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Organizational Choice under Uncertainty

Four Essays on Public Private Partnerships in France

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Foreword

This Ph.D. dissertation, entitled "Organizational Choice under Uncertainty: Four Essays on Public Private Partnership in France", brings together four essays in the field of organizational choice in the public sector. Each essay corresponds to one chapter. The links between those different chapters and the underlying logic of the whole dissertation is explained in the General Introduction in which we also provide a review of the related literature and we define the questions of research we address. Nevertheless, since each chapter corresponds to an independent essay, chapters can be read separately. This implies the presence of redundant information across chapters.

Abstract

Organizational Choice under Uncertainty:
Four Essays on Public Private Partnerships in France

This dissertation empirically analyzes the performance and the determinants of the Public Private Partnership (hereafter PPP) for the French case, an outsourcing strategy recently developed in the public sector. PPP is an organizational form in which a public actor engages a private operator to execute public investment in one global longterm contract, bundling financing, design, construction, maintenance and sometimes other services (Hart [2003]). This contractual form has become a relevant alternative to traditional procurement in a financially restrained context for public authorities. Nevertheless, since its creation, PPP has continuously been criticized because of its high costs and the widely spread idea that PPP is tactically used to put the debt off balance sheet.

Following the analysis of Transaction Cost Economics theory, as a hybrid model, PPP's potential advantages are not clear enough. Indeed, it may address several governance problems such as partners' opportunism, specific as-

sets and unspecifiable performance *ex ante* (Heide and John [1988], Williamson [1975]). At the same time, it might potentially be more costly due to its legal ramifications and coordination complexities (Hennart [1993], Kogut [1991], Murray and Siehl [1989]). In addition, the financing of PPP coming from the private sector is also a source of higher cost for this solution (Marty and Tran [2014]). Therefore, PPP's potential advantages have to compensate the potential higher costs (Grimsey and Lewis [2005]) in order to become an efficient organization.

Moreover, regarding the organizational choice in the public sector, scholars debate about public actors' motivation for social welfare. On the one hand, Public Administration literature argues that public employees may draw careers by a unique set of altruistic motives: serving the public interest (Frederickson and Hart [1985], Perry and Porter [1982], Perry and Wise [1990]). On the other hand, New Public Management literature suggests that public managers are rational decision makers who primarily seek to maximize their personal utility (Niskanen [1975]).

Yet, while PPP has grown considerably in recent decades and nowadays accounts for a significant portion of public investment (Posner et al. [2009]), empirical research on this topic remains scarce. PPP represents therefore an uncertain environment for its stakeholders. Several studies on PPP's cost performance have been done but their results are not conclusive (Hodge et al. [2010], Whittington [2012], Blanc-Brude et al. [2009], Blanc-Brude [2013], Raisbeck et al. [2010]). PPP determinants have previously been studied both at the national and sub-national level (Hammami et al. [2006], Albalate et al. [2012]), however, the level of analysis, in general, does not deal with the actual decision making structure.

This dissertation intends to fill these gaps by providing an analysis of PPP in France since its creation in 2004. More precisely, we analyze PPP's perfor-

mance and study this organizational form's determinants in the French context. Data is collected for all PPP projects since its creation in 2004 in collaboration with the French PPP taskforce. In a first part (Chapters 1 and 2), we use descriptive methodology to assess the PPP's development, outcomes and challenges in France and, in a second part(Chapters 3 and 4), we make econometric analysis of PPP determinants at the French local government level and discuss why PPP is adopted while, if anything, budget constraints are present.

Chapter 1 focuses on the performance assessment of PPP. In particular, our goal is to study not only the construction phase, as most studies have done till now, but also the project operational phase which contributes to the singularity of our study. To do so, based on a questionnaire administered to the Project Managers of 30 PPP projects out of a totality of 46 in actual operation, we evaluate the efficiency of PPP in terms of costs, deadlines, quality and value for money. More precisely, we review the creation, the implementation and development of PPP projects in France, and perform an analysis of its benefits and potential limitations, together with an initial quantitative study for performance. The results show that on the whole, public actors are satisfied about their PPP projects' performance in terms of deadlines, costs and quality. This level of satisfaction also remains quite stable from one sector to another and over time. Nonetheless, it is worth mentioning that the performance in the operational phase obtains a lower level of satisfaction than the one in the construction phase.

In Chapter 2, we analyze the impact of the financial crisis on the economic balance of PPP. We built a dataset of 38 PPP for which we were exceptionally authorized to use the details of the contractual financial arrangements. We are therefore able to give an understanding of the shift occurred in the projects capital structure during the crisis. More specifically, we show the evolution of each stakeholder's role in the PPP project financing including private operators, public actors and bank lenders. We find that public actors' participation

in PPP financial arrangement has considerably increased during the crisis. We interpret this increase as a strategy, from the public actor, to preserve the affordability of the Project. However, our analysis shows that even if this action can keep PPP's affordability, it could also be negative for PPP's actual performance limiting its value for money benefits.

Chapter 3 studies the adoption of PPP, using a large number of PPP predictors at the individual level approach suggested by the literature: political determinants, mayor characteristics, and their mimetic behavior. To do so, we use data of all the 3,200 French municipalities having more than 3,500 inhabitants. We also focus on particular sub-samples of municipalities that envisage a PPP: the ones having decided to start a PPP study, to implement it but also to abandon a PPP. Our results show significant impacts from both the political determinants and the mimetic behavior of public managers on the use of PPP. On the contrary, mayors' characteristics have no impact regarding this choice. Another interesting result of our study lies on the fact that, while some of our results are in line with previous literature on contracting out and privatization, we find an opposite effect of political competition on the use of PPP. Our study suggests that municipalities under higher level of political competition are more likely to adopt a PPP, while previous studies found the opposite for privatization.

Chapter 4's aims at explaining why the public actors choose PPP when they meet some financial restraints. Specifically, we try to find evidence of the possibility that the adoption of PPP strategy is only for fiscal circumventing motivations, *i.e.* putting the public debt off the balance sheet. To do so, we use the data of the whole sample of 36,000 French municipalities. We first empirically test whether local governments are more tempted towards PPP under budget constraints. Exploiting a singular feature of French institutional context, where local PPP are mandatorily accounted on the public balance since January 1st 2011, we are then able to verify if this behavior is adopted

for a fiscal circumventing motivation, *i.e.* debt hiding. Our results show that debt hiding is not the only motivation when financially stressed municipalities choose PPP as an organizational form.

Keywords: *Public Private Partnership, Performance, Organizational choice, Risk Allocation, Value for Money, Budget Constraint, Debt Hiding, Fiscal Circumvent, Mimetic Behavior, Manager Characteristics.*

Résumé

Choix organisationnel et incertitude :

Quatre essais sur le cas des partenariats public-privé en France

Cette thèse est un travail empirique dont l'objectif est d'analyser les performances ainsi que les déterminants des Partenariat public-privé (ci-après désigné "PPP") en France. Les PPP constituent une stratégie d'externalisation du secteur public : ils sont en effet une forme organisationnelle dans laquelle un acteur public délègue, à un opérateur privé, l'exécution d'un investissement public, par le biais d'un contrat de long-terme groupant le financement, la conception, l'entretien et parfois d'autres services (Hart [2003]). Ce type d'organisation est devenu une alternative fréquente à la commande publique classique dans un contexte de contrainte budgétaire des Etats. Toutefois, ce mode organisationnel a été fortement critiqué en raison de son coût élevé ainsi que de l'hypothèse selon laquelle le PPP est un outil permettant de dissimuler les dettes de la personne publique.

Selon les travaux de la théorie des coûts de transaction (TCT), les PPP étant un mode d'organisation hybride, les bénéfices dont on peut espérer en retirer

ne sont pas clairs. En effet, les PPP peuvent combiner des problèmes de gouvernance liés à l'opportunisme du partenaire, àla spécificité des actifs et à l'incapacité à définir des critères de performance *ex ante* (Heide and John [1988], Williamson [1975]). De même, ce mode organisationnel peut s'avérer être plus coûteux que d'autres solutions contractuelles, en raison de la complexité de son cadre juridique et de sa mise en oeuvre (Hennart [1993], Kogut [1991], Murray and Siehl [1989]). Ainsi, les bénéfices potentiels du PPP doivent compenser les éventuels coûts additionnels (Grimsey and Lewis [2005]) afin de lui permettre de constituer une alternative efficiente.

Qui plus est, en matière de choix organisationnels dans le secteur public, la littérature académique fournit des explications contradictoires quant à la motivation des acteurs publics et la place du concept d'intérêt général dans cette motivation. D'un côté, la litérature en Public Administration estime, pour l'essentiel, que c'est l'altruisme, l'envie de se mettre au service de l'intérêt public (Frederickson and Hart [1985], Perry and Porter [1982], Perry and Wise [1990]) qui motivent les employés du secteur public. D'un autre côté, la litérature en New Public Management considère que les managers publics sont des décideurs rationnels qui privilégient avant tout leurs intérêts personnels (Niskanen [1975]).

Bien que le PPP représente aujourd'hui une part considérable de l'investissement public au niveau international (Posner et al. [2009]), les travaux empiriques sur ce mode organisationnel restent rares. Les PPP sont par conséquent source d'incertitude pour les parties prenantes au contrat. Les résultats des quelques études existantes sur la performance financière des PPP ne permettent pas de trancher les débats sur leur supériorité relative (Hodge et al. [2010], Whinston [2003], Blanc-Brude et al. [2009],Blanc-Brude [2013], Raisbeck et al. [2010]). Quant à la question des déterminants des PPP, les études ont porté sur les échelons locaux et nationaux (Hammami et al. [2006], Albalate et al. [2012]), mais jamais sur le niveau d'analyse qui correspond à celui de la prise de décision.

L'objectif de cette thèse est de contribuer à combler ces lacunes, à travers une analyse des PPP en France, depuis leur création, en 2004. Dans une première partie (Chapitres 1 et 2), nous établissons un état des lieux descriptif, quantitatif des PPP en France, de 2004 à aujourd'hui, qui nous permet de mettre en lumière le développement des PPPs, les résultats qu'ils ont permis ou non d'obtenir les défis qu'ils soulèvent. Dans une deuxième partie (Chapitres 3 et 4), nous nous intéressons aux déterminants des PPP au niveau des gouvernements locaux et réalisons deux études économétriques pour analyser les raisons pour lesquelles ils sont autant plébiscités, dans un contexte où la contrainte budgétaire est forte.

Le premier chapitre consiste à faire une évaluation de la performance des PPPs. Notre objectif ici est d'analyser non seulement la phase de construction (comme l'ont fait plupart des études réalisées jusqu'à présent), mais aussi la phase d'opération (ce qui est une des singularités de notre étude). Pour ce faire, nous avons administré un questionnaire aux personnes qui ont été amenées à gérer des PPP en France, depuis 2004. Pour 30 des 46 PPP en phase opération, nous avons obtenu des informations concernant l'efficacité des PPP en termes de coûts, de délais, de qualité et de rapport coûts/avantages. Plus précisément, les données nous ont permis, premièrement, d'étuder la création, la mise en place et le développement des PPP en France, et deuxièmement, d'analyser les bénéfices et les limites de cette forme contractuelle. Les résultats montrent que, dans l'ensemble, les acteurs publics sont satisfaits des performances réalisées, que ce soit en matière de délais, de coûts ou de qualité. Qui plus est, les niveaux de satisfaction déclarés sont stables d'un secteur à l'autre et à travers le temps. Néanmoins, il apparaît que les performances sont inférieures en phase d'opération qu'en phase de construction.

Dans le deuxième chapitre, nous nous intéressons à l'impact de la crise financière sur le bilan économique des PPP. Nous avons construit une base de donnés de 36 PPP, pour lesquels nous avons exceptionnellement obtenu des

informations détaillées relatives au montage financier. Ceci nous a permis d'analyser les changements éventuels dans la structure du capital, pendant la crise. Concrètement, nous nous intéressons à la manière dont évolue le rôle de chacune des parties prenantes (opérateurs privés, les personnes publiques et les banques) dans le financement du PPP. Nous observons que la participation de la personne publique au financement des PPP augmente significativement pendant la crise. Nous interprétons ce changement comme une manière de préserver l'accessibilité financiìere des projets. Ceci étant, notre analyse montre que cette évolution générerai des effets adverses sur la performance des PPP, réduisant ainsi le bilan coûts/avantages.

Le troisième chapitre étudie l'impact des caractéristiques individuelles du maire et du contexte dans lequel il évolue sur le choix de recourir ou non à un PPP. Ces caractéristiques sont ici modélisées grâce un grand nombre d'indicateurs managériaux, déjà identifiés dans la litérature. Notamment nous analysons l'influence de la couleur politique, des caractéristiques du maire (homme/femme, âge, etc.) et du mimétisme (choix des communes avoisinantes). Pour ce faire, nous utilisons les données de la totalité des 3200 municipalités françaises ayant plus de 3500 habitants. En outre, nous nous focalisons sur des sous-échantillons spécifiques de municipalités qui ont envisagé de réaliser un PPP, c'est à dire sur des sous-échantillons des municipalités qui ont pris la décision de démarrer une évaluation préalable de PPP mais qui ont finalement abandonné le projet. Nos résultats montrent que les déterminants politiques et le mimétisme influencent significativement la probabilité de recourir ou non à un PPP. En revanche, les caractéristiques du maire ne semblent pas avoir d'impact. Par ailleurs, contrairement aux autres études sur l'externalisation et la privatisation, nous trouvons un effet positif de la compétition politique sur le choix de recourir à un PPP.

Le quatrième et dernier chapitre vise à éclairer les raisons pour lesquelles on adopte les PPP dans un contexte de rigueur financière. Nous cherchons à savoir

si le choix du PPP est motivé par une utilisation opportuniste des règles fiscales en vigueur (qui permettent, avec un PPP, d'extraire la dette publique du bilan de la municipalité). Pour ce faire, nous utilisons les données de la totalité des 36000 municipalités françaises. Dans un premier temps, nous regardons si les municipalités sont davantage susceptible de recourir ou non à un PPP lorsqu'elles sont soumises à une forte contrainte budgétaire. Ensuite, nous exploitons une variation exogène du contexte institutionnel français (les PPP locaux sont obligatoirement inclus dans le bilan de la municipalité depuis le 1er Janvier 2011) pour vérifier si le choix d'un PPP est motivé par la volonté d'utiliser abusivement les règles fiscales (dissimulation de la dette publique). Nos résultats montrent que la volonté de masquer la dette ne suffit pas à expliquer les choix des municipalités.

Mots clés : *Partenariat public-privé, Performance, Choix organisationnel, Allocation de risques, Bilan coûts/avantages, Contrainte budgétaire, Comportement mimétique, Maire, Caractéristiques du Manager*

Contents

General Introduction

As stated in the OECD report in 2013, "public investment shapes the choice where people live and work, influences the nature and location of private investment, and affects quality of life". Well-managed public investment is considered one of the most potentially growth enhancing of public expenditures, both at the national (Munnell [1992]) and sub-national level (Munnell and Cook [1990]). Good public investment is therefore important in good times, and even more in difficult ones.

In 2012, public investment spending was USD 1.17 trillion in OECD countries, representing 2.7% of OECD GDP and 15% of total investment (private and public). However, since 2010, fiscal constraints remain tight for many countries, which reduced the resources for public investment. On average, sub-national direct public investment declined by 13% since 2009. As this trend may have a negative consequence for the long-term national growth and societal well-being, it is necessary for all government levels to contribute in doing better with less (OECD [2013]).

As the impact of public investment[1] depends to a significant extent on how

[1]The estimation for public investment here refers to capital expenditure on physical in-

governments manage it, the organizational choice for the realization and management of public investment becomes crucial. The question of governance decision in the public sector is not different from the private sector. Indeed, to organize a public service, the public manager has to optimally decide to do it internally ("make") or externally ("buy"). If the decision is to contract out ("buy"), alternatively to a traditional public procurement (equivalent to spot market purchase or supply contract in the private sector), public managers can also give a higher level of private participation by using Public Private Partnerships[2] (equivalent to joint ventures) or even privatization. Organizational choice includes therefore both the "make or buy" and "how to buy" decisions. Several theoretical perspectives have examined this strategy, including Transaction Cost Economics theory (hereafter TCT) (Coase [1937], Williamson [1975]), Resource-Based View (hereafter RBV) (Kogut and Zander [1992], Zollo et al. [2002]), and Real Options (hereafter RO) (Folta [1998], Kogut [1991]). Among those, TCT and RO scholars both emphasize the role of uncertainty in such a decision making.

In the following, we first review the decision of organizational choice while dealing with uncertainty (Section 1), before presenting the particularities of the public sector regarding this strategy, in Section 2. Section 3 is a review about the specific case Public Private Partnership in regards of the uncertainty stemming from this outsourcing strategy. Both the outcomes and criticisms observed till now are addressed to portray the current PPP status quo and its challenges from a global perspective. We then develop our research questions in Section 4. Finally, Section 5 gives the outlines of the present dissertation.

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frastructure (*e.g.* roads, bridges, government buildings) and soft infrastructure (*e.g.* human capital development, innovation support, research and development) with a productive use that extends beyond a year. However, for the remaining part of this dissertation, we refer to public investment as the only capital expenditure on physical infrastructure.

[2]Public Private Partnership is an organizational form in which a public actor engages a private operator in one global longterm contract for the financing, design, construction and maintenance of a public service (Hart [2003]).

0.1 Uncertainty and Organizational Choice

Uncertainty is ubiquitous in organizations. It impacts all level of firms: strategic decision, daily business, as well as organization's individual members (Grote [2014]). It applies to situations in which potential outcomes and causal forces are not fully understood. This implies a lack of predictability and transparency for effective control (Miller and Lessard [2001]). As a consequence, organizations' and individual decision-makers' foremost aim is to cope with uncertainty. The decision making process for the "make or buy" or "how to buy" strategies is therefore a critical issue. Indeed, contracting with uncertainty is costly because it requires partners to specify, monitor, and control numerous contract contingencies, including the quality of partner resource contributions and the control of know-how (Oxley [1997]). As mentioned above, TCT and RO scholars both emphasize the impact of uncertainty in such a context of strategic decision making. They have opposite arguments regarding the use of joint-venture form to deal with uncertainty.

On the one hand, TCT considers the individual transaction the appropriate unit of analysis for the organizational choice of a firm. The key determinants of organizational choice is the nature and extent of contractual hazards with which the transaction occurs,[3] *i.e.* (see Coase [1937], Williamson [1975], Williamson [1985]). The main idea of the TCT is that firms should internalize transactions ("make") contractual hazards are present and favor the market ("buy") when such hazards are absent (see Shelanski and Klein [1995] for a review). Then, according to the TCT, an organizational form such as a joint venture is better adapted to situations with a high degree of asset specificity and high uncertainty over specifying and monitoring performance, in comparison with a simple contracting out strategy. In other words, they argue that joint venture can resolve high uncertainty over the behavior of the contracting

[3]Contractual hazards are uncertain events that may affect the outcomes of the project.

parties when the assets of one or both parties are specific to the transaction and the uncertainty of the cooperation can be outweighed by the higher costs of 100 percent ownership.

On the other hand, RO scholars stress that uncertainty in the decision of organizational choice should be dealt with flexibility, *i.e.* the option to abandon or to defer investment if necessary (Adner and Levinthal [2004]). The objective here is to avoid uncertainty such as irreversible set-up, administrative, and dissolution costs (Kogut [1991], Folta [1998]). In other words, a real option's value will increase only if partners can have the discretionary power to defer investments that otherwise would lead to sunk costs. Therefore, a joint venture is not an optimal organizational form to deal with uncertainty because in such a project, rights to make future investments and to claim returns are specified, but at the same time, they incur high set-up, control, and dissolution costs. As a consequence, less hierarchical forms such as licensing is a better choice because it enables partners to shift to more hierarchical forms at a future date (Steensma and Corley [2001]).

0.2 Public Sector and Organizational Choice

The question of organizational choice for investment in the public sector represents some particularities that need to be discussed.

Differently from the two streams of literature discussed above, RBV scholars consider that contractual hazards or real options are not the only factors that influence the decision of organizational choice. Indeed, the RBV gives an important role to human dimensions such as organizations' capabilities or know-how that are embodied by managers, employees or organizational routines (Nelson and Winter [1982]).[4] They argue for example that firms may

[4]Following this literature, TCT's idea which holds firms' capacities as constant is not

enter in a joint venture in order to retain the capability of organizing a particular activity while benefiting from the superior production techniques of a partner (Nelson and Winter [1982]). This literature is particularly suitable to analyze the organizational choice in the public sector because, while governance decision in the private sector serves clearly the goal of financial profit seeking, the public sector motivation is also supposed to enhance public interest. The public manager's choice has thereby to achieve not only financial performance (cost saving) but also qualitative performance (social welfare). However, the latter is subject to debate.

On the one hand, an emerging theory about public service motivation suggests that public employees are more motivated and higher performing than private ones (Rainey and Steinbauer [1999]). Public service motivation is defined as "an individual's predisposition to respond to motives grounded primarily or uniquely in public institutions and organizations" (Perry and Wise [1990]). This literature considers that public employees are known to draw careers by a unique set of altruistic motives: serve the public interest, effect social change, shape the policy that affects society (*e.g.*, Frederickson and Hart [1985], Perry and Porter [1982], Perry and Wise [1990]). Evidence is found showing that some public organizations rank higher on efficiency, effectiveness and customer satisfaction in comparison to the private sector (Rainey [2009]).

On the other hand, during the past decades, the New Public Management movement (hereafter NPM) (Barzelay [2001], Osborne and Gaebler [1992]) argues that "management is management" regardless of public or private sector. This argument comes partly from the Public Choice theory, a branch of economics that views individuals as self-interested and rational decision makers who primarily seek to maximize their personal utility (see Niskanen [1975]). This literature considers that public employees are similar to all other employ-

sufficient to analyze the organizational choice. Recently, TCT literature emerged to explore this idea (*e.g.*, Argyres [1996], Leiblein and Miller [2003], Mayer and Salomon [2006], Nickerson and Silverman [2003], Nickerson and Zenger [2002], Silverman [1999]).

ees in the private sector. Moreover, findings of Spiller [2008]) show that due to public actors' opportunism, public sector's goal may also be malevolent.

Another dimension that differs the public sector from the private sector is that government is considered to manage uncertainty in a different way. As investors always choose investment projects in order to maximize the present value of return with risk adjusted, the way that risks are treated play an important role. Indeed, following Arrow and Lind [1970], government investments should not be evaluated by the same criterion used in private markets because in the public sector, government is considered to be able to better cope with uncertainty. The reason behind this argument is that government invests in a great number of projects which allows to pool risk to a greater extent than the private sector. Moreover, if risks occur, government can distribute them among a large number of people. Therefore, government should ignore uncertainty and behave as if indifferent to risk.

These differences make the question about the rationales and the outcomes of public organizational choice even more interesting. As in-house government provision weaknesses have been observed during the last thirty years, a global trend toward greater involvement of the private sector in the delivery public services has arisen. Since the trend is then to "buy", the question of "how to buy" starts becoming unavoidable in the public sector practitioners community. PPP has recently been adopted by many countries as an alternative to traditional public procurement and complete privatization. Thus, PPP has integrated the range of answers to the "how to buy" question at the disposal of public authorities.

0.3 Public Private Partnerships

While PPP may take a variety of forms in practice, the so-called Design-Build-Finance-Operate (hereafter DBFO) model is the most prevalent. In such scheme, PPP involves private sector finance; and the bundling of design, construction, maintenance and sometimes other services into a single long-term "whole life" contract. This is considered an innovative way of outsourcing in comparison to the traditional procurement, where the public authority finances the infrastructure and chooses one private operator for each of these tasks. These DBFO are then distinguished in two forms: government-pay contracts and users-pay contracts.[5] In this dissertation, we focus our study on government-pay contracts which are the recently developed tool for the public outsourcing strategy, more specifically the *Contrat de partenariat* in France. In the following, to simplify, we refer to the *Contrat de partenariat* as PPP. Only in two decades, PPP has been spread all over the world. In the United Kingdom, the country with the longest PPP experience, the share of PPP in total investment expenditures rose from 10% to 15% over the last 10 years. France and Korea had a similar development, with PPP contracts comprising approximately 20% and 15% of investment spending, respectively. In some countries like Portugal, investment through PPP projects is expected to add up to nearly 20% of GDP over the next years (Posner et al. [2009]).

PPP and Uncertainty

While the use of PPP is well spread all over the world, its outcomes remain uncertain. Following Moses [2004], the main factor that can explain the high level of uncertainty in PPP is its large-scale system, which means 1/ large sunk investments, meaning large construction costs, large debts and long-term duration, 2/ demand variations/estimations, particularly for greenfield projects,

[5]We give further definition of PPP forms in the next Chapter "French PPP Overview".

3/ financial markets evolutions (due to the large debts), 4/ political instability. These risks make a complex matrix that needs to be allocated not only between the public and the private actors, but also between the private actor and its subcontractors. The risk allocation is therefore often not as clear and objective as one might expect (Cruz and Marques [2013]). As a consequence, PPP is subject to many contractual renegotiations (Engel et al. [2006]).

Uncertainty in a PPP has a direct effect either on the provision of the services (*e.g.* because the infrastructure is delayed), or on the finahisncial viability of the project (*e.g.* increased costs or penalties for under-performance). These outcomes may come from both exogenous risks and endogenous risks (Akintoye et al. [1998], Bing et al. [2005]). Exogenous risks are those external to the project itself, and include risks at a national or industry level status, and upon natural risks. The risks at this level are often associated with political, legal, economic and social conditions as well as weather. These risks occur beyond the system boundaries of a project but the consequences cross the project boundary to impact upon the project and its outcomes. Endogenous risks occur within the system boundaries of the project. These include project related risks and stakeholders related risks. Project related risks are those linked to implementation problem, project demand or usage, location, design/construction and technology. Stakeholders related risks often include stakeholder relationship difficulties due to the inherent differences between the public and private sectors in contract management. These risks thereby depend directly on the execution of the private operator and the monitoring of the public actor (Blanc-Brude [2013]).

As exogenous risks in PPP can be transferred to the private actor through an insurance (Yescombe [2011]) or kept by the public authority for its quality of risk-neutral public sector (Arrow and Lind [1970]), they are quantifiable *ex ante* and do not really have an impact on the financial viability of the project when occur. Therefore, PPP projects with large sunk investments face three

main outcomes of uncertainty which impact on PPP projects' outcomes: cost overruns, delays and under-performance (Cruz and Marques [2013]).

PPP and Criticisms

The above analysis of PPP's uncertainty level shows that, even if considered as an innovative way for public contracting out, PPP may be subject to criticisms from practitioners. Indeed, attacks are mounting and doubts remain in relation to the performance and usefulness of this new public organizational choice. Press articles have presented criticisms in many countries. For example, "Public Private Partnerships are bad for tax payers" (US), "Around Alberta, Public Private Partnership is a dangerous way to fund projects" (Canada), "The time bomb of Public Private Partnerships" (UK), "Bercy face à la bombe à retardement des partenariats public-privé" (France). More officially, the report of the House of Common in July 2011 in the UK recommended limiting the use of PPP.

As PPP's performance remains uncertain, the rationale behind these criticisms is supposed to lie in its particular accounting rule. Following the Eurostat decision in 2004, PPP is classified as non-governmental through the "risks and rewards" criterion (Heald and Georgiou [2011]). Following this guidance, public authorities can account PPP as off balance sheet when the construction risk and at least one of either availability or demand risk are transferred to the private operator. This accounting rule might therefore increase incentives in favor of PPP for other reasons than the to-be-achieved target of value for money. This motivation might be even more important given the recent fiscal constraint for the public sector to reduce public debt. This trend has been reported not only for the UK, but also for other European countries such as Greece, Spain, Portugal, and Ireland.[6]

[6]For example, the Financial Times reported that in 2002, Goldman Sachs helped Greece

PPP and its Outcomes

Given the uncertainty that represents PPP and the criticisms analyzed above, PPP's outcomes assessments are required. Yet, empirical evidence remains scarce. Most of the existing research analyzes theoretically PPP's advantages and disadvantages, among those, the organizational economic and the project management literatures.

The organizational economic stream developed theoretical models studying the advantages and inconvenient of PPP based on the incomplete contract and complete contract points of view. Under the incomplete contract approach, PPP is analyzed through its main characteristic: the "bundling" mechanism. In this literature, most of the papers are focused on identifying how problems, like contracts incompleteness and asymmetric information, influence the organizational management of a public investment. Where a contract is not able to manage every aspect of the economic relation between the phases of one project, a PPP can incentivize cost reducing innovations (Hart [2003], Bennett and Iossa [2006a]) and, when the externality between the building and the operational phase is positive, it would lead the private partner to make quality enhancing investments (Iossa and Martimort [2008], Martimort and Pouyet [2008b]). However, they also pointed out that these advantages can be partially or totally neutralized in a context of uncertain future determinants because of the excessive risk taken by a consortium of risk adverse private partners and due to the lack of flexibility induced by the early commitment (Iossa and Martimort [2008], Iossa and Martimort [2012], Martimort and Straub [2012]). Differently from these works, in a complete contract approach, some outcomes of interest are verifiable by a third part (totally or partially).

raise off balance sheet finance "by arranging a massive swaps transaction aimed at reducing the cost of financing." The press report explained: Because it was treated as a currency trade rather than a loan, it helped Greece to meet European Union deficit limits while pushing repayments far into the future (Financial Times, Athenian arrangers, February 17, 2010, p7).

They can therefore be specified through a contract. Within this strand of literature, several authors have studied the role played by asymmetric information among agents (Bentz et al. [2001], Iossa and Legros [2004], Martimort and Pouyet [2008b]) and the possible distortions induced by the limitation to the governments' ability to commit (Guasch et al. [2007], Valéro [2013]) or caused by, soft budgets and renegotiations (De Bettignies and Ross [2009], Engel et al. [2009]).

In the project management literature, some scholars are also interested in identifying advantages of PPP. For example, Li et al. [2005] discussed the attractiveness/benefits of PPP. Rangel and Galende [2010] argued that PPP means innovation. In the same line, Noble and Jones [2006] considered PPP as opportunities for the improvement of economy and technology. Differently from economists, another stream of project management literature focused on examining the criteria that make PPP successful. Many of those concentrated on critical success factors (hereafter CSF) of PPP projects (Tiong et al. [1992], Qiao et al. [2001], Zhang [2005]). They identified several keys to success: a well-structured and feasible decision framework (Zhang et al. [2002]), a carefully selected tender/project team (Kumaraswamy and Anvuur [2008]), specific risk analysis in politics (Wang et al. [2000]), understandings about each partner's goals during the negotiation (Ahadzi and Bowles 2004), as well as the managing process (Ahadzi and Bowles [2004], Algarni et al. [2007]). PPP's performance system measurement was built by Yuan et al. [2009] in taking consideration of all the stakeholders' viewpoint: public sector, private sector, academia, as well as public users.

As mentioned above, due to the lack of data, empirical studies about PPP's outcomes are scarce. Among those available, the results are not conclusive. The most famous feedback about PPP's performance is the work of Hodge et al. [2010] which is composed of several PPP case-studies all over the world. Another case study is the one of Whittington [2012], in which the author

evaluated the comparative efficiency between PPP and traditional procurement based on transaction cost theory. Regarding quantitative studies, at the best of our knowledge, we only identified three academic research on PPP (Blanc-Brude [2013], Blanc-Brude et al. [2009], Raisbeck et al. [2010]). They all focused on PPP's performance in terms of cost, in comparison with traditional procurements. Blanc-Brude et al. [2009] and Blanc-Brude [2013] found contrary results about PPP's construction cost efficiency in two different sectors in Europe: the highway sector and the school sector. Using data from Australian PPP's feasibility assessments, Raisbeck et al. [2010] came with a superior performance of PPP in both the cost and time dimensions, and that the PPP advantage increases (in absolute terms) with the size and complexity of projects. While these quantitative studies give a first insight about PPP's outcomes, they focused only on the cost aspect. Moreover, the two formers used only the construction cost, and the latter used data from PPP's feasibility assessments. comparison to in-house provision strategy)

PPP and its Determinants

Given the lack of feedbacks and a high level of criticism, academic studies about PPP efficiency determinants are necessary. However, in reality, this determinant is incredibly difficult to test because a counter-factual is not readily available. It would require to compare similar projects carried out using different governance mechanisms, such as PPP versus traditional procurement. In addition, the outcome of such comparisons may critically depend on the scope of considered project costs. For instance, as mentioned above, Blanc-Brude et al. [2009] and Blanc-Brude [2013] find conflicting results when considering single-task PPP or PPP under the bundling mechanism (*i.e.* construction and operation). Given these problems, there are only qualitative studies that directly address the question whether the PPP choice is driven by efficiency considerations. Most of the existing quantitative studies only use covariates

representing alternative motivations to go for PPP. These study therefore show that PPP are not pursued for efficiency reasons alone, or only under specific conditions. This is in line with the debate among scholars of Public Administration and New Public Management literature about public managers' motivation regarding public interest.

The existing studies in the topic mainly find significant result for institutional determinants such as fiscal dimensions and political considerations. At the national level, for instance, using a large database of over 1,000 PPP contracts all over the world, Hammami et al. [2006] tries to identify the determinants of PPP choice across developed and developing countries. While these studies are interesting for analyzing aggregate drivers such as institutional features, the level of analysis typically does not correspond to the actual decision making structure. At the sub-national level, only a limited number of studies consider PPP determinants. Albalate et al. [2012] studies states and local governments in the US, but focuses on the degree of private participation instead of the decision to implement a PPP or not. Russo and Zampino [2010] try to explain the intensity of PPP use in Italy, but only for the subsample of those provinces which had at least one PPP. While giving some insights about the rationales behind the choice of PPP as governance type, these studies did not compare public authorities who use PPP with those who did not consider the possibility of a PPP. Moreover, while Russo and Zampino [2010] and Albalate et al. [2012] found a positive impact of fiscal constraint on the use of PPP, there is no evidence about the rationale behind the choice of PPP under such a constraint.

0.4 Research Questions

Given the lack of academic studies about PPP outcomes and its determinants, this dissertation precisely intends to fill these gaps by providing an analysis of

PPP in France since their creation in 2004. Our research questions are:

- How well is PPP performed in terms of performance since its creation in 2004, *i.e.* cost overruns, delays and under-performance? How might this performance be impacted with changes in the financial conditions during the financial crisis?
- Given the situation of PPP in terms of uncertainty, why do governments develop this organizational choice? Is it for utilitarian reasons, such as PPP's potential performance? Or is it for the decision makers' symbolic and normative concerns, *i.e.* politics, ideology, mimetism? Or is it for fiscal circumventing motivations?

In order to answer to these questions, this dissertation regroups four chapters presented in two parts. The first part of this dissertation gives a feedback about the situation of PPP development and outcomes in France. In this part, we discuss also the conditions to achieve a better performance for PPP. The second part analyses the determinants of PPP's use in France. All various potential factors that may explain the decision to use PPP, such as political dimensions, public manager's characteristics, as well as fiscal considerations are taken into account. This part also answers to the question of whether PPP is used for the goal of fiscal circumventing under a fiscal constraint context.

0.5 Data Context

We use the French context to conduct our research. France represents an interesting case to study PPP for several reasons. First, France has become experienced regarding the PPP topic. Indeed, only seven years after its creation, in 2011, France became the leader country in Europe in terms of PPP value. Second, the PPP market in France has a well-established framework

as well as very dynamic actors, both in the public and private sides. Finally, the introduction of a new PPP accounting rule enacted in 2011 is for us an opportunity to investigate PPP's determinants using a relevant change in the legal context as a reference. We will develop more details about the French PPP context in the introduction chapter "French PPP Overview".

