooling	1.562* [0.969,2.189]	1.562* [0.969,2.189]	1.562* [0.969,2.189]	1.562* [0.969,2.189]	1.562* [0.969,2.189]
Age	-0.105 [-0.298,0.105]	0.082 [-0.14,0.316]	0.018 [-0.169,0.222]	-0.299* [-0.546,-0.039]	-0.541* [-0.875,-0.203]
Experience	1.138* [0.447,1.783]	2.009* [1.117,2.83]	1.488* [0.74,2.172]	0.863* [0.174,1.509]	0.562 [-0.103,1.171]
Group size	-0.005 [-0.02,0.01]	-0.051* [-0.069,-0.035]	-0.028* [-0.042,-0.013]	0.018* [0.003,0.035]	0.042* [0.025,0.061]
	Conditional fits of categorical variables				
	0	1			
Mayor	0.808 [0.793,0.825]	0.795 [0.779,0.812]			
ENA	0.795 [0.778,0.813]	0.795 [0.778,0.813]			
Majority	0.795 [0.778,0.813]	0.795 [0.778,0.813]			
Sex	0.795 [0.777,0.814]	0.797 [0.779,0.816]			
First year	0.795 [0.779,0.813]	0.729* [0.703,0.755]			
	Left	Neutral		Right	
Left-Right	0.795 [0.779,0.814]	0.771 [0.752,0.789]		0.788 [0.772,0.807]	
Region dummies	Included				
Occupation dummies	Included				
Committee dummies	Included				
R-squared	0.696				
Observations	7509				

age has a negative increasing impact for the oldest deputies. Experience might in very few cases take high values since we consider the first mandate of a deputy after his/her election, and some of them previously worked in the Parliament as substitutes. The size of the political group is negatively correlated with productivity for small groups, but its impact becomes positive as the size of the group increases. For the categorical variables, all the sign of correlations are preserved with respect to the full sample. All these results are robust to the alternative specification which replaces the legislature variable by a year variable as shown on Table 3.11.

3.6.5 Disentangling selection from incentives

To make sure that the observed positive relation between electoral competition and the productivity-based measure of quality is driven by selection, we need to consider that this relation can be alternatively driven by reelection incentives. This would mean that deputies elected in highly contested districts reach a higher productivity in order to ‘look good’ to voters and increase their reelection probability. As explained in Section 3, the organization of the political group limits this alternative explanation since our measure of productivity does not only depend on effort. To further rule out this mechanism, we proceed as Galasso and Nannicini (2011) by including in the model a measure of the future degree of competition and using a subsample containing the last year of legislatures to account for the fact that incentives are at their maximum during the preelectoral year. We further restrict the sample to legislatures during which an exogenous shock significantly impacted the degree of competition for the upcoming elections. Finally, only deputies running for reelection face such incentives. Deputies not running for legislative elections are hence excluded.

The future degree of electoral competition is approximated by the Herfindahl index of the upcoming elections. We gather additional information about the decision to run again or not from the official lists of candidates provided by the Ministry of Interior.

TABLE 3.11: Control variables - Freshmen sample - time: years

	Median	Min.	25%	75%	Max.
	Gradients of continuous variables				
Schooling	1.379* [0.703,2.064]	2.051* [1.117,2.965]	1.7* [0.915,2.475]	1.062* [0.462,1.694]	0.742* [0.181,1.354]
Age	-0.069 [-0.302,0.18]	0.148 [-0.177,0.451]	0.073 [-0.169,0.318]	-0.286 [-0.59,0.038]	-0.542* [-0.955,-0.101]
Experience	1.938* [1.123,2.709]	1.938* [1.123,2.709]	1.938* [1.123,2.709]	1.938* [1.123,2.709]	1.938* [1.123,2.709]
Group size	-0.003 [-0.016,0.011]	-0.01 [-0.023,0.002]	-0.007 [-0.02,0.006]	0.001 [-0.013,0.015]	0.005 [-0.009,0.02]
Conditional fits of categorical variables					
	0	1			
Mayor	0.812 [0.794,0.83]	0.81 [0.792,0.829]			
ENA	0.81 [0.79,0.831]	0.797 [0.756,0.849]			
Majority	0.81 [0.791,0.828]	0.81 [0.791,0.828]			
Sex	0.81 [0.792,0.83]	0.815 [0.786,0.847]			
First year	0.81 [0.794,0.828]	0.755* [0.73,0.78]			
	Left	Neutral	Right		
Left-Right	0.81 [0.79,0.83]	0.78 [0.76,0.8]	0.803 [0.786,0.821]		
Region dummies	Included				
Occupation dummies	Included				
Committee dummies	Included				
R-squared	0.767				
Observations	7509				

This information is only available for the period 1988-2012¹⁹. During this period, we identify two exogenous shocks that are likely to have affected the degree of competition in all constituencies. First, the 1993 elections have been held just after a series of political scandals, involving the President of the National Assembly as well as ministers, provoking a collapse of the leftist coalition, while disagreement concerning the Maastricht treaty divided the right wing (Chevallier et al., 2012). Second, the creation of the *UMP* for the 2002 presidential election, aiming at unifying the right wing, drastically modified the landscape of French politics (Chevallier et al., 2012). Focusing on the deputies running for reelection in 1992 and 2001 yields 851 observations.

Results for *ex ante* competition and future competition are provided in Figure 3.5²⁰. They indicate that even when we control for reelection incentives, the *ex ante* competition is still positively correlated with productivity. On the other hand, the contestability of the upcoming elections is even negatively related to the productivity in the last year of a legislature. This can be explained by the fact that candidates expecting a tight competition spend more time campaigning in their constituency during the last year of a legislature *ceteris paribus*.

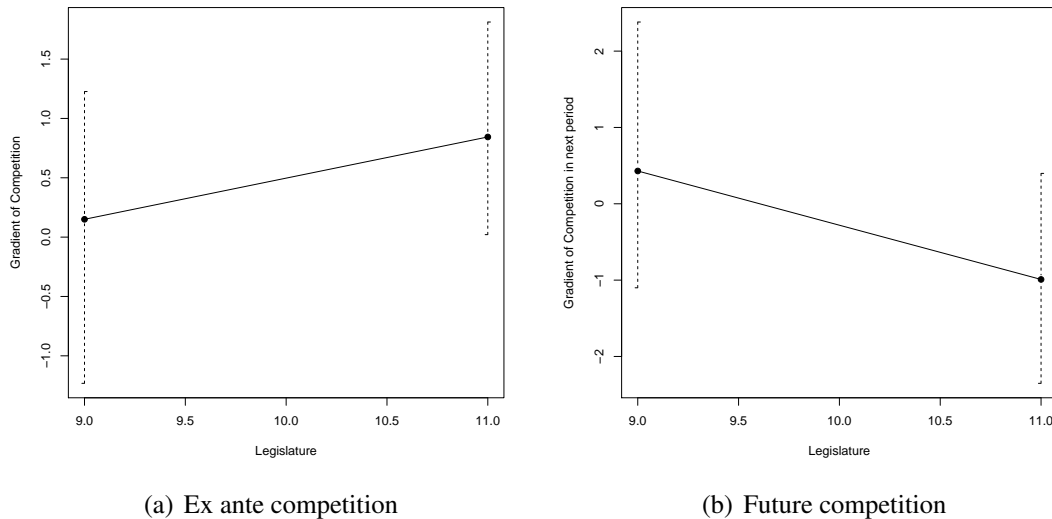
3.6.6 Variation of the relationship over time

An interesting feature of the nonparametric approach is that it allows for interactions between variables in the most flexible way, enabling us to observe how the positive relationship between electoral competition and political selection evolves over time. In other words we can test the validity of the Galasso and Nannicini (2011) model in a temporal perspective. Figure 3.6 shows the impact of competition depending on legislatures using the whole sample. The dotted lines indicate the confidence interval at

¹⁹The name of candidates do not appear on election results provided by the Ministry of Interior before this date, only the name of the party. It is thus not possible to know if a deputy who leaves his/her seat ran for reelection and lost or decided not to run.

²⁰We present here only results for these two variables of interest, but the model was estimated with the same set of variables as in the previous models. All the results for the covariates remain unchanged

FIGURE 3.5: Reelection incentives



the 95% level. It indicates a clear inverse-U shape: the effect of electoral competition sharply increased till the IX^{th} legislature, i.e., the 1988 elections, but it has decreased since then, and it has become insignificant since the XI^{th} legislature. As explained in Section 3, the 1980s were a turning point. The ‘bipolar quadrille’ ended with the election of François Mitterrand in 1981, slightly shifting away the political context from the strict two-party competition described in the theoretical model. The subsequent downturn might have been accelerated by a weakened selection mechanism, due to both the move toward the decentralization of the selection process and to the shrinking pool of potential candidates due to the decreasing party membership. These two phenomena also tend to drift away the context from the theoretical model, providing a strong support to the mechanism that it describes.

When restricted to the freshmen subsample, the results are similar. The inverse-U shape is even clearer when we replace the legislature variable by the year variable for the whole sample. Electoral competition exerts its highest impact in the 80’s, which corresponds to the period between the VII^{th} and the IX^{th} legislatures. For the freshmen

deputies in this setting, the results are not as clear, but the highest impact of electoral competition is also achieved in the 80's, in accordance with the previous results. In these two settings, competition never plays a negative role, but as previously, the effect of *ex ante* competition turns insignificant in the most recent years.

3.7 Conclusion

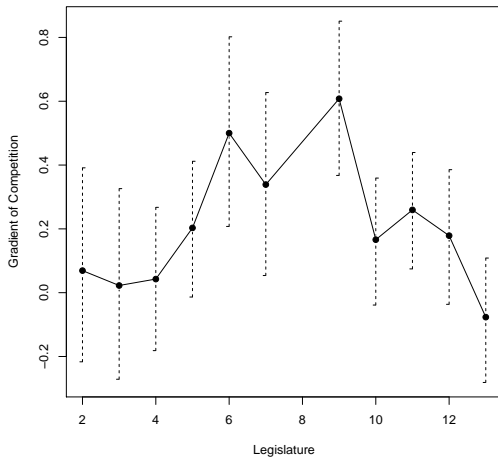
Since politicians may differ in their quality, one needs to identify the drivers of an efficient selection mechanism. This chapter investigated the relationship between electoral competition and political selection. To this purpose we constructed an original dataset encompassing detailed information about more than 2,400 deputies of the French *Assemblée Nationale* from 1958 to 2012, including their individual work within the Parliament as well as personal characteristics on a yearly basis.

Our first task has been to develop a measure of quality based on the parliamentary activity of each deputy. To do so, we used a robust nonparametric efficiency method based on dominance, the α -efficiency estimator. Because individual parliamentary productivity reflects both effort and competence, this measure of quality is much more precise than what has previously been used in the literature. We then constructed a measure of electoral competition based on a Herfindahl index, fitting both the French institutional and political framework and the theoretical framework provided by [Galasso and Nannicini \(2011\)](#).