Our data collection is done in collaboration with the *Mission d'appui aux partenariats public privé* in the Ministry of Finance and Economy. They exceptionally allowed us to get access to all PPP confidential contracts. Since its creation in 2004, about 200 PPP contracts have been concluded, with 150 at the local government level and 50 at the central government level.[7]

In order to answer to our research questions, we collected data from several sources. We first build a dataset with information from PPP contracts. This dataset includes information of the project such as investment amount, project duration, project type, financial information, incentive conditions, among others. Second, we conducted a survey for PPP projects that are in the operational phase. We were therefore able to complete our dataset with the details for both the preparation and the execution of the contract. Third, we combined our main PPP dataset with other datasets we built in order to include data of the decision making structure. Information such as the institution's financial situation, its characteristics, as well as its decision maker's individual considerations was therefore considered in our research. The specific data description for each research question is developed afterwards in each respective chapter.

[7]Data from the MaPPP in May 2014.

0.6 Outlines

This dissertation is organized as follows. In this section, we provide a concise summary of each chapter. Then comes an introduction chapter which reviews the French PPP market. More precisely, we describe the history of existing PPP types in France to delimit the context in which our research has been conducted. Next, the two main parts of this dissertation are presented. The first part consists of our two chapters assessing the PPP's development, outcomes and challenges in France. As the PPP experience is still in its infancy, we use a qualitative methodology in this part. In the second part, two additional chapters analyzing the determinants of PPP at the French local government level are presented, using econometric methodologies. A final chapter concludes with contributions to the literature and managerial implications.

Part I: PPP Situation

Chapter 1: PPP Development and Performance Assessment

In the literature of Strategic Management, the concept of performance is at the heart of the organizational choice strategy, both for academics and managers. Indeed, most strategic management theories either implicitly or explicitly underline performance implications, since performance is the time test of any strategy (Schendel and Hofer [1979]). This question is even more important in the public sector as public actors are supposed to effectively use public funds to develop the social welfare.

As a new tool of public outsourcing strategy, PPP has been criticized since its creation, mainly for its potential high cost (Blanc-Brude [2013]). While theoretical scholars in Organizational Economics and Project Management continue to debate about this organizational form's advantages and drawbacks, empir-

ical research on PPP's outcomes is scarce, due to the lack of data. Among the research works available, the outcomes are not conclusive. The most frequent feedbacks are specific case-studies (Hodge et al. [2010], Whittington [2012], Campagnac and Deffontaines [2013]). At the best of our knowledge, we only identify three quantitative academic studies on PPP (Blanc-Brude [2013], Blanc-Brude et al. [2009], Raisbeck et al. [2010]). Blanc-Brude et al. [2009] and Blanc-Brude [2013] found contrary results about PPP's construction cost efficiency in two different sectors in Europe: the highway sector and the school sector. Using data from Australian PPP's assessments, Raisbeck et al. [2010] came with a superior performance of PPP in both the cost and time dimensions. Also this study concluded that the PPP advantage increases (in absolute terms) with the size and complexity of projects. While these quantitative studies give a first insight about PPP's outcomes, they focused only on the cost aspect. Moreover, the two formers used only the construction cost, and the latter used data from PPP's preliminary assessments.

In this chapter we aim at presenting a performance evaluation of PPP. We focus not only on the construction phase, but also, and to our knowledge for the first time, on the project operation phase. Based on a questionnaire administered to thirty PPP out of the totality of 46 projects in operation, we evaluate the efficiency of PPP in terms of costs, deadlines, quality and value for money. On the whole, we find that public actors are satisfied about their PPP performance. This level of satisfaction also stays quite stable from one sector to another and over time. However, it is worth mentioning that the quality in the operational phase achieves a lower level of satisfaction than the two other dimensions of performance, and also lower than the construction phase. As PPP is still in its infancy, and this study is one of the first performance evaluations, in this chapter, we also examine the potential perspectives of French PPP.

Chapter 2: PPP under Financial Crisis: Value for Money vs. Affordability

Uncertainty is ubiquitous in organizations. It impacts all levels of firms: strategic decision, daily business, as well as organization's individual members (Grote [2014]). It applies to situations in which potential outcomes and causal forces are not fully understood, which imply a lack of predictability and transparency for effective control (Miller and Lessard [2001]). As a consequence, organizations' and individual decision-makers' foremost aim is to cope with uncertainty. As contracting is subject to uncertainty, the decision making process for the strategy of "make or buy" or "how to buy" is a crucial issue.

PPP was created as a new tool of outsourcing for the public sector with an optimal allocation of risk to the private actor(s). According to this feature, appropriate risks are transferred to the private sector, who is supposed to be able to better manage those risks, and thereby cheaper and higher-quality infrastructure services may be provided (Hayford and Partner [2006]). Therefore, the choice of PPP *ex-ante* can be considered as the process of deciding the proportion of risk management responsibility *ex-post* (Jin and Doloi [2008]). Moreover, following the work of the RBV, organizations are not equal in terms of capabilities (Penrose [1959]), and these non-imitable and non-substitutable organizational capabilities are a key source of inter-firm performance differences (Barney [1991], Dosi et al. [2000], Nelson [1991], Wernerfelt [1984]). Therefore, the potential *value for money* of PPP depends on the optimal risk allocation between the parties.

However, during the financial crisis, difficulties on the financial market make that the funding becomes difficult to obtain. PPP's economic balance has been threatened as public actors provide more guarantees for projects. While already a number of studies try to describe this trend (Marty and Voisin [2008], Burger et al. [2009]) these studies do not show a detailed analysis of

the projects' financial conditions.

In this chapter, we analyze the impact of the crisis on the economic balance of PPP. Using data from financial documents of 36 PPP in France, we give an understanding of the change in the capital structure during the crisis, *i.e.* the evolution of each stakeholder's role in PPP financing. We find that the rising role of public actors in PPP financing is a way to deal with the increasing financial costs. However, our analysis shows that while this action can preserve PPP affordability for public actors, it could also be negative for PPP performance, which could limit its value for money.

Part II: PPP Determinants

Chapter 3: PPP: Who, Why and Why not?

While PPP has grown considerably in recent decades and nowadays accounts for a significant portion of public investment (Posner et al. [2009]) without a clear feedback about its efficiency, the driving forces of this trend have not been much studied in the literature. Yet, the question of organizational choice strategy in the public sector is a particularly crucial question. Indeed, public management can not be studied as generic management due to the politics matters. Following Overman [1984], public management incorporates "the tensions between rational-instrumental orientations, on the one hand, and political-policy orientations, on the other". Correspondingly, all the decisions made by public managers such as contracting decisions are made up of two types of concerns: the policy question, *i.e.* the role of government accountability with other normative/political judgments, and the administration question, *i.e.* efficiency and effectiveness (Kettl [2005]). To sum up, governments need to minimize the cost of the public service delivery within the political and legal constraints (Ferris and Graddy [1986]).

The pragmatism driving forces of public sector's outsourcing strategies have been largely studied by scholars from public choice (Osborne and Gaebler [1992], Savas and Schubert [1987]) and TCT (Hefetz and Warner [2011], Bel and Fageda [2007], Brown et al. [2008], Hefetz and Warner [2004], Hefetz and Warner [2004], Levin and Tadelis [2010a]). However, other dimensions at the level of the decision makers are also considered as driving forces of governments' organizational choice strategy, such as his political considerations (Ferris and Graddy [1986], Morgan et al. [1988]), characteristics (Boeker [1997]) and behaviors (DiMaggio and Powell [1983]).

As shown in the two previous chapters, PPP is subject to a high level of uncertainty, both in terms of performance feedbacks and environmental context linked to financial conditions. As a consequence, the pragmatism driving forces of PPP choice are criticized. In such a context, in this chapter, we investigate the choice of PPP using mayors' considerations. We find that the adoption of a PPP is affected by the level of political competition, mayors' ideology and their mimetic behavior. Exploiting a feature of the French institutional context, we are able to consider not only the decision to implement a PPP but also the decision to conduct a PPP feasibility study. We also analyze the factors that lead governments to abandon a PPP and show that those municipalities differ significantly from those that finally implement a PPP already at the project start.

Chapter 4: PPP from Budget Constraints: Looking for Debt Hiding?

Since its creation, PPP has been criticized as being used as a fiscal circumventing strategy, *i.e.* debt hiding. Even with the accounting rule Eurostat implemented in 2004, government-pay PPP is still classified as non-governmental through the "risks and rewards" criterion (Heald and Georgiou [2011]). As a consequence, the criticism continues to be void.

While a number of studies show that the adoption of PPP is positively associated with financial constraints, both at the national level (Hammami et al. [2006]) and subnational level (Albalate et al. [2012]), the reasons why public actors use this strategy in these conditions have not been investigated.

In this chapter, we aim to explain why the public actors choose PPP when they meet some financial restraints. More specifically, we try to find evidence if the adoption of PPP strategy is only for fiscal circumventing motivations, *i.e.* putting the public debt off the balance sheet. Using data for all PPP at the municipal level, we find that municipalities are more tempted towards PPP under budget constraints. Exploiting a feature of French institutional context, where local PPP are mandatorily accounted on the public account since January 1st 2011, we find that this behavior is not driven by fiscal circumventing motivations.

0.7 Table Outline

In Tables 1 and 2, we summarize the research questions, the data and the methods used, as well as the main results from each chapter of this dissertation.

Table 1: Summary of Part I: Research Questions, Methodology and Main Results

Research Questions	Methods and Data	Main Results
• **Chapter 1**: PPP Development and Performance Assessment • **Research Questions**: How is PPP developed since its creation in 2004? Does PPP performs well, both in terms of cost and quality? • **Progress**: Presented at several seminars and published in the *Revue d'Economie Industrielle* en 2012.	• Survey • Descriptive statistics • Complete dataset built from contracts and questionnaires on 30 projects in operation (out of a totality of 46).	• We find that public actors are satisfied about their PPP performance, both in terms of cost, deadlines and quality. • PPP performance stays stable from one sector to another and over time. • Performance in the operational phase is evaluated as lower than in the construction phase.
• **Chapter 2**: PPP under Financial Crisis: Value for Money vs. Affordability • **Research Questions**: How do PPP financing conditions change during the financial crisis? Do public actors internalize more risks to keep PPP affordable? Would this action negatively impact private actors' incentive to keep PPP performance, which may affect PPP's value for money? • **Progress**: Presented at the "International Research Society for Public Management" conference and published in the Business Management Review in 2013.	• Descriptive Statistics. • Dataset built on 36 PPP projects with highly confidential financial documents.	• We find that PPP model shows its resilience during the financial crisis. • Public actors increased their role in risk taking to limit the rising of PPP financing costs. • We provide a first trend regarding the effect of public actors guarantees. This action may affect the incentive for private actors to keep their contractual agreements, which might negatively impact PPP value for money.

Table 2: Summary of Part II: Research Questions, Methodology and Main Results

Research Questions	Methods and Data	Main Results
• **Chapter 3**: PPP: Who, Why and Why Not? • **Research Questions**: What are the determinants of PPP? More precisely, who adopts PPP and why do they do so? • **Progress**: Potential submission to the Journal of Management Studies.	• Econometrics: Logit with cluster standard errors. • Robustness checks: RE, BE and Heckman selection model. • Complete data built from several datasets on 3,200 French municipalities of more than 3,500 inhabitants.	• We find that mayors' considerations such as their political ideology, the level of political competition and the mimetic behavior do impact the adoption of PPP. • We also find that mayors' characteristics such as their age and sex do not have any impact. • The positive impact of the degree of political competition on PPP is on the opposite for findings of privatization. • Environment's characteristics such as fiscal constraints, municipal size and time trend are important drivers for PPP use.
• **Chapter 4**: PPP from Budget Constraints: Looking for Debt Hiding? • **Research Questions**: Do financially restrained governments favor PPP? Are they motivated by the debt hiding possibility of PPP? • **Progress**: Presented at "International Institute of Public Finance" conference. Potential submission to the Review of Industrial Organization.	• Data building: propensity score matching using Logit and nearest neighbors estimation. • Econometrics: Duration Analysis • Robustness check: Panel strategy with OLS, RE and Mundlack estimations. • Dataset with the whole 101 municipal PPP sample and 202 comparable municipalities without PPP built from several datasets.	• Budget constraints are associated with PPP use. • However, debt hiding is not the only motivation when financially stressed municipalities adopt PPP.

French PPP Overview

As discussed above, PPP has been developed and widely adopted recently in many countries (Figure 1). France is not an exception. In this introduction chapter, we review the context in which French PPP has been developed. Our goal is to give an insight about the French PPP history, its legal and institutional framework, as well as the overview of the actors in the market. Therefore, this chapter first helps clarifying the context in which the present dissertation is carried out. Second, it justifies our choice of the French case to study PPP.

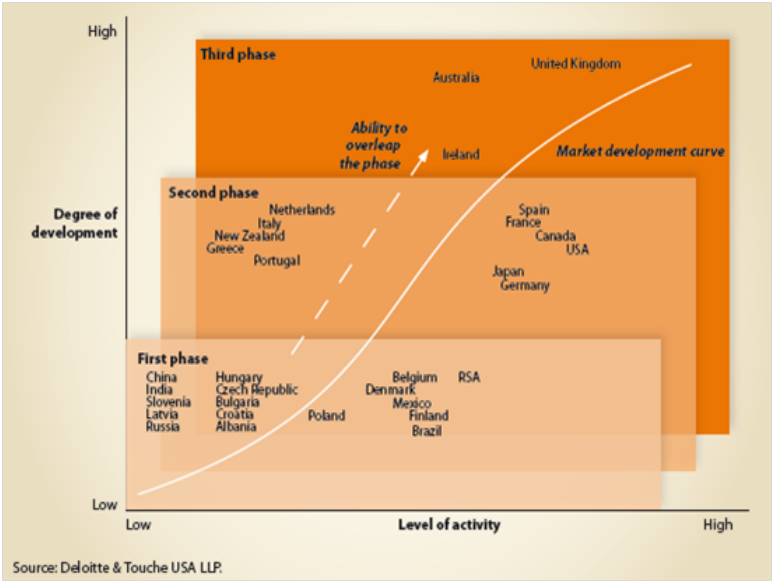


Figure 1: PPP development (source Deloitte & Touch USA)

A Long Tradition of PPP

Since the 16th and 17th centuries, PPP has been part of the French public services landscape (European PPP Expertise Center [2012a]). With this long tradition, the French legal system features a wide range of PPP which can be classified in two main categories: users-pay contracts and government-pay contracts (MaPPP [2013]). The Table 3 describes the PPP implementation in France.

1988	Introduction of the fist form of government-pay PPP (*bail emphytéotique administratif*)
1994	Introduction of another form of government-pay PPP contract (the *Autorisation d'occupation temporaire du domaine public*)
2002-2004	Sectoral measures to favour the use of PPP arrangements
2003	Launch of the *plan hopital 2007* which foresees significant PPP use
2004	Legislation introducing the *contrat de partenariat* and decision to create a central PPP unit (MAPPP)
2005	MAPPP is set up and starts operating
2008	New law facilitating the use of *contrat de partenariat* and of the *bail emphytéotique administratif*
2011	Financial close of one of the largest PPP projects in EUrope (Tours - Bordeaux High Speed Rail)
2011	France becomes the largest PPP market in Europe in value terms

Table 3: PPP implementation in France

The users-pay contract is where the primary source of funding takes the form of charges paid by the users of the infrastructure, such as tolls paid by the users of a toll road. This is called an "economic infrastructure PPP" because it is typically used for roads, railways and other income producing infrastructure. Among those, concession is the first developed in France. As such, early railway, metro, water and power, and later motorways, urban transport, waste management and district heating projects have been performed under concession arrangements.

	Traditional procurement	**Partnership contracts and equivalents**	**Concessions**
Scope	Design, construction	Design, construction, maintenance, operation	Design, construction, maintenance, commercial exploitation
Term	Short	Long	Long
Payment	Public	Public or mixed	Users (with the possibility of subsidies)
Risk transfer	Limited to construction	Yes	Yes

Table 4: PPP vs. Traditional procurement and Concessions

The government-pay contract is where the primary revenue stream or source of funding that repays the private sector finance used to build the facility takes the form of a service (or availability) payment from government. This model is often used for schools, hospitals, prisons and other non-income producing infrastructure. In France, these PPP started to be developed in the 80s with an outstanding growth in the 2000s under the name *Contrat de*

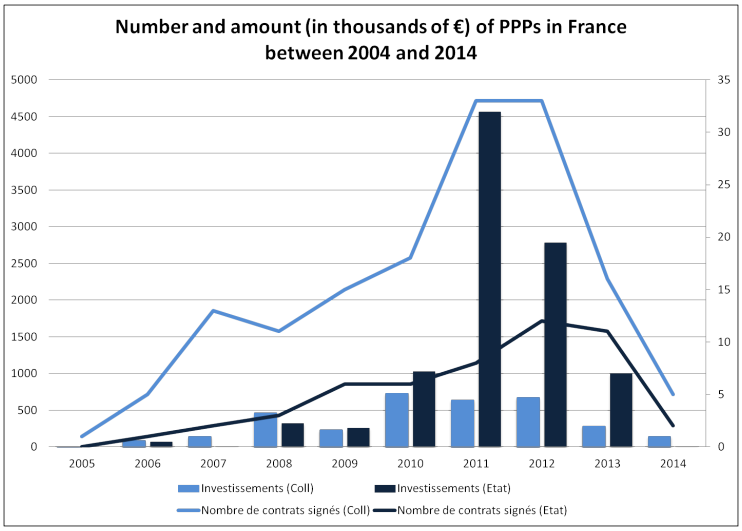


Figure 2: Number and amount (in thousands of euros) of PPP in France between 2004 and 2014

partenariat. In this dissertation, the *contrat de partenariat* is the research object. Indeed, this form of PPP is the equivalent of the famous Private Finance Initiative (PFI) created in 1992 in the UK, and considered the "modern PPP" which is the main driver of the current PPP trend in France (EPEC 2012). For simplicity, hereafter, PPP is used to mention *contrat de partenariat*, and concession is used to mention users-pay contracts. The Tables 4 and 5 describe the main difference of the *contrat de partenariat* in comparison with traditional procurement and concessions and other government-pay contracts, respectively. The Figure 2 reports the development of these *contrat de partenariat* since its creation in 2004.

The Institutions framing the PPP Development

PPP in France are supported by a well-established institutional framework, in particular the role of the central PPP unit which is called *Mission d'appui aux partenariats public-privé* (hereafter MaPPP). It was created in 2004 and started to operate since 2005 as an "expertise body" in charge of the preliminary evaluation of PPP projects and was placed under the direct authority

	CP	BEA/BEH	AOT/LOA
Scope	Global contract for the design, construction, operation, finance and maintenance of an asset	The object is mostly limited to the building; non building services are limited	The object is linked to a mission of general interest and contains an obligation for the authority to buy the asset
Sectors	All	Justice, police, health, social housing, fire and rescue services	Police, justice, defence
Procuring Authority	All public entities	Local authorities and health trusts	The State and local authorities
Ownership of the project assets	Public ownership	De *facto* transfer to the private partner for the duration of the contract	De *facto* transfer to the private partner for the duration of the contract
Remuneration of the private partner	Public payments (with a possibility of some user revenues)	Public payments	Public payments
Project Design	Design can be carried out by the public authority or by the private partner (in part or in total)	Design is carried out by the private partner	Design is carried out by the private partner
Contract duration	Linked to the life of the asset (maximum 99 years)	Between 18 and 99 years	Maximum 70 years

Table 5: *Contrat de partenariat* vs. other Government-pay contracts

of the Minister of Economy and Finance. In 2011, MaPPP became a "service with national competence" and was placed at the Treasury department of the Ministry of Economy, Finance and Industry. MaPPP has three main functions:

- PPP project gate-keeper (in prescribed cases) through the validation of the preliminary project evaluations for the *contrat de partenariat* prepared by procuring authorities before launching a tender;
- Public sector entities support in the preparation, negotiation and monitoring of the *contrat de partenariat*. This entails the preparation of analytical tools, guidance and standard contractual clauses;
- Information and promotion on the use of the *contrat de partenariat*.

Even if the MaPPP's appraisals are optional for local governments, the MaPPP has largely been consulted by French local authorities and has therefore produced appraisal reports for 163 local PPP projects since its creation in 2004. They have also produced 5 negative reports and published a variety of documents (Guides, Notes, Reports) to support and promote the use of the PPP in France. The role played by the MaPPP highlights the complexity of PPP and local authorities' need for the support from PPP experts.

Besides MAPPP, the key institutions in the PPP institutional framework in France are:

- The Ministry of Economy, Finance and Industry (which hosts MaPPP) and the Budget Ministry;
- The sectoral PPP units at the line ministries;
- The procuring authorities;
- Other bodies such as the Institut de la Gestion Déléguée (hereafter IGD), which is an influential think tank on concessions and PPP.

PPP Market with Dynamic Actors

France counts numerous PPP procuring authorities. They can be broken down into State or State-related and sub-national government entities. The main State or State-related entities procuring PPPs are:

- The line ministries (*e.g.* defence, justice, transport);
- Réseau Ferré de France (the French railway infrastructure company);
- Health trusts (établissements de santé);
- Universities.

At local government level, the main procuring authorities are the municipalities or groupings of municipalities, the departments and the regions.

A key feature of the French PPP market (and possibly a factor partly explaining its success) is the structure of the domestic contracting industry. France has three of the twelve largest contractors worldwide (Vinci, Eiffage and Bouygues). Besides their renowned technical and project management abilities, the three "majors" have built up significant experience on concession or government-pay PPP arrangements across the world and have developed substantial operating/facilities management capabilities. The majors have been awarded most of the PPP contracts tendered in France, including the smaller ones through their subsidiaries. This market concentration attracts frequent criticism in and outside the country.

Moreover, France enjoys a relatively deep and sophisticated banking market. Many French and foreign commercial banks are active on the French PPP market. They provide a full suite of financing products (*e.g.* structuring, provision of senior and junior debt, hedging instruments, equity, leasing products)

and advisory services to public procuring authorities and private sponsors. Domestic public institutions such as the *Caisse des dépôts* are involved in PPPs both as provider of equity and as long-term funder. The European Investment Bank (EIB) is an important funder of large PPP transactions, in particular in the transport sector.

A Well-established Institutional Framework

The *contrat de partenariat* (PPP) was introduced in France by the Order 2004-559. The legal framework for its implementation was then introduced in 2009. This section presents the PPP project cycle and its accounting rules.

PPP Project Cycle

The standard PPP project cycle features four main phases (Figure 3) which include process and decision milestones leading to either the project implementation or the abandonment of the PPP organizational form. This process is mandatory for the public authorities considering the use of a PPP contractual form. Consequently, the main goals of the process are first to verify the PPP relevance and then to make sure that the private partner best suited to respond to project needs is the one selected. The PPP project cycle partially differs from standard public procurement.

The first phase of the PPP project cycle is the identification of the project. It consists of the needs analysis and the project selection. At this very first stage, the intention of using the PPP contractual form is clearly acknowledged as it conditions the overall process followed. The project initiative can come from any government body (local or central government) and the intention to use a PPP may be motivated by the project context.

Second comes the preparation phase with the *évaluation préalable* (hereafter assessment study or preliminary assessment) which is specific to the PPP. It is a key step where the public authority carries out an analysis (typically through a consultancy agency) to compare the different solutions available to respond to the needs identified in the first stage. The goal is to compare the PPP contract with alternative solutions in terms of global cost, performance and risk sharing. This assessment is performed only when there is the intention of using the PPP solution. Thus, the assessment aims at demonstrating or concealing the relevance of the PPP solution.

Following the preliminary assessment, the PPP project solution can only be justified under one of the three conditions defined by the French law: project complexity, urgency and economic efficiency. These conditions are defined by the Order of June 17th, 2004. Complexity condition is met when the public authority is objectively unable to perform, by itself and upfront, the definition of the technical specifications responding to the project needs or the financial and legal set-up of the project. The urgency condition applies in two contexts. First, it applies when the public authority needs to address a backlog generating some kind of prejudice to public interest. Second, it applies when the public authority needs to overcome an unforeseeable situation. Finally, the economic efficiency condition is met when the PPP contract's advantages and disadvantages balance is more performing than the ones of the other contractual forms. Such a condition needs to be justified in regards of the project specificities and, therefore, the benefit of deferred payment alone cannot be considered as an advantage in the comparison balance.

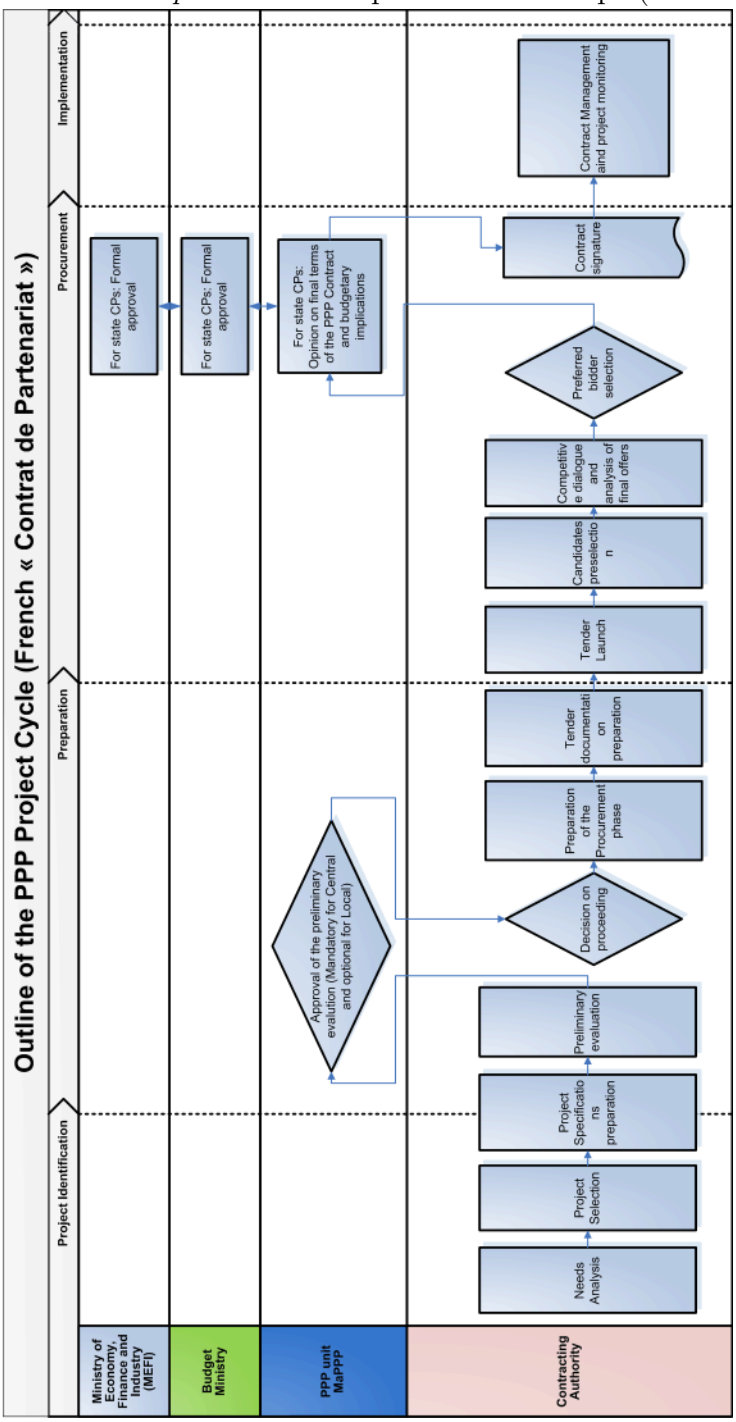
At this stage, the MaPPP plays a key role in the project cycle by providing its appraisal. The MaPPP delivers the approval that conditions the continuity for the PPP projects of the French central government or its subsidiaries. The MaPPP appraisal is, however, optional for the local governments.

Once the choice of the PPP solution is justified, and approved by the MaPPP for the central government's projects or its subsidiaries, the PPP project enters in the procurement phase. Throughout this phase, the competitive dialogue procedure is key. In this procedure, the public authority conducts a dialogue with the shortlisted bidders in order to both improve the project specifications and to evaluate the bidders' capacity to respond to the project requirements. Indeed, given the complexity of the project, the competitive dialogue aims at developing a variety of solutions capable to respond to the project requirements. This is significantly relevant for the PPP contracts as the Contracting Authorities know what outcome they expect from the project but they may not exactly know the best way to achieve it. Bidders therefore contribute with the specification of the project deliverables and share their know-how with the Public Authority. The final bidder selection is however based on the criteria defined at prior stages, the same used to shortlist the candidates taking part in the dialogue. The competitive dialogue takes on average 15 months from the start until the moment the preferred bidder is selected and the contract is signed (European PPP Expertise Center [2012a]).

Finally, the project implementation phase takes place with the execution of the contract signed. The private partner delivers private sector finance and the bundling of design, construction, maintenance and sometimes other services as deliverables of a single long-term "whole of life" contract. Public authority governance mechanisms are then implemented to supervise the achievement of the expected outcome. An example of PPP contract canbe found on the website of the MaPPP.

The complexity of the project arises as the main feature shaping the PPP project cycle key moments. Preliminary assessment and Competitive dialogue are indeed strategic procedures for verifying the PPP contract relevance and for contributing with the achievement of the value for money ambitions of the public authorities.

Figure 3: *Contrat de partenariat* implementation steps (source EPEC)



PPP Accounting Rules

Traditionally, the Eurostat rule of 2004 classified infrastructure realized through PPP as non-governmental through the "risks and rewards" criterion (Heald and Georgiou [2011]). Following this guidance, public authorities have accounted PPP as off balance sheet when the construction risk and at least one of either availability or demand risk are transferred to the private operator. In such a manner, PPP was accounted based on the logic of accrual accounting: the annual payment related to the investment, financial and operating costs was reflected in the public account; the remaining debt part was accounted as a multi-annual plan of payment in an appendix to the balance-sheet. As a consequence, debt corresponding to PPP did not appear on the public balance sheet.

At the end of 2010, the French Government introduced a Decree on the topic of PPP accounting rules. This Decree requires that PPP projects at the local level are no longer recognized off the balance sheet, for both existing and new projects. Two reasons motivated this clarification of PPP accounting. The first one is to follow the UK experience in PPP which is the most advanced one. Indeed, in 2011, the UK Government committed to provide more transparency to PPP accounting. The Office for Budget Responsibility decided to include an assessment of the impact of the PPP liabilities in their fiscal sustainability report, a break with previous years' National Accounts (House of Commons [2011]). Second, the application of the International Financial Reporting Standards (hereafter IFRS) implied a switch from the previously used "risks and rewards" criterion to the control criteria for the accounting of PPP. More precisely, under a PPP, if the public authority controls one of the following five aspects of the project, the corresponding debt should be accounted as on balance sheet: (a) the private operator is not able to sell or take a loan on the equipment, (b) the occupation of the public owned domain, (c) the defi-

nition of the equipment's main features, (d) the public service's management, (e) the revenue paid to the private operator for his service. This new rule has led to recognition on the balance sheet of the asset and corresponding debt upon the infrastructure's delivery. In other words, the balance sheet records the investment's capital value as an asset, while the already-paid investment and the remaining debt are recorded as liabilities.

Part I

PPP SITUATION

Chapter 1

PPP Development and Performance Assessment*

1 Introduction

Recently, the outsourcing strategy in the public sector has known several changes due to the context of fiscal constraints which reduced the resources for public investment (OECD [2013]). As a well-managed public investment is considered one of the most potentially growth enhancing of public expenditures (Munnell [1992]), good public investment is therefore important in good times and even more in difficult ones. In such a context, alternatively to the traditional "market-hierarchy" or the "public-private" dichotomy[8], hybrid organizational form such as Public Private Partnership (hereafter PPP)[9] has grown

*This chapter is based on a joint work with Stéphane Saussier. The authors are grateful to the people in charge of the projects included in our sample who replied to our questions. We are also grateful to the *Mission d'appui aux partenariats public-privé* (here after MaPPP), which helped us validate the data we collected. Our thanks also go to CSTB, SP2000, GIMELEC and GB2A, the companies that contributed to the questionnaire.

[8]We refer to public enterprises as the "hierarchy" model, traditional public procurement as the "market" model and privatization as the complete private model

[9]PPP are contractual agreements allowing the involvement of the private sector's capital and expertise for the realization and management of an asset that will be returned to the public sector after an adequate period of time (the "bundling" mechanism after Hart [2003]).

considerably in recent decades and nowadays account for a significant portion of public investment (Posner et al. [2009]).

Among various types of PPP, in this paper, we consider the *Contrat de partenariat* in France. These are the government-pay PPP which are behind the recent successful PPP experience in France and also all over the world (European PPP Expertise Center [2012a]). This type of PPP is where the availability of a public service related to an infrastructure is contracted. Under a long-term contract, the private firm in charge of this all-in-one mission is paid overtime, both for the construction and the operation/maintenance of the infrastructure. The equivalence of the *Contrat de partenariat* is the Private Finance Initivative in the UK. To simplify, we use PPP to refer to the *Contrat de partenariat* hereafter. In 2011 and the first half of 2012, with more than 150 contracts signed to date, France leads the leading European countries for the number of PPP concluded in the year (European PPP Expertise Center [2012b]).

While PPP has been well spread, not only in France but also in other developed and developing countries (Posner et al. [2009]), criticisms about this organizational choice continue to be voiced in many countries. For example, press articles have presented negative image of PPP such as "Public Private Partnerships are bad for tax payers" (US), "Around Alberta, Public Private Partnership is a dangerous way to fund projects" (Canada), "The time bomb of Public Private Partnerships" (UK), "Bercy face à la bombe à retardement des partenariats public-privé" (France). In France, the Hospital Sud-Francilien project and the future headquarters of the Ministry of Defense in Balard are probably the ones that are the most often cited in the press. More officially, the report of the House of Common in July 2011 in the UK recommended limiting the use of PPP (House of Commons [2011]). Therefore, the current French government might also well put a halt to further expansion of PPP and there seems to be no guarantee that these contracts will survive in the long

term.

One of the rationales behind these criticisms is that PPP is considered to be more costly than the traditional way of public funding, both in terms of organizational costs and financial costs (see Marty and Tran [2014] for a review). This question raises concern because public actors are supposed to effectively use public funds to develop the social-welfare. However, as suggested by the long-standing theoretical tradition on public choice, and a related emergence of New Public Management approach (hereafter NPM) in public policy, public managers are not different from private managers. They are self-interested and rational decision makers who primarily seek to maximize their personal utility (Niskanen [1975]). They all have conflicting incentives in meeting the responsibilities to well manage the organization, and to achieve some private benefits (Ronen and Yaari [2008]).

Yet, the concept of performance is at the heart of strategic management, both for academics and managers. Indeed, most strategic management theories either implicitly or explicitly underscore performance implications, since performance is the time test of any strategy (Schendel and Hofer [1979]). The lack of empirical evidences on PPP performance brings therefore criticisms to a higher level. Indeed, in theoretical terms, while the potential advantages of PPP are largely studied by organizational economic scholars using the incomplete contract approach (Hart [2003], Bennett and Iossa [2006a], Iossa and Martimort [2008], Martimort and Pouyet [2008a]), little management research has been done into the phenomenon (for one exception, see Kivleniece and Quelin [2012]). In empirical terms, PPP's outcomes are scarce due to the lack of data. Among those available, the outcomes are not conclusive. The most frequent feedbacks are specific case-studies (Hodge et al. [2010], Whittington [2012], Campagnac and Deffontaines [2013]). At the best of our knowledge, we only indentify three quantitative academic studies on PPP (Blanc-Brude [2013], Blanc-Brude et al. [2009], Raisbeck et al. [2010]). Blanc-Brude et al.

[2009] and Blanc-Brude [2013] found contrary results about PPP's construction cost efficiency when two types of PPP are analyzed: user-pay contracts (the highway sector in Europe) and government-pay contracts (the school sector in the UK). Using data from Australian PPP's assessments, Raisbeck et al. [2010] came with a superior performance of PPP in both the cost and time dimensions, and that the PPP advantage increases (in absolute terms) with the size and complexity of projects. While these quantitative studies give a first insight about PPP's outcomes, they focused only on the cost aspect. Moreover, the two formers used only the construction cost, and the latter used data from PPP's assessments. In the French context, another quantitative study has been done by PriceWaterHouseCooper [2011]. Although the findings of that study are positive on the whole (particularly in terms of average cost overruns and delays observed in public procurement contracts, *i.e.* the natural alternative to PPP), it should be noted that the study concerns only the period between the signing of a contract and the completion of the infrastructure. It does not address the operational phase of the contract, once the infrastructure is delivered, *i.e.* the crucial phase and the one likely to generate major contractual problems (Riordan and Williamson [1985]).

Given the importance of performance assessment in strategy implementation, in this article, we aim at presenting an evaluation of PPP. We focus not only on the construction phase, but also, and to our knowledge for the first time, on the project operation phase. Based on a questionnaire administered to thirty PPP projects in operation, we evaluate the efficiency of PPP in terms of costs, deadlines, quality and value for money.

This paper is organized as follows. In Section 2, we review the creation, implementation and development of PPPs. In Section 3, we briefly set out their benefits and potential limitations. Section 4 presents our data and methodology. Our results are discussed in Section 5. Section 6 concludes with a discussion about the managerial implications.

2 Objectives and Development of PPP

2.1 Objectives of PPP

A PPP is a public-private arrangement in the broad sense: a legal and financial arrangement creating a partnership between the public sector and the private sector for the provision of services and/or creation of public infrastructure or public works. This category of contract, which was created by Order No. 2004-559 of June 17, 2004, concerning PPP, supplements the traditional tools available for public procurement: public procurement contracts, which meet purchasing objectives without transferring risk to the private sector, and public service delegations, which meet service objectives and transfer a risk of demand (or use) to the private sector.[10]

A PPP contract enables a public body to assign a comprehensive mission to a private enterprise, under a long-term contract, in return for payment by the public body that is spread out over time. Public bodies can use contracts of this type to ensure that a service that they need to carry out their own tasks is available. Examples include the availability of public works (a hospital or prison, an office building, a telecommunications network, a railroad, *etc.*) or resources (drinking water, meals, heat, *etc.*).

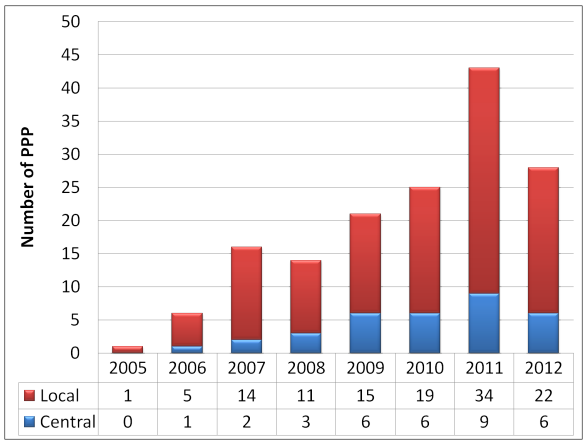
One reason why this new tool was required is that certain public services are not suited to outsourcing by concession, or the courts have held that concession is not permitted. Some services do not lend themselves to an operation-based payment method, and in particular to a user-based method. There are also situations where even though this payment method would be possible, the nature of the service subject to the concession means that any form of

[10]The order extends older contract formulas such as *montages domaniaux complexes* [complex arrangements in respect of state lands] (administrative long-term leases or temporary occupancy permits together with a non-severable management agreement) and "sectoral" partnerships (in the areas of domestic security, justice and health).

payment-based discrimination among its users is not permissible. Two examples are police services and defense. The objective was therefore to strengthen investment in the infrastructure used in supplying public services, particularly in areas where the users may not be the payers.

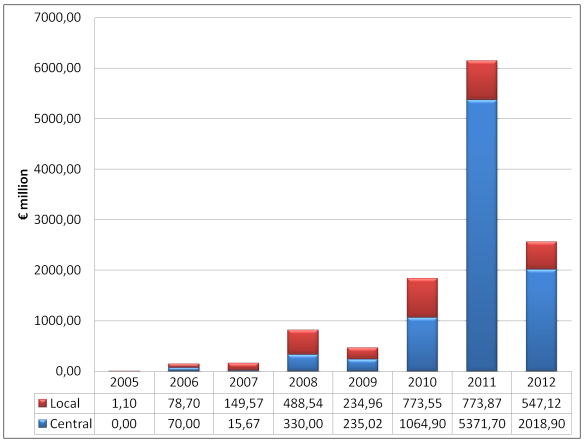
2.2 Rising Use of PPP

PPP has plainly become fixtures on the French public procurement landscape since they were introduced in 2004. While the initial phase of this new type of contractual arrangement presented difficulties, essentially because it was so new in legal terms, a substantial number of contracts have now been signed in France, the value of the contracts being particularly significant. Every year since 2005, the number of PPP contracts signed has risen, reaching a total of over 150 in August 2012, with a cumulative value of more than 12 million euros since 2005 (see Figures 1.1 and 1.2). Since 2011, France has led the countries of Europe with over half of the market, by volume, for contracts signed during the year, well ahead of Great Britain, even though these contracts were originally developed there in their English form (PFI) in the early 1990s.



	2005	2006	2007	2008	2009	2010	2011	2012
Local	1	5	14	11	15	19	34	22
Central	0	1	2	3	6	6	9	6

Figure 1.1: Number of PPP contracts signed since 2005 by the central and local governments



	2005	2006	2007	2008	2009	2010	2011	2012
Local	1,10	78,70	149,57	488,54	234,96	773,55	773,87	547,12
Central	0,00	70,00	15,67	330,00	235,02	1064,90	5371,70	2018,90

Figure 1.2: Value of PPP contracts signed since 2005 by the central and local governments (in million euros)

Local authorities are the source of a large proportion of the PPP contracts signed (121 of 155 contracts, or more than 78% of the total). They have eagerly adopted this tool to finance infrastructure mainly in the areas of buildings (colleges, secondary schools, train stations, city halls, *etc.*), urban infrastructure (street lighting, roads, *etc.*) and sports or cultural facilities (theaters, museums, arenas, swimming pools, *etc.*). The average value of the contracts varies widely from one sector to another. While urban infrastructure represents more than 40% of the contracts signed (a large majority of the contracts concern street lighting), it ultimately accounts for only 11% of the value of the contracts (see Figure 1.3). Conversely, while sports and cultural facilities represent 15% of the total number of contracts, they account for over 40% of the value of the contracts signed during 2005-2012. The simple explanation is that the average amount of the contracts varies, depending on the type of infrastructure. On average, the average amount was 25 million euros, excluding taxes, for all types, but was 6.5 million euros for urban infrastructure, rising to over 68 million euros for sports and cultural facilities, before taxes.

Local authorities are the source of a very large majority of contracts, while procurement by the State or its national public institutions (EPNs) represents more than two thirds of the value of the PPP contracts signed since

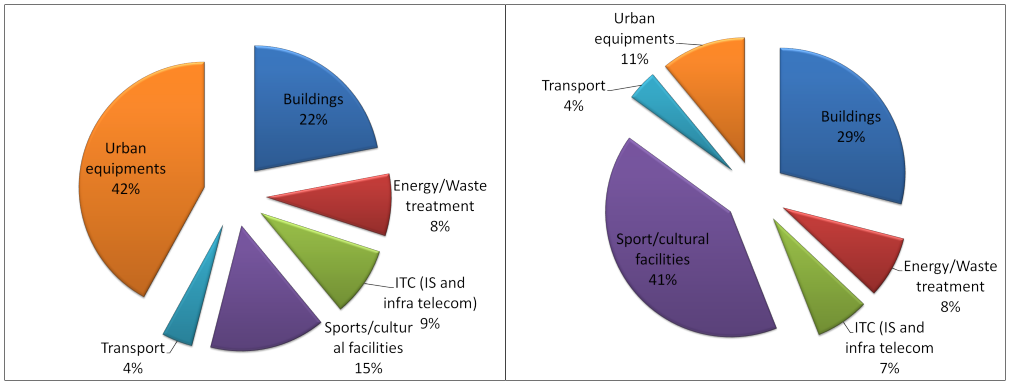


Figure 1.3: Number and Value of PPP contracts signed by local governments, by type of facility (2005-2012)

they were created (see Fiures 1.4). The State's needs mainly take the form of buildings and energy and waste treatment. As in the case of local authorities, however, the average value of the contracts signed varies, logically, from one type of facility to another. For example, while transportation infrastructure represents only 9% of the total number of contracts signed, it accounts for more than 50% of their total value, with contracts having an average value of over 1.6 billion euros before taxes. The average value of contracts signed by the State, with all types of facility combined, was 275 million euros before taxes.

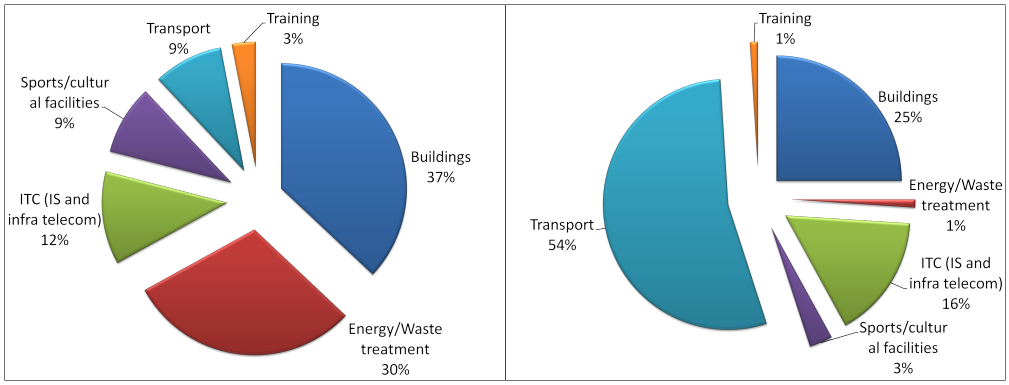


Figure 1.4: Number and Value of PPP contracts signed by central governments, by type of facility (2005-2012)

3 Commitments Associated with PPP

3.1 A New Type of Contract

To understand the commitments associated with PPP, a review of what distinguishes them from other public procurement methods, particularly the traditional public procurement and public service delegations, will be useful (see Table 4). This distinction arises out of the fact that PPP are contracts:

1. that delegate a comprehensive mission to a single private provider, covering design, building, maintenance and part of the operation, and create a de facto partial merger of the project management and general contracting functions. They are therefore complete package contracts;[11]

2. under which the provider is paid out of public funds, in the form of rent, in return for making public-use buildings, infrastructure or facilities available. They are therefore contracts in which payment out of public funds is spread out over time. It is mandatory that part of that payment be subject to performance objectives being met.[12]

This new form of contractual relationship in classic public procurement situations meets the objective of securing funding in times of budgetary constraint and modernizing public procurement by introducing new governance mechanisms into contractual and financial arrangements (Campagnac and Deffontaines [2013]). Logically, the legislature has provided for a newly created

[11]However, the fact that a contract is a complete package is not sufficient to distinguish public procurement contracts from PPP, particularly since comprehensive public procurement contracts are now available to supplement the public procurement legal mechanism: the Decree of August 25, 2011, introduced article 73 into the public procurement code, defining contracts that combine building, operation or maintenance (REM) or design, building, operation or maintenance (CREM) to meet performance objectives.

[12]This payment method distinguishes PPP from public service delegations and redefines the extent of the risk. This is particularly the case for concession, the principle of which is that a substantial part of the payment derives from operating revenue.

competitive process for awarding this new type of contract. More specifically, there are two possible competitive models for PPP. The first is limited invitations to tender, which involve the submission of firm offers, in a single round, by preselected groups of candidates. The second, which applies in a majority of cases, is the competitive dialogue process, by which the public party can obtain offers that are gradually refined, from groups of candidates that become smaller as the process moves forward. The public party then analyzes the offers received separately, assuring the groups that the information disclosed will not filter through from one group to another. Competitive dialogue thus makes it possible to clarify the potential and best technical solutions for achieving the public service objectives specified by the public party. It should make it possible to identify "innovations" that provide for a good quality public service for the lowest cost.

3.2 Benefits Identified by Economic Analysis

As previously discussed, PPP has been largely studied the theoretical scholars in organizational economics. Under the incomplete contract approach, PPP is analyzed through its main characteristic: the "bundling" mechanism. In this literature, most of the papers are focused on identifying how problems, like contracts incompleteness and asymmetric information, influence the organizational management of a public investment. Where a contract is not able to manage every aspect of the economic relation between the phases of one project, a PPP can incentivize cost reducing innovations (Hart [2003], Bennett and Iossa [2006b]). More precisely, under such an organizational form, the public actor provides the private operator with an incentive for internalizing cost reductions in the operation of the service, which may be made possible by appropriate investment in, and design of, the supporting infrastructure (Hart [2003]). This has major implications for the level of incentives offered to private operators, but also, ultimately, for the very nature of the service provided: this

type of contract gives the operator an incentive to consider complementarities and synergies among the various phases of a project. These considerations may influence the investments made, but may also influence the incentive the operator receives for making sure that the different phases are organized efficiently, so as to reduce delays to completion of the infrastructure (*i.e.*, "interface risk" associated with coordinating all phases of a project: design, construction and operation). In other words, signing a package contract alters the nature and level of the incentives received by the private operator, and this in turn results in changes in the amounts it invests, in the revenue and/or welfare generated by the service, and in the time-frame for completing the infrastructure.

The fact that payment to the service provider is deferred strengthens this incentive effect. Deferring payment means that penalties may be imposed for failure to abide by the contractual clauses signed by the parties, including meeting deadlines and meeting cost and quality targets.

Another beneficial effect of package contracts is noted: when it is difficult to apply incentives because of uncertainty about future operating costs, a package contract can be used to create a strong incentive for the private operator to reduce future operating costs without those costs having to be incorporated into the contract-but only with respect to the objectives to be met (Iossa and Martimort [2012]).

3.3 Potential Limitations

The potential limitations identified in the literature essentially derive from the long-term contractual obligations created by public private partnerships. When the parties sign a long-term contract, they are committing themselves to an incomplete contract (Riordan and Williamson [1985]) that will very certainly call for adjustments to deal with future events that the parties have not

anticipated (*e.g.*, technological change, changes in public expectations, *etc.*). The incomplete nature of the contractual obligations generates ex ante transaction costs, in the candidate selection phase, and ex post transaction costs during the implementation of the contracts, which may become prohibitive (Saussier et al. [2009]).

The first problem that public authorities encounter involves how to organize the competitive process among the candidates. As we know, PPP contracts are generally awarded after a competitive dialogue. Nonetheless, that long and costly selection process, one purpose of which is a subtle transfer of risks to the private operator, is not immune to the "winner's curse": the best offer may ultimately come from the most "optimistic" candidate, *i.e.* the one that unintentionally underestimates the costs associated with carrying out the contract. Alternatively, the public authorities may also fall victim to aggressive offers by operators that intentionally underestimate the costs associated with carrying out the contract and are counting on the prospect of future negotiations. In both cases, cost overruns are foreseeable, and this can call the utility of contracts of this nature into question. Finally, if there is only a small number of candidates the risk of cartels being formed cannot be ruled out. We would note, however, that these problems are not unique to PPP, and are also encountered in concession contracts, in particular (Saussier [2013]).

Another potential problem associated with PPP relates to their execution. Long-term contracts call for negotiations that allow the contracting parties to adjust them to unanticipated events. From this perspective, the contracting parties may choose to adopt a rigid approach in the contract, counting on being able to foresee the future adequately or on not having to modify the parameters of the contract, or they may choose to adopt a flexible approach and have a contract that provides the terms on which future negotiations will be conducted (Athias and Saussier [2007]). The first solution has the advantage of making offers received ex ante credible, by sending a clear signal about

the future problems that will have to be renegotiated. However, they expose the parties to "rigidities" in future contract provisions. The second solution allows the contract to be adjusted to reflect its environment, but limits the *ex ante* commitment of the parties.

The problems involved in the selection process and execution of contracts are even more significant in PPP, since future payment to the operator is very often not tied to the intensity of the use of the work (*i.e.*, the operator does not bear the demand risk). That has two major consequences. First, the operator is not naturally inclined to adjust to future changes in user needs. Second, the social utility of the project must be proved, because even if the project generates only a small future demand, a private operator that is paid in the form of rent will agree to make an offer. Prior assessment is therefore an essential step in PPP, even though it also has its limitations (Campagnac and Deffontaines [2013]).

3.4 Experience Feedback

The processes by which PPP are implemented, and economic analysis of those processes, suggest that this new organizational form should enhance the efficiency of public procurement, at least with respect to meeting deadlines and staying within budget up to when the infrastructure is made available (*i.e.*, the private operator is not paid until the infrastructure is delivered).

While PPP is now a fact of life, there has still been little experience feedback, which would allow their efficiency to be assessed. Among those available, the outcomes are not conclusive. The most famous feedback about PPP's performance is the work of Hodge et al. [2010] which is composed of several PPP case-studies all over the world. Another case study is the one of Whittington [2012], in which the author evaluated the comparative efficiency between PPP

and traditional procurement based on transaction cost theory. At the best of our knowledge, we only indentified three quantitative academic studies on PPP (Blanc-Brude et al. [2009], Blanc-Brude [2013], Raisbeck et al. [2010]). They all focused on PPP's performance in terms of cost in comparison with traditional procurements. Blanc-Brude et al. [2009] and blanc2013 found contrary results about PPP's construction cost efficiency when two types of PPP are analyzed: user-pay contracts (the highway sector in Europe) and government-pay contracts (the school sector in the UK). Using data from Australian PPP's assessments, Raisbeck et al. [2010] came with a superior performance of PPP in both the cost and time dimensions, and that the PPP advantage increases (in absolute terms) with the size and complexity of projects. While these quantitative studies give a first insight about PPP's outcomes, they focused only on the cost aspect. Moreover, the two formers used only the construction cost, and the latter used data from PPP's assessments.

In France, only one study, to our knowledge, has attempted to assess PPP's performance: the study done by PriceWaterHouseCooper [2011], which deals with PPP and comparable contracts.[13] Based on a sample of 34 projects, the study concludes that 71% of the contracts examined met the initial deadlines for delivering the infrastructure. It also indicates that in over 91% of the cases, the cost overrun for the public authority was less than 3%. These results are positive on the whole (particularly when compared to delays and overruns experienced in public procurement contracts), but it should be noted that the study concerns only the period between the signing of a contract and the completion of the infrastructure. It does not address the operational phase of the contract, once the infrastructure is delivered, *i.e.* the crucial phase, and the one likely to generate major contractual problems, as we have just seen

[13]The study deals with all PPP projects signed since the 2004 order and what are referred to as sectoral PPP: AOT/LOA (*Autorisations d'Occupation Temporaire/Location avec Option d'Achat* [temporary occupancy/rental permits with option to purchase]) and BEAH (*Baux Emphytéotiques Administratifs Hospitaliers* [administrative long-term hospital leases]), which were created in 2002 to meet urgent needs in the areas of justice, domestic security and health.

(Riordan and Williamson [1985], Saussier et al. [2009]). The little negative experience feedback there is from Great Britain actually relates largely to the operational phase (House of Commons [2011]).

In France, experience feedback is more limited because these contracts are new. Nonetheless, it must be noted that criticisms are beginning to be voiced and there is no guarantee that these contracts will continue in practice. Attacks are mounting and doubts remain as to the performance and usefulness of this new public procurement tool. For example, the article in *Libération* dated August 17, 2012, entitled "Grand stade: partenariat public perdant", asserting that PPP are very costly for public authorities and illustrating that statement by announcing that the cost of the grand arena in Bordeaux will reach 551 million euros instead of the 175 million euros budgeted in the initial contract. Apparently, this criticism is based on the total rent that will be paid during the life of the contract, without taking into account two factors: (1) the discount rate that naturally applies to that rent, and (2) the concept of total cost of ownership, which includes maintenance and operating costs.

4 Initial Quantitative Assessment

To analyze the efficiency of PPP in greater depth and supplement the case studies and partial quantitative analysis that we cited previously (PriceWaterHouseCooper [2011], Campagnac and Deffontaines [2013]), we did a study of the few PPP that are currently in the operational phase.

In this Section, we first review the data collection method and the characteristics of our sample.

4.1 The Sample

At the time our survey was conducted (early 2012), out of 155 PPP contracts signed in France since 2005, only 45 were in the operational phase. For 40 of them, we were able to identify a person in charge of the projects at the operational phase. 36 of those agreed to participate in the study and to answer the questionnaire we prepared for the survey. In the end, we conducted interviews for 30 projects.

Our questionnaire is organized into four parts: the pre-contract phase, design of the contract, management of the contract, and the project assessment. We first developed a first version of the questionnaire and tested with five institutions in order to refine the final version (the two versions of our questionnaire are available in the Appendix):

1. MaPPP: the French PPP taskforce sieged in the Ministry of Economy and Finance
2. SP2000: a consultancy firm in the public sector for contract engineering and organization of local public services
3. GIMELEC: Group of industries of electric equipment, control-command and related services
4. CSTB: Scientific Center of Building Techniques
5. GB2A: Consultancy firm specialised on Public Law

The interviews lasted one to two hours and were held in person or by telephone. As our questionnaire covers the four steps of the project, with a few exceptions, we rarely had an interviewee who had all of the information requested on all of the technical, economic, legal and financial aspects. As a

consequence, for each project, we often have interviews with several interviewees:

1. The Head of the Legal Service: pre-contract phase
2. The Head of the Financial Service: design of the contract
3. The Head of the Technique Service: management of the contract and project assessment

If the three persons are not available for an individual interview, we prepared a conference-call with the three of them at the same time, or the Head of the Technique Service was in charge of collecting further information to fill the other parts of the questionnaire.

It is worth mentioning that for each project, we gained access to the contract under a collaboration and confidentiality agreement with the MaPPP. We therefore prefill the part "Design of the contract" with information from the contract. We then ask interviewees to verify the accuracy of such information. This helps us to show that we know the project in details. As a consequence, we can obtain helpful detailed information from our interviewees.

4.2 Key Characteristics of the Sample

The sectors involved in the final sample selected for our study are set out in Figure 1.5. The sector breakdown is different from what we observed in the total 155 contracts that had been signed on August 1, 2012. Logically, the "old" contracts are overrepresented in our database, since only contracts that are in the operational phase now, were targeted by our survey. The length of time in operation varies considerably from one contract to another, *i.e.* from three to 62 months, but on average it is fairly long (33 months).

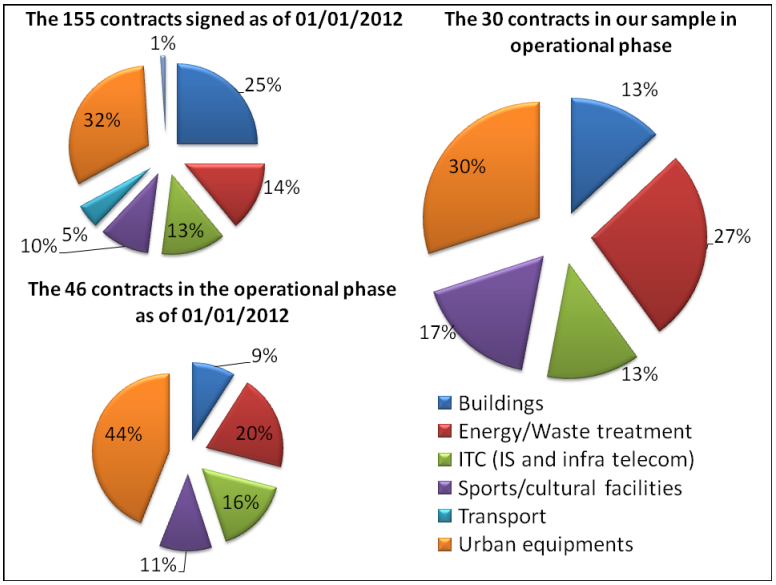


Figure 1.5: Sample selected for our study

In our sample, 65% of the contracts were for a value of less than 20 million euros and a contract term of less than 20 years, and so it overrepresents low-value contracts. The logical explanation is that the work often takes less time for projects of that size and so these are also the ones that enter the operational phase more quickly after they are signed.

4.3 Subjective Measurement of Performance

Although the importance of the performance concept, as well as the organizational effectiveness, is widely recognized (Connolly et al. [1980]), performance measurement has not reached any agreement on basic terminology and definitions. The dominant model in strategic management research to evaluate performance has been financial performance for a long time (Hofer [1983]). The constructs of financial performance are often sales growth, profitability (reflected by ratios such as return on investment, return on sale, return on equity), and earnings per share. Then, a broader conceptualization of business performance add indicators of operational performance (*i.e.* nonfinancial),

such as market-share, new product introduction, product quality, marketing effectiveness, manufacturing value-added. As a consequence, performance measurement is considered as multidimensional. Based on performance constructs of studies in the project management sector, as well as the public sector, (Ashley et al. [1987], Sanvido et al. [1992], Chua et al. [1999], Cox et al. [2003], Menches and Hanna [2006], Yuan et al. [2009]) (see Figure 1.9 in the Appendix), we develop our performance measurement for PPP. To evaluate the performance of the PPP in the operational phase, we distinguished between the construction and operation phases of the project, and examined six aspects of performance:

- In the construction phase
  - Meeting the budget
  - Meeting deadlines
  - Meeting quality targets for the work
- In the operation phase
  - Meeting the budget
  - Meeting performance objectives
- In general
  - The project's value for money

Another difficulty that encounter scholars in strategic management field to assess organization performance is the availability of data (Dess and Robinson [1984]). As the usefulness of subjective performance measures, obtained from top management teams, has been widely validated by scholars, we asked the people in charge of the projects, whom we questioned, to evaluate the PPP on each of these aspects, using a six-point Likert scale ranging from 1, "not at

all satisfied", to 6, "completely satisfied". In using the six-point Likert scale, we eliminated neutral responses and forced the interviewees to give us their good or bad appreciation about the project (Komorita [1963]). This gave us a subjective measurement of performance which is also used by the English National Audit Office to evaluate PFIs (Partnership UK [2008]).

5 Results

5.1 Candidate Selection Phase

In our sample, 87% of the contracts opened up a competitive dialogue before they were awarded. On average, there were more than five candidates at the point when bids were invited (between two and ten candidates, depending on the contract), and more than three candidates during the competitive dialogue phases (between one and six bids submitted, depending on the contract). That number varied considerably from one project to another, even within the same sector. However, projects that used the procedure calling for restricted tenders did not attract fewer candidates and participants. We also note that the projects that attracted the fewest participants were the very small-scale ones.

When the people in charge of the projects were questioned about the strengths and weaknesses of the competitive dialogue procedure, they said that they considered it to be lengthy and costly and that candidates did not disclose their offer until relatively late in the process. Nonetheless, 87% of respondents stated that they ultimately believed they had "perceived a positive impact from competition among the candidates via the competitive dialogue, in terms of the number, quality, originality and/or degree of innovation in the proposals made by the candidates" (question 10 of the questionnaire appended, scored 4, 5, or 6). As well, 87% believed that during the bid-refining phase, cooperation with the anticipated partner was relatively good (question 16 of the questionnaire

appended, scored 4, 5, or 6).

Looking at the responses we received, we can therefore say that the degree of competition may vary from one project to another, particularly in terms of the number of candidates, but overall, the public actors' perceptions lead them to believe that using a competitive dialogue in the candidate selection phase creates a satisfactory level of competition and cooperation.

5.2 Management and Renegotiation of PPP

As we have seen, contract execution is a key phase. PPP are long-term, incomplete contracts, and they will have to be adjusted. The adjustment phases can provide an opportunity for the partners to look for ways of increasing the surplus generated by the contract, through "win-win-win" negotiations, in which each of the parties-the operator, the public authority, and the users-comes out ahead. They can also be conflictual and lead to either or both parties behaving opportunistically (de Brux [2010]).

Whether the "partnership" is real and results in cooperative behavior often depends on the people involved. Also, the operational phase of the contracts is affected by changes in the teams managing the contracts. When there is too much turnover, the history and the informal aspect of the contract get lost. Misunderstandings may arise. In our sample, more than 43% of the contracts experienced a change involving all or part of the team working on the project on the public authority's side. This is likely to have an impact on the performance observed in the operational phase of these contracts. However, the public authorities we questioned in our survey were somewhat satisfied, satisfied, or very satisfied with the partnership relationship with the contract holders (83%); 37% even stated that they were very satisfied so far.

A large majority of the contracts in our sample (97%), had already been renegotiated at least once after they were signed. The main subjects of renegotiation involved adjustments to the scope of the contract (73.3%), but they also involved financial adjustments (30%) or adjustments to the deadline for delivery of the work (30%). In our study, it appears that 70% of the public authorities questioned stated that they were satisfied or very satisfied with the negotiation of the amendments signed, suggesting that renegotiation has generally not been conflictual so far, keeping in mind that the average operating time in our sample was 33 months.

5.3 Performance of PPP

5.3.1 Construction Phase

In terms of meeting budgets during the construction phase, the performance observed confirms the results of the study done by PwC in 2011: in 90% of the projects, the public authority stated that it was satisfied or very satisfied that the project had met the budget initially provided for (91% in the PwC study). The remaining 10% of projects, for which respondents were "relatively satisfied", were the projects that were delayed because of changes to the work at the public authority's request.

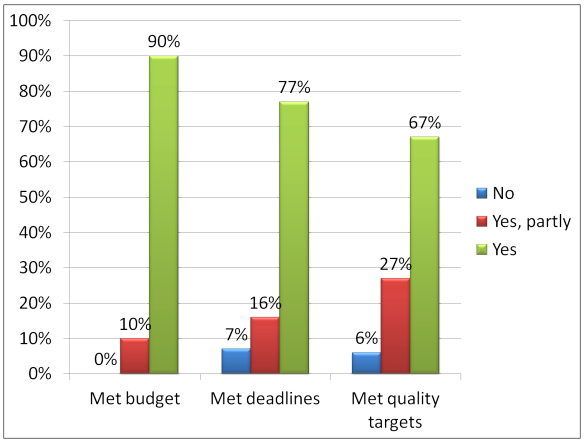


Figure 1.6: Performance of PPP in the construction phase (Yes: score 5 or 6; Yes, partly: score 4; No: scores 1, 2, or 3)

In terms of meeting deadlines for bringing the infrastructure on line, completion deadlines were met or met very well (scored 5 or 6) in 77% of the cases. The 2011 PwC study stated that 79% of projects were satisfactory from this perspective, and 16% of projects were evaluated as "met somewhat well" (scored 4 out of 6); 7% of projects did not meet deadlines satisfactorily (scored lower than 4 out of 6). The reasons cited were generally underestimates during negotiation of the contract (five projects), changes to the work (four projects) and force majeure (one project).

There was less satisfaction with the quality of the construction than with the previous two aspects of performance. The public authority reported being satisfied or very satisfied (scored 5 or 6) in 67% of cases and somewhat satisfied in 17% (scored 4). The results are summarized in Figure 1.6.

5.3.2 *Operational Phase*

In the operational phase, there was overall satisfaction with performance (see Figure 1.7): 80% of projects met the maintenance and operating cost targets set when the contract was signed or met them very well. That number rises to 97% if we include projects for which cost targets were met partly (contracts scored 4 out of 6). Cost overruns were generally caused by a change in the scope of the contracts as a result of changes to the public work itself during the construction phase.

The quality objectives agreed to in the contract were met partly in 94% of the contracts (contracts scored 4, 5, or 6). However, it should be noted that the quality of operation was considered to be satisfactory or very satisfactory in only 47% of the projects (scored 5 or 6). The percentage in this regard for the quality of the operation was lower than in the construction phase (67%).

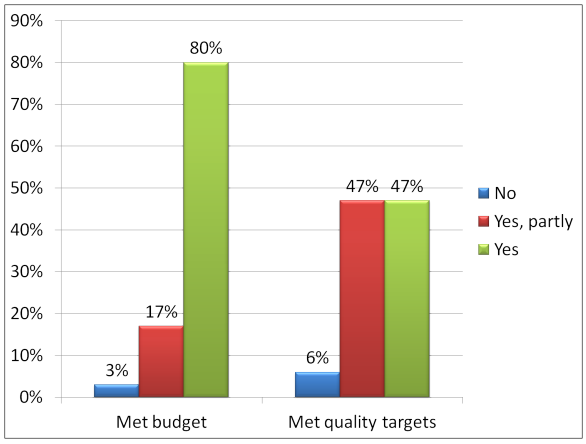


Figure 1.7: Performance of PPP in the operational phase (Yes: score 5 or 6; Yes, partly: score 4; No: scores 1, 2, or 3)

5.3.3 Overall Performance of the Projects

The public authorities were satisfied, overall, with the value for money represented by the public-private partnerships: 80% of those questioned stated that they were somewhat satisfied at least, including 67% that were satisfied or very satisfied.

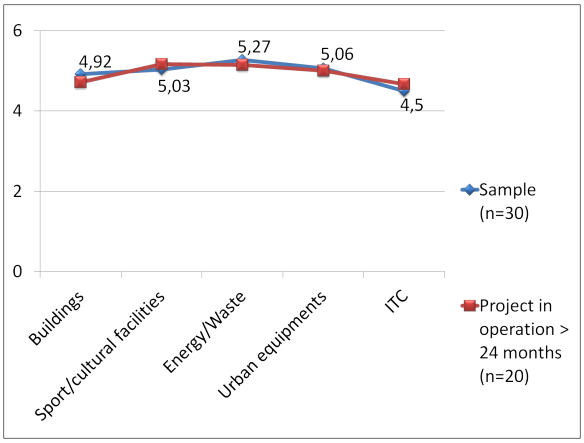


Figure 1.8: Overall performance of PPP by sector (scale from 1 to 6)

If we calculate a level of overall performance defined as the average of the scores received by each of the contracts on the six aspects of performance that we identified, the average overall performance score for the entire sample is 5.02 out of 6. Figure 1.8 shows the average overall performance of the public-private partnerships, by sector.

We can see that while overall performance is satisfactory in all sectors, it varies considerably from one sector to another. On the other hand, the length of the operational phase does not seem to influence overall performance for the PPP.