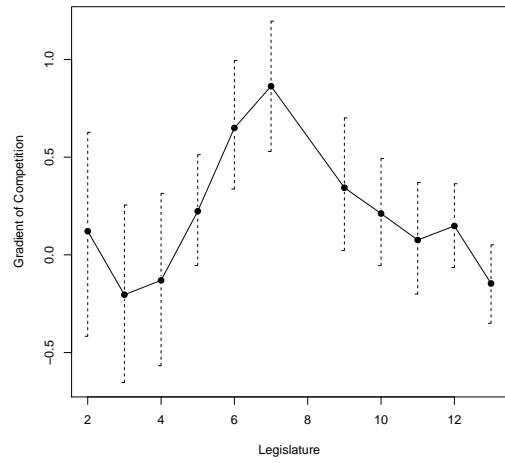
We used a nonparametric kernel regression model allowing for non-linearity and interaction effects, providing full flexibility. The estimated models, controlling for various factors likely to influence parliamentary productivity, point out a clear positive relationship between electoral competition and political selection. Deputies elected in *a priori* contested districts tend to perform better than others. This result is robust to alternative model specifications. To ensure that this finding is driven by a selection and not by

FIGURE 3.6: Effect of competition over time

Effect of Competition over legislatures



(a) Full sample

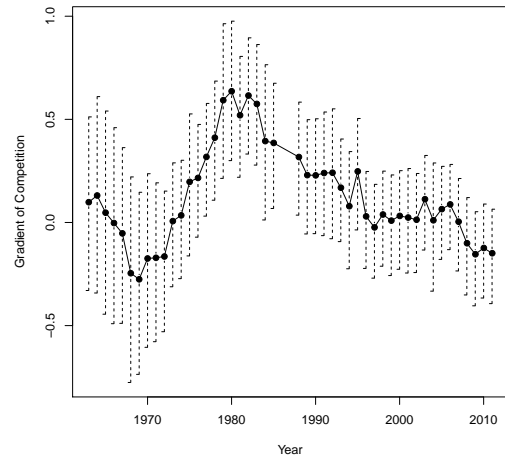


(b) Freshmen sample

Effect of Competition over years



(c) Full sample



(d) Freshmen sample

a reelection incentive effect, we control in a separate analysis for reelection perspectives. Interestingly and as suggested by the literature, we also obtain a positive effect of education.

The nonparametric approach allows us to observe how the relationship between electoral competition and political selection evolved over time. Since ideologies tend to convergence over time, we expected the relationship to gain in intensity. This is however not the case. The impact of competition increased till the 80's, but continuously decreases since then, even if it remains positive. This opens the door for a vast research agenda. The literature identified a few other factors impacting political selection, such as politicians' wage. Our results however indicate that drivers of an efficient selection mechanism are not necessarily stable over time. Both theoretical and empirical work is needed to better understand under which conditions to enhance the functioning of political selection drivers.

Bibliography

- Acemoglu, D., Egorov, G., Sonin, K., 2010. Political selection and persistence of bad government. *Quarterly Journal of Economics* 125 (4), 1511–1575.
- Aitchison, J., Aitken, C. G. G., 1976. Multivariate binary discrimination by kernel method. *Biometrika* 63 (3), 413–420.
- Aragon, Y., Daouia, A., Thomas-Agnan, C., 2006. Efficiency measurement: a nonparametric approach. *Annales d'économie et de statistique* 82, 217–242.
- Ashworth, J., Geys, B., Heyndels, B., Wille, F., 2014. Competition in the political arena and local government performance. *Applied Economics* 46 (19), 2264–2276.
- Bach, L., 2011. Should multiple office-holding be forbidden to politicians? evidence from france. Mimeo working paper.
- Baltrunaite, A., Bello, P., Casarico, A., Profeta, P., 2014. Gender quotas and the quality of politicians. *Journal of Public Economics* 118, 62–74.
- Becker, G. S., 1958. Competition and democracy. *Journal of Law and Economics* 1, 105–109.
- Becker, G. S., 1983. A theory of competition among pressure groups for political influence. *Quarterly Journal of Economics* 97 (3), 371–400.
- Becker, J., Peichl, A., Rincke, J., 2009. Politicians' outside earning and electoral competition. *Public Choice* 140, 379–394.
- Bénabou, R., Tirole, J., 2003. Intrinsic and extrinsic motivation. *Review of Economic Studies* 70 (3), 469–520.
- Bertrand, M., Schoar, A., 2003. Managing with style: The effect of managers on firm policies. *Quarterly Journal of Economics* 118 (4), 1169–1208.
- Besley, T., 2004. Paying politicians: theory and evidence. *Journal of the European Economic Association* 2 (2-3), 193–215.

- Besley, T., 2005. Political selection. *The Journal of Economic Perspectives* 19 (3), 43–60.
- Besley, T., 2006. *Principled agents? The political economy of good government*. Oxford University Press.
- Besley, T., Coate, S., 1997. An economic model of representative democracy. *The Quarterly Journal of Economics* 112 (1), 85–114.
- Besley, T., Folke, O., Persson, T., Rickne, J., 2013. Gender quotas and the crisis of the mediocre man: Theory and evidence from sweden. IFN Working Paper 985.
- Besley, T., Montalvo, J., Reynal-Querol, M., 2011. Do educated leaders matter? *Economic Journal* 121, 205–227.
- Besley, T., Persson, T., Sturm, D., 2010. Political competition, policy and growth: Theory and evidence from the us. *Review of Economic Studies* 77 (4), 1329–1352.
- Besley, T., Preston, I., 2007. Electoral bias and policy choice: Theory and evidence. *Quarterly Journal of Economics* 122 (4), 1473–1510.
- Best, H., Cotta, M., 2000. *Parliamentary Representatives in Europe 1848- 2000*. Oxford University Press.
- Caillaud, B., Tirole, J., 2002. Parties as political intermediaries. *Quarterly Journal of Economics* 117 (4), 1453–1489.
- Carrillo, J. D., Mariotti, T., 2001. Electoral competition and politicians turnover. *European Economic Review* 45 (1), 1–25.
- Cazals, C., Florens, J. P., Simar, L., 2002. Nonparametric frontier estimation: A robust approach. *Journal of Econometrics* 106 (1), 1–25.
- Charnes, A., Cooper, W. W., Rhodes, E., 1978. Measuring the efficiency of decision making units. *European journal of operational research* 2 (6), 429–444.
- Chevallier, J. J., Carcassonne, G., Duhamel, O., 2012. *Histoire de la Ve République: 1958-2012*. Dalloz.

- Daraio, C., Simar, L., 2007. *Advanced robust and nonparametric methods in efficiency analysis: methodology and applications*. Springer Science and Business Media.
- Davin, J. P., 1985. Les groupes parlementaires. *Pouvoirs* 34, 23–29.
- De Paola, M., Scoppa, V., 2011. Political competition and politician quality: evidence from italian municipalities. *Public Choice* 148 (3-4), 547–559.
- Deaton, A., 1989. Rice prices and income distribution in thailand: a non-parametric analysis. *The Economic Journal*, 1–37.
- Downs, A., 1957. *An economic theory of democracy*. New York: Harper and Row.
- Dreher, A., Lamla, M., Lein, S., Somogyi, F., 2009. The impact of political leaders' profession and education on reforms. *Journal of Comparative Economics* 37 (1), 169–193.
- Drummond, A. J., 2006. Electoral volatility and party decline in western democracies: 1970–1995. *Political Studies* 54 (3), 628–647.
- Duverger, M., 1973. Un quadrille bipolaire. *Le Monde* 15/03/1973.
- Farrell, M. J., 1957. The measurement of productive efficiency. *Journal of the Royal Statistical Society. Series A*, 253–290.
- François, A., Weill, L., 2014. Le cumul de mandats locaux affecte-t-il l'activité des députés français? *Revue économique* 65 (6), 881–906.
- Gagliarducci, S., Nannicini, T., 2013. Do better paid politicians perform better? disentangling incentives from selection. *Journal of the European Economic* 11 (2), 369–398.
- Galasso, V., Nannicini, T., 2011. Competing on good politicians. *American Political Science Review* 105 (1), 79–99.
- Galasso, V., Nannicini, T., 2015. So closed: Political selection in proportional systems. Tech. rep., IGIER working paper.

- Ghosh, S., 2010. Does political competition matter for economic performance? evidence from subnational data. *Political Studies* 58 (5), 1030–1048.
- Green, J., 2007. When voters and parties agree: Valence issues and party competition. *Political Studies* 55 (3), 629–655.
- Hall, P., Li, Q., Racine, J. S., 2007. Nonparametric estimation of regression functions in the presence of irrelevant regressors. *Review of Economics and Statistics* 89 (4), 784–789.
- Hayo, B., Neumeier, F., 2013. Political leaders' socioeconomic background and public budget deficits: Evidence from oecd countries. MAGKS Joint Discussion Paper.
- Hazan, R. Y., Rahat, G., 2010. *Democracy within parties*. Oxford University Press.
- Henderson, D. J., Kumbhakar, S. C., 2006. Public and private capital productivity puzzle: A nonparametric approach. *Southern Economic Journal* 73 (1), 219–232.
- Jones, B., Olken, B., 2005. Do leaders matter? National leadership and growth since world war ii. *Quarterly Journal of Economics* 120 (3), 835–864.
- Knapp, A., 2002. *Political parties in advanced industrial democracies*. Oxford, Ch. France: Never a golden age, pp. 107–150.
- Knapp, A., Wright, V., 2001. *The government and politics of France*. Routledge.
- Kotakorpi, K., Poutvaara, P., 2011. Pay for politicians and candidate selection: An empirical analysis. *Journal of Public Economics* 95 (7–8), 877–885.
- Larcinese, V., 2014. *Enfranchisement and representation: Evidence from the introduction of quasi-universal suffrage in italy*. Innocenzo Gasparini Institute for Economic Research working paper series.
- Le Maux, B., Rocaboy, Y., Goodspeed, T., 2011. Political fragmentation, party ideology and public expenditures. *Public Choice* 147 (1-2), 43–67.
- Lewis-Beck, M., 1997. Who's the chef? economic voting under a dual executive. *European Journal of Political Research* 31 (3), 315–325.

- Li, Q., Racine, J., 2004. Cross-validated local linear nonparametric regression. *Statistica Sinica* 14 (2), 485–512.
- Li, Q., Racine, J., 2007. *Nonparametric Econometrics: Theory and practice*. Princeton University Press.
- Lundell, K., 2004. Determinants of candidate selection: The degree of centralization in comparative perspective. *Party Politics* 10 (1), 25–47.
- Mattozzi, A., Merlo, A., 2007. The transparency of politics and the quality of politicians. *American Economic Review* 97 (2), 311–315.
- Mattozzi, A., Merlo, A., 2008. Political careers or career politicians? *Journal of Public Economics* 92 (3-4), 597–608.
- Mattozzi, A., Merlo, A., 2010. *Mediocracy*. PIER working paper 13-010.
- Melyn, W., Moesen, W., 1991. Towards a synthetic indicator of macroeconomic performance: Unequal weighting when limited information is available. *Public Economics Research Paper 17*, Centre for Economic Studies, Leuven.
- Messner, M., Polborn, M., 2004. Paying politicians. *Journal of Public Economics* 88 (12), 2423–2445.
- Moessinger, M.-D., 2014. Do the personal characteristics of finance ministers affect changes in public debt? *Public Choice* 161 (1-2), 183–207.
- Navarro, J., Vaillant, N. G., Wolff, F.-C., 2012. Mesurer l'efficacité des députés au sein du parlement français: L'apport des techniques de frontières non paramétriques. *Revue française de science politique* 62 (4), 611–636.
- Osborne, M. J., Slivinski, A., 1996. A model of political competition with citizen-candidates. *The Quarterly Journal of Economics* 111 (1), 65–96.
- Padovano, F., Ricciuti, R., 2009. Political competition and economic performance: Evidence from Italian regions. *Public Choice* 138 (3–4), 263–277.

- Pagan, A., Ullah, A., 1999. *Nonparametric econometrics*. Cambridge university press.
- Polo, M., 1998. *Electoral competition and political rents*. Mimeo working paper.
- Poutvaara, P., Takalo, T., 2007. Candidate quality. *International Tax and Public Finance* 14 (1), 7–27.
- Racine, J., Li, Q., 2004. Nonparametric estimation of regression functions with both categorical and continuous data. *Journal of Econometrics* 119 (1), 99–130.
- Rogers, J. R., 2002. Free riding in state legislature. *Public Choice* 113, 59–76.
- Rogers, J. R., 2005. The impact of divided government on legislative production. *Public Choice* 123 (1–2), 217–233.
- Shugart, M. S., 2005. Semi-presidential systems: Dual executive and mixed authority patterns. *French Politics* 3 (3), 323–351.
- Skilling, D., Zeckhauser, R. J., 2002. Political competition and debt trajectories in japan and the oecd. *Japan and the World Economy* 14 (2), 121–135.
- Solé-Ollé, A., 2006. The effects of party competition on budget outcomes: Empirical evidence from local government in spain. *Public Choice* 126 (1–2), 145–176.
- Solé-Ollé, A., Viladecans-Marsal, E., 2012. Lobbying, political competition, and local land supply: Recent evidence from spain. *Journal of Public Economics* 96 (1–2), 10–19.
- Stigler, G., 1972. Economic competition and political competition. *Public Choice* 13, 91–106.
- Thiébaud, J. L., 1988. *Candidate selection in perspective: The secret garden of politics*. Sage, Ch. France: The impact of electoral system change, pp. 73–95.
- Thiébaud, J. L., Dolez, B., 1988. *Parliamentary party groups in European democracies*. Routledge, Ch. Parliamentary parties in the French Fifth Republic, pp. 57–70.

- Tulkens, H., 2006. Public goods, environmental externalities and fiscal competition. Springer US, Ch. Efficiency Dominance Analysis (EDA): Basic Methodology, pp. 431–442.
- Wang, M. C., van Ryzin, J., 1981. A class of smooth estimators for discrete-distributions. *Biometrika* 68 (1), 301–309.
- Ysmal, C., 1994. The history of electoral studies in france. *European Journal of Political Research* 25 (3), 367–385.

General Conclusion

In the large literature on political economy, scholars have given little attention to the decision-maker. Policy choices however are likely to be influenced by idiosyncratic characteristics of the leader, and *who* is in office might be important to analyze economic outcomes or types of decision in general. This is what we tried to evidence over the three chapters composing this thesis. We explicitly introduced the decision-makers in the analysis of three French political processes, and provided evidence that indeed, economic and politic outcomes may differ according to the individuals in office. Several interesting results have been highlighted.

In Chapter 1, we have studied the information that voters use to decide whether to reelect or not their mayor. To do so, we developed an original approach based on [Bertrand and Schoar \(2003\)](#) to isolate the personal effect of the mayor on the municipal investment policy. We showed that mayors do have an effect on this economic outcome, even if it has to be noted that we have been able to identify a correlation, not a causal effect. Interestingly, the magnitude of this effect is in the same range as those observed by [Bertrand and Schoar \(2003\)](#) in the context of CEOs of US firms. This suggests that there are some potential bridges to build or to develop between the corporate finance literature and political economy. Especially in what concerns the risk-aversion of the decision-maker, which receives a thorough treatment in corporate finance ([Ben-David et al., 2007](#), [Heaton, 2002](#), [Malmendier and Tate, 2005](#)), but also in what concerns the selection of the decision-maker ([Goel and Thakor, 2008](#), [Tsoulouhas et al., 2007](#), [Magnusson and Boggs, 2006](#)). We then have shown that this mayor effect cannot be related

to their observable characteristics. This result contrasts with several papers establishing a link between decision-makers' characteristics and outcomes (Dreher et al., 2009, Besley et al., 2011 for instance). It also contrasts with the following two chapters, in which we observe such a relationship. This orthogonality between personal influence of the mayor and observable characteristics nevertheless makes possible to cleanly disentangle the different layers of information that voters use. We observed that the influence of the mayor on the investment policy, which we consider as high quality information, is related to the mayor's electoral prospects: mayors exerting a positive influence on the investment spending ratio are more easily reelected. But in accordance with the rational voter hypothesis, the intensity of this relationship decreases as the size of the jurisdiction increases. In large municipalities, the past performance of the mayor plays no role. It is interesting to put this result in perspective with Khemani (2001), who finds that the 'vigilance' of voters and government accountability in local elections increases when the level of government comes closer to voters. Overall, the results support the claim of (Brennan and Buchanan, 1980) that bringing the government closer to the people should improve the functioning of democracy. Several extensions are easily conceivable to deepen the results. First, it will be interesting to extend the analysis to the 2014 electoral results. We have not been able to do so because the demographic and public finance variables are not available yet. Extending the time span of the dataset will also allow implementing a dynamic model. Second, our measure of municipal performance, based on the infrastructure spending policy, is a rather crude indicator, which could be refined. It could be relevant to introduce the mayor effects directly into the analysis of municipal investment efficiency. In other words, to complement the existing literature on the efficiency of public investment by the consideration of the decision-maker. Last, it would be interesting to estimate the mayors' influence on alternative municipal finance items, and to study the links between these effects in order to draw a typology of mayor's 'style'.

After focusing on the lower government tier, Chapter 2 focused on the central government, and more precisely on the government members. We investigated the legislative production of the government over more than half a century, and pointed out the role

of elections: the government tends to produce more laws in the pre-electoral period, and less right after elections. This is consistent with the Political Legislation Cycle theory (Lagona and Padovano, 2008, Padovano and Petrarca, 2013). Moreover we observe that in the case of a semipresidential system such as in France, there exists a dual cycle: one driven by legislative elections, and a second one driven by presidential elections. An interesting result is that several characteristics of the government members are associated with the legislative output. In particular, the experience of the government inside the Parliament plays an interesting role: the magnitude of the cycle driven by parliamentary elections differs according to the overall level of experience of the government. This highlights that even in the context of the central government, individuals who compose the government do play a role in the economic output, although if as in the previous chapter, the methodology does not allow us to establish a causal effect. The analysis of the legislative process provided several interesting secondary results. First, we showed that the legislative production was not affected by the President of the Republic. This confirms the view in the legal and political science literatures that the President fixes the general direction of the government policies, but it relies on the government to establish the legislative strategy (Mathieu and Verpeaux, 2004). In line with this result, we observed that periods of *cohabitation* were not peculiar with respect to the legislative production. Finally, we provided some evidence that following the constitutional reform of 2000, which synchronized presidential and legislative elections, the peak of production preceding the electoral period is roughly equal to the sum of the two previous cycles. In other words, the two cycles seemed to have merged into a single cycle. This result however has to be confirmed in the future, since the number of periods following the reform is to this date rather limited. A logic extension of this chapter is to study how the magnitude of the cycle is linked to the electoral competition and the electoral outcome: does a tighter competition provoke a higher peak of legislation? Does it really increase the reelection probability? The empirical literature on the Political Budget Cycle Veiga and Veiga (2007), Aidt and Veiga (2011), Akhmedov and Zhuravskaya (2004) can serve as benchmark for this purpose. Following the evolution of the PBC literature (Drazen and Eslava, 2005), it might be interesting to focus on the *composition* of the legislative outcome rather than the overall production. Finally, a comparative analysis of the PLC

would be a useful extension, in order to determining the drivers of the magnitude of the cycle.

In Chapter 3, we investigated the political selection process of the French deputies over more than 50 years. In the two previous chapters, we provided evidence that not all politicians behave similarly. As individuals matter, it becomes important to design a selection mechanism enforcing the selection of politicians of good quality. Electoral competition has been identified as a driver of such a selection mechanism (Galasso and Nannicini, 2011). We find that, in accordance with the theory, deputies elected in *a priori* contested districts have a higher level of parliamentary activity, up to 30% higher than deputies elected in low competition districts. The nonparametric methodology we implement relaxes the hypothesis of linear relationship between contestability (that we measure through a Herfindahl index of the vote shares at the first round) and parliamentary activity. The results however indicates that this relationship is indeed linear. An increase of contestability is always associated with a similar increase of parliamentary activity, whatever the actual level of competition. In particular, we do not observe a threshold above which competition becomes harmful. Our nonparametric framework enables us to study the evolution of the relationship between electoral competition and political selection over time. This is the first study attempting to investigate the potential time-varying nature of this relationship. A surprising result emerged: the intensity of the relation increased, as expected, till the end of the 1970's, but then continuously decreases. Since the years 2000, the impact of competition on activity is even not significantly different from 0 anymore. This suggests that electoral competition is not systematically linked with political selection, but only *conditionally*. The results thus asks for more empirical evidence of the instability of this relationship, in order to be able to understand what are the necessary conditions for this relation to be effective. Finally, if we argued that our measure of productivity gives a better insight of parliamentary activity than what has been used in previous studies, this measure suffers from several shortcomings. First, it only encompasses deputies' activity in plenary session. It does not take into account the committee work, which would surely help to depict a more precise assessment of a deputy's quality. Second, it is a purely quantitative measure.

This caveat is difficult to overcome, as there is no clear, objective measure to capture it. This opens many doors for future research.

Bibliography

- Aidt, T., Veiga, F. J. and Veiga, L. G., 2011. Election results and opportunistic policies: A new test of the rational political business cycle model. *Public Choice* 143 (1–2), 21–44.
- Akhmedov, A., Zhuravskaya, E., 2004. Opportunistic political cycles: Test in a young democracy setting. *The Quarterly Journal of Economics* 119 (4), 1301–1338.
- Ben-David, I., Graham, J. R., Harvey, C. R., 2007. Managerial overconfidence and corporate policies. Tech. rep., National Bureau of Economic Research.
- Bertrand, M., Schoar, A., 2003. Managing with style: The effect of managers on firm policies. *Quarterly Journal of Economics* 118 (4), 1169–1208.
- Besley, T., Montalvo, J., Reynal-Querol, M., 2011. Do educated leaders matter? *Economic Journal* 121, 205–227.
- Brennan, G., Buchanan, J. M., 1980. The power to tax: Analytical foundations of a fiscal constitution.
- Drazen, A., Eslava, M., 2005. Electoral manipulation via expenditure composition: theory and evidence. Tech. rep., National Bureau of Economic Research.
- Dreher, A., Lamla, M., Lein, S., Somogyi, F., 2009. The impact of political leaders' profession and education on reforms. *Journal of Comparative Economics* 37 (1), 169–193.
- Galasso, V., Nannicini, T., 2011. Competing on good politicians. *American Political Science Review* 105 (1), 79–99.
- Goel, A. M., Thakor, A. V., 2008. Overconfidence, ceo selection, and corporate governance. *The Journal of Finance* 63 (6), 2737–2784.
- Heaton, J. B., 2002. Managerial optimism and corporate finance. *Financial management* 31 (2), 33–45.

- Khemani, S., 2001. Decentralization and Accountability: Are voters more vigilant in local than in national elections? Vol. 2557. World Bank Publications.
- Lagona, F., Padovano, F., 2008. The political legislation cycle. *Public Choice* 134 (3-4), 201–229.
- Magnusson, P., Boggs, D. J., 2006. International experience and ceo selection: An empirical study. *Journal of International Management* 12 (1), 107–125.
- Malmendier, U., Tate, G., 2005. Ceo overconfidence and corporate investment. *The journal of finance* 60 (6), 2661–2700.
- Mathieu, B., Verpeaux, M., 2004. *Droit constitutionnel*. Presse Universitaire de France.
- Padovano, F., Petrarca, I., 2013. When and how politicians take 'scandalous' decisions? *Constitutional Political Economy* 24 (4), 336–351.
- Tsoulouhas, T., Knoeber, C. R., Agrawal, A., 2007. Contests to become ceo: incentives, selection and handicaps. *Economic Theory* 30 (2), 195–221.
- Veiga, L. G., Veiga, F. J., 2007. Political business cycles at the municipal level. *Public Choice* 131 (1-2), 45–64.

Appendix A

Mayors in France: a database (2000-2012)

The municipal level is probably the most widespread government tier in the world. A large number of empirical studies use this local government level as a testing ground for a highly heterogenous set of theoretical models. This can range from political budget cycle (Veiga and Veiga, 2007, Pettersson-Lidbom, 2001) to the determinants of electoral success (Cassette et al., 2013, Brender, 2003) passing by yardstick competition (Foucault et al., 2008) and the effect of political competition on the quality of politicians (De Paola and Scoppa, 2011). The present dataset provides information about 896 French municipalities of more than 10,000 inhabitants over the 2000-2012 period with a specific attention dedicated to mayors. Beside demographics and budget variables, this dataset contains a set of mayors' personal characteristics. As elections took place in 2001 and 2008, the sample encompasses a total of 1620 mayors.