6 Conclusion

In this article, we have presented an evaluation of the efficiency of PPP. We find that on the whole, public actors are satisfactory about their PPP performance, both in terms of deadlines, costs and quality. This level of satisfaction also stays quite stable from one sector to another and over time. However, it is worth mentioning that the quality in the operational phase achieves a lower level of satisfaction than in the construction phase, and also lower than other

dimensions of performance. This result is in line with the frequent critics about contracting our strategy in the public sector. Indeed, while the most cited advantage of contracting is cost savings, critics often raised the problems of sacrificed service quality, accountability, service coordination, and democratic values (DeLeon and Denhardt [2000], Milward [1996], Milward and Provan [2000], O'Toole [1996], Wise [1990]).

Our results contribute to the literature about PPP as to the best of our knowledge, this is the first study that covers both the construction and operational phases of contracts of this nature. Although PPP are a recent innovation in France, we were able to collect information about 30 of the 46 contracts in the operational phase as of January 1, 2012, *i.e.* the date when the data were collected. By examining public authorities' perceptions of how well these contracts perform, and distinguishing six aspects of performance, we can conclude that a very large majority of the contracts included in our sample are perceived by the public authorities as performing well.

The results of our paper also contribute to managerial practices. First, our findings give an outline about PPP practices to public actors who are tempting to choose this organizational choice. This article thereby can help public actors identify the strong and weak points of such a contract and make a better assessment for infrastructure projects in the future. Second, our results can make private operators realize about the potential improvement they can make to obtain the next PPPs, such as the quality of the operational phase. Finally, our findings can partially response to critics from press articles about the high costs and the lack of competitiveness of PPP.

Nevertheless, these are partial results only and more studies should be done to expand on them. As the contracts that have been signed enter the operational phase, it will be useful to publish more studies like this, based on a more substantial database. It may even be useful to do an econometric analysis

to try to identify the factors that determine how well PPP perform. Examples might be the number of candidates involved in the competitive dialogue, its duration, and the turnover rate on the teams in charge of managing contracts. It would also be useful to think about other performance criteria that do not rely only on public authorities' perceptions, as they may have a biased view of how well the contracts they are managing perform. Other performance indicators need to be found that could be used regardless of the sector concerned. Finally, in order to have a clearer vision of how well these contracts perform in the operational phase, it will be useful to study their performance when they have been in operation for longer periods.

With challenges to PPP mounting, to the point that the survival of this practice may be at risk, these findings run counter to the criticisms and contribute to the discussion. However, new data from the MaPPP shows that even during the crisis since 2008, PPP continues to be adopted in France. In May 2014, there are 148 PPP concluded at the local level and 51 at the central government level. Therefore, in order to give a clear findings about PPP effectiveness, it would be necessary to evaluate the impact of the crisis on the adoption of this organizational choice, as well as the reasons behind this public contracting out strategy.

7 Appendix

7.1 Questionnaire Version 1

Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE

maPPP
Mission d'appui aux partenariats public-privé

Contrat de Partenariat – Retours d'expérience

Ville – Secteur

L'objectif de ce questionnaire est de collecter le retour d'expérience sur les contrats de partenariat. Il est prévu ensuite d'en dégager les bonnes pratiques et de les partager, sous forme anonymisée, avec l'ensemble des personnes publiques.
Ce questionnaire, pré-rempli par nos soins, peut comporter des données erronées. N'hésitez pas à apporter vos corrections.

En jaune : ce qui est déjà dans notre questionnaire

En rose : ce qui n'était pas dans notre questionnaire et que j'ai rajouté

En vert : ce qui n'est pas dans notre questionnaire, et que je n'ai pas ajouté pour le moment parce que je ne vois pas l'intérêt (à discuter)

I. Information générale

Nom du projet	Rouen – Eclairage public
Date de signature	05/03/2007
Nom de la personne publique	Ville de Rouen
Nom du partenaire privé	Vinci Energie
Durée du contrat (années)	20

Commentaire [Lpm1]: Info à coder nous même. Ca m'aide à voir comment le marché est partagé entre les opérateurs…

II. Environnement de l'appel d'offre

Date du lancement de l'AAPC	10/03/2006
Les candidats pour l'appel d'offre	
Les participants au dialogue compétitif	
Nombre de tours de dialogue	

Commentaire [CU2]: Je pense que le nombre de participant est important ainsi que le fait se savoir s'ils ont participé au dialogue jusqu'au bout et éventuellement s'ils ont été indemnisé (en % des dépenses)

Commentaire [Lpm3]: Ca traduit l'environnement concurrentiel à l'appel d'offre, ainsi que pour voir si c'est toujours les mêmes qui participent

III. Les caractéristiques financières

Montage financement	corporate
Nombre d'acteurs de la société de projet	

Répartition du financement	fonds propres (……%), dette projet (…….%), dette Dailly (……%)
Banques prêteuses	
Subvention	
Organisme subvention	

IV. Le transfert de risques

1. Dans l'organisation de la SPV, quelle est la personne responsable des Gros Entretiens et Renouvellements (GER)?

Responsable GER	Cochez	Commentaires
Le constructeur		
L'exploitant		
Autres		

V. Le processus de gestion du projet

1. Quelles sont les niveaux administratifs impliqués au projet ?

Niveaux	Cochez	Commentaires
Municipal		
Départemental		
Régional		
Nationale		

2. Quel est le nombre d'ETP (Equivalent Temps Plein) consacré à la gestion du projet du côté public?

……

……

3. Avez-vous embauché des personnes spécialisées pour la gestion de ce projet ?

……

……

4. Quels sont les moyens de contrôle utilisés ?

Moyens	Fréquence	Commentaires
Tableau de bord	trimestriel	
Rapport annuel	annuel	

VI. Les avenants

Y-a-t-il eu des avenants pendant la vie du contrat ayant une incidence sur les coûts ou le délai?

N°	Type d'avenant	Initiative (public/privé)	Quand ? (précontractuel/ construction/exploitation)	Commentaires

Commentaire [Lpm4]: A mon avis ça va être difficile de la poser pour toute les phases. Mais on peut toujours tenter.

Commentaire [A5]: Nous posons cette question, de manière un peu différente, pour toutes les phases du projet

Commentaire [A6]: Idem

VII. Les caractéristiques générales de la performance

1. Les coûts du projet

Coûts hors frais financiers	**Contrat** (millions d'€ HT) Constant 2007	**Réalisé** (millions d'€ HT) Constant
Montant des travaux	49	
Loyer total exploitation	32	

1.1. Les coûts de construction prévus dans le contrat ont-ils été respectés ? Si non, pourquoi ?

Causes de surcoûts	**Cochez**	**Commentaires**
Modification du périmètre/complexité		
Causes légitimes		
Sous-estimation lors de la conception du projet		
Modification de la conjoncture du BTP		
Autres (à préciser)		

1.2. Les coûts d'exploitation prévus dans le contrat ont-ils été respectés ? Si non, pourquoi ?

Causes de surcoûts	**Cochez**	**Commentaires**
Modification du périmètre/complexité		
Causes légitimes		
Sous-estimation lors de la conception du projet		
Autres (à préciser)		

2. Le délai de mise à disposition

2.1. Le délai de 10 mois prévu dans le contrat a-t-il été respecté ? Si non, de combien de mois a-été le retard?

……

2.2. Pourquoi y-a-t-il eu le retard ?

Causes de retard	**Cochez**	**Commentaires**
Modification du périmètre/complexité		
Causes légitimes		
Sous-estimation lors de la conception du projet		
Autres (à préciser)		

2.4. Y-a-t-il eu des pénalités de retard appliquées ? Pour quel montant ?

3. La performance en exploitation

3.1. Pendant les premières années d'exploitation, vos objectifs de performance ont-ils été atteints ?
(précisez les indicateurs de performance)

Objectifs	Indicateur	Niv atteint	Commentaires
Taux de disponibilité			
Délai d'intervention			
Vitesse de rénovation			
Suppression de la pollution lumineuse			
Augmentation du niveau d'éclairement			

Commentaire [A7]: On pose la question, mais de façon plus générale. A voir s'il faut modifier ou non le questionnaire. Carine ?

Commentaire [CU8]: En l'état ce n'est pas très clair pour moi. Cela ne s'applique pas à tous les CP, n'est ce pas ?

Commentaire [Lpm9]: Ici c'est pré-rempli si j'ai l'info. Notamment, dans ce cas, c'était pour un projet d'éclairage public

3.2. En cas de non respect des objectifs de performance, quelles solutions avez-vous appliqué ? *(plusieurs choix possibles)*:

Modalités	Cochez	Commentaires
Appliquer les pénalités correspondantes		
Renégocier la faisabilité des objectifs		
Ne pas sanctionner (pourquoi ?)		
Autres (à préciser)		

Commentaire [A10]: De même, on pose la question mais de façon assez différente. A discuter.

3.3. Quels sont les montants des pénalités appliqués au cours de ces premières années d'exploitation ? *(en k€ HT)*

Année	Nombre de pénalités	Montant des pénalités	Type d'objectifs de performance

Commentaire [CU11R10]: Ça peut être intéressant d'avoir les réponses sous cette forme mais j'ai peur qu'il y ait un peu des trois, selon les cas (+ autre éventuellement). Et puis ce qui est itéressant c'est aussi la nature des performances demandées en distinguant notamment les performances énergétiques, quand elles existent.

4. Le lien avec les usagers

4.1. Y-a-t-il eu la communication avec les riverains pour faire accepter le projet ? *(conseils de quartier, concertation, etc.)*

……

……

Commentaire [CU12]: Est-ce que tu attend une réponse oui/non ? ou alors des commentaires ?

Commentaire [Lpm13]: Sous forme Oui/Non

4.2. Pendant la durée du contrat, avez-vous la sensation que l'opérateur privé prend en compte la satisfaction des usagers ? Si oui, comment ?

Commentaire [CU14]: Trop vague

Commentaire [Lpm15]: Je compte interpréter après l'entretien s'il effectivement, la satisfaction des usagers est prise en compte ou non

……
……

5. Appréciation générale du projet

1. Le rapport qualité/prix de ce projet vous satisfait-il globalement ? (notez sur une échelle de 7 points)

Commentaire [A16]: On pose la question de façon beaucoup plus ouverte. J'ai gardé notre question ouverte et ajouté celle-ci en plus.

1	2	3	4	5	6	7
Pas du tout satisfait	Pas satisfait	Moyennement satisfait	Sans avis	Plutôt satisfait	Satisfait	Très satisfait

2. Au regard de ce projet, seriez-vous prêt à réitérer l'expérience du contrat de partenariat ? Pourquoi ?

Commentaire [A17]: On la pose différemment, mais ça revient au même

……
……

3. Quelles difficultés avez-vous rencontrées lors de la passation du contrat (depuis l'évaluation préalable jusqu'à la signature du contrat) ?

……
……

4. Quelles difficultés avez-vous rencontrées une fois le contrat signé (phases de construction puis d'exploitation)?

Commentaire [A18]: On pose ces questions pour les différentes phases du projet

……
……

5. Quelles sont vos attentes par rapport à l'accompagnement et aux travaux de la MaPPP ?

……
……

Commentaire [Lpm19]: Je ne comptais pas utiliser ces questions pour l'étude. Elles serviraient peut être pour la description des CP, et surtout pour la MaPPP.

Toute l'équipe MaPPP vous remercie de votre collaboration.

Contact : TRAN Phuong Tra (contrat.ppp@finances.gouv.fr)

Tél : 01 449 73399

Autres données du projet

Les risques de construction		**Commentaires**
Risques réglementaires	100% privé	
Causes légitimes	100% privé pour les csq indirectes, jusqu'à 15 jours de retard, 0,05M€/évènement	
Incitations		
Responsable des GER	-----	
Garantie de réalisation	12% du montant d'investissement (=6,2M€)	
Pénalités de retard max	n/c	
Durée d'exploitation en cas de retard	------	
Déchéance	Retard de DDPP de 180 jours Mise en régie de 30 jours	
Indemnités pour résiliation	Les encours dus Préjudice de la pers publique (5% des encours dus)	
Les risques d'exploitation		**Commentaires**
Causes légitimes	100% privé pour les csq indirectes, jusqu'à 15 jours de retard, 0,05M€/évènement	
Vandalisme	100% privé	
Risques réglementaires	100% public	
Incitations		
Garantie GER	13M€	
Garantie de remise à niveau	1M€	
Garantie recettes annexes	5,3M€	
Garantie de remise à niveau	1M€	
Pénalités exploitation max	8M€	
Déchéances	pénalité annuelle 0,36M€	
Indemnités pour résiliation	Les encours dus Préjudice de la pers publique (5% des encours dus)	

7.2 Questionnaire Final Version

Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE

maPPP Mission d'appui aux partenariats public-privé

chaire eppp
IAE - PANTHEON-SORBONNE

Contrat de Partenariat – Retours d'expérience

Nom du projet – Secteur

L'objectif de ce questionnaire est de collecter le retour d'expérience sur les contrats de partenariat. Il est prévu ensuite d'en dégager les bonnes pratiques et de les partager, sous forme anonymisée, avec l'ensemble des personnes publiques.
Ce questionnaire, pré-rempli par nos soins, peut comporter des données erronées. N'hésitez pas à apporter vos corrections.

Information générale

Nom du projet
Date de signature
Nom de la personne publique
Nom du partenaire privé
Durée du contrat (années)
Contact
Date de rencontre

Partie 1 : La phase de lancement du contrat de partenariat

Section 2 : L'évaluation préalable

1. *Quelles sont les principales raisons vous ayant mené à choisir un contrat de partenariat plutôt qu'un marché public ?*

Manque d'expertise ☐ Financement ☐ Urgence ☐ Délai ☐

2. *Avez-vous réalisé l'évaluation préalable en interne ou avec le recours à des prestataires externes ?*

Interne ☐ Externe ☐

3. *Afin d'approximer le coût de réalisation de l'évaluation préalable, merci de bien vouloir préciser les éléments suivants, même approximativement :*

Nombre de personnes/de prestataires ayant participé à l'évaluation	
Coût (€) supporté par l'évaluation	
Temps requis (jours) pour réaliser l'évaluation	

4. *Avez-vous eu recours aux conseils de la MAPPP durant la réalisation de l'évaluation préalable ?*

Oui ☐ Non ☐

Section 3 : La procédure de sélection (dialogue compétitif ou appel d'offre restreint)

5. Afin d'approximer l'intensité concurrentielle, merci de préciser les éléments suivants :

Nombre de candidats répondant à l'appel d'offres	
Nombre de participants à la procédure	

6. *Avez-vous été surpris du nombre de répondants à l'appel d'offres ?*

Oui, nous avons été surpris par le **nombre élevé** de candidats ☐

Oui, nous avons été surpris par le **faible nombre** de candidats ☐

Non ☐

7. *Tous les candidats ont-ils participé jusqu'à la fin du dialogue compétitif ?*

Oui ☐ Non ☐

8. *Avez-vous organisé le dialogue compétitif en interne ou avez-vous eu recours à un ou plusieurs prestataires externes ?*

Interne ☐ Externe ☐

9. *Afin d'approximer le coût de réalisation du dialogue compétitif, merci de bien vouloir préciser les éléments suivants, même approximativement :*

Nombre de personnes/de prestataires ayant organisé le dialogue	
Coût (€) supporté par le dialogue	
Temps requis (jours) pour réaliser le dialogue (entre l'AAPC et l'Offre finale)	
Nombre de « tours » durant le dialogue	
Quels sont les critères utilisés pour évaluer les candidatures et quelles sont leurs pondérations	

10.*Comment avez-vous perçu le niveau de compétition généré par la procédure (apportant un impact positif en matière de qualité, d'originalité et/ou de degré d'innovation des propositions faites par les candidats) ?*

1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
Pas du tout compétitif	Pas compétitif	Moyennement compétitif	Plutôt compétitif	Compétitif	Très compétitif

11.*Le candidat sélectionné participe-t-il à d'autres **contrats en cours** avec la personne publique ?*

Oui ☐ Non ☐

12. *Le candidat sélectionné a-t-il participé, **par le passé**, à d'autres contrats avec la personne publique ?*

Oui ☐ Non ☐

13. *Les candidats n'ayant pas été sélectionnés au terme de la procédure ont-ils été indemnisés ?*

Oui ☐ (Préciser le montant €) : …….. Non ☐

14. *Les candidats non sélectionnés au terme de la procédure ont-ils contesté la décision ?*

Oui ☐ Non ☐

Section 4 : La mise au point du contrat avec l'attributaire

15.*Combien de jours la phase de mise au point du contrat a-t-elle duré ?*

……

16.*Avez-vous perçu une coopération bénéfique entre la personne publique et l'opérateur dans la définition/négociation des clauses contractuelles ?*

1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
Mise au point pas du tout coopérative	Mise au point pas coopérative	Mise au point moyennement coopérative	Mise au point plutôt coopérative	Mise au point coopérative	Mise au point très coopérative

Section 5 : L'organisation mise en place pour le CP

17. *Avez-vous eu recours à une assistance de maîtrise d'ouvrage durant la phase de lancement du contrat de partenariat ?*

Oui ☐ Non ☐

18. *Si oui, pour quels aspects avez-vous eu recours à une assistance de maîtrise d'ouvrage ? (plusieurs réponses possibles)*

Techniques ☐ Juridiques ☐ Financier ☐ Autres ☐ (Merci de préciser) : ……

19. *La mise en place d'un CP a-t-elle mené à une réorganisation interne au sein de la personne publique ?*

Oui ☐ Non ☐

20.*Si oui, à quel niveau la réorganisation a-t-elle été menée ?*

Réaffectation du personnel ☐

Embauche du personnel ☐

Autres ☐ (Merci de préciser) : ……

21. *Combien de services différents ont été impliqués dans la préparation du CP ?*

……

22. *Les personnes impliquées dans la préparation du contrat sont-elles toujours en poste actuellement ?*

Tous ☐ Une partie ☐ Non ☐

23.*Quels sont les niveaux administratifs ayant un pouvoir de décision ou de consultation dans le projet (plusieurs réponses possibles) ?*

Municipal ☐ Départemental ☐ Régional ☐ National ☐

24.D'après vous, quelle importance a été accordée à la consultation des usagers avant la signature du contrat ?

1 ☐	2 ☐	3 ☐	5 ☐	6 ☐	7 ☐
Pas du tout importante	Pas importante	Moyennement importante	Plutôt importante	Importante	Très importante

----

Partie 2 : Les informations du contrat signé

Section 7 : Les missions prévues de la partie privée

a) Nature générale des missions

25. *Quels sont les principaux objectifs de performance spécifiés dans le contrat ?*

Indicateurs	**Objectif**
Délai de mise à disposition	
Taux de disponibilité	
Délai d'intervention	
Economie d'énergie en kWh	
Autre	

b) Recettes de valorisation

26. *Le CP donne-t-il lieu à des recettes annexes ou recettes de valorisation ?*

Oui ☐ ……

Non ☐

Si non, vous pouvez passer directement à la section 8.

27. *Le partenaire privé s'engage-t-il sur un montant garanti de recettes reversé à la personne publique ?*

Oui ☐ …… Non ☐

Section 8 : Le régime financier prévu du contrat

28. *Afin d'établir les principales caractéristiques financières du CP, merci de préciser les points suivants :*

Montant d'investissement H.T constant (avec frais de préfinancement)	
Montant du financement de la pers publique	
Montant de la subvention (€)	
Identité de l'organisme qui subventionne	
Montage financier (Corporate, Société de projet/Crédit bail)	
Nombre d'acteurs dans la société de projet	
Répartition du financement (% fonds propres, % créance cédée)	
Durée de remboursement de la dette projet (année)	

Section 9 : Le transfert de risques du contrat

29. *Afin d'évaluer la répartition des risques de construction, merci de bien vouloir préciser les éléments suivants :*

La qualité de la construction	
Garantie de réalisation (% du montant de construction)	
Le retard dans la construction	
Pénalités maximale en cas de retard fautif	
La résiliation pendant la construction	
Indemnisation pour la pers privée en cas de résiliation pour faute	
Indemnisation pour la pers publique en cas de résiliation pour faute	

30.*Afin d'évaluer la répartition des risques d'exploitation, merci de bien vouloir préciser les éléments suivants :*

La qualité d'exploitation	
Pénalité maximale sur la durée du contrat en exploitation	
Bonus en cas de dépassement des objectifs (oui/non)	
Garantie de remise à niveau	
La résiliation pour faute pendant l'exploitation	
Pénalité entrainant la résiliation	
Indemnisation pour la pers privée en cas de résiliation pour faute	
Indemnisation pour la pers publique en cas de résiliation pour faute	

Section 12 : Les contrôles prévus par la personne publique

31. *Quels sont les principaux moyens de contrôle mis en place ?*

Type de contrôle	Cochez si oui	Périodicité	Contrôleur (public/privé/tier)
Rencontre périodique	☐		
Rapport d'avancement (phase de travaux)	☐		
Rapport périodique (phase d'exploitation)	☐		
Contrôle aléatoire	☐		
Système d'information spécifique	☐		
Autre (merci de préciser)	☐		

Partie 3 : Les informations de l'exécution du contrat

Section 14 : Le respect des objectifs fixés

32.*La phase d'exploitation a commencé depuis combien de mois ?*

33.*Le délai de mise à disposition prévu dans le contrat a-t-il été bien respecté ?*

1 ☐	2 ☐	3 ☐	5 ☐	6 ☐	7 ☐
Pas du tout respecté	Pas respecté	Moyennement respecté	Plutôt bien respecté	Respecté	Parfaitement respecté

34. *En cas de retard de mise à disposition, merci d'en préciser les principales raisons.*

Causes de retard	Cochez si oui	Commentaires
Modification du périmètre/complexité	☐	
Causes légitimes	☐	
Sous-estimation lors de la conception du projet	☐	
Autres (à préciser)	☐	

35.*Les principaux objectifs en terme de qualité de la partie travaux ont-ils été respectés?*

1 ☐	2 ☐	3 ☐	5 ☐	6 ☐	7 ☐
Pas du tout atteints	Pas atteints	Moyennement atteints	Plutôt bien atteints	Atteints	Parfaitement atteints

36.*Les principaux objectifs en terme de qualité de la partie exploitation ont-ils été respectés pour le moment ?*

1 ☐	2 ☐	3 ☐	5 ☐	6 ☐	7 ☐
Pas du tout atteints	Pas atteints	Moyennement atteints	Plutôt bien atteints	Atteints	Parfaitement atteints

37.*Quel est le nombre d'ETP (Equivalents Temps Plein) consacré à la gestion du contrat du côté publique?*

……

38.*Quels sont les principaux moyens de contrôle mis en place ?*

Type de contrôle	Cochez si oui	Périodicité	Contrôleur (public/privé/tier)
Rencontre périodique	☐		
Rapport d'avancement (phase de travaux)	☐		
Rapport périodique (phase d'exploitation)	☐		
Contrôle aléatoire	☐		
Système d'information spécifique	☐		
Autre (merci de préciser)	☐		

39. *A votre avis, les coûts de construction ont-ils été respectés ?*

1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
Pas du tout respecté	Pas respecté	Moyennement respecté	Plutôt bien respecté	Respecté	Parfaitement respecté

40.*A votre avis, les coûts d'exploitation ont-ils été respectés pour le moment ?*

1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
Pas du tout respecté	Pas respecté	Moyennement respecté	Plutôt bien respecté	Respecté	Parfaitement respecté

41.*En cas d'écart entre les coûts de construction prévus et réalisés, merci d'en préciser les principales raisons (plusieurs réponses possibles) :*

Raisons	Cochez si oui	Commentaires
Modification du périmètre / Complexité	☐	
Cause légitime	☐	
Sous-estimation lors de la conception du projet	☐	
Modification de la conjoncture du BTP	☐	
Autre (merci de préciser)	☐	

42.*En cas d'écart entre les coûts d'exploitation prévus et réalisés, merci d'en préciser les principales raisons (plusieurs réponses possibles) :*

Raisons	Cochez si oui	Commentaires
Modification du périmètre / Complexité	☐	
Cause légitime	☐	
Sous-estimation lors de la conception du projet	☐	
Autre (merci de préciser)	☐	

Section 15 : Les évolutions du contrat dans les faits

43. *Pendant la durée du contrat, des avenants/renégociations ont-ils été mis en place ?*

N°	**Objet de l'avenant**	**Initiative** (public/privé)	**Quand ?** (construction/exploitation)

44. *Êtes-vous d'accord qu'il y a eu une bonne coopération entre 2 parties du contrat pendant la renégociation ?*

1 ☐	2 ☐	3 ☐	5 ☐	6 ☐	7 ☐
Pas du tout d'accord	Pas d'accord	Moyennement d'accord	Plutôt d'accord	D'accord	Parfaitement d'accord

Section 16 : Pénalités et les litiges

45. *En cas de non respect des objectifs de performance, quelles solutions avez-vous appliqué ? (plusieurs choix possibles)*:

Modalités	**Cochez si oui**	**Commentaires**
Appliquer les pénalités correspondantes	☐	
Renégocier la faisabilité des objectifs	☐	
Ne pas sanctionner (pourquoi ?)	☐	
Autres (à préciser)	☐	

46. *Afin d'approximer l'importance des pénalités, merci de bien vouloir préciser les éléments suivants :*

Occurrence des pénalités appliquées	
Montant global des pénalités appliquées (€)	
Principales raisons ayant nécessité des pénalités	

47. *Le partenaire privé a-t-il réglé les pénalités dans les délais prévus dans le contrat ?*

Oui ☐
Non ☐ (Préciser quelles ont été les conséquences, financières ou autres) : ……

48. *Des procédures de litiges ont-elles été enclenchées ?*

Oui ☐ (Merci de préciser le nombre) : ……
Non ☐

Si non, vous pouvez passer directement à la section 17.

49. *Ces litiges se sont-ils résolus à l'amiable ?*

Oui ☐ Non ☐

50. *L'opérateur privé a-t-il mis en place des dispositifs afin de prendre en compte la satisfaction des usagers (enquêtes de satisfaction, centrale d'appels,…) ?*

Oui ☐ (Merci de préciser le(s) dispositif(s) mis en place) :

Non ☐

51. *Des contentieux ont-ils été déclenchés par des usagers, des associations, des entreprises tierces au contrat ?*

Oui ☐ Non ☐

Section 17 : Le bilan du CP

52. *A votre avis, avez-vous rencontré des difficultés particulières liées à une mauvaise évaluation des besoins (périmètre du contrat) ?*

1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
Pas du tout d'accord	Pas d'accord	Moyennement d'accord	Plutôt d'accord	D'accord	Parfaitement d'accord

53.*A votre avis, avez-vous rencontré des difficultés particulières liées aux évolutions de la législation ?*

1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
Pas du tout d'accord	Pas d'accord	Moyennement d'accord	Plutôt d'accord	D'accord	Parfaitement d'accord

54. *A votre avis, avez vous rencontré des difficultés liées à votre organisation interne ?*

1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
Pas du tout d'accord	Pas d'accord	Moyennement d'accord	Plutôt d'accord	D'accord	Parfaitement d'accord

55.*Quels autres types de difficultés liées à l'incertitude pouvant exister durant l'exécution du contrat avez-vous rencontré ?*

56. *A votre avis, évaluez-vous la relation avec votre partenaire une relation de* ***partenariat*** *durant l'exécution du contrat ?*

1 ☐	2 ☐	3 ☐	5 ☐	6 ☐	7 ☐
Pas du tout d'accord	Pas d'accord	Moyennement d'accord	Plutôt d'accord	D'accord	Parfaitement d'accord

57. *A quel degré évaluez-vous le rapport qualité/prix du projet de CP ?*

1 ☐	2 ☐	3 ☐	5 ☐	6 ☐	7 ☐
Pas du tout bon	Pas bon	Moyennement bon	Plutôt bon	Bon	Très bon

Autres commentaires émanant de la personne publique :

……

……

……

……

Toute l'équipe de la MaPPP vous remercie pour votre collaboration.

(Contact : Mlle TRAN Phuong Tra - contrat.ppp@finances.gouv.fr)

Figure 1.9: Performance measurement

Academic studies	***Multidimensional Performance Measurement***
Ashley et al. [1987]	budget performance schedule performance client satisfaction, functionality contractor satisfaction, project manager/team satisfaction
Sanvido et al. [1992]	meet schedule under budget minimal construction problems profit
Chua et al. [1999]	budget success schedule success quality success
Cox et al. [2003]	quality control on-time completion cost safety dollars per unit units per work hour.
Menches and Hanna [2006]	budget performance; accurate cost estimate schedule performance profit achievement; planning effort; management of labor and work hours; customer satisfaction; 8total team performance and communication.
Yuan et al. [2009]	Acceptable quality of Project ; Within budget or saving money in construction and operation ; Quality public service; On-time or earlier project completion

Chapter 2

PPP under Financial Crisis: Value for Money versus Affordability*

1 Introduction

In recent years, many developed countries have stepped up their use of Public Private Partnerships (hereafter PPP) alternatively to other organizational forms of public services[14]. An OECD report from 2009 states that PPP has grown considerably in recent decades and nowadays account for a significant portion of public investment. For instance in the United Kingdom, the country with the longest PPP experience, the share of PPP in total investment expenditures rose from 10% to 15% over the last 10 years. France and Korea had a similar development, with PPP contracts comprising approximately 20% and 15% of investment spending, respectively. In some countries like Portugal,

*This chapter is based on a joint work with Frédéric Marty. The authors are grateful to the *Mission d'appui aux partenariats public-privé* (here after MaPPP), which helped us validate the data we collected.

[14]Among various types of PPP, in this paper, we consider the *Contrat de partenariat* in France. These are the government-pay PPP which are behind the recent successful PPP experience in France and also all over the world (European PPP Expertise Center [2012a]). Its equivalence is the Private Finance Initivative in the UK. To simplify, we use PPP to refer to the *Contrat de partenariat* hereafter.

investment through PPP projects is expected to add up to nearly 20% of GDP over the next years (Posner et al. [2009]). One of the rationale behind this trend is the innovation of PPP in terms of risk allocation (Rangel and Galende [2010], Noble and Jones [2006], Li et al. [2005]).

Indeed, differently from the traditional way of public procurement, a PPP project involves the private sector finance, and the bundling of design, construction, maintenance and sometimes other services into a single long-term "whole of life" contract (Hart [2003]). It is a *turnkey* contract with an optimal allocation of risk to the private actor(s). Under this characteristic, appropriate risks are transferred to the private sector, who is supposed to be able to manage those risks better, and thereby cheaper and higher-quality infrastructure services may be provided (Hayford and Partner [2006]). Following Laffont [1993] and Blanc-Brude [2013], in this scheme, private actor(s) such as lenders would be also more encouraged to go through a due diligence process to evaluate the viability of the project in order to avoid the *adverse selection* problem linked to a bad project. At the same time, they are also incited to participate in the monitoring of the operation to avoid the *moral hazard* problem of a bad private operator.

The optimal risk allocation could therefore give PPP a higher level of incentive than the simple contracting out strategy, and as a consequence becomes one of the best *value for money*[15] driver of this organizational choice (Jin [2009]). Indeed, if a risk is improperly allocated, then the bid price of the private actor would include at least an extra cost resulting from transaction costs for monitoring such a risk, and for covering the potential consequences, *i.e.* risk premium. Following the Transaction Cost Economics theory (hereafter TCT), the objective of an organization is to "organize transactions so as to economize

[15] *Value for money* can be defined as the effective use of public funds on a capital project. It can come from private sector innovation and skills in project design, construction techniques and operation practices, and also transferring key risk in design, construction delays, cost overruns and finance/insurance to private actors (Grimsey and Lewis [2002])

on bounded rationality while simultaneously safeguarding them against the hazards of opportunism" (Williamson [1985]). As a consequence, the choice of the PPP form as outsourcing strategy with an optimal risk allocation *ex-ante* between the parties could be considered as the process of deciding the proportion of risk management responsibility *ex-post* (Jin and Doloi [2008]). Moreover, following the work of the resource based view literature (hereafter RBV), organizations are not equal in terms of capabilities (Penrose [1959]), and these non-imitable and non-substitutable organizational capabilities are a key source of inter-firm performance differences (Barney [1991], Dosi et al. [2000], Nelson [1991], Wernerfelt [1984]). Given a specified output level, less capable organization would incur more costs to improve its capabilities and to meet the requirements (Helfat and Peteraf [2003]). Therefore, the potential *value for money* of PPP depends on the optimal risk allocation between the parties.

While risk transfer may help the public actor to save money, an excessive risk transfer can also imply paying an excessive risk premium to the private actor(s) (Yescombe [2011], Hodge et al. [2010], Grimsey and Graham [1997]). This risk premium is translated through the higher financing cost of PPP. Indeed, the traditional direct public borrowing seems less costly than the financing implemented by the private sector, as governments are supposed to be able to be indebted at a riskless rate (Grout [1997]). As a consequence, PPP's potential advantages have to be achieved at a point to compensate this higher cost in comparison to the traditional way of public procurement. In other words, in order to be an optimal organizational choice, the adoption of PPP has to reach the criterion of *value for money* while keeping the *affordability* characteristic (Grimsey and Lewis [2005]).

Yet, while the financing cost is easy to evaluate, the comparative advantages of PPP is incredibly difficult to test because a counter-factual is not readily available. It would require to compare similar projects carried out using

different governance mechanisms, such as PPP versus traditional procurement. In addition, the outcome of such comparisons may critically depend on the scope of considered project costs. For instance, Blanc-Brude et al. [2009] and Blanc-Brude [2013] find conflicting results when considering single-task PPP or PPP under the bundling mechanism (*i.e.* construction and operation). Due to the lack of feedbacks, since its creation, PPP has been criticized as too costly (Blanc-Brude [2013]).

The financial crisis has brought these criticisms to a higher level (House of Commons [2011]). For example, Marty and Voisin [2008] argues that the funding becomes difficult to get as there is fewer active banks on the financial market and they are more averse to risk. Burger et al. [2009] finds moreover that debt financing for PPP has not only become harder to get, but also more expensive when provided. Several reports also give evaluation of PPP's cost post crisis: cost of capital is usually 200-300 basis points higher than the cost of public funds (HM Treasury [2012]), cost of debt has increased from 20 to 33%, leading to an increasing annual payment by public authorities from 6 to 8% (National Audit Office [2010]). Among practitioners, attacks are also mounting and doubts remain as to the performance and usefulness of this new public organizational choice. Press articles have presented criticisms in many countries. For example, "Public Private Partnerships are bad for tax payers" (US), "Around Alberta, Public Private Partnership is a dangerous way to fund projects" (Canada), "The time bomb of Public Private Partnerships" (UK), "Bercy face à la bombe à retardement des partenariats public-privé" (France). As a consequence, the report of the House of Common in July 2011 in the UK recommended limiting the use of PPP as its higher financing cost is not really compensated by the potential *value for money* (House of Commons [2011]).

In such a context, governments who are tempting to consider the PPP organizational choice have two dilemmas. First, they have to find a solution to keep the PPP's *affordability*, *i.e.*, limiting the financing cost at a reasonable

level. At the same time, they have to be diligent to the risk allocation mechanism in order to keep PPP's *value for money* (Harlow and Windsor [1988]). The current study thereby aims at analyzing the impact of the crisis on the economic balance of PPP. More precisely, we answer to two questions. First, to what extent governments internalize risk in order to limit PPP's financing costs, *i.e.* enhance its *affordability*? Second, how this action about risk allocation affect the potential performance of PPP projects, *i.e.* its *value for money*?

We use data from 36 PPP projects in France to answer to these two research questions. We not only describe the trend of PPP financing conditions during the crisis, but also give more understandings about the change in the capital structure of PPP projects. We thereby investigate the evolution of each stakeholder's role in PPP risk allocation: private operators, public actors and bank lenders. We find that public actors, in order to keep PPP affordable, have assumed more risk. We also identify a potential negative effect of this action on the *value for money* of PPP.

We contribute to the PPP literature in several ways. First, to the best of our knowledge, our study is the first on the topic of PPP risk sharing and its *affordability/value for money*. We are also the firsts to analyze PPP risk allocation and financing conditions at the project level and in a detailed way. Third, our results show that governments are motivated to adopt PPP even under difficult context such as the financial crisis. However, this study gives public actors a warning about the necessary *ex ante* assessment of this organizational choice in order to keep its potential *value for money* characteristic.

The paper is structured as followed. Section 2 presents the theoretical framework and develop our research questions. Section 3 starts with an outline of the PPP financing model then analyzes the evolution of the financial market during the crisis. Section 4 describes our data. Results are presented in Section

5. Section 6 concludes with a discussion about managerial implications.

2 Related Literature and Research Questions

An investment project such as PPP is subject to the theory of capital structure which was first introduced by Modigliani and Miller [1958]. Harris and Raviv [1991] then identified the four determinants of capital structure in the literature. First, with the agency approach, capital structure helps ameliorate conflicts of interest among various groups who claim the firm's resources. Second, with the asymmetric information approach, capital structure may reduce the *adverse selection* problems in conveying private information to capital markets. Third, capital structure can also influence the nature of products or the level of competition in the product. And finally, it can affect the outcome of corporate control contests. As PPP company is essentially project financing with a highly-geared project company, debt is a high part of the capital structure (Grimsey and Lewis [2002]). Therefore, it helps even better in resolving the conflicts between stakeholders (Jensen and Meckling [1979]). Indeed, if bankruptcy is costly for managers, perhaps because they lose benefits of control or reputation, then debt can create an incentive for managers to work harder, consume fewer perquisites, make better investment decisions, *etc.*, because this behavior reduces the probability of bankruptcy (Grossman and Hart [1982]).

In this section, we first analyze how the risk allocation mechanism of PPP is linked to its capital structure. Second, we argue about the relationship between risk allocation and the incentive of private operators to meet their contractual agreements.

2.1 Risk Allocation and Financing model: The two faces of the same coin

As discussed in the previous section, PPP is an organizational form among a number of contracting out strategies. It is a long-term contract in which the private actor is in charge of the financing, design, construction, maintenance and sometimes other services of the public service. PPP is thereby a complex contract in comparison to the simple contracting out strategy, where each task is a separate contract with different private actors. However, as discussed by a number of economics models, the long-term duration (Webb [1991]) and the bundling of tasks (Hart [2003]) of PPP can create the optimal risk allocation between the two parties. As a consequence, even if the contract is complex and not able to manage every aspects, the private partner still has an implicit incentive to meet contractual agreements (Bennett and Iossa [2006a]). PPP is therefore also called a *fixed price risk transfer* contract (Blanc-Brude [2013]).

Risk in a PPP relates to uncertain outcomes which have a direct effect either on the provision of the services (*e.g.* because the infrastructure is delayed), or the financial viability of the project (*e.g.* increased costs or penalties for under-performance). They include exogenous risks and endogenous risks (Akintoye et al. [1998], Bing et al. [2005]). Exogenous risks are those external to the project itself, and include risks at a national or industry level status, and upon natural risks. The risks at this level are often associated with political and legal, economic, social conditions and weather. These risks occur beyond the system boundaries of a project but the consequences cross the project boundary to impact upon the project and its outcomes. They can be transferred to the private actor through an insurance (Yescombe [2011]) or kept by the public authority for its quality of risk-neutral public sector (Arrow and Lind [1970]). These risks can therefore be quantified *ex ante* and do not really have an impact on the financial viability of the project when occur. On the contrary, endogenous risks occur within the system boundaries of the project. These

include project related risks and stakeholders related risks. Project related risks are those linked to implementation problem, project demand or usage, location, design/construction and technology. Stakeholders related risks often include stakeholder relationship difficulties due to the inherent differences between the public and private sectors in contract management. The occurring of these risks thereby depend directly on the execution of the private operator and the monitoring of the public actor. As a consequence, the point of risk transfer in PPP is these endogenous risks, more precisely performance risks during the construction and the operational phase (Blanc-Brude [2013]).

The most relevant performance risks during the construction phase are term and cost overruns, while those of the operational phase are cost overruns and under-performance (Saussier and Tran [2013], Kim and Brown [2012]). When one of those risks occur, the private actor has to pay a penalty corresponding to the level of default. However, the penalty amount can not be without limit in order to keep the economic balance and the financial viability of the project.

Indeed, the financing of a project is always closely related to the risk allocation mechanism. Transferring more or less risk cannot be considered without a consideration of the "bankability" of the financial and legal model, *i.e.* the model that allows an effective risk transfer, which helps finding the funding at a reasonable cost (Tiret [2011]). Moreover, the "bankability" requirement has taken a greater importance with the financial crisis since 2008. The diminution of bank lending channels due to the debt reduction policy has made private funding scarcer and more expensive. This effect is even more important for long-term financing as PPP because lenders have become less likely to offer their balance sheet for risky and/or low-remunerated projects. Therefore, the real risk transfer, *i.e.* financially transferred, is structurally capped by the amount of resources "at risk" for each stakeholder in the financial arrangement.

2.2 Risk Allocation and Project Performance

As discussed in the previous section, PPP financing implies the role of the three stakeholders: lenders, private operators and public actor. In this section, we discuss how the level of resources at risk of lenders and private operator impact positively the level of incentive for the private operator to meet the contractual performance, while the level of resource at risk of the public actor impact negatively.

First, the role of lenders is particularly important as they are in charge of 70% to 95% of the investment in the PPP financing model (Yescombe [2011]). They are thereby encouraged to make a due diligence process not only to evaluate the viability of the project in order to avoid the *adverse selection* problem linked to a bad project, but also to participate in the monitoring of the operation to avoid the *moral hazard* problem of a bad private operator (Laffont [1993]). Second, the private actor participates in the project with an amount of equity up to 30% of the investment needs. As the compensation scheme in PPP is based on the principle of fixed price contract, the private operator bears the risk of the project outcomes, both in terms of costs and quality (Bajari and Tadelis [2001]). In case of default, the reimbursement of this equity is thereby involved. As a consequence, the resources at risk of both the lenders and the private operator would incite the private operator to well perform the project.

On the contrary, under a PPP, State Guarantees mechanism is often the solution that public actors use to internalize risks if necessary (European PPP Expertise Center [2011]). These guarantees consist of providing lenders guarantees of debt payment and refinancing solution in case of default of the PPP project company. In other way, these mechanisms enhance the credit of the senior debt assets by insulating the senior lenders from both construction

and operational risk. In doing so, public authorities internalize risk and limit the risk premium charged by lenders (Dupas et al. [2012a]).

While this action can enhance the affordability of PPP, it can also modify the "optimal" risk allocation of such a contract, which is the necessary condition to achieve PPP's *value for money* (Grout [1997]). We observe then an antagonism between the *affordability* and the *value for money* of PPP projects. Indeed, an excessive level of risk taken by public authorities in a PPP can impact the incentive level of the project in three ways. First, with this action, the alignment of interests between the public authority and the lenders may be no longer possible. Previously, the private operator had to meet contractual obligations to assure debt payments. With a large guarantee from public authorities, lenders would be less encouraged to go through a due diligence process to evaluate the viability of the project and to participate in the monitoring of the operation (Hellowell and Vecchi [2012]). Second, if a guarantee is provided on the debt repayment, the PPP seems to lose partially the ideal idea of a *turnkey* contract with a high incentive quality (Blanc-Brude [2013]). Third, debt guarantee is likely to cancel the incentive effect of all penalty clauses which aim at encouraging the private operator to meet his contractual obligations. Indeed, penalty clauses have no incentive effect if the private contractor is certain about the ability to make repayments for debt even in case of deficient performance. A private operator who is immunized from the risk of bankruptcy is not more encouraged to be efficient than the public authority when it faces a soft budget constraint (Kornai et al. [2003]).

2.3 Research Questions

In the current study, we aim at answering to two research questions. First, we investigate whether governments tempting by the PPP solution internalize more risk when they need to limit the high financing cost of this organizational

choice. More precisely, do they increase their resources at risk in the capital structure of the PPP project? Second, we link this behavior of the public actors to the potential incentive of the private operators to meet their contractual agreement. We thereby study the relationship of the level of resources at risk of the public actors and the maximum penalty applicable to the private operators.

3 Institutional Context

This section first describes the Project Financing model which is the most used financing model of PPP. We then present the evolution of the financial market during the financial crisis.

3.1 PPP Project Financing Model

PPP is mostly financed through the Project Financing model[16]. In this financing scheme, a project company, *i.e.* a Special Purpose Vehicle (hereafter SPV or project company), is created by the industrial group(s), *i.e.* sponsors, to act as the node between the stakeholders: public authority, sponsors and lenders (Figure 2.1). PPP is often financed with a high level of leveraga, where lender(s) bring from 70% to 95% of the investment need, *i.e.* debt (Yescombe [2011]). The remaining part is private equity from the private operator(s), which often takes only from 5% to 30% of the investment. A direct funding from the public actor is not required in this financial scheme. As the debt taken under the project financing model for PPP is a non-recourse loan, the only guarantee provided for the payment of the debt lies in the project cash-flow and the equity part from the SPV.

[16]The other two financing models are Corporate financing and Leasing which are often used for low-investment PPP (European PPP Expertise Center [2011]).

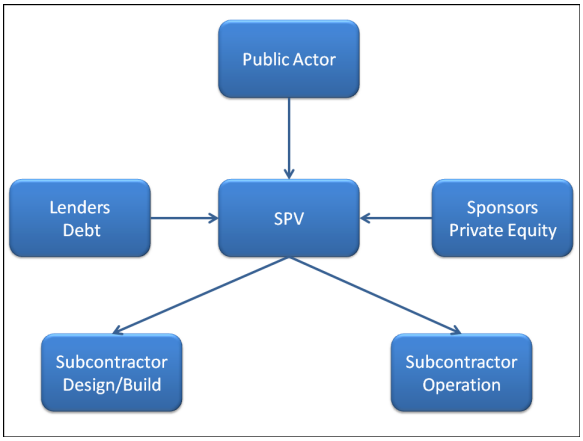


Figure 2.1: PPP: Project Financing model

In France, this Project Financing model has some particularities (Figure 2.2). In the construction phase, investment is made from the Public Equity of the public actor, the Private Equity of the SPV and the Debt from lenders. In the operation phase, if the construction work is completed and the infrastructure meets the required quality, the SPV refinances the Debt part. This action aims at obtaining a lower risk premium as there is no more construction risk. The refinanced Debt is often split into two or three parts. First, the public authority can declare a waiver of objection regarding one part of debt service to the bank[17]. Due to this fact, the public authority has to pay that part of the unitary payment, which is called Dailly, that results from the construction works to the bank even in case of the private contractor's deficient performance (Daube et al. [2008]). Since 2009, the Dailly Debt in France is limited to 80% of the total investment cost. Second, during the financial crisis, national projects with high level of investment can have one part of the Debt funded by a public institution, *i.e.* Guaranteed Debt. The public institution can be the The *Caisse des Dépôts* group (CDC)[18] or the European Investment

[17]This guarantee is used in France (*Cession de créances*) and in Germany (*Forfaitierungsmodell*). It constitutes one kind of State Guarantees. For more details, see European PPP Expertise Center [2011].

[18]The *Caisse des Dépôts* group (CDC) is made up of the Public Institution and its subsidiary companies. The Public Institution brings together the functional activities (general secretariat, communication, *etc.*) and operational activities (banking departments, savings funds). The subsidiary companies carry out market activities, adhering strictly to the rules,

Bank (EIB). The remaining part is the Project Debt which is in charge of by lenders.

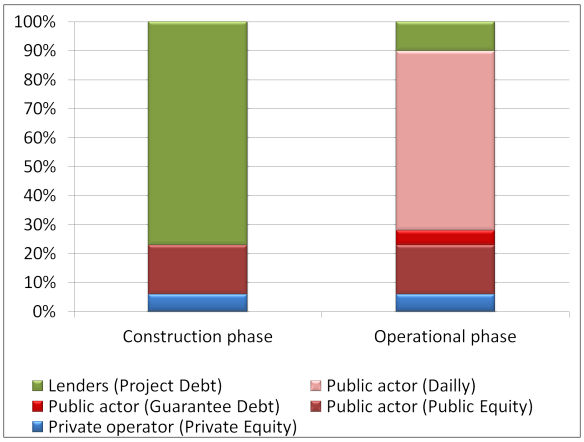


Figure 2.2: Resource at risk for each actor in a PPP

Folowing the Figure 2.2 which represents the resource at risk for each actor during the construction and operation phase of the project, we observe the same resource at risk for the SPV in the two phases, *i.e.* Private Equity. On the contrary, in the operation phase, lenders have fewer resources at risk, *i.e.* Project Debt, while public authority is exposed to higher level of resource at risk, *i.e.* Government Equity, Guaranteed Debt, and Dailly Debt. In this paper, we aim at evaluating the evolution of the level of risks taken by each stakeholder during the financial crisis. We therefore shortly compare these financing parts in the results section.

3.2 The Financial Market Evolution

Before the financial crisis, the financial market has offered PPP an ideal financing conditions. For a long time, following the bursting of the Dot-com bubble and September 11 attacks, the measures taken by central banks created liquidity abundance in the loan market. Besides, financial cost was much lower

as well as contribute to the group's long term social objective.

as investors' risk aversion was moderate. In addition, the adoption of International Financial Reporting Standards rules (hereafter IFRS) led to evaluate financial securities at their market value. In doing so, the rising stock prices conducted to an increase in the lending capacity of credit institutions. Such an environment was favorable to high leveraged financing, therefore was particularly favorable to PPP[19]. The ability to remove a high percentage of debt at an attractive rate was further strengthened by the existence of many financial instruments to provide investors with repayment guarantees, for example enhancing mechanisms (Delmon (2010)). Through these mechanisms, a third party with a maximum financial score becomes the guarantor of the debt payment, in exchange of a premium. In this way, regardless the project credit rating obtained by the project company, it was able to finance PPP projects at the best rate.

However, the standard PPP funding model has been affected by the 2008 financial crisis and the sovereign debt crisis. While the former affects the existing good financing conditions, the latter led to challenge the creditworthiness of the public authorities.

First, the crises have affected the financial market in several ways. The rise of distrust among market operators due to difficulties in assessing the creditworthiness of stakeholders has resulted in a sharp rise in risk premiums. This distrust was initially confined to financial institutions because of doubts about the quality of loans held in their portfolio. Then, distrust gradually extended, through the crisis of the Euro area and the loss of financial rating AAA by many states, to the public authorities themselves. Moreover, the strengthening of the international standards concerning solvency, i.e. Basel III, has increased the bank lending spreads. Even with the sharp fall in central banks interest rates to a level historically never met, this increase in bank

[19]Under a PPP, investors have an interesting risk-reward ratio. Indeed, even if the reward is limited, the risk taken seems even more reasonable because the public authority stays the ultimate risk bearer.

spreads has not been counteracted. Thus, private financing cost is significantly and permanently higher after the crisis. Besides, the crises has resulted in a structural increase in the cost of loanable funds. Before, the rise in stock prices was translated by the increase of credit institutions lending capacity. Indeed, as the financial assets being valued at their market worth under IFRS rules, a cumulative process leading to the increase of cash flow took place. After, when expectations become reversed, the cumulative process still continues but on the downside. Therefore, a deleveraging process occurs making the credit institutions reduce their loans. The market then moves from a situation of abundant liquidity in to almost a lack of liquidity. Such a situation therefore makes financial closing become difficult, unless acceptance of much higher rates than those previously known.

Second, the different tools which were set up to facilitate financial closing and reduce cost have disappeared with the crises. Two examples are particularly significant. The first is the disappearance of monoline credit, *i.e.* credit enhancement. Private insurers quickly lost their high quality credit rating and thus their credibility as an insurer for last resort reimbursement. From then, lenders no longer have choice other than focusing on the cash flows generated by the project company and the equity from the sponsors. A second rupture held in the virtual disappearance of the syndicated loan market. Before the crisis, some sponsors from the financial sector, pledged in credit arrangements type underwrite and syndicate. With guarantee of these credit arrangers for the availability and cost of funds, the project company could achieve good financing conditions. Since the crisis broke out, instead of syndication, arrangers of type small loan, i.e. club-deals, tend to multiply. Since then, it is necessary to combine several banks to complete the financing. This has two main consequences. First, it increases the financing cost by reducing the degree of competition between credit institutions. Second, and more importantly, under this mechanism, the rate applicable to all banks is the one from the closing

bank. In other words, the cost of private financing is determined by the bank that the refinancing is in the most expensive conditions.

Finally, the additional cost of PPP financing is not the only consequence of the crisis. Additional risks will also have to be shared between public and private actors. The rise of lenders' risk aversion does not just mean the increase of debt lending spreads but also by the reduction of debt maturities. The loan term can frequently be shorter than the duration of the contract, which creates a refinancing risk during the contract (Dupas et al. [2012a]). In the end, this risk must be partially supported by the public authority.

4 Data Description

In order to answer to our questions, we collect data in PPP contracts in collaboration with the *Mission d'appui aux Partenariats public privé* (hereafter MaPPP). This organization is the French PPP taskforce sieged in the Ministry of Economy and Finance. From the creation of PPP in France in 2004 until december 2012, a totality of 155 PPP have been signed, both at the central government level and the local government level. While all the main information of PPP projects is available in the main contract, detailed financial information is only described in the financial annex. As those are highly confidential documents, public actors do not often transfer them to the MaPPP. We therefore have got access to the financial annex of only 36 projects. These documents are in the form of excel tables with all financial information of the projects, including the resources at risk for each stakeholder, the interest rate, bank margin and debt maturity for each kind of debt, among others.

In the current study, we set the beginning of the financial crisis on January 1st 2009. Literature in Public Administration often sets this beginning in 2008 (Khademian [2011]). However, we argue that the real effect on PPP

financial conditions is later as the procedure of PPP in France takes in average 15 months (Saussier and Tran [2013]).

The Table 2.2 in the Appendix gives the description of our sample with main information such as public actor, year of projects, sector, investment amount as well as contract duration. The sample reflects the heterogeneity of the PPP contracts signed in France. The investment amount of our sample is from 3.4 to 267.2 million euros. The mean is about 58 million euros while the median is around 45 million euros. This is consistent with data of the whole 155 PPP where the investment amount is between 0.5 million euros and 2.8 billion euros. In terms of contract duration, the mean in our sample is 24 years (with extreme values of 15 and 35 years). For the total 155 contracts, the average duration is 20 years. It should be noted that the duration of the construction phase is around 2 years in average.

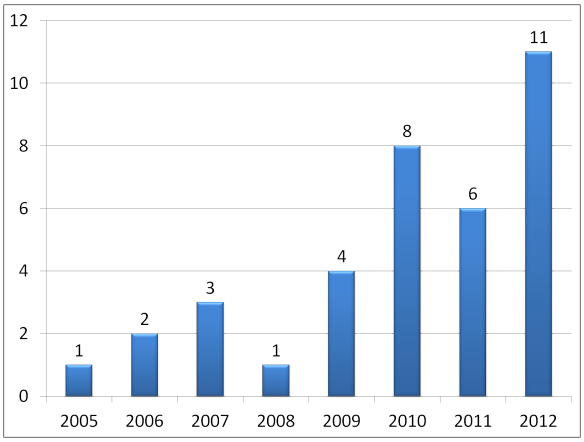


Figure 2.3: Distribution per year

Figure 2.3 and 2.4 describe the distribution per year and by sector for these 36 projects. Our sample is composed of 7 projects before the crisis (20%) and 29 during the crisis (80%). This distribution is consistent with the whole French PPP sample where only 24% of the 155 PPP were concluded before 2009 (Klien and Tran [2014]). The distribution by sector is slightly different from the whole of PPP projects in France (see Figure 2.4 versus Figure 3.3).

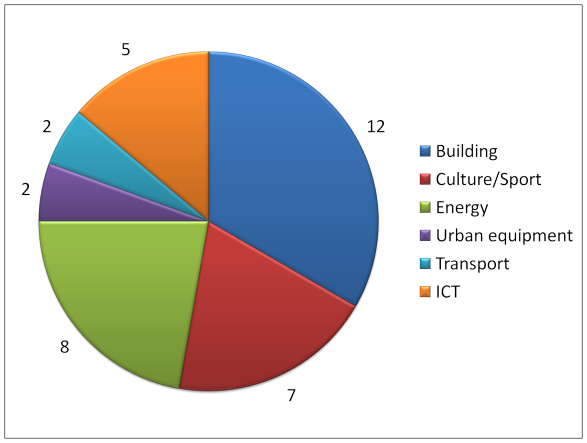


Figure 2.4: Distribution by sector

Indeed, in our sample, the sector of Urban Equipments are under-represented. The reason is that those projects are often low-investment projects, whose financial annex is not often available at the MaPPP department.

Table 2.1 describes the resources at risk of each actor in percentage of the investment amount. At a first look, consistent with the Project Financing model for PPP, we notice that the resources at risk of the public actors (the sum of Public Equity, Guaranteed Debt and Dailly Debt) are much more higher than those of the private operators (Private Equity) and lenders (Project Debt). Indeed, the Dailly Debt may be up to 98% of the investment amount, Guaranteed Debt up to 43%, and Public Equity up to 50% of the investment amount. While the Project Debt may be up to 51%, the Private Equity never exceeds 18%. We can thereby conclude that the role of the private operators in the capital structure of PPP projects is not as important as the other two stakeholders.

Actors	Types of debt	Min	Max	Mean	Median
Lenders	Project Debt	0%	51%	10%	10%
Public actors	Dailly Debt	0%	98%	63%	74%
	Guaranteed Debt	0%	43%	5%	0%
	Public Equity	0%	50%	17%	8%
Private operator	Private Equity	0,2%	18%	6%	5%

Table 2.1: Resources at risk for each stakeholer in percentage of the investment amount

5 Results

5.1 Risk sharing evolution among PPP stakeholders

Before entering in the analysis of the evolution of each stakeholder's role in financial terms, Figure 2.5 gives a description of the resources at risk of each stakeholder in the three periods of interest: the whole sample, before 2009 and after 2009. We first observe that the use of PPP as vector for the economic recovery in 2009 is clear. The average amount of PPP investments has doubled (from 35 to 65 million euros). Second, we find that while the resources at risk of private operators (Private Equity) and public actors (Public Equity, Guaranteed Debt and Dailly Debt) have increased since 2009, the role of lenders stay almost the same in the three periods (Project Debt).

In the following discussion about each one's role evolution, we will first study the resources at risk in percentage of the investment amount, in percentage of the need of funding (total debt), as well as the resources at risk in amount.

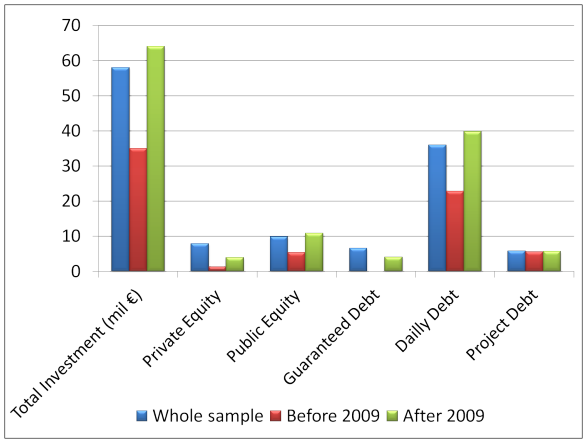


Figure 2.5: Comparison of the resources at risk for each actor in million euro

5.1.1 Private operators

As mentioned above, we observe an overall trend of deleveraging for French PPP projects between 2005 and 2012. Given the level of investment in PPP which has doubled in the second periods (Figure 2.5), we can notice that private operators have taken more risk during the financial crisis.

Indeed, in terms of percentage of investment amount, the share of Private Equity rises in average from 3,6% to 6,5% in the two periods. Figure 2.6 gives more details about the yearly mean of the share of Private Equity in percentage of the investment amount. Even if we notice a decrease at the end of the second period of interest (from 8,5% to 6,5%), this percentage still stays much higher than those of the first period. The increase is more significant when we relate the share of Private Equity to the borrowing needs of PPP projects, *i.e* the difference between the investment amount and the Public Equity (Figure 2.7). Between the two sub-periods, the average goes from 4 to 8,7%. While the number of projects with a Private Equity among 0 and 5% stay almost the same in the two periods, those among 5 and 10% has increased from 2 projects to 16. More over, after 2009, high Private Equity projects have appeared (6 projects with Private Equity of 10-15% and 1 project of 20-30%).

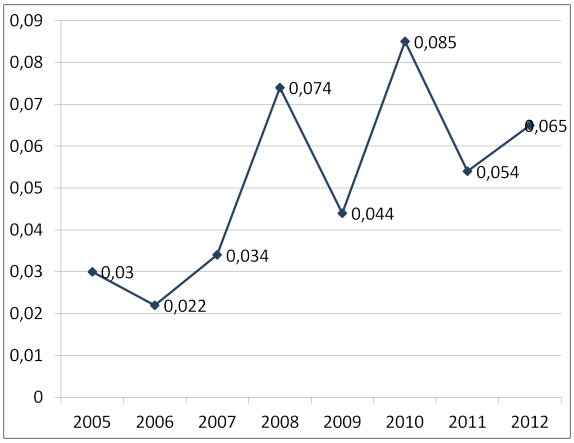


Figure 2.6: Private Equity Evolution between 2005 and 2012 (yearly mean in percentage of investment amount)

In terms of absolute value, we also observe the same trend. Indeed, prior to 2009, the amount Private Equity of the 7 PPP projects reached a total of 7.85 million euros with a mean of 1.12 million per project. Among those, 4 projects are composed of a Private Equity inferior to one million euro and 3 others between 1 and 5 million. Figure 2.8 gives information about Private Equity in absolute value after 2009. Even if the portion of Private Equity lower than 5 millions is still high, *i.e.* 23 projects over 29, we observe two other classes of Private Equity in comparison to the period before 2009: 5 contracts with a Private Equity between 5 and 10 million euros, and 2 others between 10 and 20 million. Therefore, the mean of Private Equity of this period is also higher than in the previous period (4.04 milion euros versus 1.12).

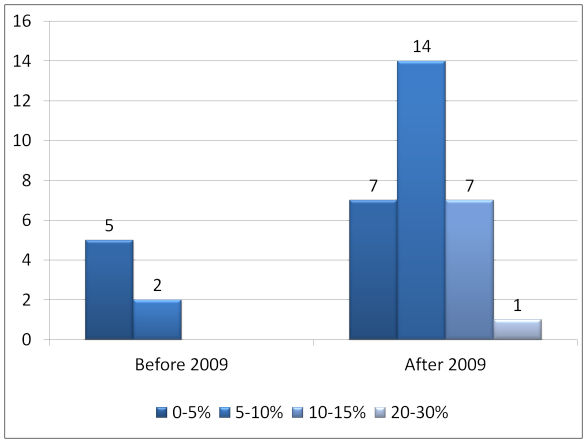


Figure 2.7: Private Equity Evolution between 2005 and 2012 (number of projects by share of Private Equity in percentage of the borrowing needs)

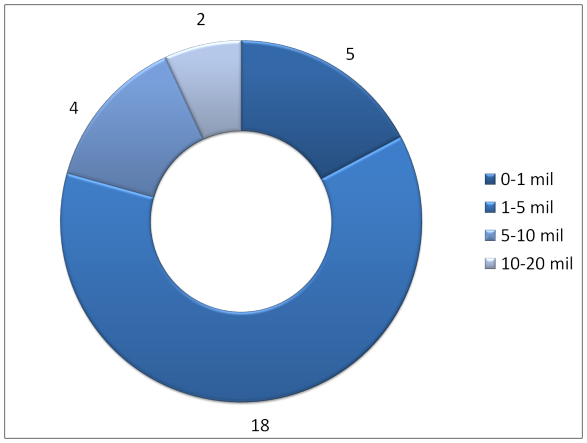


Figure 2.8: Private Equity after 2009 (number of projects by classes in absolute value)

We then conclude that after 2009, even if the investment amount for PPP projects has doubled, private operators still increase their resources at risk for PPP financing, both in percentage and in absolute value. This behavior shows that PPP is an interesting organizational form for private operators. It also confirms that in general, firms have an incentive to pursue relatively safe projects out of reputational considerations (Diamond [1989]).

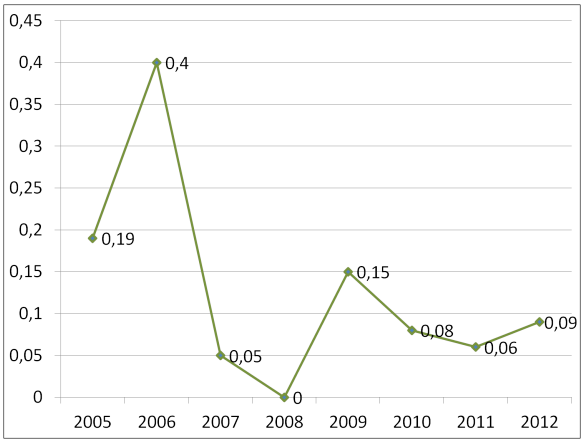


Figure 2.9: Project Debt Evolution between 2005 and 2012 (yearly mean in percentage of investment amount)

5.1.2 Lenders

While the resources at risk for private operators has increased, we observe that lenders have decreased their level of resources at risk, not only since 2009 but since 2007. The reaction of lenders to the crisis is much faster than public and private actors.

Indeed, in terms of percentage of the investment amount, the share of Project Debt increases from 33% to 8%. Figure 2.9 gives the yearly mean details of the share of Project Debt in terms of PPP investment amount. We notice that in 2008, this share even went down to 0%. In such a case, lenders are isolated from all risk during the operational phase of the project as the debt payment is totally guaranteed.

Figure 2.10 shows details about the Project Debt in terms of absolute value after 2007. As we have shown, one of the most clear consequences of the crisis funding difficulties is the downward trend in the value of the Project Debt. While 4 out of 33 projects have a Project Debt higher than 10 million euros, only one single project has a Project Debt at 15 million. We also notice that 13 projects where the Project Debt disappear. However, those

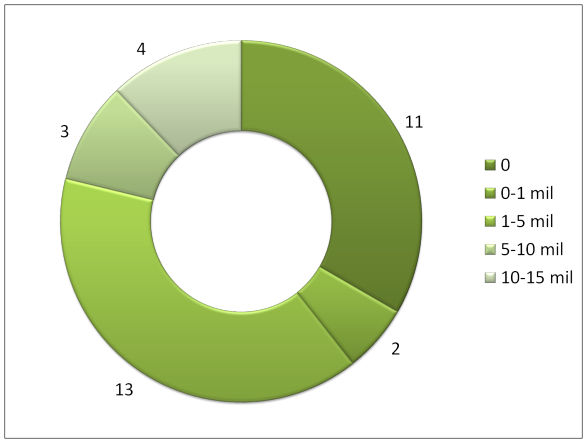


Figure 2.10: Project Debt after 2007 (number of projects by classes in absolute value)

projects correspond to contracts which do not require a high level of investment amounts.

We then conclude that lenders have taken less risk since the crisis, specially for the operational phase of PPP projects.

5.1.3 Public actors

In general, we identify a more active role of public actors, both in terms of Public Equity, Guaranteed Debt and Dailly Debt.

Public Equity

Public Equity includes direct public funding such as subsidies and public self-financing. If we take into account the percentage of Public Equity in the investment amount of PPP, we observe that this part experiences quite a stable trend in terms of percentage of the investment amount (Figure 2.11). However, as the investment amount has doubled after 2009, in reality, it is more interesting to study the share of Public Equity in absolute value (Figure 2.12).

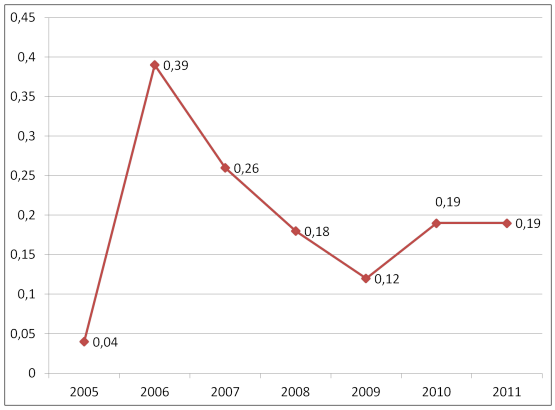


Figure 2.11: Public Equity Evolution between 2005 and 2012 (yearly mean in percentage of investment amount)

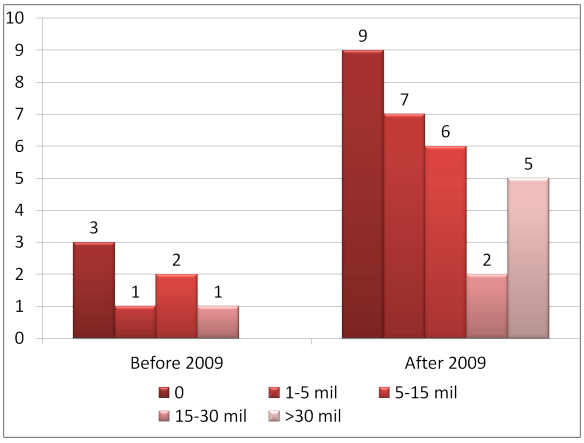


Figure 2.12: Public Equity Evolution between 2005 and 2012 (number of projects by classes in absolute value)

Indeed, after 2009, even if the number of projects with a low level of Public Equity is still high (9 with 0 Public Equity and 7 with less than 5 million euros), we observe 5 projects with more than 30 million euros of Public Equity. More precisely, those 5 projects has a mean of Public Equity at 78 million euros. As a consquence, the mean of Public Equity increases from 8.4 million euros before 2009 to 16.15 million euros after 2009.

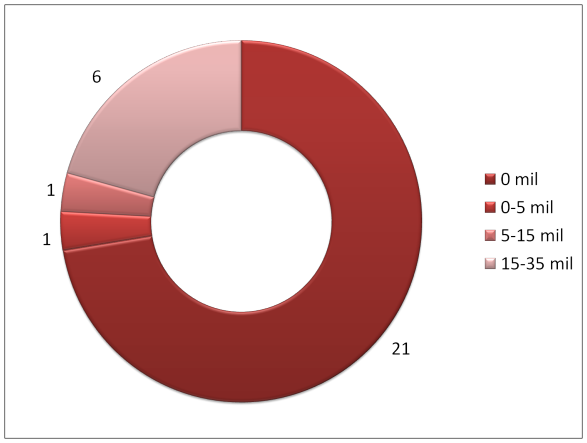


Figure 2.13: Guaranteed Debt after 2009 (number of projects by classes in absolute value)

Guaranteed Debt

As previously presented, the crisis also makes possible the growth of debts provided by institutional financial actors such as the CDC or the EIB. However, we observe only a limited number of PPP projects which have this types of debt in the capital structure. Indeed, before 2009, there was no Guaranteed Debt for projects in our sample. After 2009, only 8 projects received a Guaranteed Debt out of the 29 projects (Figure 2.13). They are all infrastructure contracts carried by the central government with a high level of investment need.