Several reasons explain the focus on this subnational government level. First, studying a lower-tier government provides a high number of observations. Second, at the opposite of other government levels, the mayor is granted in a lot of countries with an executive power and important prerogatives. Last, as a lot of papers focus on the relationship between politicians and the action of the incumbent, the municipal context

makes credible the hypothesis stating that voters are able to evaluate the quality of the implemented policy. Datasets focusing on the municipal level exist for some countries. For instance, [Veiga and Veiga \(2007\)](#) analyze a sample composed of 278 Portuguese municipalities over the 1979-2001 period, [Solé-Ollé \(2006\)](#) exploits data covering 505 Spanish municipalities between 1992 and 1999 and [Ashworth et al. \(2014\)](#) study a set of 308 Flemish municipalities in the year 2000. However, only the dataset presented in [De Paola and Scoppa \(2011\)](#), focusing on Italian municipalities during the 1985-2008 period, contains details about the personal characteristics of the mayor.

The French municipal context presents some specific features of great interest. First, France is composed of more than 36,000 municipalities, half of the total number of municipalities in the European Union. Limiting the data collection to municipalities with more than 10,000 inhabitants (in year 2000) nevertheless provides information on 896 municipalities. Second, within these municipalities, the demographic as well as the political context is highly heterogenous. Third, this high heterogeneity at the municipal level comes with a homogenous institutional context. All the mayors are granted with similar tools and prerogatives, allowing making meaningful and reliable comparisons amongst jurisdictions.

Some empirical papers investigated the French municipal case. [Charlot and Paty \(2007\)](#) use a subsample of 834 municipalities over the period 1993-2003 to study the determinants of municipal tax setting. [Foucault et al. \(2008\)](#) exploit a dataset including 90 municipalities with a population higher than 50,000 inhabitants from 1983 to 2002. They uncover spending interactions between a municipality and the municipalities in its neighborhood. Finally, [Cassette et al. \(2013\)](#) construct a dataset which shares some common feature with the one presented in this appendix. Their dataset encompasses 821 municipalities of more than 10,000 inhabitants over the period 2000-2009. They are interested in the determinants of the share of votes for the incumbent mayor. They however do not include detailed mayors' characteristics, with the exception of a binary variable indicating whether the mayor has a national mandate in parallel (which in France is common) and the duration of the mayor in office. As it is out of the scope of

their paper, their data does not include precise budget and municipal finance variables, as we do it here.

The remainder of this appendix is as follows. Section 2 describes variables dedicated to mayors' personal characteristics. Section 3 presents demographic variables, while Section 5 introduces variables related to the municipal budget. Section 5 concludes, and Section 6 displays the complete list of variables.

A.1 Mayors' personal characteristics

The first part of the dataset is the main contribution of this dataset. It provides personal information on the mayors of the 896 municipalities included in the sample. During the period in consideration, elections were held in 2001 and 2008, and in total, 1620 different mayors have been in office. *MAYOR* simply indicates the name of the mayor. For the electoral year, the mayor in office is considered to be the newly elected mayor. The personal characteristics can be classified in two sets: personal and political variables.

The first personal characteristics that we present is *WOMAN*, which takes the value 1 if the mayor is a woman. We complement this information with *AGE*, which is computed as the difference between the actual year and the year of birth. Unfortunately, and contrary to the cases of ministers and deputies presented in the next appendices, it has not been possible to collect information about the education of the mayors in a systematic way. The only information available concerning education is the binary variable *ENA*, which takes the value 1 when the mayor graduated from the *École Nationale d'Administration*, the prestigious administrative school from where Jacques Chirac and François Hollande graduated for instance. We however gathered information about the professional background of the mayors. The variable *OCCUPATION* is a categorical variable taking 15 different occupation: education, healthcare, legal, engineer, manager, academic professor/researcher, storekeeper, high-ranking official, political staffer, clerk,

accountant, industry workers, farmer and other. We moreover add a dummy variable *PUBLIC* taking the value 1 if the mayor is coming from the public sector.

Concerning political variables, we classify the mayors into three broad political camps: *LEFT*, *RIGHT* and *EXTREME*. *EXP* indicates the experience (in year) as a mayor of the observation. Four additional experience variables are introduced. *DEPUTY* takes the value 1 if the mayor is simultaneously a deputy in the National Assembly. The variable *SENATOR* similarly indicates those who hold a senatorial mandate in the *Sénat*. Mayors who simultaneously are appointed ministers are identified through the variable *MINISTER*. Last, mayors who have *previously* been minister take the value 1 in the column *PREVIOUS_MINISTER*.

For these variables, the sources are multiple. An important number of mayors simultaneously hold (15% of the sample) or have held a parliamentary mandate. For them, data such as occupation and year of birth was available on the website of the National Assembly (www.assemblee-nationale.fr) or on the website of the Senate (www.senat.fr). For the others, an important source of information was their personal websites and local press articles presenting the candidates before the elections. Several issues of *Who's Who in France* provided some information too, as well as Wikipedia. For about 70% of the mayors, all the information was complete using these sources. For the remaining 30%, we proceeded as follows. First, a mail asking for the missing information has been sent to all the concerned municipalities. The response rate has been surprisingly high (about one third). For the remaining 20% mayors, we directly called the city halls (the cabinet of the mayor or the archive department). Overall, only a few missing observation remains, respectively 8% and 7% for age and occupation.

A.2 Demographics

The second set of variables provides detailed characteristics of the municipality. All the data comes from various datasets provided by the *INSEE*, the French national statistics institute. First, *REGION* indicates the region in which the municipality is localized (there are 22 regions in French metropolitan area). *SUPER* displays the area of the municipality. The municipal population is indicated in the variable *POP*. Unfortunately, this variable is not available for all the years. For year 2000, we take the data from the 1999 census. The population is then available from 2009 onward. For the years between 2000 and 2009, we proceed to a linear interpolation. From these two variables, we are able to compute the population density, *DENSITY*. Such a variable is often used in local spending equations (see for instance [Le Maux et al., 2011](#)). Two specific geographic dummies are also introduced: *MOUNT* and *TOURIST*. The former takes the value 1 when the municipality is localized in the mountains, whereas the latter indicates touristic municipalities. These two categories are classified by the *INSEE*. The unemployment rate is not available in France at the municipal level, but the number of unemployed people is. To approximate the unemployment rate, we use the ratio between the number of unemployed people divided by the population size. This variable is labeled *CHM_COM*. We provide in addition the regional unemployment rate, *CHM_REG*, in order to give some information about the economic context of the municipal neighborhood. The regional GDP growth is represented through *GROWTH_REG*. We provide two variables providing information about the municipal population income. *MEDIAN_INCOME* provides the median income, whereas *MEAN_INCOME* provides the mean income. Finally, the last variable is a categorical variable indicating the membership to a inter municipal cooperation group (for a discussion of the impact of inter-municipal cooperation on municipal spending, see [Frère et al., 2013](#)).

A.3 Municipal budget variables

We present in this section various variables related to the municipal budget. These variables are provided by the *Direction Générale des Collectivités Locales*, an official institute in charge of local public finance data. All level variables are in thousand euros. We first describe variables concerning spending. *FUNCT_SPEND* is a variable indicating the current expenditure of the municipality. Within current spending, *WAGE_SPEND* gives the municipal spending dedicated to hiring municipal employees. Two additional variables focus on capital expenditures. *INV_SPEND* displays the level of investment spending. *EQUIP_SPEND* indicates the level of infrastructure spending. At the opposite of the previous variable, it does not take into account the debt service. Finally, *SUBV_SPEND* gives the amount of funding to local associations.

We now move on to the resource variables. First, *REVENUE* represents the total amount of income obtained through local taxes and local services. This variable is then disaggregated to provide the revenue from taxes, *TAX*. *DGF* indicates the amount of the main grant provided by the central government, the *Dotation Globale de Fonctionnement*. The amount of specific subvention dedicated to infrastructure spending is displayed by *SUBV_REV*. *DEBT* provides information about the level of the debt. *DEBT_SERVICE* moreover gives the annual sum of the cost of the debt service and the refund. Last, the dataset includes some variables describing the accounting result. *RESULT* is the difference between the total income and the total expenditure of the municipality. *EBE* stands for *Excédent Brut d'Exploitation*. It indicates the surplus or the loss realized considering the current expenditures and the current spending.

A.4 Conclusion

This database aims at making publicly available a comprehensive dataset containing information on the personal characteristics of the French mayors between 2000 and 2012,

for the cities of more than 10,000 inhabitants. It comes with a combination of various datasets released by the *INSEE*, providing information about the demographics and the budget of the municipalities. Because of the homogenous institutional context, the French municipal case might be an ideal ground for many empirical investigations. For instance, [Jones and Olken \(2005\)](#) and [Besley et al. \(2011\)](#) establish a link between the individual national leader and economic growth. But international comparisons make the implicit assumption that all the national leaders benefit from the same discretionary power, without satisfyingly taking into account the country specific institutional framework. By studying units of a subgovernment tier, such hypothesis appears milder. Focusing on mayors, who benefit of an important discretionary power, might be a way to study the relation between leaders and economic outcomes more closely.

A.5 List of variables

General variables	
MUNI	Name of the municipality
YEAR	Year
Mayors' personal characteristics	
MAYOR	Name of the mayor in office
WOMAN	=1 if the mayor is a woman
AGE	Age of the mayor
ENA	=1 if the mayor graduated from ENA
OCCUPATION	Indicates the professional background of the mayor
LEFT	=1 if the mayor is leftist
RIGH	=1 if the mayor is rightist
EXTREME	=1 if the mayor is member of a extremist party
EXP	Number of year as a mayor
DEPUTY	=1 if the mayor is simultaneously deputy
SENATOR	=1 if the mayor is simultaneously senator
MINISTER	=1 if the mayor is simultaneously minister

PREVIOUS_MINISTER	=1 if the mayor has been deputy
Demographics	
REGION	Indicates the region of the municipality
SUPER	Area (in km ²) of the municipality
POP	Municipal population (estimated between 2001 and 2008)
DENSITY	POP/SUPER
MOUNT	=1 if the municipality is located in the mountains
TOURIST	=1 if the municipality is a touristic city
CHM.COM	Unemployed people/municipal population
CHM.REG	Regional unemployment rate
GROWTH.REG	Regional growth rate
MEDIAN_INCOME	Municipal median income
MEAN_INCOME	Municipal mean income
Budget variables	
FUNCT_SPEND	Current spending
INV_SPEND	Investment spending
EQUIP_SPEND	Infrastructure spending (investment spending-service of the debt)
SUBV_SPEND	Grants provided to local associations
REVENUE	Total municipal own resources (without grants)
TAX	Municipal revenue from local taxes
DGF	Main grant received from the central state
SUBV_REV	Specific grants received to finance infrastructure spending
DEBT	Level of debt
DEBT_SERVICE	Refund + charge of the debt
RESULT	Difference between total municipal income and total municipal expenditure
EBE	Difference between current municipal income and current municipal expenditure

Bibliography

- Ashworth, J., Geys, B., Heyndels, B., Wille, F., 2014. Competition in the political arena and local government performance. *Applied Economics* 46 (19), 2264–2276.
- Besley, T., Montalvo, J., Reynal-Querol, M., 2011. Do educated leaders matter? *Economic Journal* 121, 205–227.
- Brender, A., 2003. The effect of fiscal performance on local government election results in israel: 1989–1998. *Journal of Public Economics* 87 (9), 2187–2205.
- Cassette, A., Farvaque, E., Héricourt, J., 2013. Two-round elections, one-round determinants? Evidence from the french municipal elections. *Public Choice* 156 (3-4), 563–591.
- Charlot, S., Paty, S., 2007. Market access effect and local tax setting: evidence from french panel data. *Journal of Economic Geography* 7 (3), 247–263.
- De Paola, M., Scoppa, V., 2011. Political competition and politician quality: evidence from italian municipalities. *Public Choice* 148 (3-4), 547–559.
- Foucault, M., Madies, T., Paty, S., 2008. Public spending interactions and local politics. empirical evidence from french municipalities. *Public Choice* 137 (1-2), 57–80.
- Frère, Q., Leprince, M., Paty, S., 2013. The impact of intermunicipal cooperation on local public spending. *Urban Studies* 51 (8), 1741–1760.
- Jones, B., Olken, B., 2005. Do leaders matter? National leadership and growth since world war ii. *Quarterly Journal of Economics* 120 (3), 835–864.
- Le Maux, B., Rocaboy, Y., Goodspeed, T., 2011. Political fragmentation, party ideology and public expenditures. *Public Choice* 147 (1-2), 43–67.
- Pettersson-Lidbom, P., 2001. An empirical investigation of the strategic use of debt. *Journal of Political Economy* 109 (3), 570–583.