Dailly Debt

As discussed in the Section 3.1, the Dailly Debt has been capped at 80% of the investment amount since 2009. We therefore focus our analysis of the evolution of this type of debt in terms of absolute value. Figure 2.14 describes the evolution of this type of debt by classes in absolute value in the two periods. Conversely to the trend of the previously discussed Project Debt, we observe an important proportion of projects where the Dailly Debt is higher than 20 million euros (19 projects out of the 29). However, in terms of mean, we oberve a result which is consistent with the evolution of the investment amount in PPP

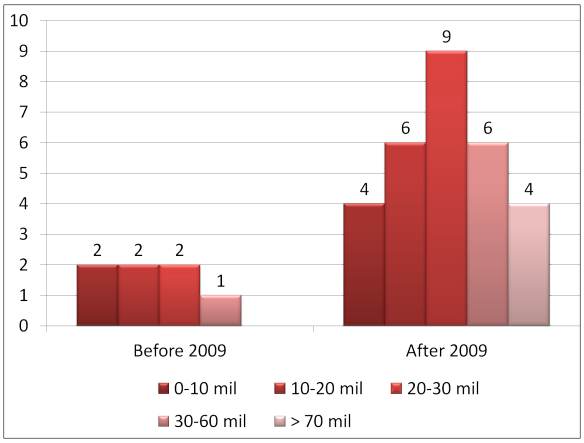


Figure 2.14: Dailly Debt Evolution (number of projects by classes in absolute value)

in the two periods. Indeed, the mean of Dailly Debt in absolute value has also doubled from 17 million euros to 34 million euros.

With the analysis of these three types of debt that the public actors are in charge, we therefore conclude that in general, the risk taken by public actors has increased since the crisis. However, it is somehow consistent with the evolution of the investment amount of PPP.

5.2 Risk Allocation Evolution and its Effects

In this Section, we investigate the effect of the risk taken by each stakeholder on the financial cost, as well as on the potential incentive for the private operators to meet their contractual requirement.

5.2.1 Financial Cost Evolution

In general, we observe an increasing financial cost for French PPP.

If we look at the remuneration of the Private Equity, we observe that

this cost has not changed after 2009. Even if we do not have information for all the 36 projects, we note an average Internal Return Rate (IRR) of 10,17% before 2009 and 10,93% after 2009.

Regarding the remuneration of lenders on the Project Debt. The spread on this type of debt has significantly increased, *i.e.* from 106 to 212 basis point (hereafter bp). This trend reflects the higher financial cost of resources funded by banks in Europe. Indeed, assessments published in March 2013 by the European PPP Expertise Centre (hereafter EPEC) show that financing conditions have not improved significantly since the beginning of the crisis (European PPP Expertise Center [2012a]). Debt margin has been higher than 200 bp since 2010, whereas it was often limited to 60 bp before the crisis (Table 2.3 in the Appendix). In the UK, we observe the same trend. Bank margins dropped to below 100bp in 2007 and then increased twice in 2008-2009 and in 2011-2012 to 300bp (Figure 2.18 in the Appendix) (HM Treasury [2012]).

Taking into account the comparison of the remuneration of the Project Debt (lenders) with the Dailly Debt (public actors), we find that public actors' risk internalizing behavior has somehow limited the increasing cost for PPP. Indeed, Figure 2.15 shows that the spread of this type of debt has increased but remains much lower than the spread of the Project Debt. Figure 2.16 gives a trend about the relationship between the Dailly Debt share and the spread of these two types of debt. However, the increasing speed of the Dailly Debt's spread is still disturbing as this type of debt is guaranteed by the public actors. It is worth noting that we observe the same trend at the local government level.

As a consequence, thinking of a return to the situation before the crisis is illusory. Instead, the public debt crisis, particularly in the Eurozone, is leading to a tightening of financing conditions.

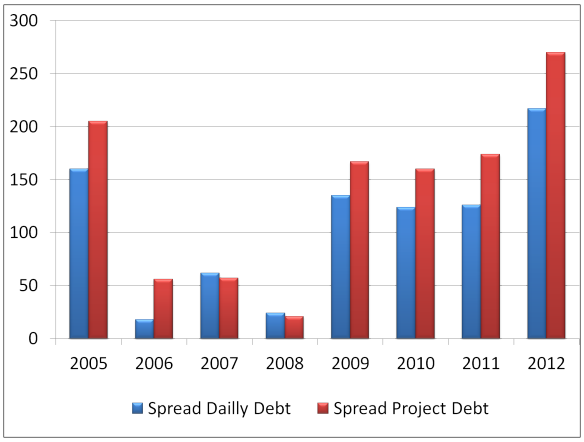


Figure 2.15: Spread Evolution of Dailly Debt and Project Debt (in basis point)

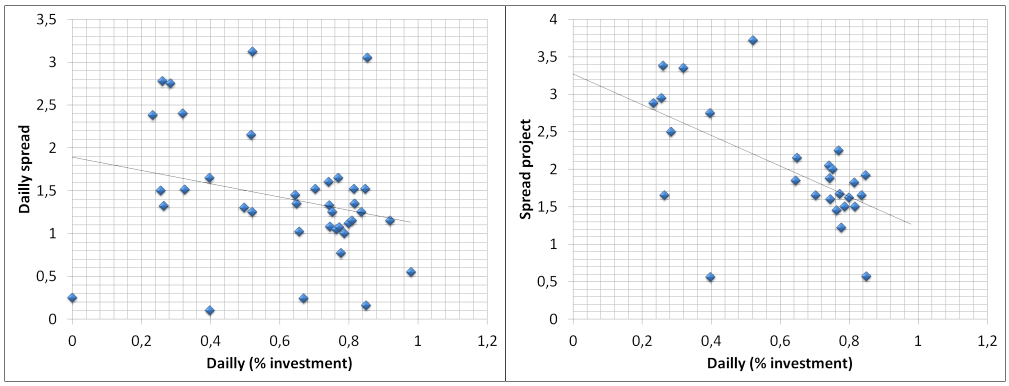


Figure 2.16: Effect of Dailly Debt on Dailly Debt Spread and Project Debt Spread

5.2.2 Potential Effects on the Incentive level

As discussed in the Section 2.2, the level of risk taken by the public actors may impact negatively the incentive for the private operators to meet their contractual requirements in terms of performance for three reasons. First, with this action, the alignment of interests between the public authority and the lenders may be no longer possible. Indeed, with a large guarantee from public authorities, lenders would be less encouraged to go through a due diligence process to evaluate the viability of the project and to participate in the monitoring of the operation (Hellowell and Vecchi [2012]). Second, if a guarantee is provided on the debt repayment, the PPP seems to lose partially the ideal idea of a *turnkey* contract with a high incentive quality (Blanc-Brude [2013]). Third, debt guarantee is likely to cancel the incentive effect of all penalty clauses which aim at encouraging the private operator to meet his contractual obligations.

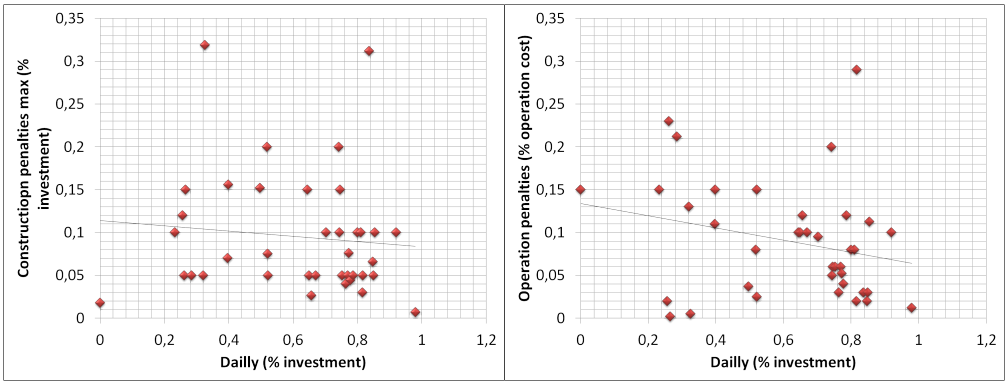


Figure 2.17: Effect of Dailly Debt on Maximum Penalty in Construction and in Operation

While our data cannot provide evidence for the two first consequences, we try to give a first insight over the third one on the potential incentive *ex post* of private operators. As discussed and shown above, the Dailly Debt may limit the financial costs for PPP in decreasing the spread (Figure 2.16). However, at the same time, it may also affect negatively the potential incentive of this organizational form. We take the maximum of applicable penalties in

case of unachieved performance as the measure for the potential incentive of the private operators. Figures 2.17 shows that the share of Dailly Debt does not really have a negative impact on the incentive in the construction phase. However, in the operation phase, the impact is quite clear as shown in the Figure 2.17.

We therefore conclude that a high level of risk taken by the public actors may have beneficial impact in terms of cost. Nevertheless, they should pay more attention to the negative side of this behavior on the incentive of the private operators. Indeed, Saussier and Tran [2013] shows that public actors are not as satisfactory with PPP's quality as its cost and term respect.

6 Conclusion

Our analysis of the impact of the crises that emerges from our sample provides evidence of significant evolutions. The first is, as we have seen, an increase in the role of public actors in PPP financing. The Dailly Debt is always set at the maximum legally authorized (80%), few exceptions excluded. Subsidies and government guarantees remain exceptional and mainly concern the most important projects. The role of private operators in PPP financing has also become more important. However, this trend did not lead to a sudden leverage transformation. Although the variation of the equity growth may seem important, the starting level was relatively low. A 10/90 leverage seems to remain the standard. This evidences the sponsors' difficulties to invest in project companies' equity due to its high required remuneration. The third significant change is related to the sharp decline of the share of the project debt during the crisis, *i.e.* bank lenders role. It often stabilizes between 10 and 20% of the total debt. Regarding the financial costs, we observe a spread increase which takes place in two stages. A first increase was observed in 2009 due to the financial crisis, and the second one, which is most significant, between 2011

and 2012 due to market doubts on public actors credit quality.

Transformations related to PPP financial conditions is a sign of the resilience of the model. The result was not a gradual abandonment of the PPP model as British HM Treasury perspectives predicted (HM Treasury [2012]). However, we found that French public actors have been facing a dilemma: re-internalizing risks to limit their additional cost and thus enabling fiscal sustainability (preservation of *affordability*) or accepting such additional costs in order to ensure an optimal allocation of risk (conservation of the *value for money*). In order to both continue using PPP as an anti-crisis package and keep them affordable, they have increased their role in risk taking with objective of lower financial cost. Indeed, their guarantees consist of providing lenders guarantees of debt payment and refinancing solution in case of default of the SPV. In other words, these mechanisms enhance the credit of senior debt assets by insulating the senior lenders from both construction and operational risk. In doing so, public authorities limit the continuously increasing risk premium charged by lenders since 2009 (Marty et al. (2012)).

To the best of our knowledge, our paper gives the first results using empirical data from each single PPP project. Using data from French PPP context, we analyzed the evolution of risk sharing among stakeholders of PPP projects: private operators, public actors and bank lenders. We also give insight about the rising of financial costs in the French context is more importantly due to the sovereign debt crisis than the financial crisis itself. Finally, we analyze the rising role of public actors in PPP financing as a way to enhance PPP affordability. However, we also discussed its potential disadvantages which can limit the incentive for private actors to well perform the projects.

Our results are important to understand the evolution in PPP financing conditions, which have known much more difficulties since 2009. Moreover, in terms of policy implications, our analysis and evidence suggest that public

participation in PPP financing should stay at a reasonable level in order to preserve its potential economic efficiency.

Given the rising trend of PPP adoption in such a context, it would be interesting to study the reasons why public entities choose this type of organization for public investment, taking into account several aspects such as fiscal circumventing motivation, political ideology, as well as some mimetic behaviors.

7 Appendix

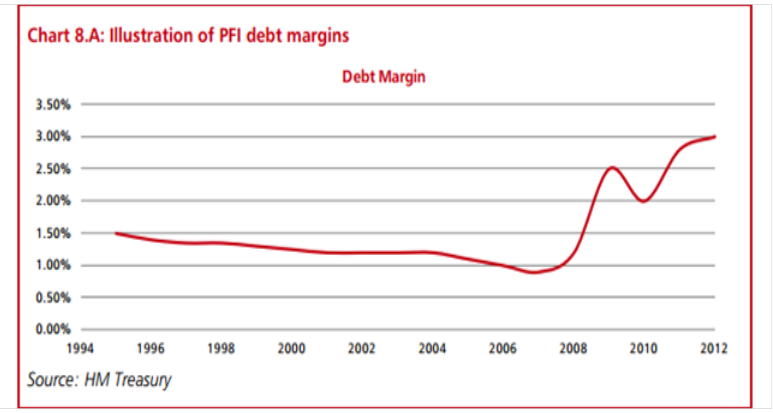
Table 2.2: Main information of the 36 PPP

Year	Public actor	Sector	Investment (mil €)	Contract duration (year)
2005	Central government	building	45	30
2006	Central government	culture sport	70	30
2006	Local government	energy	55	20
2007	Local government	culture sport	17	30
2007	Local government	energy	15	22
2007	Local government	urban equipment	3	18
2008	Local government	ICT	39	26
2009	Central government	building	61	32
2009	Central government	culture sport	25	28
2009	Central government	energy	45	25
2009	Local government	energy	29	20
2010	Local government	building	74	28
2010	Local government	culture sport	267	35
2010	Local government	culture sport	218	30
2010	Local government	energy	56	26
2010	Local government	energy	36	15
2010	Local government	urban equipment	73	17
2010	Local government	transport	16	28
2010	Local government	ICT	34	22
2011	Local government	building	6	15
2011	Local government	building	59	23
2011	Local government	culture sport	219	34
2011	Local government	energy	7	20
2011	Local government	transport	56	17
2011	Central government	building	92	30
2012	Local government	building	14	20
2012	Local government	building	45	28
2012	Local government	building	28	22
2012	Central government	building	62	29
2012	Local government	building	12	28
2012	Local government	building	110	20
2012	Local government	building	102	20
2012	Local government	culture sport	14	25
2012	Local government	energy	34	20
2012	Local government	ICT	58	25
2012	Local government	ICT	6	21

Table 2.3: Data EPEC Market Updates: 2010, 2011, 2012

	Average maturity of the senior debt	**Average margin debt (construction)**	**Average margin debt (approaching maturity)**	**Minimum and maximum margins on debt (construction)**
2010	> 20 years	240 bp	275 bp	180 - 425 bp
2011	> 20 years	230 bp	270 bp	170 - 300 bp
2012	> 21 years	300 bp	350 bp	220 - 450 bp

Figure 2.18: UK PPP Bank margins evolution (HM Treasury, 2012)



Part II

PPP Determinants

Chapter 3

PPP: Who, Why and Why not?*

1 Introduction

In recent years, many developed countries have stepped up their use of Public Private Partnerships (hereafter PPP) alternatively to other organizational forms of public services. A OECD report from 2009 states that PPP has grown considerably in recent decades and nowadays account for a significant portion of public investment. For instance in the United Kingdom, the country with the longest PPP experience, the share of PPP in total investment expenditures rose from 10% to 15% over the last 10 years. France and Korea had a similar development, with PPP contracts comprising approximately 20% and 15% of investment spending, respectively. In some countries like Portugal, investment through PPP projects is expected to add up to nearly 20% of GDP over the next years (Posner et al. [2009]). While PPP has been well spread, the driving forces of this trend has not been much studied in the literature.

Yet, the question of organizational choice strategy in the public sector is

*This chapter is based on a joint work with Michael Klien. The authors are grateful to the *Mission d'appui aux partenariats public privé* (MaPPP) for providing data and useful information. Any remaining errors are the authors' responsibility.

a particularly crucial question. Indeed, public management can not be studied as generic management due to the politics matters. Following Overman [1984], public management incorporates "the tensions between rational-instrumental orientations, on the one hand, and political-policy orientations, on the other". Correspondingly, all the decisions made by public managers such as contracting decisions are made up of two types of concerns: the policy question, *i.e.* the role of government accountability with other normative/political judgments, and the administration question, *i.e.* efficiency and effectiveness (Kettl [2005]). To sum up, governments need to minimize the cost of the public service delivery within the political and legal constraints (Ferris and Graddy [1986]). As a consequence, the main dilemma of the decision of organizational choice in the public sector lies in the cornerstone of pragmatism and politics (Lu [2013]).

Indeed, the pragmatism driving forces of public sector's outsourcing strategy have been largely studied by scholars from different fields. These studies often consider the strategy of contracting out in general versus publicly in-house provision. Among these studies, public choice scholars consider that the market delivery of public services is a means to enhance efficiency, better align managerial objectives with citizen concerns, and promote local economic development (Osborne and Gaebler [1992], Savas and Schubert [1987]). Afterwards, transaction cost theory scholars recognized the importance of the transaction costs on contracting and showed that this organizational choice might depend on the nature of the service and of the contracting process (Hefetz and Warner [2011], Bel and Fageda [2007], Brown et al. [2008], Hefetz and Warner [2004] Hefetz and Warner [2004], Levin and Tadelis [2010a]).

However, this utilitarian view is rejected by sociological institutionalists, for whom actor's symbolic and normative concerns are relevant (March et al. [1976]). As a consequence, in the public sector, other dimensions at the individual level is also a driving force of governments' organizational choice strategy. Indeed, early studies in the 1980s and 1990s showed political factors,

like public service constituency group and governance structure, as significant determinants of local government contracting (Ferris and Graddy [1986], Morgan et al. [1988]). More recently, Fernandez et al. [2008] argued politics, such as political ideology and public employee opposition, also mattered. At the state level, Ya Ni and Bretschneider [2007] and Price and Riccucci [2005] demonstrated that political rationales played a major role in contracting out state E-Government services and prisons, respectively. Other than political matters, managers' characteristics have also been considered to affect organizational choice (Boeker [1997]), as well as the way an organization conducts its strategy (Bantel and Jackson [1989]). Moreover, as developed in DiMaggio and Powell [1983], other individual dimension such as the mimetic behavior of managers is also found to be an important determinant of organizational strategy.

In this paper, we aim at continuing this stream of debate in the literature about determinants of public organizational choice at the individual level approach. Differently from other studies focusing on the question of "make or buy" strategy, we focus on the question of "how to buy". More precisely, we investigate individual considerations of public managers as determinants of PPP choice instead of the simple contracting out strategy, *i.e.* traditional public procurement[20].

Already a number of studies try to explain the general determinants of PPP. At the country level, using a large database of over 1,000 PPP projects all over the world, Hammami et al. [2006] tries to identify the determinants of PPP choice across developed and developing countries. While these studies are interesting for analyzing aggregate drivers such as institutional features,

[20]In this paper, we define PPP in the sense of so-called *Contrat de partenariat*. This corresponds to government-pay contracts and is equivalent to the Private Finance Initiative in the UK. Importantly, this type of contractual arrangement is different from the users-pay contract, *i.e.* concession contracts, which are also referred to as PPP. In the remainder of the paper we address these *Contrats de partenariat* as PPP.

the level of analysis typically does not correspond to the actual decision making structure. Moreover, such studies are unable to explain the considerable within country heterogeneity in PPP adoption. At the subnational level, to the best of our knowledge, only a limited number of studies consider PPP determinants. Albalate et al. [2012] studies states and local governments in the US, but focuses on the degree of private participation instead of the decision to implement a PPP or not. Russo and Zampino [2010] try to explain the intensity of PPP use in Italy. Closer to this study, Buso et al. [2013] analyze PPP choice in France but focus strongly on the financial aspects of municipalities.

Using data from France, we analyze a large number PPP predictors at the individual level approach suggested by the literature: Political determinants, mayor/manager characteristics, and their mimetic behavior. Exploiting a feature of the French institutional context, we are able to consider not only the decision to implement a PPP but already the decision to conduct a PPP feasibility study. As a consequence, we also analyze the factors that lead governments to abandon a PPP and show that those municipalities differ significantly from those that finally implement a PPP already at the project start. Our results show that political determinants and the mimetic behavior of mayors are important factors that lead them to study the PPP solution. However, their characteristics such as age and gender have no effect on this strategy. We also find that, when it comes to the decision to implement a PPP, while political contestability determinant is more relevant, the mimetic behavior becomes less important for this strategy of organizational choice.

We contribute to the literature in several ways. First, we add some interesting results to the literature in strategic management, more particularly in the field of organizational choice. We also contribute to the New Institutionalism field as we study the determinants of organizational choice at the individual level approach. Our results confirm that not only rational factors such as financial situation or efficiency seeking motivation are relevant for such

a strategy. Third, our result regarding the positive effect of political contestability on PPP adoption is a new contribution to the political science literature.

Our contribution is the most important in the existing PPP literature as we take a comprehensive account of the potential determinants of PPP choice and test for their relevance as predictors in the French context. We benefit from the fact that we are able to obtain data on all PPP projects by local governments and that we are able to complement this with municipal data for the whole universe of 36,000 French municipalities. Second, we are the first to distinguish between the date a PPP process is initialized and when it is concluded. This is a potentially crucial point as the average PPP process duration is well over two years. Thirdly and related, we are the first to shed light on the reasons why governments embark on a PPP process but finally decide against this governance mode. Finally, our study also helps to improve PPP policy makers' understanding about PPP adoption, especially the factors leading to abandoning a PPP process.

The paper is structured as follows. Section 2 discusses the theoretical framework and derives the testable hypotheses. Section 3 starts with an outline of the French institutional framework and presents its PPP context. Section 4 discusses the data and empirical strategy. The results are presented in Section 5. Section 6 discusses and interprets the main findings in light of the existing literature and Section 7 concludes with a discussion about managerial implications.

2 Related Literature and Hypotheses

When a government decides to contract out the delivery of public services, there is a wide range of alternative governance modes: traditional public procurement, public enterprises, concessions, PPP or even privatization. As shown

previously, the choice of these governance structures, and in particular the determinants of such decisions, has received increasing attention by researchers from economics, public administration, but also political science and new institutionalism. Along these lines, a number of potential factors have been put forward by the associated literature. To structure the discussion of PPP determinants in focusing on the concerns of public managers, we group these factors into three rough categories: Political determinants, mayor/manager characteristics, and their mimetic behavior. Given that the literature analyzing PPP specifically is still in its infancy, we consider the broader literature on privatization and contracting out in order to take into account the most relevant predictors.

2.1 Political Determinants

In the Public Administration literature, the complexity of politics has been studied since a long time. Even if the politics-administration dichotomy discussed above tried to make public administration more politically neutral and business-management like (*e.g.*, Gulick [1937], Wilson [1887]), experience of government practices during and after the World War II showed that such a dichotomy was unrealistic (Sayre [1958]). To demonstrate the importance of politics factors, Gaus [1950] claimed that "[a] theory of public administration means in our time a theory of politics also". More recently, even if scholars in the New Public Management (here after NPM) have focused more on general management function and less on social and democratic values, political considerations are still found to be public managers' main concern, rather than cost-saving calculation (*e.g.*, Chandler and Feuille [1991]). This is due to the root of this literature stream in the long-standing theoretical tradition on Public Choice, where public managers are considered not different from private managers. They are self-interested and rational decision makers who primarily seek to maximize their personal utility (Niskanen [1975]).

However, in these studies, the meanings of politics is not clear. Following Lasswell [1950], politics means "who gets what, when and how". Therefore, public managers, when considering a decision such as the organizational choice, have to balance their own political preferences with political pressure from outside. The idea is that governments' decisions are always shared decisions which are resulted from bargaining among different players (Sabatier et al. [2007]). Typical groups of players that may influence an organizational choice decision is political opponents, public employees and public employees union. As public employees and public employees union often oppose to privatization decisions due to the threats about job security, work conditions, wage and benefits[21], we only consider outside pressure from political opponents in the present study. We therefore consider that ideological attitudes and political competition as factors that may influence the governance choice of municipalities.

2.1.1 Political Ideology

Political ideology is a certain ethical set of ideals, principles, doctrines, myths or symbols of public officials and their beliefs about the role and value of the government (Almond [1956]). As these beliefs explain how society should work, each government ideology has distinct preferences on both the scope and the delivery method of public services. In general, politics mainly function along the political spectrum between the left wing and the right wing parties. The left wing parties are often more oriented toward government involvement in social and economic affairs, while right wing parties emphasize free market and minimal governmental intervention. As a consequence, generally, scholars agree that organizational choice with a higher involvement of private actors is typically preferred by right wing parties (Picazo-Tadeo et al. [2012], Albalate et al. [2012], Walls et al. [2005], Price and Riccucci [2005], Dijkgraaf et al.

[21]See for example Fernandez et al. [2007] for evidence about public employees' influence; and Lopez-de Silane et al. [1995], Chandler and Feuille [1991] for public employees union influence.

[2003], Dubin and Navarro [1988]). However, on some occasions, like the studies of Bel et al. [2010] and González-Gómez and Guardiola [2009], the ideology is found to have no significant impact on outsourcing decisions.

As PPP is an organizational choice in which the private actors is more involved in the project, both in terms of financial dimensions and managerial dimensions, we develop our first hypothesis:

Hypothesis 1 *Left wing parties are less likely to adopt PPP.*

2.1.2 Political Competition

As discussed above, the intensity of political competition might be a factor influencing the decision of municipalities to go for PPP. This argument is even stronger considering how criticized is this organizational form (House of Commons [2011]).

However, there is little empirical evidence on this topic. For example, Bortolotti and Pinotti [2008] finds that more political competition and fragmentation delay privatization. They explain this result as an aspect of attrition wars between political parties who try to avoid to take responsibility for unpopular reforms. A similar result is found by Murillo and Martínez-Gallardo [2007] for Latin America, showing that governments that are politically more restricted are also less likely to implement privatization.

We then develop our second hypothesis about the potential impact of political competition on the decision to adopt PPP alternatively to traditional public procurement.

Hypothesis 2 *Political competition has a negative effect on the adoption of*

PPP

2.2 Managers characteristics

From the managerial point of view, there is evidence showing that manager characteristics can influence firms' strategic decisions (Boeker [1997]), the way an organization conducts its strategy (Bantel and Jackson [1989]), as well as organizational activities (Rajagopalan and Datta [1996]). Managers' choices and the strategic orientation of the firms are not only affected by the context but also by managers' cognitive attributes. These characteristics are often measured by the tenure of the manager, age, gender, education level, knowledge and functional diversity (Rajagopalan and Datta [1996]).

2.2.1 Age and Tenure

In the literature, age, mandate and education are specifically associated with new products and services(Camelo-Ordaz et al. [2005], Bantel and Jackson [1989]). Indeed, older managers often accept organizational conditions and routines and are less willing to commit to changing them (Huber et al. [1993]). In the same line, while managers who are new to their position are more receptive to changing process, managers with longer tenure are often socialized into accepting the organization as it is and are less likely to adopt new ways of doing things (Hambrick and Mason [1984]).

In the same vein, a few studies focusing on the administrative capacity of governments have also considered that a mayor's characteristics such as age, tenure, educational level may be relevant for governance choice decisions (Mintrom [2003], Thompson and Elling [2000]). However, the effect of these characteristics on the decision of organizational choice is slightly different from the private sector. Indeed, in the public sector, mayors often have longer

tenure than in the private sector. Seniority is also more respected in public organizations as more experienced public managers have greater insight into the process of performance improvement. For example, Hefetz and Warner [2004] show that mayors as public managers play an interface role integrating market offer and public production to guarantee efficiency, service quality and citizen satisfaction. The authors introduce variables like leadership and experience of the local politician and conclude that towns with experienced politicians have higher restructuring levels (public-private). In addition, for complex services, the experience of the mayor increases the probability of restructuring with mixed public-private solutions. In the same line, Kearney et al. [2000] find a positive impact of public manager's age and tenure on innovation and change adoption. However, Damanpour and Schneider [2009], Damanpour and Schneider [2006] moderate the effect of age and tenure on this strategy. Indeed, they argue that even if young and short-tenure managers may lack familiarity with their job, they can gain experience and become familiar with critical issues overtime, which may facilitate innovation adoption. Yet, this gain of experience will have a reverse impact when older managers with long tenure accept and identify fully with existing organizational routines and practices.

As data about public managers' tenure is not available, we therefore develop our third hypothesis based on their age:

Hypothesis 3 *The effect of a mayor's age on the adoption rate of PPP is unclear*

2.2.2 Gender

Academic studies do not agree about the effect of gender on change adoption (Williams and O'Reilly [1998]). Indeed, in the research and development engineering sector, women often rate themselves lower than men in terms of

innovation. In the public sector, female city managers are also found to view themselves as less entrepreneurial than their male colleagues (Fox and Schuhmann [1999]). However, in the same study, they also found that women tend to emphasize community involvement and facilitate communication, which might help innovation adoption in public service organizations. Moreover, gender is also found to have no difference on change and innovation adoption (Sonfield et al. [2001]). For example, Damanpour and Schneider [2006] found that gender does not significantly affect initiation and adoption decisions. Similarly, research in the leadership field also suggests that male and female managers do not differentiate in terms of leadership styles or behaviors, despite possible differences in characteristics and values between them (Bass and Stogdill [1990], Hooijberg and DiTomaso [1996]).

We therefore assume that there is no effect of gender on PPP adoption.

Hypothesis 4 *Female mayors and male mayors consider PPP adoption in the same way.*

2.3 Mimetic Behavior

The last factor of PPP choice considered in our paper is the mimetic isophormism of managers developed by DiMaggio and Powell [1983]. In this study, they argue that under conditions of uncertainty, organizational decision makers will mimic the behavior of other organizations in their environment to gain legitimacy. Lately, Galaskiewicz and Wasserman [1989] empirically find that managers are especially likely to mimic the behavior of organizations to which they have some type of network tie. Empirically, a large number of studies has investigated the resemblance among organizations (Barreto and Baden-Fuller [2006], Deephouse [1996]) and similarity of behavior within an organizational field (Haveman [1993], Tolbert and Zucker [1983]).

In the public sector, Villadsen et al. [2010] also find that contracting out uncertainties lead Danish mayors to use mimetic behavior. Similarly, mayor network centrality is also found to be positively associated with municipal policy isomorphism and expenditure allocation isomorphism (Villadsen [2011]). Closer to our study, a number of empirical research has largely confirmed the relevance of neighboring effect on the organizational choice (see Tavares and Camöes [2007] and González-Gómez and Guardiola [2009]). However, not all areas and services may be affected equally. For instance González-Gómez and Guardiola [2009] find for a cross sector study in Spain that the influence is limited to the areas of culture and science. Another study finds the existence of neighboring effect by using the percentage of the territory having privatized water services at the beginning of the sample period (Miralles [2009]). Central governments also appear to take the decisions of other comparable neighboring countries into account. Indeed, Fink [2009] finds a similar contagion pattern for privatization decisions across countries.

Consequently, we expect the proximity of existing PPP in the same area to also affect the local decision to use PPP:

Hypothesis 5 *The effect of existing PPP in the same department should increase the propensity to adopt PPP*

3 Institutional details

3.1 French municipalities and the voting system

France has 36,000 municipalities, which are called "communes". They represent the fifth administrative level in France. Each has a mayor and a municipal council who jointly manage the area's administration, and each set has exactly the same powers no matter the size of the "commune". In terms of investment,

they are in charge of pre-primary and primary schools, libraries, cultural/sport centers, and urban equipments. The principle of municipal self-government leaves much freedom to the municipality to take responsibility for its own investments, organization, and financing.

During the municipal election, French citizens vote to elect municipal council members. These members elect the mayor and deputies among them. The tenure of municipal members, the mayor and deputies are theoretically six years.

Due to a large variety of population among the 36,000 municipalities, two voting systems are used in France. Before 2014, municipalities with less than 3,500 inhabitants use the plurality-at-large voting, which is a non-proportional voting system for electing several representatives from a single multi-member electoral district. Other municipalities use the proportional representation voting system. This voting system is to elect a council and ensure that the number of seats won by a party is proportionate to the number of votes received. For example, under a proportional representation voting system, if 30% of voters support a particular party then roughly 30% of seats will be won by that party. In the present study, we only consider this second voting system.

3.2 French PPP context

With a long tradition in using private capital in public services[22], the French legal system features a wide range of PPP which can be classified into two main categories: users-pay contracts and government-pay contracts (see MaPPP [2013]). The *Contrat de partenariat*, the one most used among the government-pay contracts, is one of the main drivers of the current PPP trend in France

[22]One of the first still existing PPP (*affermage*) was created at the XIIth century (Carpentier et al. [1987]). Moreover, the construction of the Eiffel tower in 1887 can be considered the first concession (Perrot and Chatelus [2000])

(European PPP Expertise Center [2012a]). This form of PPP entails the bundling mechanism (in the sense of Hart [2003]) and is the equivalence of the Private Finance Initiative created in 1992 in the UK.

To establish PPP as a governance structure, the French government has enacted several laws and decrees to clarify its institutional framework. PPP was introduced by a law passed in 2004, whose amendment in 2008 was followed by a PPP wave in France. One of the main features of PPP, which is at the same time one of the most intensely debated issues, is its relation to public debt. At the beginning, following the Eurostat rule of 2004,[23] the debt corresponding to a PPP did not appear on the public account. More precisely, the debt related to the PPP entered the public balance sheet based on the logic of accrual accounting: the annual payment related to the investment, financial and operating costs were visible in the public account; the remaining part was accounted as a multi-annual plan of payment in an appendix to the balance sheet. However, since January 1st 2011, the French government implemented a decree requiring that PPP commitments at the local level are no longer off the balance sheet, both for existing and new projects. The same decree is to be applied for central government projects since January 1st 2012.

The French government also has public authorities following three steps for the implementation of a PPP. The first one is the *évaluation préalable* (hereafter "assessment study" or "preliminary assessment"). In this step, the public authority carries out an analysis (typically through a consultancy agency) to compare the PPP organizational form with alternative solutions regarding the global cost of a project, performance aspects and risk sharing matters. In these preliminary assessments, the most used alternative solution is the traditional public procurement. The assessment of central government projects is then to be verified by the *Mission d'appui aux partenariats public privé* (hereafter

[23]The Eurostat rule classifies infrastructures realized through PPPs as non-governmental using the 'risks and rewards' criterion (see Heald and Georgiou [2011]).

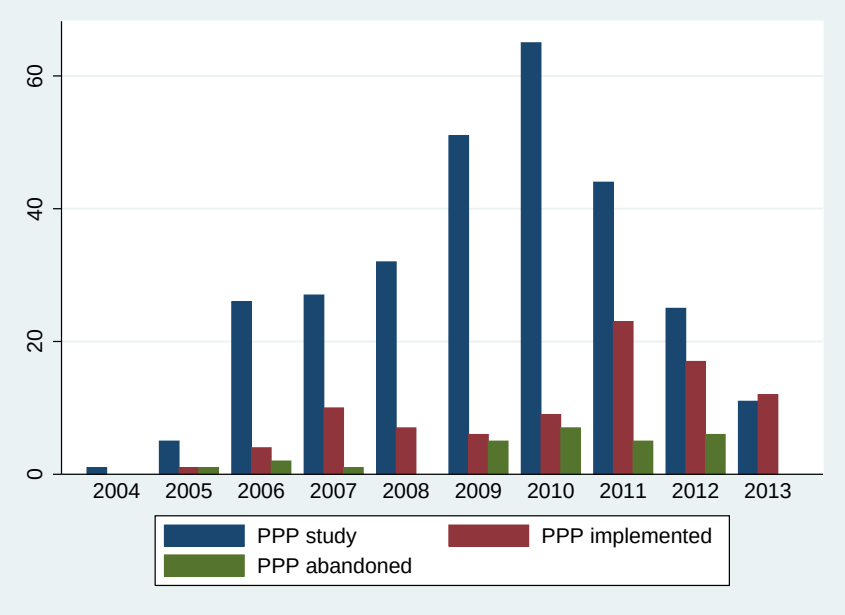


Figure 3.1: PPP Trend in France: Number of projects

MaPPP). This organization is the French PPP taskforce sieged in the Ministry of Economies and Finance. However, since its creation in 2004, the MaPPP department has produced an appraisal reports to 163 local PPP projects. The second step is the procurement phase where the competitive dialogue is the most used awarding procedure. This step takes on average 15 months until the last step, where the preferred bidder is selected and the contract is signed (see European PPP Expertise Center [2012a]).