Solé-Ollé, A., 2006. The effects of party competition on budget outcomes: Empirical evidence from local government in Spain. *Public Choice* 126 (1–2), 145–176.

Veiga, L. G., Veiga, F. J., 2007. Political business cycles at the municipal level. *Public Choice* 131 (1–2), 45–64.

Appendix B

Government members, political context and legislative production in France: a database (1959-2012)

The analysis of policy makers' personal characteristics receives a growing interest ([Besley et al., 2011](#), [Galasso and Nannicini, 2011](#) among many others). Datasets providing information about characteristics of policy makers together with the institutional and political context, however, is a very scarce resource. This present database aims at partially filling the void concerning France at the national level of government.

Covering the period between the beginning of the first legislature of the *Vth* Republic in January 1959 and the end of the *XIIIth* legislature in March 2012, the present database is composed of two parts. The first part provides personal characteristics of all the members of the successive governments at the individual level. It takes the shape of a panel dataset: the characteristics of a minister are provided for all the successive months he/she has been in office. The second part is a time series that aggregates these characteristics at the government level. It enables studying the evolution of the government characteristics over more than 50 years on a monthly basis, providing 639 periods

over the full sample. We add to these aggregates many variables describing the political context, but also the number of each type of legislative act enacted per month. In France, roughly 90% of the laws voted in the Parliament are originated by the government, which also enjoys an important discretionary power to produce decrees. It supplies to the researchers in political economy original data that were not available previously, as most of them have been constructed *ex nihilo*.

The French case is an ideal ground to implement empirical work for several reasons. The main point is the institutional continuity. Except a few constitutional changes, the institutional framework remains stable since December 1958 and the creation of the V^{th} Constitution, thus providing a large amount of data. Moreover, the unique mix of presidentialism and parliamentarism offers specific features, as the so-called *cohabitation*, which could be exploited in many ways. And last but not least, a high heterogeneity of political contexts occurred during these 54 years, including events such as the political and social crisis of 1968, the death of President Pompidou in 1974 or the entry in the government of communist ministers in 1981.

The rest of the paper is organized as follows. Section 2 describes the first part of the dataset, which provides information about government members at the individual level. Section 3 successively describes the four categories of variables of the second part of the dataset, which provides aggregate data about the governments. Section 4 provides further details about the data sources, and Section 5 concludes. The list of the variables is available in Section 6.

B.1 Personal characteristics of government members

The first variable is *SEX*. It is a dummy variable taking the value 1 if the minister is a woman. The second variable, *BIRTH*, gives the year of birth of the individual. It is followed by *AGE*, which is simply computed as the difference between the actual year and the birth year. The next six variables are dummies providing information about

the education of the ministers. *NO_DIPLOMA* takes the value 1 if the minister did not complete high school. The variable *BAC* indicates ministers who completed high school but did not pursue their studies, at the opposite of those for whom *SUP* takes the value 1. This variable indicates ministers who obtained a university diploma other than a PhD or graduated from ENA. For the former, the variable *DOC* takes the value 1 if the minister completed a PhD. Those who graduated from ENA, the prestigious administration school, are characterized by a value of 1 in the column labeled *ENA*. Finally, ministers who completed political studies other than ENA take the value 1 for the variable *POLITICAL_STUDIES*.

The next set of variables encompasses variables related to the political career of the minister. *GOV* indicates the government in which the minister is a member at this period. The value 1 indicates the first government of the *Vth* Republic, 34 the last government under President Nicolas Sarkozy. The variable *PARTY* indicates the acronym of the party to which the minister belongs. The full list of acronyms is provided at the end of the Appendix. The next variable, *EXP*, indicates the months of experience of the individual as a minister of the *Vth* Republic. Those who already gained a ministerial experience under the previous Republic take the value 1 in the column labeled *MINISTER_4*. The variable *EXP_4* indicates the number of years they served under this Republic. Besides the experience as minister, the dataset also encompasses the experience of the minister as a deputy (*EXP_DEPUTY*) and as a senator (*EXP_SENATOR*), computed in year. The variable *MAYOR* indicates whether the minister holds simultaneously a municipal mandate. If this is the case, the variable *EXP_MAYOR* indicates the number of years since the beginning of this charge. Last, *CITY_SIZE* provides the approximate size of the municipality under responsibility of the individual.

B.2 Aggregate data

The second part of the dataset is shaped as a time series covering the January 1959-March 2012 period. It provides three sets of variables: variables related to (i) the institutional and political context; (ii) the composition of the government and (iii) the legislative production.

B.2.1 Institutional and political variables

The first category of variables aims at describing the institutional and political context and their evolution over the years. As the President of the Republic holds the major role in the French political life, a categorical variable (*PRESIDENT*) indicates the period of presidency of the six successive presidents who took turn between 1958 and 2012, namely Charles De Gaulle (1959-1969), Georges Pompidou (1969-1974), Valéry Giscard d'Estaing (1974-1981), François Mitterrand (1981-1995), Jacques Chirac (1995-2007) and finally Nicolas Sarkozy (2007-2012). Before 2002, the president was elected for seven years. Since the reelection of Jacques Chirac in 2002, this length has been downshifted to five years. The variable *LEGI* shows the 13 legislatures that took place in the National Assembly. The natural length of a legislature is 5 years, but according to the Constitution the president has the power to dissolve the Assembly, provoking an early call of the legislative elections. This happened 5 times over the 54 years covered by the dataset. Similarly, two indicators introduce the successive governments. Officially, 34 different governments took place between 1958 and 2012. However, *GOV1* goes up to 27. This difference is explained by the fact that often, a government is nominated by the president just in the in-between presidential and legislative election, and is confirmed after the legislative election. This 'one-month stand' government is included in the following government. For instance, François Fillon was nominated Prime Minister following the election of Nicolas Sarkozy in May 2007, composing government Fillon I. Less than one month later, after the legislative election, the Prime Minister announced the composition of the government Fillon 2. The variable *GOV2* lists all the different

prime ministers, thus reaching a value of 17. As an illustration, the three governments lead by Fillon between 2007 and 2012 are counted as one for this variable.

LEFT takes the value 1 for leftist governments. A very specific feature of the French institutional context is the possibility to have a two-headed executive power, in which the president and the government are not from the same political side: the extensively studied *cohabitation*. It comes from the fact that originally, the legislative and presidential elections were not held simultaneously. To take into account this particularity the variable *COHAB* takes the value 1 during the three different periods in which such situation occurred. The following variables are useful to capture the leeway enjoyed by the government. The first variable of this set is *COALITION*, which denotes the share of seats in the National Assembly supporting the government. Alternatively, *SEATSPREM* only takes into account the share of deputies affiliated to the party of the Prime Minister. An index measuring the degree of homogeneity of the government coalition is introduced with *HG*. It is computed as a standard Herfindahl index of the seats supporting the government in the National Assembly. Similarly, *HO* measures the degree of homogeneity of the opposition using the same method. Following [Lagona and Padovano \(2008\)](#), these two indicators are used to create a third variable *HT*, computed as follows:

$$HT = HG \times (1 - HO),$$

$$\text{where } HG = \sum_{g=1}^G f_g^2 \text{ and } HO = \sum_{o=1}^O f_o^2,$$

with f_g and f_o the relative frequencies of the number of the seats respectively held by the government and the opposition coalition in the National Assembly. This index ranges from 0 to 1; a value close to 1 indicates a high homogeneity of the governing coalition that faces an extremely heterogeneous opposition.

Finally, three contextual variables are included in the dataset: GDP growth and unemployment. GDP displays the GDP growth for each quarter since April 1960. Unemployment is introduced with two variables: *UNEMPLOY1* and *UNEMPLOY2*. The

former is reported for every quarter since January 1968. The latter is more precise, as it shows the unemployment rate at a monthly frequency, but the series only starts in January 1983.

B.2.2 Composition of the government

The variables of this subsection provide information about the composition of the governments. *NMIN* indicates the total number of ministers. Even if the composition remains quite stable over the lifetime of a government, the Prime Minister may sometimes proceed to a marginal change in the composition of the government, called *remaniement*. These reshuffles are taken into account thanks to the monthly count. All the variables concerning government characteristics are computed when a change in *NMIN* occurs. A battery of 33 variables represents the number of ministers provided by each political party. For instance, in January 1959, the government was composed of fourteen UNR ministers, two UDSR, five CNIP, five MRP, two SFIO and two ministers without official party. The large number of political parties over the period can be partially explained by the fact that the parties are denominated according to their official title contemporaneously to the government. In parallel, the history of the political parties through the years of the sample is long and complex: parties merge and split at a high pace (see for instance [Chevallier et al., 2012](#) for an overview). The list of all the parties taken into account is provided at the end of this appendix.

The aggregate personal characteristics of the government members are described through a set of specific variables built upon the individual data described previously in section 2. *WOMEN* indicates the number of women participating to the government. Similarly, *PREVIOUS_GOUV* displays the number of present ministers who hold this role in the (direct) previous government. Thus, it makes possible to compute a turn-over indicator. The literature on the quality of politicians usually considers three factors constituting the human capital: the past experience in local government, education and previous market income. Unfortunately, availability of the latter is not

even thinkable in France. But with some obstinacy, information about the two formers can be obtained. *MEAN_AGE*, as its name states, expresses the average age of the government members, while *MEDIAN_AGE* and *AGE_SD* respectively indicate the median age and the standard deviation. To be precise, *MEAN_AGE* is computed only considering the year of birth, and not the exact date during the year. In other words, the database considers that everybody was born the 1st of January. Following the same structure, *EXP_MEAN_DEP*, *EXP_MEDIAN_DEP* and *EXP_SD_DEP* put the emphasis on the experience gained by the ministers as deputies at the National Assembly before their governmental function. These variables are expressed in years. In parallel, *EXP_MEAN_SEN*, *EXP_MEDIAN_SEN* and *EXP_SD_SEN* are computed exactly in the same way, but focusing of the experience in the upper room, the *Sénat*. A lot of ministers served in previous government; *EXP_MIN5* thus indicates the average experience (in years) of the government members as former ministers during the *Vth* Republic. *EXP_MIN_1ST* gives the individual experience of the Prime Minister. Finally, *NB_MINISTER4* shows the number of ministers who participated to a government under the *IVth* Constitution (1946-1958).

The dataset includes some variables providing information about schooling of the government members. They are classified into six items. *NB_NO_DIPLOMA* shows the count of ministers who did not obtain a high school diploma. This situation occurs more often during the first governments, as a consequence of the *IInd* World War. *NB_BAC* counts the ministers who passed the *Baccalauréat* which is the final exam in high school, and then stopped their studies. In the same manner, *NB_SUP* takes into account the ministers who obtained a university diploma (except PhD), and *NB_DOC* those who completed doctoral studies. The variable *NB_ENA* shows how many *énarques* were parts of each government. In the same kind of idea, *NB_POLITICALSTUDIES* indicates the number of ministers who studied politics in university (except ENA).

B.3 Production of legislation

The production of legislation can be considered as the output of the government. To become effective, any policy decision needs to take the form of a legislative act, which is redistributive by nature according to the economic theory of legislation (Stigler, 1971, Tollison, 1988). The database includes a monthly count of the four types of legislation existing in France: laws, ‘ordonnances’, decrees and ‘arrêtés’. *LAW* shows the total number of laws that have been promulgated and published in the official journal. There exists a particular kind of laws, namely ‘ordonnance’, which consists in a delegation of power from the Parliament to the government. The latter directly writes the laws, and submits it straightforwardly to the vote of the Parliament, without following the track of a standard bill. This kind of laws is introduced with *ORDO*. Next, *DEC* shows the number of decrees that is officially published for each month. The decrees need to be signed by the Prime Minister or the President. Finally, *ARR* lists all the ‘arrêtés’ (ministerial orders) that are published each month. Contrary to the decrees, this type of legislation is at the discretion of the minister, who does not need any countersignature.

The production of legislation is set up by the pace of the parliamentary sessions. To take it into account, two variables are introduced. First, *ORDINARY* is a binary variable taking the value 1 when an ordinary session is held during the month. Second, *EXTRA* is another dummy variable equal to 1 if the National Assembly ran a so-called extraordinary session. Before 1995, a year was composed of two ordinary sessions, in spring and in autumn, with extraordinary sessions held when needed. A reform in 1995 modified this schedule, and created a unique session running from October to June, still with the possibility to call for an extraordinary session when the topicality asks for it. Thus, the variable *REFORM* takes the value 1 after October 1995. It is worth mentioning that in a few cases, the number of voted laws is positive, while there was not any session occurring during the month. It simply comes from the fact that before being published, a law needs to be signed by the President within two weeks, thus introducing a possible (short) delay.

B.4 Sources and Data Collection

Most of the variables included in this dataset have never been gathered before. Data about general information on the governments, such as the composition or length of each government, have been gathered on the Parliament websites (www.assemblee-nationale.fr and www.senat.fr). The former also provided the data used to compute the political bargaining variables and the length of the parliamentary sessions. Personal characteristics have been collected using various issues of Who's Who in France, ministers' biography and autobiographies and Wikipedia. Macroeconomic data come from the OCDE website (www.ocde.org). Finally, data about the production of legislation were collected on www.legifrance.fr, an official website dedicated to legislative resources.

B.5 Conclusion

This database aims at providing a comprehensive overview of the French governments and its political as well as institutional context over the *Vth* Republic, from its birth to the end of the *XIIth* legislature in 2012. Such data collection has no equivalent concerning the French case, and provides to researchers in political economics or political science a new playground. The extremely simple architecture of the database makes easy the development of various potential extensions. For instance, a very useful extension would be a decomposition of the count of legislation by topic.

B.6 List of variables

Individual characteristics

SEX	=1 if woman
BIRTH	Year of birth

AGE	Difference between year and year of birth
NO_DIPLOMA	=1 if no diploma
BAC	=1 if high school completed
SUP	=1 if university diploma
DOC	=1 if phd
ENA	=1 if graduated from ENA
EXP	Number of years as minister during the Vth republic
MINISTER_4	=1 if minister under the Ivth Republic
EXP_4	Number of years as minister under the Vith Republic
EXP_DEPUTY	Number of years as deputy
EXP_SENATOR	Number of years as senator
MAYOR	=1 if mayor
EXP_MAYOR	Number of years as mayor
CITY_SIZE	Number of inhabitants of the city
Aggregate data	
PRESIDENT	Name of the President of the Republic
LEGI	Index of the Legislature (from 1 to 13)
GOV1	Index of the government (from 1 to 27)
GOV2	Index of government (from 1 to 17)
LEFT	=1 if left-wing government
COHAB	=1 if period of cohabitation
COALITION	Share of seats supporting the government in the National Assembly
SEATSPREM	Share of seats of the Prime Minister's party in the National Assembly
HG	Herfindahl index of the government coalition in the National Assembly
HO	Herfindahl index of the opposition in the National Assembly
HT	Measure of relative homogeneity of the government coalition versus the opposition in the National Assembly
GDP	Quarterly GDP growth
UNEMPLOY1	Quarterly unemployment rate
UNEMPLOY2	Monthly unemployment rate
NMIN	Number of ministers composing the government

WOMEN	Number of women in the in the government
PREVIOUS_GOUV	Number of ministers already ministers in the previous government
MEAN_AGE	Mean age of the government members
MEDIAN_AGE	Median age of the government members
AGE_SD	Standard deviation of the age of the government members
EXP_MEAN_DEP	Mean experience of the government members
EXP_MEDIAN_DEP	Median experience of the government members
EXP_SD_DEP	Standard deviation of the experience of the government members
EXP_MIN5	Mean experience as minister of the government members
EXP_MIN_1ST	Experience of the Prime Minister as minister
NB_MINISTER4	Number of ministers in the government who served during the IVh Republic
NB_NO_DIPLOMA	Number of ministers without diploma
NB_BAC	Number of ministers with a high school diploma
NB_SUP	Number of ministers with a university degree
NB_DOC	Number of ministers with a PhD
NB_ENA	Number of ministers graduated from ENA
NB_POLITICAL_STUDIES	Number of ministers with a political studies background
LAW	Number of laws published in the Journal Officiel
ORDO	Number of ordonnances published in the Journal Officiel
DEC	Number of decrees published in the Journal Officiel
ARR	Number of decrees published in the Journal Officiel
ORDINARY	=1 if ordinary session
EXTRA	=1 if extraordinary session
REFORM	=1 after the reform of the parliamentary session (October 1995)

Parties

CDP	Centre Démocratie et Progrès
CDS	Centre des Démocrates Sociaux
CNIP	Centre National des Indépendants et Paysans
FNRI	Fédération Nationale des Républicains et Indépendents
FT	Front Travailliste

LGM	La Gauche Moderne
MD	Mouvement des Démocrates
MDC	Mouvement des Citoyens
MODEM	Mouvement Démocrate
MR	Mouvement Réformateur
MRG	Mouvement des Radicaux de Gauche
MRP	Mouvement Républicain Populaire
MSL	Mouvement des Sociaux-Libéraux
NC	Nouveau Centre
PCF	Parti Communiste Français
PSU	Parti Socialiste Unifié
PS	Parti Socialiste
RADICAUX	Radicaux
RI	Républicains Indépendants
RPR	Rassemblement Pour la République
SE	Sans Étiquette (without party)
SFIO	Section Française de l'Internationale Ouvrière
UDF	Union pour la Démocratie Française
UDR	Union des Démocrates pour la République
UDSR	Union Démocratique et Socialiste de la Résistance
UDT	Union Démocratique du Travail
UNR	Union pour la Nouvelle République
UNR-UDT	Union pour la Nouvelle République-Union Démocratique du Travail
UDV	Union des Démocrates pour la Ve
UMP	Union pour un Mouvement Populaire
Vert	Les Verts

Bibliography

Besley, T., Montalvo, J., Reynal-Querol, M., 2011. Do educated leaders matter? *Economic Journal* 121, 205–227.

Chevallier, J. J., Carcassonne, G., Duhamel, O., 2012. *Histoire de la Ve République: 1958-2012*. Dalloz.

Galasso, V., Nannicini, T., 2011. Competing on good politicians. *American Political Science Review* 105 (1), 79–99.

Lagona, F., Padovano, F., 2008. The political legislation cycle. *Public Choice* 134 (3-4), 201–229.

Stigler, G. J., 1971. The theory of economic regulation. *The Bell journal of economics and management science* 1 (2), 3–21.

Tollison, R. D., 1988. Public choice and legislation. *Virginia Law Review* 74 (2), 339–371.

Appendix C

The Deputies of the French V^{th} Republic: a database (1959-2012)

Commonly defined as a marketplace where rents are bought and sold, parliaments have been used as a testing ground for a great many number of theoretical models, from political competition (for instance [Galasso and Nannicini, 2011](#)) to team production ([Rogers, 2002](#)) as well as questions relative to the wage of politicians ([Gagliarducci et al., 2010](#)). Implementing such analyses is very data demanding, and available datasets are rare, especially in regard to personal characteristics of the members of parliament (MPs). To our knowledge, only two national parliaments have been subject to a systematic and complete collection of data concerning its members over a long time period. First, [Diermeier et al. \(2005\)](#), attempting to quantify the return to a career in the US Congress, built a dataset containing detailed information on careers of all House and Senate members who entered Congress between 1947 and 1993. Second, [Landi et al. \(2008\)](#) developed a dataset encompassing all the members of the Italian Parliament from 1948 to 2008. Other smaller data collections include the work of [Becker et al. \(2009\)](#), providing information about 299 MPs of the German Bundestag in 2005, and [Besley and Larcinese \(2011\)](#), who focus on the British Parliament, averaging observations between 2001 and 2004. Both samples thus neglect the time dimension.

The present appendix provides a new and complete dataset containing personal information about more than 3100 deputies and their environment from the beginning of the *Ist* legislature in 1959 to the end of the *XIIIth* legislature in 2012. The focus is here on the *Assemblée Nationale*, one of the two chambers composing the French Parliament. The reason for this choice is that the Constitution gives to the National Assembly the final say in case of conflict with the other room, the *Sénat*. The National Assembly is also more interesting for applied work as deputies are directly elected by the citizens, which is not the case for the senators.

The French case represents an ideal ground for empirical analysis for several reasons. First, the political institutions remained stable all over the half-century covered by the sample, ensuring the continuity of the data. This background stability did not prevent a highly heterogeneous political context: the political crisis of May 1968, the death of President Pompidou in 1974, the sudden modification of the voting rule for the parliamentary elections in 1986, passing from a two-rounds majoritarian system to a proportional one, but doing the other way around at the next election, several dissolutions of the parliament by the President of the Republic (in 1962, 1968, 1981, 1988 and 1997), right wing coalitions succeeding to left-wing coalitions, and different legislature durations (the standard length being 5 years). This heterogeneity can be used in a virtually infinite number of empirical researches.

The dataset, extremely simple in its architecture, is composed of more than 160 columns, taking into account variables that can be classified in five categories:

- demographics (such as age and education);
- political experience (experience as a deputy, multiple-office holding, etc.);
- political competition (vote-margin, share of votes and the likes);
- legislature framework (for instance committee membership and size of the political group)

- parliamentary production (number of reports produced, number of propositions of law submitted, etc.).

The remainder of this appendix successively describes the five categories of variables. Section 2 discusses the variables related to the demographics of the deputies. Section 3 focuses on their political experience. Section 4 put the emphasis on the variables related to the political competition while Section 5 describes the variables defining the legislature framework. Section 6 presents different measures of the parliamentary work, and Section 7 concludes. The whole list of variables is displayed in Section 8.

C.1 Demographics

This section details the variables providing information about the demographic characteristics of the deputies. It also includes information about schooling and professional background of the deputies.

A first series of variables depicts the MPs' civil status. *GENDER* is a binary variable indicating the gender of the deputy, taking the value 1 for *BIRTH* and *BIRTHDEP* respectively provide the year and the district in which the deputy was born. From the former variable is constructed the variable *AGE*. This information is available on the website of the National Assembly (www.assemblee-nationale.fr).

A second set focuses on the schooling of the deputies, which is a much more complicated information to gather. It has been reconstituted for 87% of the deputies appearing in the sample. The variable *DIPLOMA* displays the title of the highest diploma obtained by the deputies. Two specific dummies are introduced to take into account a specificity of the French schooling system. First, *ENA* takes the value 1 when the deputy graduated from the *Ecole Nationale d'Administration*, the prestigious school from which most of the senior officials of the public administration come from. Similarly, *GRANDESECOLES* indicates whether the MP graduated from another elitist school (for instance HEC

for business schools and Ecole Centrale for engineering). Diplomas are converted in years of schooling in the variable *SCHOOLING*. This variable is set to 10 years for the deputies without diploma, as school is mandatory from 6 to 16 years old, even if some exception may have occurred for deputies taking part in the first legislatures. Information is also provided for 5 more percents of the deputies but is originated by a logical deduction knowing his or her profession, and not by a formal statement. The variable *NOTSURE* identify these special cases.