Since 2004, of a total of 591 projects starting a preliminary assessment, 432 are at the local level, 342 of which are municipalities. Among them, 104 projects reached financial closure (hereafter PPP implemented) and 34 were abandoned (hereafter PPP abandoned).[24] The difference to 342 projects in total is due to projects which have not yet reached a conclusion.

Figures 3.1 and 3.2 describe the trend of PPP at the French municipal level since 2005. The number of PPP studies has grown considerably since

[24]These projects are either switched to traditional procurement, concession, other government-pay contracts, or abandoned completely.

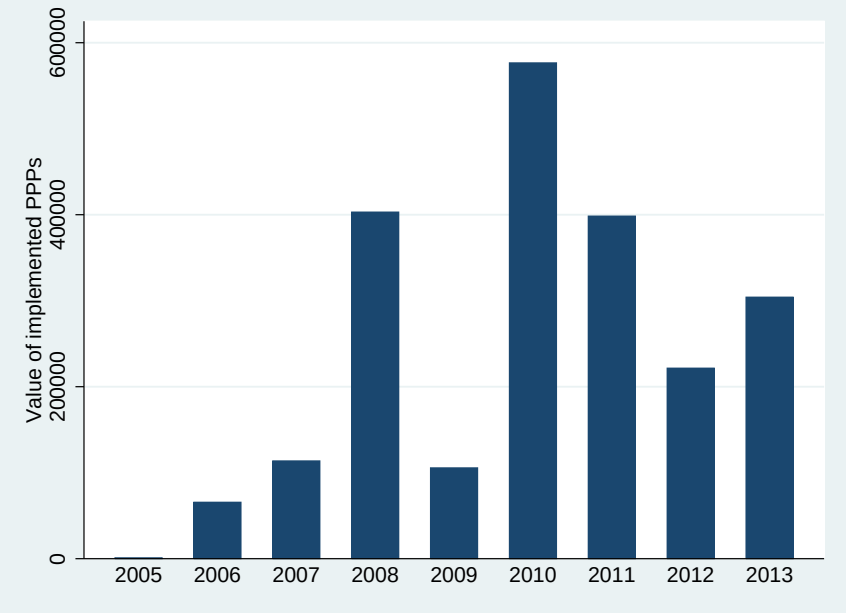


Figure 3.2: PPP Trend in France: Value of Contracts

their introduction until 2010, then has slowed down in the following years. Regarding the PPPs implemented, while the peak in terms of number of contracts was in 2011, the aggregate capital value (i.e. the value of the projects' capital investment) is decreasing already since 2010. Although we observe a slow recovery in 2013, the reduced number of assessment studies suggests that the number of PPP will not rebound to pre-2011 heights in the near future. The number of abandoned PPPs increased until 2009 and remained fairly stable afterwards.

As shown in Figure 3.3, French municipalities use PPP mostly for urban equipments 38% (e.g. street-lighting), sport/culture facilities 25% (e.g. stadium, swimming-pool), buildings 22% (e.g. schools), followed by waste to energy 10%, transport 4% and information and communication technology (ICT) 1%.

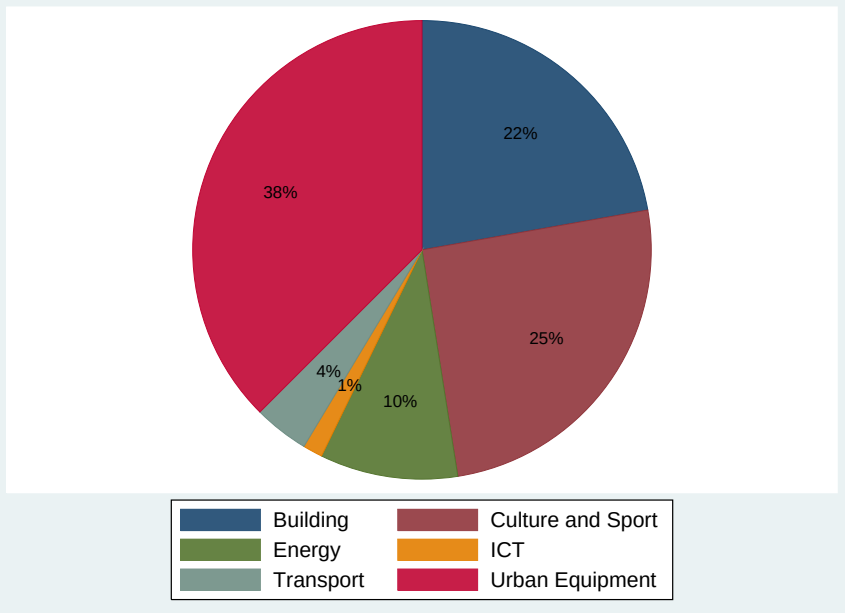


Figure 3.3: PPP Projects Types

4 Data and Empirical Strategy

4.1 Data

To analyze the choice of PPP in France, we compile several datasets from different sources. It is worth mentioning that political data is only available for municipalities using the proportional voting system, *i.e.* municipalities with more than 3,500 inhabitants. As a consequence, our study includes only the 2,600 French municipalities with more than 3,500 inhabitants (instead of the whole 36,000 municipalities).

First, we have included PPP contracts data collected in collaboration with the MaPPP department. This dataset contains the main project characteristics such as the concerned public entity, the year of signature, the type of project, as well as its capital value.

To capture political dimensions, we use a dataset from the Center of Socio-Political data of the Paris Institute of Political Studies (Sciences Po).

This dataset contains the main information about the municipal elections of 2008 such as the vote count per political party or voter turnout.

We complement this by adding information on the personal characteristics of the mayor such as age and sex from the National Repertory of Politicians, which is a branch of the Ministry of the Interior.

In order to control for other determinants of PPP, we compile two other datasets. First, we have collected financial data for virtually all French municipalities from the website of the Ministry of Economy and Finances for the period between 2004 and 2012. This database records general budget information such as investment, expenses, but also the revenue structure including deficit and public debt. Second, we add further municipal information beyond the public budget such as population and average income. This information comes from the French National Institute of Statistics and Economic Studies (INSEE).

4.2 Variables description

4.2.1 Dependant variable

We construct the dependent variable indicating if a municipality started a PPP and whether it was implemented or abandoned until 2013.

4.2.2 Explanatory variables

To avoid endogeneity issues, all PPP determinants variables in our study are lagged by one year.

Political Ideology

The indicator for left wing governments is a dummy variable that is one whenever a declared left wing party is the strongest party. As stated by Picazo-Tadeo et al. [2012], popular parties (right-center and left-center) are not significantly different as they have many commonalities in their political approach, we comprise the following parties in our $left$ variable: Liste d'extreme gauche (LEXG), Liste présentée par le Front de gauche (LCOP), Liste présentée par le PCF hors de l'alliance du Front de gauche (LCOM), Liste du parti socialiste (LSOC), Liste présentée par Europe Écologie Les Verts (LVEC), Liste divers gauche (LDVG), Liste d'Union de la gauche (LUG).

Political Competition

We include two indicators of political competition in our study. First, $winmargin$ is the difference between the first and the second strongest party divided by the total number of votes. Second, $numpart$ is the number of political parties in the first round of the elections.

Managers characteristics

Mayors' gender is taken into account through the binary indicators *female*, which equals one if a mayor is female and zero otherwise. The age of a mayor is incorporated through the variable *age*.

Mimetic behavior

The mimetic behavior of mayors is considered by a variable representing the existing number of PPP in the same department ppp_prox. To avoid endogeneity issue, we exclude the PPP implemented by the same municipality.

4.2.3 Control variables

Accordingly to the literature on PPP determinants, we add several control variables in our study.

As fiscal constraints of municipalities are suggested to affect their organizational choice in general and PPP adoption in particular (Buso et al. [2013], Albalate et al. [2012], Russo and Zampino [2010]), we construct three control variables measuring these constraints: *debt_capita*, *deficit_capita*, and *self_finance*. The two former correspond to thousand euro per capita municipal debt and deficit. The latter variable is the share of own tax revenues in total current expenditure. We expect that a high level of debt and deficit will affect positively PPP adoption, while a high level of self-financing capacity will affect negatively this organizational choice.

The need for infrastructures may also impact PPP adoption. As this need may vary between richer and poorer jurisdictions, we use the annual median income per household weighted by the number of household members as control variable *income_med*[25]. As richer municipalities will have a higher level of income, this variable may be expected to be negatively correlated with infrastructure demand and therefore the need for PPP (Russo and Zampino [2010]).

Municipality size can also be a determinant of organizational choice strategy of municipalities. However, the effect of size is not clear. On the one hand, several studies argue that larger municipalities will engage more in contracting out thanks to their large capacity in supervising external relations (Hefetz and Warner [2004]), a greater number of private partners available (Brown and Potoski [2003], Levin and Tadelis [2010b]). On the other hand, other studies

[25]The Consumption unit is a weighting system of households. Each member is attributed a coefficient in order to make households of different sizes and types comparable.

argue that small municipalities prefer to contract out to achieve economies of scale (Bel and Fageda [2009]). We then include population of municipalities in our study to control for its impact on PPP adoption. Unlike the previous data, information like population is based on the 2010 Census and therefore does not vary over time. To capture the potential nonlinear impact of population, we recode the population data into a set of dummy variables corresponding to the size classifications according to INSEE. As municipalities below 3500 habitants are excluded from our sample as the electoral data is not available for smaller municipalities,[26] the population groups are cut along the following thresholds: 5000 10000 20000 50000 100000, yielding 6 group dummies labeled *pop*1 to *pop*6. *pop*1 is chosen to be the excluded base category and therefore the other coefficients are interpreted as contrasts to it.

We include in the Appendix two table. Variable definitions and sources are displayed in Table 3.4. Summary statistics of these variables, conditional on whether municipalities have started a PPP or not, are exhibited in Table 3.5.

4.3 Empirical strategy

The basic choice model that we estimate in this paper is given by the following specification:

$$P(PPP_{it} = 1|X) = F(\beta_0 + \beta_k X_{i,t-1}) \tag{3.1}$$

where $P(PPP_{it} = 1|X)$ is the conditional probability that municipality i starts a PPP. As the discussion below will make clear, we have several possible dates to consider that mark the decision for a PPP. To account for the idea

[26]Because of this and a few other missing cases where information is missing for some municipalities, we loose a total of 42 PPPs.

that current decisions will be largely based on realized budgets and municipal characteristics, the covariates X enter the regression lagged by one period. While the variables in X are assumed to have a linear additive impact on the latent variable PPP^*[27], the response probability is actually a nonlinear function of the covariates. While it matters little for the empirical results, we stick with a logistic specification that is typical for this type of analysis. To account for the fact that some municipalities have several PPP, we cluster standard errors at the municipal level.

To identify the effect of the various covariates on the PPP choice, we mainly rely on cross-sectional variation. This is motivated not only by the fact that a number of covariates vary little or not at all over time but also because our control group, i.e. those municipalities which did not undertake a PPP, is very large. As a consequence, each treated municipality (that starts a PPP) typically has several if not dozens comparable control municipalities. To capture potential serial correlation within municipalities, we use clustered standard errors. To further account for the panel like data structure, we also run a random effects logit model and show that the results are robust to collapsing the municipalities to a single observation, which corresponds roughly to a between effects estimator.

A crucial issue in analyzing the choice of PPP is the question of timing. For the current analysis, we characterize the implementation of a PPP as a two-step process. In the first stage, municipalities decide whether they are interested in a PPP and therefore carry out a preliminary evaluation study. Hereby we exploit an institutional feature of the French PPP regulatory framework, which specifies that such an evaluation study is required before a PPP can be implemented. In the second stage, which may be several years after the study, municipalities then award and sign a contract with a private partner.

[27]The equivalent latent variable model is $PPP^*_{it} = \beta_0 + \beta_k X_{i,t-1} + \epsilon_{it}$ with $PPP_{it} = 1[PPP^*_i > 0]$

As the final decision for a PPP, to implement or not, may be determined either already before starting a study or as a result of changes throughout the implementation phase (*e.g.* a change in the municipal government), we consider both the beginning and the end of a PPP phase in our empirical analysis.

Hence as a first step, we distinguish municipalities who start an evaluation study and those who do not, *i.e.* the whole remaining population of French municipalities. In addition to pooling all the municipalities who start a study, we also run separate estimations for the different subgroups, in each case compared to those municipalities who do not start an evaluation study. The subgroups are classified according to the status of the PPP in 2014 (Table 3.1):

1. Group 1 (No PPP): there is no PPP started in the municipality
2. Group 2 (PPP abandoned): the PPP was abandoned: the project was actually abandoned or an alternative implementation type like traditional procurement, concession or other government-pay contracts.
3. Group 3 (PPP evaluation in process): no final decision was reached yet: the outcome of the project is not decided.
4. Group 4 (PPP implemented): the PPP was implemented: the project was awarded to some private partner and the PPP contract signed. The contract may already have terminated or still be active.

The interest in these separate regressions is twofold. Firstly we simply want to know if the results from the pooled regression are driven by one of the subgroups in particular or if the coefficients are somewhat comparable both in sign and in magnitude. Secondly and related, the additional specifications may be indicative of whether the groups were already different when entering a PPP study. The final decision about a PPP, abandon or implement, may be

Group	Name	Obs
(1)	No PPP	2347
(2)	PPP abandoned	25
(3)	PPP in process	152
(4)	PPP implemented	80

Table 3.1: Dataset Subgroups: Municipalities more than 3,500 inhabitants

due to events after entering the study, such as the outcome of the assessment or a change in the city government, but also because they choose PPP for different reasons. In this respect, the additional models could help to explain why some municipalities of those who undertake an evaluation study abandon PPP and others implement the PPP.

To address this latter point more rigorously, we then compare municipalities who implement a PPP and those who abandon directly[28]. Hence we change the dependent variable to be one if the municipality would finally implement the PPP and zero for those who abandon. For a clean comparison between these two groups, we keep only the municipality-year cells in which the municipality decided to start the study. The associated regressions should therefore indicate if certain covariates can explain why only a subgroup of municipalities who started a study implement a PPP. As the municipalities who start a PPP are already a particular subgroup of the French municipalities, the coefficient estimates do no longer have the interpretation of an average treatment effect as they are evaluated based on a selected subsample. For this reason, as a robustness test we also run a Heckman selection model where in the first stage we model the decision to enter into a PPP evaluation study.[29]

[28]For these more in depth regressions we no longer take in consideration projects where a final decision is not reached.

[29]In the absence of instruments the coefficients are identified only through the nonlinearity

In the last part of the empirical section we move from the decision to start a study on PPP to the actual decision on whether to implement or abandon a project. Hence the dependent variable is one in the year when the municipality implements a PPP or took the final decision to abandon it. We then compare these estimations with the previous results to evaluate whether systematic over time changes in the covariates since the start of the study can explain why some municipalities abandon PPP. This boils down to cross-equation coefficient tests where we compare the coefficients at the decision to start a study with those at the decision to implement or abandon.

5 Results

5.1 Overall results

Tables 3.2 and 3.6 exhibits the baseline results from the model in 3.1. In this table, the dependent variable is one at the date a municipality starts a PPP evaluation study and zero otherwise. In the first column, we compare municipalities who started a preliminary assessment for PPP (Groups 2, 3, 4) with the whole remaining municipalities of France (Group 1). Column 2, 3, 4 correspond to the comparison of Group 1 versus Group 2 (PPP abandoned), 3 (PPP evaluation in process) and 4 (PPP implemented), respectively. Results from the first column show that municipalities deciding to start such a study (2, 3, 4) appear to be different from other municipalities (1) in a number of respects. The overall results of columns two to four for the different subgroups tend to be rather similar and therefore it does not appear that the previous results were exclusively driven by one of the subcategories[30]. Focusing on the statistically significant results, this is true for the coefficients on political ideology ($left$), debt per capita ($debt\_cap$), deficit per capita ($deficit\_cap$) but also the size

of the first stage probit model.

[30]We abstain from calculating cross equation coefficient tests at this point as we will run related estimations that compare the subgroups later on.

dummies ($popx2, 3, 4, 5, 6$) as well as the time trend ($yearx2, 3, 4, 5, 6, 7, 8, 9$).

Political Ideology

Regarding the political ideology aspect, we find that the coefficient of $left$ is negative and significant. Therefore, we validate our first hypothesis stating that left wing governments are less likely to envisage PPP than center or right governments. This result is expected and in line with the literature. As mentioned above, the coefficients of $left$ are not different for the subgroups. We therefore conclude that the effect of political ideology on PPP choice is general and is not driven by one of the subgroup.

Political Competition

On the political competition dimensions, it appears in Column 1 that municipalities where the governing party has a higher win-margin are less likely to consider PPP (-0.945). This result does not fit our second hypothesis. Indeed, as $winmargin$ is actually an indicator of political competition, it would suggest that more contested political markets are more likely to lead governments to choose PPPs. As we control for the number of parties in a municipality, which turns out insignificant and very close to zero, win-margin is rather an indicator of the strength of the governing party than of the fragmentation of the opposition.

In Columns 2, 3 and 4, it appears that the negative impact of winmargin on the decision to launch a PPP evaluation study is driven by those municipalities who finally implement a PPP. Both municipalities who have abandoned and those that have not taken a decision yet exhibit an insignificant difference in terms of winmargin to municipalities who have never considered a PPP.

Table 3.2: PPP choice at study date: Baseline

	(1) Study1vs234	(2) Study1vs2	(3) Study1vs3	(4) Study1vs4
left	-0.381***	-0.756	-0.370**	-0.670**
	(0.141)	(0.475)	(0.169)	(0.272)
winmargin	-0.945**	-0.153	-0.554	-2.057***
	(0.439)	(0.592)	(0.491)	(0.738)
numparties	0.000	0.154	0.018	-0.099
	(0.050)	(0.161)	(0.053)	(0.086)
female	-0.033		0.025	-0.073
	(0.209)		(0.251)	(0.380)
age	-0.011	-0.018	-0.016*	-0.005
	(0.007)	(0.020)	(0.009)	(0.014)
ppp_prox	0.171**	0.412**	0.056	0.582***
	(0.072)	(0.206)	(0.089)	(0.140)
debt_cap	0.437***	0.389**	0.490***	0.534***
	(0.071)	(0.175)	(0.078)	(0.096)
deficit_cap	-0.703**	-0.388	-0.616	-0.812***
	(0.300)	(0.480)	(0.449)	(0.313)
self_finance	0.661	-0.784	0.371	1.988
	(0.773)	(2.560)	(0.902)	(1.282)
income_med	-0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
_cons	-6.831***	-10.389***	-6.511***	-8.533***
	(0.716)	(2.055)	(0.857)	(1.436)
N	23427	19351	22482	19408

Clustered standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Other control variables included are population and year.
These results are reported in Table 3.6 in the Appendix.

Mayors characteristics

Regards the characteristics of the mayor, it is interesting to note that none of them appears to have an impact on the choice of PPP. It is also true for the three subgroups. Our third and fourth hypotheses are therefore validated. In line with previous studies, we conclude that age and gender of public managers have little predictive power as to which municipalities may consider implementing a PPP.

Mimetic behavior

The coefficient of *ppp_prox* largely confirm that mayor's mimetic behavior has a significant impact on PPP choice. The decision to commence a PPP evaluation is strongly affected by the number of PPP already implemented in the same departement. We therefore validate our Hypothesis 5. This result reflect network effects in that local governments consider other regionally close municipalities when they decide on PPP.

However, there appears to be substantial heterogeneity within the groups regarding the effect of PPP_prox. For the PPP evaluations where the outcome is still unclear (3), the number of PPPs in the same department seems to be much less important than for the two other groups. Arguably, this may be due to the fact that not finished PPPs are rather current and hence the presence of PPP in the same area may be less crucial in an already developed PPP environment than it was in the early years of PPP in France.

Control variables

As discussed previously, results of our control variables do not differ in terms of coefficient among the subgroups. We therefore present only the general results for each of them. These results are reported in Table 3.6 in the Appendix.

On the financial side, we find that debt and deficit are significantly related to the choice of PPP, while the fiscal autonomy of a municipality as measured by its self financing capacity and the income level have no effect. The results on debt and deficit are as expected and would suggest that municipalities with higher fiscal constraints will consider PPP more frequently.

With respect to the municipal size, the coefficients on the population category dummies are also found to be substantive and statistically significant predictors of PPP choice. As the coefficients show, the probability of considering a PPP increases with the size of a municipality, but not linearly. Increases in population have the strongest effect in the lower brackets from 5000 to 10000 and 10000 to 20000, while the coefficients exhibit a lower elasticity to population for very large cities. A logarithmic relationship appears reasonable. This finding casts some doubt as to whether PPP can be simply regarded as a delegation or contracting out decision, where previous research has typically found that larger cities will carry out more projects on their own.

Regards the evolution of PPP choices over time, it is generally characterized by an inverse U-shape that climaxes in 2010. A number of potential interpretations for this pattern arise: Firstly, the recent decrease is consistent with a general downturn in the use of PPPs as experienced in western European countries like the UK. An alternative view is that the decrease since 2010 is related to the new budgetary rule in 2011 on PPP which force municipalities to include PPP related debt on the balance sheet (see Section 3.2 for more details). Also a political cycle in PPP adoption can not be ruled out. Despite its implementation in 2004, the number of PPP studies came to a halt before the local elections in 2008 and increased more strongly afterwards. In light of this, the recent decrease in PPP evaluations can also stem from municipalities trying to avoid political conflict over PPPs in their municipalities by deferring PPP evaluations to after the next elections in March 2014.

Robustness checks

It is worth pointing out that the results in column (1) of Table 3.2 are strongly supported by the alternative specifications in Table 3.7 in the Appendix. Specifically, the Random Effects results are almost identical to pooled OLS and the Between Effects results are also largely in line with the previous results, except perhaps the findings on $deficit\_cap$.

5.2 PPP implemented versus PPP abandoned

As we are particularly interested in potential factors that may determine why among those municipalities that commence a PPP assessment some implement a PPP while others abandon their plans, we now compare these two groups direclty. In a first step, we are interested in differences between these municipalities that exist already at the time when they decide to carry out an evaluation study. The associated results are shown in Table 3.3. Importantly, we no longer compare the two groups to the (large) benchmark group of municipalities that never considered a PPP. Here we compare exclusively municipalities who implement a PPP later on to those who abandon the project, both at the start of the evaluation study. As a result, the number of observations reduces drastically to 96, with 71 implemented and 25 abandoned PPP.

At the first glance, the results support the findings from the previous table in that those municipalities who consider a PPP are largely comparable with respect to a wide range of covariates. Hence, the largely insignificant coefficients of Table 3.3 suggest that by the time municipalities enter into evaluation studies, it does not appear predetermined who will finally use PPP to implement an infrastructure project. That is, except for the intensity of political competition in terms of win-margin. At the point of entering a study,

Table 3.3: PPP choice at study date: Implement vs Abandon

	(1) Study2vs4	(2) Study2vs4 Heckman
winmargin	-3.823**	-4.285**
	(1.874)	(2.098)
left	0.592	0.340
	(0.748)	(1.359)
numparties	-0.035	-0.036
	(0.241)	(0.238)
publique	0.851	0.840
	(0.805)	(0.803)
age	0.028	0.020
	(0.031)	(0.051)
debt_cap	0.637	0.881
	(0.481)	(0.895)
deficit_cap	1.790	1.395
	(3.084)	(3.259)
self_finance	0.103	0.398
	(3.274)	(3.549)
income_med	0.000	0.000
	(0.000)	(0.000)
ppp_prox	0.464	0.527
	(0.328)	(0.423)
popx3	1.046	1.564
	(1.325)	(3.115)
popx4	0.397	1.369
	(0.982)	(3.746)
popx5	-1.232	0.253
	(1.106)	(5.710)
popx6	-1.964	-0.107
	(1.458)	(7.097)
yearx2	-0.857	-1.977
	(2.366)	(5.697)
yearx3	-1.247	-1.253
	(1.398)	(1.408)
yearx4	-1.426	-1.421
	(1.481)	(1.481)
yearx6	-1.000	-0.707
	(1.296)	(0.910)
yearx7	-1.769	-1.342
	(1.619)	(1.214)
yearx8	-2.041	-1.880
	(1.516)	(1.227)
v_mills		0.624
		(2.424)
_cons	-0.726	-3.729
	(3.918)	(10.336)
N	96	96

Clustered standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

municipalities who have a higher win-margin are more likely to abandon the plans to implement a project through PPP. Collectively with the previous results regarding the win-margin, it appears that municipalities who have a higher win-margin appear to enter the a more open PPP process where the conclusion is less predetermined. In contrast, those who enter PPP with a lower win-margin are more likely to go through with it.

As a robustness test, column two of Table 3.3 contains a specification where we control for the fact that municipalities who enter into a PPP study are already different from the average population. To this end we run a Heckman selection model where in the first stage we run an additional model to explain the choice of doing a PPP evaluation and add the generalized residual (the inverse mills ratio) as a regressor to the model where we estimate the probability that a PPP is implemented. The results are very similar to those in column one and the insignificant regressor suggests that the selection bias is not relevant in the current application.

Apart from differences that exist already by the time of starting the PPP study, the last part of the empirical section considers the possibility that changes after the start of the study may lead municipalities to abandon projects. To analyze this possibility, we basically replicate Table 3.2 and test whether the results change if we consider the end of the PPP process, *i.e.* the date of contract signature or decision to abandon. As we still want to control for overall changes in the overall French population, we compare the decision to implement or abandon to the municipalities who never envisaged a PPP. To ease comparison with the results when we use the start of the PPP study, Table 3.8 in the Appendix exhibits the estimates for both decision dates.

A visual comparison of the results for those who implemented, in column one and two, and for those municipalities who abandoned, column three and

four, suggests that it does not matter much if we look at municipalities at the date of the PPP study or at the end of the process. The differences to the control group, those municipalities who never intended to use a PPP, remain very stable over the PPP process. Cross-equation tests on the individual coefficients also reveal that there is no statistical differences in coefficients for abandoned PPPs[31], if evaluated at the start of the study or at the date when the PPP is abandoned. For municipalities that eventually implement a PPP, there are significant differences for *ppp_prox* (at the 1% level) and self finance (at the 10% level). Thus, the existence of other PPPs in the departement is less significant later on in the PPP process while municipalities who implement a PPP seem to strengthen their self-financing capacity over the course of the PPP phase. If we consider PPP a possibility for outside finance, the latter result somewhat suggests that these governments seek additional funding through both increasing tax revenues but also private credit.

6 Discussion of Results

In the present study, we aim at investigating the determinants of PPP choice at the individual level approach, *i.e.* mayors' political considerations, personal characteristics and mimetic behavior. Our results show that political ideology and competition, as well as the mimetic behavior are important factors that lead mayors to the choice of adopting the PPP solution. However, mayors' personal characteristics do not affect this strategy.

We also find that the mimetic behavior is an important factor for municipalities to start an assessment of PPP's potential. However, this behavior becomes less significant when the final decision of implementing is involved. This finding shows that public managers take into account other dimensions to make such a decision, such as the outcome of the preliminary assessment,

[31]The results are available from the authors upon request.

the financial situation of the organization, etc.

We find another interesting result regarding the political competition. Indeed, we find that the political contestability impacts positively the choice of PPP. It is important to stress that on a first glance, this result is not quite in line with the literature in privatization (see Bortolotti and Pinotti [2008] and Murillo and Martínez-Gallardo [2007]). However, regarding the PPP literature, we are not the firsts finding this contradiction. Based on the PPI database from the Worldbank including over 1,000 PPP worldwide, Hammami et al. [2006] found a similar result. They suggested that the number of opposite parties, *i.e.* political competition, has a positive impact on the amount of investment in PPP in the country. While our results for the number of parties itself is not significant, our second indicator of political competition, $winmargin$, suggests a similar relationship. Several alternative explanations for this finding are available.

The first explanation comes from considering PPP as a recent fad in public management (Novikova [2013]). Indeed, after experiencing privatization with its advantages but also its limits over the three last decades, public management practitioners in many OECD countries have dramatically reduced its use since the beginning of the 2000s (Bortolotti and Pinotti [2008]). At the same time, modern PPP has been introduced as new type of public sector reform. The market uptake of PPP can therefore be considered as being driven by a specific type of governments, which could be described as 'early adopters'. Indeed, Deloitte [2006] draws a link between the adoption of PPP and the innovative and technological capacity of an economy. Ranking both advanced market economies and economies in transition by the degree of development and the level of activity in PPP yields the following picture: UK, Australia, Spain, France, Canada, USA, Japan, as well as Brazil, Mexico, Russia, China and India. On the subnational level, we could interpret that particularly mayors in politically competitive environments try to signal their innovation capacity

by adopting public management techniques like PPP.

Second, PPP is different from privatization regarding the restructuring process which might generating public workers fears and syndicates' objections. Indeed, previous research indicates that privatization may pose threats to public employees, including their job security, work conditions, and wage and benefits (Ascher [1987], Becker et al. [1995], Fernandez et al. [2007]). For example, Brotman [1992] showed that privatization of Massachusetts mental health services led to a layoff of over eight hundred state employees in related outpatient and residential programs and a 40% salary loss. Therefore, privatization is often opposed by public employees (Fernandez et al. [2007]). PPP is however a much less intrusive alternative. Therefore, even if the literature on privatization predicts a strongly negative impact of political competition, the PPP process is less controversial as no stakeholder group is adversely affected just by deciding to implement a project through PPP instead of traditional public procurement. Almost all PPP at the municipal level are indeed new construction projects. Hence, the main challenge for public PPP managers is that they are supposed to monitor one global contract instead of several contracts with different private companies. Moreover, even in the exceptional cases including some level of restructuring, Bovaird [2004] argues that there can be also the contrasting experience of employees who have successfully made the transfer and found the new working environment more rewarding.[32] As a consequence, PPP is not subject to political competition and political contestability in the same way as privatization.

Another explanation stems from the idea that PPP could be a means to circumvent budget constraints (Tejada-Ibanez [2013]). Indeed, in order to offer new infrastructures to voters while reducing the explicit deficit and debt, following Easterly [1999], governments will try to (1) privatize, (2) shift

[32]He argues that the polemic of those who fear the worst (*e.g.* Whitfield [2001] is simply countered by a similar level of rhetoric from those who assume the best (e.g. Savas [2000]

revenue and expenditure over time, or (3) run implicit liabilities. PPP, which is was for quite some time accounted as off balance sheet, could therefore be an efficient strategy to win voters despite a high contestable political environment. Hence, particularly in municipalities where third party opportunism from the opposition has to be expected, it may be interesting for governments to seek outside funding without affecting the politically sensitive topic of public deficits and debt. However, a recent study found that in the French municipality context, the motivation behind the use of PPP when financial constraints are present is not for the debt hiding possibility (Buso et al. [2013]). We can therefore exclude this explanation.

Fourth, as shown in our result section, the negative impact of *winmargin* is driven by the group of those municipalities who finally implemented a PPP. In the presence of forceful political competition, it is also possible that once the decision to start a PPP has been made, governments will not go back on their decision and have to stay firm to their choice. The procedure to implement a PPP is both long and typically involves substantial costs (Saussier and Tran [2013]). Our findings confirm that reversing one's decision after a procedure of more than 15 months (European PPP Expertise Center [2012a]) and roughly half a million euro spent (Saussier and Tran [2013]) is less likely to occur in municipalities with strong political competition.

Finally, PPP is known to be potentially more efficient than traditional public procurement in theoretical literature through the effects of the bundling mechanism, *i.e.*, the assignment of the several project phases to a single private consortium (see Hart [2003]). Despite the difficulties to be empirically tested,[33] the economic efficiency of PPP could be an alternative explanation

[33]In reality, the efficiency of PPP is incredibly difficult to test because a counter-factual is not readily available. It would require to compare similar projects carried out using different governance mechanisms, such as PPP versus traditional procurement. In addition, the outcome of such comparisons may critically depend on the scope of considered project costs. For instance, Blanc-Brude et al. [2009] and Blanc-Brude [2013] find conflicting results when considering single-task PPPs or PPPs under the bundling mechanism, (*i.e.* construction

for the adoption of PPP under a highly contestable political environment. As supported by existing studies, political competition can have positive effects on the quality and qualification of elected politicians (De Paola and Scoppa [2011], and further on economic performance through more efficiency oriented policies (Padovano and Ricciuti [2009]). It is therefore possible that governments in municipalities with stronger political competition are under pressure to increase efficiency, which may also involve the choice of PPP for suitable projects.

7 Conclusion

In this study, we aim at addressing the determinants of PPP adoption at the individual level, *i.e.* mayors' political considerations, characteristics and mimetic behavior. To the best of our knowledge, our paper gives the first results on this topic using a quantitative approach considering not only the degree of PPP involvement but the actual decision for or against. It is also a clear improvement as it focuses on the adoption of PPP specifically, compared to previous studies that addressed more general forms of contracting out or privatization.

Based on the whole sample of PPP at the municipal level in France, our results suggest that PPP adoption is driven by political ideology, the degree of political competition, and the mimetic behavior of mayors. We also find that fiscal constraints, municipal size as well as time trend are important drivers of this strategy. Another finding of the present study lies in that we analyze these results by focusing on particular sub-samples of municipalities that envisage a PPP: the decision to start a PPP study, the decision to implement but also to abandon a PPP.

and operation).

It is interesting to note that we did not find any result regarding the mayors' characteristics on the use of PPP. Moreover, while other results are in line with previous literature on contracting out and privatization, the opposite findings about the impact of political competition are particularly interesting. Our study suggests that municipalities under higher level of political competition are more likely to adopt a PPP, while previous studies found the opposite for privatization. We discuss this result by several alternative explanations. First, the level of political competition may not affect PPP choice in the same way as the latter is different from privatization regarding several aspects, *e.g.* restructuring and adverse employment effects. Second, public managers under budget constraints and pressured by the opposite parties might choose to use PPP for debt hiding motivation, while offering new public infrastructure to voters. Similarly, they may be unable to reverse their initial decision to adopt a PPP in order to avoid criticisms from opposite parties considering the long time and the high cost spent on the PPP procedure. And finally, in a highly contestable political environment, governments might be forced to consider PPP in order to tap existing efficiency potential, *e.g.* through cost economies due to the bundling mechanism in PPP.

We contribute to the literature in several ways. First, we add more findings to the literature in strategic management and organizational choice fields. Indeed, we focus on the topic of the strategy "how to buy" instead of the traditional question of "make or buy". We also contribute to the Public Administration field with our findings about the determinants of public organizational choice at the individual level approach. Our results confirm that not only outside factors such as financial situation or efficiency seeking motivation are relevant for such a strategy, but also the actors' considerations. Third, our result regarding the positive effect of political contestability on PPP adoption is a contribution to the political science literature. Finally, we contribute to the existing literature on PPP as we are the first to shed light on a large num-

ber of determinants of this organizational choice at its decision making level. Moreover, we distinguish between the date a PPP process is initialized and when it is concluded. This is a potentially crucial point as the average PPP process duration is well over two years. We are also the first to shed light on the reasons why governments embark on a PPP process but finally decide against this governance mode.