The third set is dedicated to variables focusing on the professional background of the deputies. *OCCUPATION* displays the title of the occupation held by a deputy before starting his or her mandate. The variable *ISCO* provides a categorization of the occupations according to the International Standard Classification of Occupation of the ILO. Finally, the variable *PUBLIC* is a dummy variable taking the value 1 if the deputy previously worked in a public administration or in a public company.

As no existing database publicly released information about schooling and occupation of deputies, individual investigation has been implemented for each single MP. Various sources have been used to track back this information. For the deputies of early legislatures, a lot of elements can be found in biographies and autobiographies. An important source of data has been collected in the biographical dictionary *Le Maitron* (maitron-en-ligne.univ-paris1.fr), containing valuable information about leftists and union movement leaders. Various issues of *Who's Who in France* have been helpful too. For the most recent deputies, personal or campaign websites provided some information, as well as newspapers and online press articles. Finally, a precious help has been provided by Dominique Anglès d'Auriac, administrator in the archive department of the National Assembly.

C.2 Political experience

This section introduces variables related to the political experience of the deputies. These variables have been collected using similar sources as for the demographic variables. First, *EXP* shows the number of years a deputy already spent on the bench of the National Assembly. *EXPMIN* indicates MPs who previously hold a ministerial office. A specificity of the French political life is the common practice of multiple office-holding. This is taken into account through a set of specific variables. *MAYOR* points out deputies that are simultaneously at the head of a municipality. To complement it, *CITYSIZE* documents the size of the municipality the deputy is in charge of. Deputies who have been previously mayors but are not anymore take the value 1 in the dummy variable *PREVMAY*. A mandate of deputy is also often associated with a mandate at the *Conseil Général* (district council). This motivates the creation of the variable *CONSGEN*, displaying the value 1 the years for which the deputy seats in parallel in a district council. In addition, *PRESGEN* indicates deputies that are president of such district councils.

C.3 Political competition

In this section, variables relative to elections are described. The first variable, *CIRCOM*, displays the name of the circumscription of election of the deputy. According to the information provided by the National Assembly website, the number of circumscriptions evolved over the years, decreasing from 576 in 1958 to 482 in 1962 (due to the access to independence of former colonies), and then progressively increasing to 577 during the *XIIIth* legislature (2007-2012). The circumscriptions have been created in 1958, with only a major redistricting implemented for the 1988 elections. The voting system is a two-round majoritarian system. Candidates obtaining the votes of at least 12.5% of the total number of voters registered on the listing are qualified for the second round. If a candidate receives more than 50% of the votes at the first round, he or she is elected. At the second round, the candidate receiving the largest share of the votes is elected.

The only exception to this voting system occurred in 1986, when the elections were proportional at the district level (*département*) in one round.

FIRSTROUND is a dummy variable indicating the deputies elected at the first round. *VOTESHARE* shows the share of votes obtained by the elected candidates. *MARGIN* represents the margin of the deputy over the runner up, computed as the difference of the vote shares. *LOCALBIRTH* points out the deputies that are elected in a jurisdiction of their native district, as it can be used as an indicator of the quality of the deputy (Shugart, 2005). *NOTRUNNING* and *DEFEAT* respectively indicates deputies who choose not to run for reelection at the end of their mandate and deputies who failed to be reelected. Additionally, *VOTESHARE2* show the share of the votes obtained by the defeated deputies at the first round of elections, and *SECONDRound* is dummy taking the value 1 if this score allowed him or her to advance to the second round. Note that these four last variables are only available from 1988 onwards. These variables have been constructed using data provided by the *Ministère de l'Intérieur* (Internal Affairs Ministry), except for *LOCALBIRTH*, based on data provided by the National Assembly.

C.4 Legislature framework

The different variables representing the characteristics of the legislatures are introduced in this section. They are all originating from data available on the website of the National Assembly. *GROUP* is a set of binaries showing the membership of the deputies to the different political groups composing the National Assembly. *MAJORITY* takes the value one if the group in which the deputy subscribed is a part of the governing coalition. *GROUPSIZE* is the ratio of the number of group members to the total number of deputies. This can be useful for team production analysis (Le Maux et al., 2011, Rogers, 2002). The political groups are then categorized according to political ideology: *LEFT*, *CENTER* and *RIGHT*.

Deputies of the National Assembly are dispatched among different committees; there were six committees till 2009, it shifted to eight afterwards. A battery of variables indicates the membership of the deputies to those different committees. A deputy is assigned to only one committee at the beginning of a legislature, but some movements appear over the years. When a deputy changes of committee during a year, he or she is classified in the committee in which he or she spent the most part of the year.

Some deputies hold specific functions. The three *questeurs* are in charge of accounting and administrative tasks, while the twelve *secrétaires* assist the president of the National Assembly. Six vice-presidents are habilitated to conduct the debates in replacement of the president. A deputy holding such positions obtain the value 1 for the variable *SPECFUNCT*. It has to be noticed that the president of the room is not considered in the database, as his or her work is not comparable with other deputies. Finally, a last dummy, *SUBSTITUTE*, discriminates the substitution deputies, who can seat for different reasons: appointment of the incumbent in a ministry, the death or the resignation of the incumbent for instance.

C.5 Parliamentary work

This section presents individual items of the MPs' activity. Evaluating the work of a deputy is a challenging task, as it can take many different forms. To elude this problem, the *Tables Nominatives* are used. These official documents, one per parliamentary session (there were two sessions per year before 1995, which have been merged after this date), compile all the activity of a deputy over the session in plenary. It provides an individual summary of the propositions of law submitted (as main writer, not co-signer), the questions asked to the government, the reports written, and the debates in which the deputy took part. An excerpt of this document is provided in Figure C.1. Four variables are thus built, quantifying the activity of each deputy and each year among these four items: *PROPOSITION*, *QUESTION*, *REPORT* and *DEBATE*. It has to be noticed that

the latter does not count the number of interventions, but the number of debates in which the deputy took the floor.

The *Tables Nominatives* also list the committees in which the deputy has been involved in, including the extraordinary (momentary) committees. The three main committees of this type are considered. First, a *commission spéciale* can be created to treat a specific issue and is composed of seventy deputies. Second, the purpose of a *commission d'enquête* (investigation committee) is to provide to its members extended access to confidential documents in order to gather information about a specific topic. Finally, a *commission mixte paritaire* is called in case of disagreement between the two rooms. It is composed of seven deputies and seven senators aiming at elaborating the final version of a bill, before submitting the result to the vote of the deputies. This leads to the creation of three more variables counting the number of extraordinary committees in which the deputy has been involved, respectively *SPECIAL*, *ENQUETE* and *MIXTE*.

C.6 Conclusion

This database aims at making available a comprehensive and detailed description of the deputies of the French *Vth* Republic, from the early years to the end of the most recent legislature up to date. This meticulous work has been designed to provide to economic and political science scholars a new testing ground for the increasingly various theoretical models studying the complex interactions taking place inside the Parliament. The particularly long period of time covered by the data, the highly heterogeneous political context and the specific features of the French institutions makes it particularly relevant for further empirical studies. Some extensions should be developed in the future, especially regarding activity of the deputies within the committees. The interventions in the debates should be also refined, as all the interventions do not have the same significance. Concerning the income of the politicians, that kind of extremely valuable data (as for instance in [Besley et al. \(2013\)](#) where it is at the core of the analysis) remains unfortunately totally undisclosed.

FIGURE C.1: Table Nominative

3	TABLE NOMINATIVE	ABRIOUX
A		
Jean-Pierre ABELIN <i>Vienne (4^{ème} circonscription)</i> <i>Union pour la Démocratie Française</i>		
<p>Elu le 16 juin 2002</p> <p>Adhère au groupe de l'Union pour la Démocratie Française [J.O. du 26 juin 2002] (p. 11064)</p>	<p>Projet de loi n° 230 de finances pour 2003</p> <p>DEUXIÈME PARTIE : MOYENS DES SERVICES ET DISPOSITIONS SPÉCIALES</p> <p>AFFAIRES SOCIALES, TRAVAIL ET SOLIDARITÉ</p> <p>VILLE ET RÉNOVATION URBAINE</p> <p>Examen du fascicule [23 octobre 2002] (p. 3803)</p> <p><i>Procédure des questions :</i></p> <p>Urbanisme : rénovation urbaine : procédures (p. 3825)</p>	
<p style="text-align: center;">NOMINATIONS</p> <p>Membre de la commission de la production et des échanges [J.O. du 27 juin 2002] (p. 11115), devenue commission des affaires économiques, de l'environnement et du territoire [J.O. du 13 octobre 2002] (p. 16985)</p> <p>Membre de la délégation de l'Assemblée nationale pour l'Union européenne [J.O. du 3 juillet 2002] (p. 11464)</p> <p>Membre titulaire du Conseil national de l'habitat [J.O. du 2 août 2002] (p. 13230)</p> <p>Vice-président de la délégation de l'Assemblée nationale pour l'Union européenne [J.O. du 6 novembre 2002] (p. 18357)</p>	<p>EQUIPEMENT, TRANSPORTS, LOGEMENT, TOURISME ET MER</p> <p>LOGEMENT</p> <p>Examen du fascicule [13 novembre 2002] (p. 4969)</p> <p>Sa présentation de l'avis de la commission des affaires économiques (p. 4971)</p> <p><i>Thèmes avant la procédure des questions :</i></p> <p>Logement : Agence nationale pour l'amélioration de l'habitat (ANAH) (p. 4971)</p> <p>Logement : logement social : HLM (p. 4971)</p> <p>Logement : aides et prêts : prêts d'accès à la propriété (PAP) (p. 4972)</p> <p>Logement : aides et prêts : primes à l'amélioration des logements à usage locatif et d'occupation sociale (PALULOS) (p. 4972)</p> <p>Politique économique : conjoncture (p. 4971)</p> <p>TVA : taux réduit : logement (p. 4971)</p>	
<p style="text-align: center;">DÉPÔTS</p> <p>Proposition de loi n° 224 relative à la répression de la conduite sous l'empire de produits stupéfiants [24 septembre 2002]</p> <p>Avis présenté au nom de la commission des affaires économiques, de l'environnement et du territoire sur le projet de loi de finances pour 2003 (n° 230) tome IX : Equipement, transports, logement, tourisme et mer (logement et urbanisme) (n° 258) [10 octobre 2002]</p> <p>Proposition de loi n° 280 tendant à reconnaître le vote blanc comme suffrage exprimé [15 octobre 2002]</p> <p>Proposition de loi n° 501 tendant à la reconnaissance du vote blanc aux élections [18 décembre 2002]</p> <p>Rapport d'information déposé au nom de la délégation de l'Assemblée nationale pour l'Union européenne sur l'adhésion de la Slovaquie à l'Union européenne [8 avril 2003] (n° 780)</p> <p>Proposition de loi n° 918 instituant une journée de la laïcité dans les établissements publics d'enseignement [13 juin 2003]</p>	<p>Projet de loi n° 402 portant diverses dispositions relatives à l'urbanisme, à l'habitat et à la construction</p> <p>PREMIÈRE LECTURE</p> <p>Avant la discussion des articles [28 janvier 2003] (p. 591)</p> <p>Son intervention (p. 592)</p> <p><i>Thèmes :</i></p> <p>Coopération intercommunale (p. 592)</p> <p>Logement : Agence nationale pour l'amélioration de l'habitat (ANAH) (p. 592)</p> <p>Logement : ascenseurs : sécurité (p. 592)</p> <p>Logement : aides et prêts : primes à l'amélioration des logements à usage locatif et d'occupation sociale (PALULOS) (p. 592)</p> <p>Urbanisme : plan d'occupation des sols (POS) (p. 592)</p> <p>Urbanisme : schémas de cohérence territoriale (p. 592)</p>	
<p style="text-align: center;">INTERVENTIONS EN SÉANCE PUBLIQUE</p> <p style="text-align: center;"><i>QUESTION ORALE SANS DÉBAT</i></p> <p>n° 1, posée le 14 octobre 2002. Agriculture, champignons (J.O. questions p. 3479). Appelée le 15 octobre 2002, aides de l'Etat (p. 3283)</p> <p style="text-align: center;"><i>DÉBATS</i></p>	<p>Proposition de loi n° 501 tendant à la reconnaissance du vote blanc aux élections</p> <p>PREMIÈRE LECTURE</p> <p>Discussion des articles [30 janvier 2003] (p. 730)</p> <p><i>Avant l'article 1er</i></p> <p>Intervient sur l'amendement n° 8 de M. Hervé Morin (mise à la disposition des électeurs de bulletins blancs) (p. 733)</p> <p><i>Article 1er (décompte séparé des bulletins blancs; mention dans les résultats; absence d'effet sur les suffrages exprimés)</i></p> <p>Son intervention (p. 735)</p>	
<p>Proposition de loi n° 194 relative à la conduite automobile sous l'influence de drogues illicites et psychotropes</p> <p>PREMIÈRE LECTURE</p> <p>Avant la discussion des articles [8 octobre 2002] (p. 3001)</p> <p>Son intervention (p. 3006)</p> <p><i>Thèmes :</i></p> <p>Sécurité routière (p. 3006)</p> <p>Sécurité routière : accidents : drogue (p. 3007)</p> <p>Sécurité routière : conduite sous l'influence de drogues : dépistage (p. 3007)</p> <p>Sécurité routière : conduite sous l'influence de drogues : infractions (p. 3007)</p> <p>Sécurité routière : conduite sous l'influence de drogues : Union européenne (p. 3006)</p> <p>Discussion des articles [8 octobre 2002] (p. 3019)</p> <p><i>Article 1er (art. L. 235-2 à L. 235-4 du code de la route : sanctions encourues en cas de conduite sous l'influence de stupéfiants - organisation de dépistages aléatoires)</i></p> <p>Intervient sur l'amendement n° 2 de M. Rudy Salles (renforcement des sanctions prévues : 3 ans d'emprisonnement et 7 500 € d'amende) (p. 3024)</p> <p><i>Après l'article 2</i></p> <p>Son amendement n° 1 deuxième rectification (déchéance de la garantie de l'assuré pour conduite sous l'empire de stupéfiants) (p. 3025)</p>	<p>Projet de loi n° 606 relatif à la prévention des risques technologiques et naturels et à la réparation des dommages</p> <p>PREMIÈRE LECTURE</p> <p>Discussion des articles [6 mars 2003] (p. 1713)</p> <p><i>Article 9 (double formation du Comité d'hygiène, de sécurité et des conditions de travail (CHSCT) dans les établissements dangereux et création d'un comité interentreprises de santé et de sécurité au travail)</i></p> <p>Son amendement n° 82 (p. 1722)</p>	
		<p>Projet de loi n° 638 renforçant la lutte contre la violence routière</p> <p>PREMIÈRE LECTURE</p> <p>Discussion des articles [20 mars 2003] (p. 2257)</p> <p><i>Article 8 (permis de conduire probatoire pour les conducteurs novices)</i></p> <p>Son amendement n° 135 (p. 2268)</p>
		<p style="text-align: center;">Jean-Claude ABRIOUX</p> <p><i>Seine-Saint-Denis (10^{ème} circonscription)</i> <i>Union pour la Majorité Présidentielle</i> <i>puis Union pour un Mouvement Populaire</i></p> <p>Elu le 16 juin 2002</p> <p>Adhère au groupe de l'Union pour la Majorité Présidentielle [J.O. du 26 juin 2002] (p. 11065), devenu groupe de l'Union pour un Mouvement Populaire [J.O. du 5 mars 2003] (p. 3868)</p>

C.7 List of variables

General variables

<i>NAME</i>	First name and family name of the deputy
<i>YEAR</i>	Year of the observation
<i>LEGIS</i>	Index of the legislature

Demographics

<i>GENDER</i>	=1 if woman
<i>BIRTH</i>	Year of birth
<i>BIRTHDEP</i>	District of birth or name of the country if abroad
<i>AGE</i>	Age
<i>DIPLOMA</i>	Title of the highest diploma obtained. Minimum considered: Bacalauréat
<i>ENA</i>	=1 if the deputy graduated from the Ecole Nationale d'Administration
<i>GRANDESECOLES</i>	=1 if the deputy graduated from a <i>Grande École</i>
<i>SCHOOLING</i>	Number of years of schooling
<i>NOTSURE</i>	=1 if the school curriculum is uncertain
<i>OCCUPATION</i>	Title of the occupation of the deputy before his or her mandate
<i>ISCO</i>	Categorization of the occupation according to the ISCO-08 norms of the ILO
<i>PUBLIC</i>	=1 if previously working in the public sector

Political experience

<i>EXP</i>	Number of years of experience as a deputy
<i>EXPMIN</i>	=1 if previously hold a ministerial office
<i>MAYOR</i>	=1 holding a simultaneous municipal
<i>CITYSIZE</i>	Population of the municipality managed by deputy-mayor
<i>PREVMAY</i>	=1 if hold a municipality in the past
<i>CONSGEN</i>	=1 if seating simultaneously in Conseil Général
<i>PRESGEN</i>	=1 if being president of a Conseil Général

Political competition

<i>CIRCOM</i>	Name of the circumscription of election
<i>FIRSTROUND</i>	=1 if elected at the first round

<i>VOTESHARE</i>	Share of the votes obtained in the second round, or at the first round
<i>MARGIN</i>	Difference between the shares of votes obtained by the deputy and elected at the first round runner up in the second round or at the first round if the deputy is the
<i>LOCALBIRTH</i>	=1 if elected in a circumscription within their native district
<i>NOTRUNNING</i>	=1 if did not run for election at the end of their mandate (available from 1988 onwards)
<i>DEFEAT</i>	'=1 if failed to be reelected (available from 1988 onwards)
<i>VOTESHARE2</i>	Share of the votes obtained in the first round by deputy who failed to be reelected (available from 1988 onwards)
<i>SECONDROUND</i>	=1 if defeated deputies who nevertheless have been qualified for the second round (available from 1988 onwards)

Legislature framework

<i>GROUP</i>	Name of the parliamentary group of the deputy
<i>MAJORITY</i>	=1 if the group of the deputy is in the majority
<i>GROUFSIZE</i>	Ratio of the number of group members to the total number of deputies
<i>LEFT</i>	=1 if left-wing groups
<i>CENTER</i>	=1 if center group
<i>RIGHT</i>	=1 if right-wing group
<i>SPECFUNCT</i>	=1 if holding a specific function within the Parliament
<i>SUBSTITUTE</i>	=1 if the deputy is a substitute

Parliamentary work

<i>PROPOSITION</i>	Count of propositions of law submitted by the deputy as the main author
<i>QUESTION</i>	Count of questions asked during plenary sessions by the deputy
<i>REPORT</i>	Count of reports written by the deputy
<i>DEBATE</i>	Count of debates in which the deputy took part in plenary sessions
<i>SPECIAL</i>	Count of commission special in which the deputy took part
<i>ENQUETE</i>	Count <i>commission d'enquête</i> in which the deputy took part
<i>MIXTE</i>	Count of <i>commission mixte paritaire</i> in which the deputy took part

Bibliography

- Becker, J., Peichl, A., Rincke, J., 2009. Politicians' outside earning and electoral competition. *Public Choice* 140, 379–394.
- Besley, T., Folke, O., Persson, T., Rickne, J., 2013. Gender quotas and the crisis of the mediocre man: Theory and evidence from sweden. IFN Working Paper 985.
- Besley, T., Larcinese, V., 2011. Working or shirking? expenses and attendance in the uk parliament. *Public choice* 146 (3-4), 291–317.
- Diermeier, D., Keane, M., Merlo, A., 2005. A political economy model of congressional careers. *American Economic Review* 95 (1), 347–373.
- Gagliarducci, S., Nannicini, T., Naticchioni, P., 2010. Moonlighting politicians. *Journal of Public Economics* 94, 688–699.
- Galasso, V., Nannicini, T., 2011. Competing on good politicians. *American Political Science Review* 105 (1), 79–99.
- Landi, M., Merlo, A., Galasso, V., Mattozzi, A., 2008. The labor market of italian politicians. Tech. rep., East Asian Bureau of Economic Research.
- Le Maux, B., Rocaboy, Y., Goodspeed, T., 2011. Political fragmentation, party ideology and public expenditures. *Public Choice* 147 (1-2), 43–67.
- Rogers, J. R., 2002. Free riding in state legislature. *Public Choice* 113, 59–76.
- Shugart, M. S., 2005. Semi-presidential systems: Dual executive and mixed authority patterns. *French Politics* 3 (3), 323–351.

VU :

Le Directeur de Thèse
(Nom et Prénom)

VU :

Le Responsable de l'École Doctorale

VU pour autorisation de soutenance

Rennes, le

Le Président de l'Université de Rennes 1

Guy CATHELIN

VU après soutenance pour autorisation de publication :

Le Président de Jury,
(Nom et Prénom)

De l'importance des individus: trois essais sur les hommes politiques français

L'objectif de cette thèse est d'introduire de manière explicite les caractéristiques personnelles des décideurs publics dans l'analyse de processus politiques français. Trois cas sont successivement analysés, soulevant chacun une problématique distincte. Le premier chapitre s'intéresse à l'échelon municipal, et se base sur un jeu de données original comportant des informations sur l'ensemble des maires des municipalités de plus de 10000 habitants entre 2000 et 2012. L'objectif est de décrire comment l'influence idiosyncratique d'un maire sur la politique d'investissement municipal impacte sa probabilité de réélection. Les résultats indiquent que plus la taille de la municipalité augmente, moins les électeurs se basent sur ce type d'information. Le second chapitre a pour objet la production législative française, et s'appuie également sur une base de données originale. Un double cycle de production législative émerge, généré par les élections présidentielles et législatives. Il apparaît également que les caractéristiques personnelles des ministres influencent la stratégie du gouvernement, notamment l'âge et l'expérience. Enfin, le troisième chapitre se focalise sur l'impact de la compétition électorale sur le processus de recrutement politique. Un important travail de collecte de données concernant la production parlementaire de chaque député de la V^e République permet d'étudier cette relation ainsi que son évolution au cours de la période 1959-2012. Il en ressort que les députés élus dans des circonscriptions compétitives ont une activité parlementaire plus importante, toutes choses égales par ailleurs. Cependant, ce lien entre activité et compétition est en constante diminution depuis les années 1980.

Mots clés : Choix Publics; Personnel Politique Français; Finances Publiques Locales; Élections; Production Législative; Assemblée Nationale; Sélection Politique.

Individuals matter: Three essays on French politicians

The aim of this thesis is to explicitly introduce the decision-maker into the empirical analysis of different political processes in the French context. Three cases are successively analyzed, each raising a specific problematic. The first chapter focuses on French municipalities. A new original dataset, covering mayors of municipalities of more than 10,000 inhabitants over the period 2000-2012, underpins the study. The objective is to investigate to what extent the mayor's personal influence on the investment policy affects his/her reelection probability. Results show that this information plays a significant role only in small municipalities. Chapter two studies the French legislative production, exploiting another original dataset. A dual cycle of the production of laws emerges, connected to both the presidential and the legislative elections. A link between government members' personal characteristics and legislative output is established. Finally, chapter three investigates the relationship between electoral competition and political selection. A third important dataset providing data about the individual parliamentary work of the deputies over the period 1958-2012 allows such an analysis. Results indicate that deputies elected in contested districts have a higher overall productivity. The intensity of the relationship reached its peak in the 1980's, but is continuously decreasing since then.

Keywords : Public Choice; French Politicians; Local Public Finance; Election; Legislative Production; Parliament; Political Selection.