On the practical side, our study also gives several managerial implications. First, as our findings give understanding about the reasons behind the adoption and the abandon of PPP solution, this can help regulation instances such as the MaPPP to improve the legal framework to develop PPP. Second, our results may encourage public managers who are tempted to evaluate the PPP solution alternatively to the traditional way of public procurement. Indeed, they may find themselves as well as their municipality's context in our findings to take their decision. Our result about the reasons of abandon also give public managers who are already in the PPP process ideas about others' abandon motivations. Finally, our study can help private actors in developing their PPP market. With our findings about PPP determinants, they can prepare a potential pool of municipalities which are in need for infrastructure and have the characteristics of the ones started PPP process. As such, private actors can build a potential public purchaser portfolio in order to develop their PPP market.

The PPP literature is still in its infancy. As a consequence, the first extension would be to include a larger sample of municipalities using PPP in other countries in order to validate our results. Moreover, even if we conclude that the use of PPP is driven by a high level of political competition, we can not conclude that under this context, public managers use PPP for its potential performance. Even if the study of Saussier and Tran [2013] reported a high level of satisfaction about PPP's performance, it would be more useful to have a comparison of performance between PPP and the traditional public

procurements.

8 Appendix

Table 3.4: Variable definitions and sources

	Definition	Source
PPP	Dummy indicator with one in the year a municipality starts a PPP assessment study	MAPPP
PPPi	Dummy indicator with one in the year a municipality signs a PPP contract	MAPPP
PPPa	Dummy indicator with one in the year a municipality abandons a PPP	MAPPP
winmargin	Difference in votes between the strongest and second strongest parties as a share of total votes cast	Own calculations based on Sciences Po
left	Dummy indicator with one if the governing party is from the left wing	Own calculations based on Sciences Po
numparties	Number of parties participating in the first round of the municipal election	Own calculations based on Sciences Po
female	Dummy indicator with one if the mayor is female	National Repertory of Politicians
publique	Dummy indicator with one if the mayors previous or current employment is in the public sector	Own calculations based on National Repertory of Politicians
age	Age of the mayor	National Repertory of Politicians
debt_cap	per capita debt in thousand euros at the end of a given year	Own calculations based on Ministry of Economy and Finances and INSEE for population data
deficit_cap	per capita deficit in thousand euros	Own calculations based on Ministry of Economy and Finances and INSEE for population data
self_finance	Own tax revenues as a share of total current revenues	Own calculations based on Ministry of Economy and Finances
income_med	The annual median income per consumption unit	INSEE
ppp_prox	Number of signed PPP contracts in the same dÃ©partement	Own calculations based on MAPPP
popx1	Dummy indicator with one if the municipality is below 5000 habitants	Own calculations based on INSEE
popx2	Dummy indicator with one if the municipality is between 5,000 and 10,000 habitants	Own calculations based on INSEE
popx3	Dummy indicator with one if the municipality is between 10,000 and 20,000 habitants	Own calculations based on INSEE
popx4	Dummy indicator with one if the municipality is between 20,000 and 50,000 habitants	Own calculations based on INSEE
popx5	Dummy indicator with one if the municipality is between 50,000 and 100,000 habitants	Own calculations based on INSEE
popx6	Dummy indicator with one if the municipality is above 100,000 habitants	Own calculations based on INSEE

Table 3.5: Summary statistics: Means and standard deviations

	no PPP	PPP abandoned	PPP not finished	PPP implemented	Obs
winmargin	0.43	0.21	0.20	0.21	26069
	0.00	0.00	0.00	0.00	
left	0.49	0.27	0.43	0.36	26069
	0.00	0.00	0.00	0.00	
numparties	2.63	4.51	4.20	3.69	
	0.00	0.02	0.00	0.00	28958
female	0.09	0.00	0.11	0.10	
	0.00	0.00	0.00	0.00	28958
publique	0.27	0.16	0.44	0.31	26505
	0.00	0.00	0.00	0.00	
age	61.54	61.36	59.84	60.94	28619
	0.00	0.46	0.07	0.12	
debt_cap	0.86	1.07	1.35	1.32	25719
	0.00	0.00	0.00	0.00	
deficit_cap	0.15	0.13	0.13	0.13	25719
	0.00	0.00	0.00	0.00	
self_finance	0.39	0.37	0.38	0.41	25767
	0.00	0.00	0.00	0.00	
income_med	19316.35	19428.96	18120.98	18999.28	28295
	819.74	79711.48	13028.66	29138.28	
ppp_prox	0.49	0.52	0.66	0.71	28958
	0.00	0.00	0.00	0.00	
pop	11281.60	180332.56	153629.63	54062.90	28670
	9915.71	8.50e+08	1.03e+08	1.65e+07	

Table 3.6: PPP choice at study date: Baseline - Control variables results

	(1) Study1vs234	(2) Study1vs2	(3) Study1vs3	(4) Study1vs4
debt_cap	0.437***	0.389**	0.490***	0.534***
	(0.071)	(0.175)	(0.078)	(0.096)
deficit_cap	-0.703**	-0.388	-0.616	-0.812***
	(0.300)	(0.480)	(0.449)	(0.313)
self_finance	0.661	-0.784	0.371	1.988
	(0.773)	(2.560)	(0.902)	(1.282)
income_med	-0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
popx2	0.734**		0.671	0.575
	(0.364)		(0.468)	(0.561)
popx3	1.504***	-0.406	1.842***	1.070*
	(0.358)	(1.106)	(0.447)	(0.595)
popx4	2.267***	1.719***	2.369***	2.298***
	(0.348)	(0.665)	(0.452)	(0.565)
popx5	3.127***	2.962***	3.575***	2.937***
	(0.362)	(0.809)	(0.452)	(0.629)
popx6	3.758***	4.942***	4.319***	4.324***
	(0.369)	(0.881)	(0.457)	(0.672)
yearx2	-0.568	1.645	-2.187**	0.847
	(0.653)	(1.585)	(1.088)	(1.168)
yearx3	1.327***	3.069**	0.021	2.712***
	(0.440)	(1.338)	(0.485)	(0.965)
yearx4	1.307***	2.322*	0.540	2.291**
	(0.438)	(1.383)	(0.455)	(0.955)
yearx5	1.330***		0.802*	2.032**
	(0.406)		(0.433)	(0.953)
yearx6	1.821***	3.566***	0.676	2.872***
	(0.408)	(1.214)	(0.418)	(0.896)
yearx7	2.022***	3.229**	1.372***	2.561***
	(0.416)	(1.265)	(0.415)	(0.889)
yearx8	1.514***	2.428*	1.039**	1.694*
	(0.431)	(1.258)	(0.445)	(0.910)
yearx9	0.895**		0.634	
	(0.429)		(0.443)	
_cons	-6.831***	-10.389***	-6.511***	-8.533***
	(0.716)	(2.055)	(0.857)	(1.436)
N	23427	19351	22482	19408

Clustered standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.7: PPP choice at study date: RE and BE

	(1) RE	(2) BE
winmargin	-0.945**	-1.181**
	(0.410)	(0.555)
left	-0.381***	-0.783***
	(0.141)	(0.203)
numparties	0.000	-0.001
	(0.046)	(0.084)
female	-0.033	-0.099
	(0.224)	(0.282)
publique	0.004	0.140
	(0.146)	(0.187)
age	-0.011	-0.012
	(0.007)	(0.009)
debt_cap	0.437***	0.824***
	(0.071)	(0.113)
deficit_cap	-0.703*	-1.269
	(0.384)	(0.964)
self_finance	0.661	0.988
	(0.712)	(0.929)
income_med	-0.000	-0.000
	(0.000)	(0.000)
ppp_prox	0.171**	0.558***
	(0.074)	(0.136)
popx2	0.734**	0.738**
	(0.334)	(0.349)
popx3	1.504***	1.509***
	(0.334)	(0.357)
popx4	2.267***	2.302***
	(0.327)	(0.363)
popx5	3.127***	3.672***
	(0.352)	(0.429)
popx6	3.758***	5.622***
	(0.365)	(0.538)
yearx2	-0.568	
	(0.618)	
yearx3	1.327***	
	(0.411)	
yearx4	1.307***	
	(0.408)	
yearx5	1.330***	
	(0.400)	
yearx6	1.821***	
	(0.377)	
yearx7	2.022***	
	(0.367)	
yearx8	1.514***	
	(0.373)	
yearx9	0.895**	
	(0.389)	
_cons	-6.831***	-3.396***
	(0.769)	(0.852)
lnsig2u		
_cons	-12.912	
	(15.200)	
N	23427	2604

Clustered standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.8: PPP choice at end date

	(1) Study1vs4	(2) Award1vs4	(3) Study1vs2	(4) Abort1vs2
winmargin	-2.057***	-1.931**	-0.153	-0.399
	(0.738)	(0.812)	(0.592)	(1.272)
left	-0.670**	-0.682**	-0.756	-1.027**
	(0.272)	(0.270)	(0.475)	(0.465)
numparties	-0.099	-0.049	0.154	0.167
	(0.086)	(0.080)	(0.161)	(0.158)
female	-0.073	-0.118		
	(0.380)	(0.373)		
publique	0.082	0.144	-0.620	-0.577
	(0.247)	(0.238)	(0.442)	(0.450)
age	-0.005	-0.001	-0.018	-0.016
	(0.014)	(0.014)	(0.020)	(0.019)
debt_cap	0.534***	0.503***	0.389**	0.354**
	(0.096)	(0.088)	(0.175)	(0.161)
deficit_cap	-0.812***	-0.819	-0.388	-0.521
	(0.313)	(0.774)	(0.480)	(0.654)
self_finance	1.988	3.087***	-0.784	-0.317
	(1.282)	(1.159)	(2.560)	(2.823)
income_med	-0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
ppp_prox	0.582***	0.277***	0.412**	0.258**
	(0.140)	(0.070)	(0.206)	(0.104)
popx2	0.575	0.628		
	(0.561)	(0.549)		
popx3	1.070*	1.085*	-0.406	-0.414
	(0.595)	(0.583)	(1.106)	(1.098)
popx4	2.298***	2.334***	1.719***	1.680***
	(0.565)	(0.554)	(0.665)	(0.645)
popx5	2.937***	2.875***	2.962***	2.950***
	(0.629)	(0.630)	(0.809)	(0.820)
popx6	4.324***	4.146***	4.942***	4.851***
	(0.672)	(0.659)	(0.881)	(0.887)
yearx2	0.847	-1.847*	1.645	-0.416
	(1.168)	(1.058)	(1.585)	(1.132)
yearx3	2.712***	-0.766	3.069**	0.287
	(0.965)	(0.669)	(1.338)	(0.884)
yearx4	2.291**	0.431	2.322*	-0.435
	(0.955)	(0.468)	(1.383)	(1.095)
yearx5	2.032**	0.127		
	(0.953)	(0.472)		
yearx6	2.872***	-0.221	3.566***	1.075
	(0.896)	(0.505)	(1.214)	(0.744)
yearx7	2.561***	-0.127	3.229**	1.260**
	(0.889)	(0.498)	(1.265)	(0.590)
yearx8	1.694*	0.891**	2.428*	0.796
	(0.910)	(0.398)	(1.258)	(0.708)
_cons	-8.533***	-7.183***	-10.389***	-8.341***
	(1.436)	(1.100)	(2.055)	(1.408)

Clustered standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Chapter 4

PPP from Budget Constraints: Looking for Debt Hiding?*

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1 Introduction

Over the last decades, governments' behaviors and policies have been significantly affected by public financial restraints stemming from domestic policies, financial markets, or regulatory measures. One prominent example is the deficit and debt limits imposed by the European Union according to the terms of the 1992 Maastricht Treaty. As a consequence, available resources to pursue public investment strategies have been increasingly rationed, which in turn makes the choice of an efficient organizational structure crucial for the realiza-

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tion and management of public investment. In this context, alternatively to the traditional "market-hierarchy" or the "public-private" dichotomy[34], hybrid organizational form such as Public Private Partnership (hereafter PPP)[35] has grown considerably in recent decades and nowadays account for a significant portion of public investment (Posner et al. [2009]).

However, this organizational choice under budget constraints is subject to debates and criticisms because PPP is considered to be more costly than the traditional way of public funding, both in terms of organizational costs and financial costs (see Marty and Tran [2014] for a review). This question raises concern because it is well known that the determinants of organizational choice in the public sector is particularly crucial. It is due to the fundamental differences in the public and private actors' respective organizational purpose, incentive and behavior (Mahoney et al. [2009], Hodge and Greve [2007], Rangan et al. [2006], Zeng and Chen [2003]). In this stream of literature, the private which represents for-profit organizations has smoother decision-making processes. On the contrary, the public experiences more turbulence, interruptions, recycles, and conflict (*e.g.*, Perry and Rainey [1988], Rainey et al. [1976], Ring and Perry [1985]). Moreover, as suggested by the long-standing theoretical tradition on public choice, and a related emergence of New Public Management approach (hereafter NPM) in public policy, public managers are not different from private managers. They are self-interested and rational decision makers who primarily seek to maximize their personal utility (Niskanen [1975]). They all have conflicting incentives in meeting the responsibilities to well manage the organization, and to achieve some private benefits (Ronen and Yaari [2008]).

[34]We refer to public enterprises as the "hierarchy" model, traditional public procurement as the "market" model and privatization as the complete private model

[35]PPP are contractual agreements allowing the involvement of the private sector's capital and expertise for the realization and management of an asset that will be returned to the public sector after an adequate period of time (the "bundling" mechanism after Hart [2003]).

As a consequence, practitioners often consider the use of PPP under budget constraints is for its fiscal advantage (National Audit Office [2011]), PriceWaterHouseCoopers [2010]). Indeed, the Eurostat decision in 2004 classifies PPP as non-governmental through the "risks and rewards" criterion (Heald and Georgiou [2011]). Following this guidance, public authorities can account PPP as off balance sheet when the construction risk and at least one of either availability or demand risk are transferred to the private operator[36]. This accounting rule might therefore increase incentives in favor of PPP for other reasons than the to-be-achieved advantages of this organizational form. This motivation might be even more important given the recent fiscal constraint for the public sector to reduce public debt. This trend has been reported not only for the UK, but also for other European countries such as Greece, Spain, Portugal, and Ireland.[37]. As a consequence, more officially, the report of the UK House of Common in July 2011 recommended limiting the use of PPP (House of Commons [2011]).

In the private sector, a similar accounting strategy (but larger in terms of practices) is called earnings management *i.e.* a collection of managerial decisions that result in not reporting the true short-term, value-maximizing earnings as known to management (Ronen and Yaari [2008]). The motivations behind the use of this accounting strategy has been largely studied. In general, scholars find that managers often use this method to window-dress financial statements prior to public securities' offerings. This strategy can be for the objective of improving firms' financial capacity, *i.e.* which is beneficial for shareholders. At the same time, it can also be for self-interest motivations such as increasing their own compensation and job security, *i.e.* which might

[36]The debt corresponding to PPP investment is entered in the public accrual account

[37]For example, the Financial Times reported that in 2002, Goldman Sachs helped Greece raise off balance sheet finance "by arranging a massive swaps transaction aimed at reducing the cost of financing". The press report explained: Because it was treated as a currency trade rather than a loan, it helped Greece to meet European Union deficit limits while pushing repayments far into the future (Financial Times, Athenian arrangers, February 17, 2010, p7).

destroy value and harm shareholders (see Ronen and Yaari [2008], Healy and Wahlen [1999] for a review).

This question is also largely studied in the public sector. Recently, Klien and Tran [2014] finds that under a high political competition environment, where the position of the mayors is not sure, they are more likely to choose PPP instead of traditional procurement to realize public investment in infrastructures. Two main explanations of this result are given by the authors. First, mayors might seek to achieve a better performance of a project through PPP. Second, mayors might seek to manage earnings, *i.e.* hide the public debt, in order to gain voters preference. However, there is no empirical evidence on this topic. Other scholars in public finance field seem to agree about public managers motivation in using budget gimmicks to satisfy general regulatory measures (Buti et al. [2007], Von Hagen and Wolff [2006], Milesi-Ferretti [2004], Peterson [2003], Briffault and Fund [1996], Easterly [1999]). In the public choice field, scholars also find evidence about public managers' actions in terms of public policy towards the balanced budget requirements. These practices might be either beneficial to the public organizations (Hou [2013]) or opportunistic (Rose [2006]).

In this article, we aim at explaining why the public actors choose PPP when they meet some financial restraints. More specifically, we try to find evidence if the adoption of PPP strategy is only for fiscal circumventing motivations, *i.e.* putting the public debt off the balance sheet. There are several studies which find a correlation between the use of PPP and financial constraints (see Hammami et al. [2006] for the country level, and Albalate et al. [2012] for the local government level). We go further in explaining the rational behind the choice of this organizational form when governments are budget constrained.

Using data from France, we first empirically test whether local govern-

ments are more tempted towards PPP under budget constraints. Exploiting a feature of French institutional context, where local PPP are mandatory accounted on the public account since January 1st 2011, we are then able to identify if this behavior is for a fiscal circumventing motivation, *i.e.* debt hiding. As conclusion, we find that a strict budget constraint is associated with a more frequent investment through PPP. However, while the new rule negatively impacts the use of PPP, the effect of budget constraints still persist, especially when financial costs are considered. We then conclude that the adoption of PPP is driven by restriction of financial resources, but not merely for debt hiding motivations.

We contribute to the literature in several ways. Firstly, our research question lies at the cornerstone of Public Administration Management (hereafter PAM) and Public Financial Management (hereafter PFM) fields. While PAM scholars often focus on the activities of public administrators and their managerial practices (Svara [2001]), PFM research is well developed to address the effects of complex technical activity on these practices (Kioko et al. [2011]). Our paper goes in the same sense in studying the impact of governments' financial situation on their organizational choice. Despite its relevance in the PFM field, this topic is rarely recognized in the PAM mainstream (Kioko et al. [2011])[38]. Secondly, we are the firsts to study the adoption of PPP at its decision making structure, *i.e.* French municipalities. We benefit from the fact that we obtain data on all PPP projects adopted by local governments and that we are able to apply a comparison with a suitable group of municipalities among the whole universe of 36,000 French municipalities. Finally, we are the firsts to shed light on the reason behind the PPP choice under budget constraints. This is a crucial point as debate is risen both among academics and practitioners. Our conclusion can therefore provide a better understanding of PPP adoption both from a theoretical and a practical standpoint.

[38]Some noteworthy exceptions of PFM studies that are relevant in the PAM field are Hou [2006], Hou and Moynihan [2008], Krause and Douglas [2005], Thompson and Gates [2007].

The paper is organized as follows. Section 2 describes the related literature and derives testable hypotheses. Section 3 discusses the French institutional context and legal environment regulating PPP. Section 4 presents a description of the data and our empirical strategy. Section 5 reports the paper's result and robustness check. Section 6 discusses several main results. Finally, Section 7 concludes.

2 Related Literature and Hypotheses

2.1 Financial Constraints and PPP

The first objective of the present study is to explain whether public managers choose PPP as organizational choice when they are financially constrained. This question is therefore not limited at the strategy of "make or buy", but the strategy of "how to buy". Indeed, the choice of each available organizational form has to be explained: why this particular mode of transacting is preferred to the others? In our case, the most frequent considered alternative strategy to PPP is the simple contract model, *i.e.* traditional procurement. As such, the question is more specifically why PPP would be preferred to traditional public procurements.

This question of organizational strategy represents nothing than the choice between hybrid organizational forms (PPP) in comparison to the market model (traditional procurement). This aspect has been largely studied by transaction cost theory scholars (hereafter TCT). In this stream of literature, managers are believed to always select the lowest-cost transaction structures that effectively protect firms against partner opportunism (*i.e.*, "self-interest seeking with guile" (Williamson [1985]), ensure that partners fulfill contractual obligations, and provide a framework for dealing with uncertainties (Williamson [1996], Williamson [1991]). Under a hybrid model, the legal

ramifications and coordination complexities are considered to typically involve higher costs than those of simple contracts (Hennart [1993], Kogut [1991], Murray and Siehl [1989]). However, several reasons make that simple contracts might become inadequate for certain types of transactions: first, partner's opportunism is often difficult to detect; second, firms invest in specific assets; and third, product attributes or performance objectives cannot be precisely specified *ex ante* (Heide and John [1988], Williamson [1975]). As a consequence, a hybrid model might be an efficient means to reduce these governance problems. Economic efficiency implies that if the hybrid format is chosen, the benefits are judged to outweigh their higher costs (Hennart [1993], Kogut [1991]).

In the same line, and more direct to our topic, scholars in economics field argue that the choice of PPP may be preferable to traditional procurement even when governments are credit constrained (see Engel et al. [2013], Auriol and Picard [2013], Buso and Greco [2014]). These studies focus on analyzing how the costs imposed to taxpayers to collect funds for financing the investment, *i.e.* the distortionary taxation, can affect the choice between PPP and traditional procurement. According to Engel et al. [2013], when governments' spending capacity is lower, the opportunity cost of PPP in comparison to traditional procurement *i.e.* the shadow cost of public funds, is higher. However, as this shadow cost changes over time, its higher level at one period is not a sufficient argument for preferring PPP in a multi-period context unless governments are hit by liquidity constraints. Conversely, Auriol and Picard [2013] find that the shadow cost becomes relevant in comparing the public regime with PPP[39] or the realization and operation of a public facility[40]. Their paper examines a different context with respect to Engel et al. [2013]. Indeed, their model assumes that the private actor is allowed to operate under laissez-faire regime. Furthermore, under the PPP solution, the private actor is the project

[39]More precisely, they studied the Build-Operate-Transfer (BOT) contracts. In this type of PPP, the private partner is in charge of the construction, operation, and financing tasks.
[40]This type of organizational form excludes the financing task.

manager. Therefore, there is much weaker asymmetric information compared to the traditional procurement where the public actor is the project manager. Despite following a different approach, Buso and Greco [2014] reaches a similar result. Their theoretical model is also built under the context of asymmetric information; but the level of public service provision is set by the government both under PPP and traditional procurement. Within this framework, the saving of distortionary costs under PPP comes from the implicite incentive of the private actor due to his long-term involvement in the project.

On the empirical side, evidence is found on the impact of fiscal restrictions on the choice of PPP. At the local government level, Russo and Zampino [2010] correlate PPP investment and municipal budget data in the Italian context. They show a strong positive relationship between local public debt and the number of PPP. Deficit in contrast, is not statistically related to PPP choice. Similarly, Albalate et al. [2012] find a positive impact of debt level on the level of private involvement in public projects in the US. However, their results show a negative impact of tax revenue. They argue that states with larger revenues are likely to be less reliant on private investment. Hence, self-finance capacities seem have the opposite effect as debt. In the same context as ours, Klien and Tran [2014] also find that the level of debt and deficit of French municipalities is positively associated with the use of PPP.

We then develop our hypothesis:

Hypothesis 6 *When governments are financially constrained, public managers are more likely to use PPP than traditional procurement to realize public infrastructure.*

2.2 PPP under Financial Restraints: Fiscal Circumventing Motivations

In the private sector, earnings management practices *i.e.* a collection of managerial decisions that result in not reporting the true short-term, value-maximizing earnings as known to management, have been largely studied (Ronen and Yaari [2008]). Firms that are under financial constraints are found to be more likely to distort their firms' reported financial performance. The motivations behind this strategy might be to raise capital, to attract external financing or to improve investment efficiency (Linck et al. [2013], Dechow et al. [1996], Dechow et al. [2011], Jackson et al. [2009], Teoh et al. [1998]). Not in the same line, some other studies argue that private managers have incentives in using this accounting strategy for self-interest motivations (see Fudenberg and Tirole [1995], Adams et al. [2008] for theoretical perspectives on this issue). A large number of empirical studies also found evidence about the motivations of managers to boost their compensation (Burns and Kedia [2006], Bergstresser and Philippon [2006], Efendi et al. [2007], Cornett et al. [2008]) or to answer to their career concerns (DeFond and Park [1997]).

In the public sector, governments are also found to react to financial constraints. The public finance literature focuses on this topic in a general way and stresses that public actors have an incentive to shift debt off the public budget, potentially to meet fiscal constraints or to gain voter concerns. Originally, Easterly [1999]'s theoretical model claims that constraints on conventional measures of budget deficits or public debt will induce only an illusionary fiscal adjustment since government will prevent its net worth from changing. The argument is that governments seek to maintain the current spending level while reducing explicit debt and deficit, by "(1) cutting public investment, (2) privatization, (3) shifting revenue and expenditure over time, or (4) running implicit liabilities". Buti et al. [2007] found positive correlation between deficits/debts and the recourse to stock-flow adjustment, i.e. hiding deficits

or selling assets. They claimed that the adoption of the Stability and Growth Pact seemed to be associated with a larger use of fiscal gimmicks. With a broader approach, Milesi-Ferretti [2004]'s theoretical model showed that under strong fiscal rules, creative accounting appears. Following this model, Von Hagen and Wolff [2006] gave empirical evidence on whether governments use creative accounting to circumvent fiscal rules. According to their findings, the introduction in 1997 of the Stability and Growth Pact in the European Union resulted in the use of creative accounting. More precisely, in order to hide deficits, governments used stock-flow adjustment such as annual changes in the debt level less annual budget deficits. As a result, in reality, the debt level should have been higher than deficits suggest. Finally, with a similar objective, Milesi-Ferretti and Moriyama [2006] took a different approach and analyzed whether the reduction of government debt in the EU is correlated with a reduction of government assets in the context of euro adoption. They found a strong correlation between debt reduction and asset sales as well as reduction in public investment in the previous year. This result suggests that "an exclusive focus on deficit and debt level conveys a misleading picture of the evolution on the underlying fiscal situation". As a result, under a context of financial restraints, a public manager may choose a PPP to reduce the official municipal debt burden.

In the same line, scholars of the PFM and public choice fields focus on the impact of balanced budget requirements on public policy in terms of financial issues (Hou and Smith [2010]. Among others, Chaney et al. [2003] conclude that balanced budget requirements reduce pension fund levels as states draw from these funds to meet balance requirements. Another finding is on the debt management behavior of public managers. Indeed, Hou [2013] argues that under financial constraints, governments might seek to retire debt in boom years in order to preserve their debt capacity ander to reduce the borrowing cost. However, they will incur debt in bust years to obtain lower interest

rate. Finally, an opportunism behavior of public managers is drawn from Rose [2006]. This study shows that public managers, under a strict no deficit carry-over rules, counter the pre-election spending and post-election restraint patterns which characterizes political business cycles.

As a consequence, debt hiding might be a possible motivation to explain the adoption of PPP in a budget constraints context. In isolating debt hiding motivations, we evaluate their relevance and the extent to which it explains the financial restraints effect on the use of PPP.

Hypothesis 7 *Without debt hiding possibility, the impact of financial restraints on the use of PPP should decrease significantly.*

3 Institutional Details

In this Section, we first focus on describing French municipalities' budget elaboration and control processes. Then, we analyze how the accounting rules of PPP can lead to debt hiding behaviors. Finally, we present the French PPP context.

3.1 French Municipalities' Budgets

France has 36,000 municipalities, which are called "communes". They represent the fifth administrative level in France. Each has a mayor and a municipal council who jointly manage the area's administration, and each set has exactly the same powers no matter the commune's size. In terms of investment, they are in charge of pre-primary and primary schools, libraries, cultural/sport centers, and urban equipments. The principle of municipal self-government leaves much freedom to the municipality to take responsibility for its own invest-

ments, organization, and financing. However, their budgets are constrained as they have to achieve a balanced public account, for both investment and operation sections. This balanced budget requirement is composed of both political and technical dimensions in the sense of Hou [2006].

Following the General Code for Local Authorities,[41] municipalities are obliged to specify annually their balanced budget for the coming year, which should contain a plan for balancing their investment and the operating budgets. Operating revenue is mainly composed of local taxes and government grants. Operating expenses are those related to municipality's on-going operation: staff salaries, infrastructure maintenance costs, expenses related to the municipality missions, financial costs of existing debt. Investment revenue comes from several sources. Operating budget surpluses provide the majority of the investment budget (42% in 2012). Government transfers and subsidies represent 24%, duties 10%, and finally, local taxes and loans represent the remaining 24% (Observatoire des Finances Locales [2013]). Investment expenses cover payment of annual debt service, as well as new investment in infrastructure. It is important to emphasize that France has a "golden rule" regarding the public budget: public authorities can borrow only to invest and not to fund current operational spending.

As enacted in the Constitution in 2008, public accounts are required to be balanced as a multi-annual objective. This objective is controlled by two levels: the Administrative Courts and the Regional Court of Accounts (*Chambre régional des Comptes*). The first control includes the Prefect's supervision over the effective balance of municipalities' accounts, as well as the possibility of administrative courts to take actions against a mayor's misuse of power. The second instrument aims at checking both the *ex ante* achievement of the balanced budget requirement and *ex post* excessive deficits with respect to the

[41] France's General Code for Local Authorities (*Code général des collectivités territoriales - CGCT*) includes laws and regulations applied to local authorities' three main levels: municipality, department and region.

balanced budget targets (5-10%[42]).

In such a context, heavily indebted municipalities have higher levels of budget constraints upon their ability to achieve their infrastructures investment strategies (Conseil économique, social et environnemental [2012]). It is stated that the level of public investment in France had slowed down in the 1990s due to a hard budget constraint and a high level of public debt. In fact, existing debt is a burden for municipalities' operating and investment budgets: high level of existing debt pushes up the corresponding financial costs (which are part of the operating expenses) and the annual debt service (which are part of the investment expenses). As a consequence, this will reduce the self-financing capacity of these municipalities. In order to achieve the same level of investment as others, they can only take larger and more costly loans from commercial banks.

3.2 PPP and Debt Hiding Motivations

As discussed above, given that PPP could be accounted as off balance sheet following the Eurostat decision in 2004, they seemed to offer a possible solution to circumvent budget constraints. The Eurostat rule classifies infrastructure realized through PPP as non-governmental through the "risks and rewards" criterion (Heald and Georgiou [2011]). Following this guidance, public authorities have accounted PPP as off balance sheet when the construction risk and at least one of either availability or demand risk are transferred to the private operator. In such a manner, PPP was accounted based on the logic of accrual accounting: the annual payment related to the investment, financial and operating costs was reflected in the public account; the remaining debt part was accounted as a multi-annual plan of payment in an appendix to the balance-sheet. As a consequence, debt corresponding to PPP did not appear

[42] 10% for municipalities with a population that is less than 20,000 citizens, 5% otherwise

on the public balance sheet.

This accounting rule might increase incentives in favor of PPP procedures for other reasons than the to-be-achieved target of value for money. The first level is the budgetary level. As discussed in the Section 3.1, PPP can enable public authorities who do not have a sufficient capital budget to still achieve their desired capital investment strategy. In fact, while a traditionally procured capital project presents a significant immediate hit to the municipality's capital budget, PPP will have a smaller (but much longer lasting) impact. Second, the French target, in place since 2005 to reduce Public Sector Net Debt from 66% of GDP to under 60% could provide an incentive to favor PPP over spending funded directly by government borrowing. This reflects the fact that in the short term, a PPP scheme would result in reduced government borrowing and therefore a lower level of Public Sector Net Debt. Third, the European level requirement, *i.e.*, the Maastricht Treaty, obliges member states to avoid excessive budgetary deficits. More precisely, it set out that governments' annual deficit and debt should not exceed: (a) 3% for the ratio of planned or actual government deficit to gross domestic product at market prices and (b) 60% for the ratio of government debt to gross domestic product at market prices (Official Journal of the European Union [2004]). These European fiscal rules therefore motivates the use of investment methods that allows an off balance sheet accounting. Finally, a self-interest motivation of the public managers can not be excluded. Indeed, a mayor might choose a PPP with a debt hiding strategy in order to improve the public account with the objective of gaining voters concern.

3.3 PPP in France and the New Accounting Rule

With a long tradition in using private capital in public services[43], the French legal system features a wide range of PPP which can be classified into two main categories: users-pay contracts and government-pay contracts (see MaPPP [2013]). The *Contrat de partenariat*, the one most used among the government-pay contracts, is one of the main drivers of the current PPP trend in France (European PPP Expertise Center [2012a]). This form of PPP entails the bundling mechanism (in the sense of Hart [2003]) and is the equivalence of the Private Finance Initiative created in 1992 in the UK.

French public authorities have to follow three steps for the implementation of a PPP. The first one is the *évaluation préalable* (hereafter "assessment study" or "preliminary assessment"). In this step, the public authority carries out an analysis (typically through a consultancy agency) to compare the PPP organizational form with alternative solutions regarding the global cost of a project, performance aspects and risk sharing matters. In these preliminary assessments, the most used alternative solution is the traditional public procurement. The assessment of central government projects is then to be verified by the *Mission d'appui aux partenariats public privé* (hereafter MaPPP). This organization is the French PPP taskforce sieged in the Ministry of Economies and Finance. However, since its creation in 2004, the MaPPP department has produced an appraisal reports to 163 local PPP projects. The second step is the procurement phase where the competitive dialogue is the most used awarding procedure. This step takes on average 15 months until the last step, where the preferred bidder is selected and the contract is signed (see European PPP Expertise Center [2012a]).

[43] One of the first still existing PPP (*affermage*) was created at the XIIth century (Carpentier et al. [1987]). Moreover, the construction of the Eiffel tower in 1887 can be considered the first concession (Perrot and Chatelus [2000])

At the end of 2010, the French Government introduced a Decree on the topic of PPP accounting rules. This Decree requires that PPP projects at the local level are no longer recognized off the balance sheet, for both existing and new projects. Two reasons motivated this clarification of PPP accounting. The first one is to follow the UK experience in PPP which is the most advanced one. Indeed, in 2011, the UK Government committed to provide more transparency to PPP accounting. The Office for Budget Responsibility decided to include an assessment of the impact of the PPP liabilities in their fiscal sustainability report, a break with previous years' National Accounts (House of Commons [2011]). Second, the application of the International Financial Reporting Standards (hereafter IFRS) implied a switch from the previously used "risks and rewards" criterion to the control criteria for the accounting of PPP. More precisely, under a PPP, if the public authority controls one of the following five aspects of the project, the corresponding debt should be accounted as on balance sheet: (a) the private operator is not able to sell or take a loan on the equipment, (b) the occupation of the public owned domain, (c) the definition of the equipment's main features, (d) the public service's management, (e) the revenue paid to the private operator for his service. This new rule has led to recognition on the balance sheet of the asset and corresponding debt upon the infrastructure's delivery. In other words, the balance sheet records the investment's capital value as an asset, while the already-paid investment and the remaining debt are recorded as liabilities. For both these reasons, we can argue that the rule is not affected by either PPP's supporters or detractors.

4 Data and Empirical Strategy

4.1 Data

4.1.1 Treated Group: PPP Dataset

In the present study, we exploit the application of the Decree in 2011 to isolate the debt hiding possibility in order to answer to our research question. Indeed, the new regulation's implementation ensures a greater transparency regarding the governmental body's real financial situation and might significantly reduce the temptation to choose PPPs to hide debt (Dupas et al. [2012b]). To do so, we choose to focus our analysis on the municipal level instead of including the two other levels of public administration, *i.e.* department and region. This choice allows us to study comparable public entities which have the same power of decision for public investment. Moreover, all the studied dimensions are also equivalent among them.

Our principal dataset is composed of the totality of 101 PPP projects at the municipal level. These projects are concluded between 2004 and August 2013 by 95 municipalities and inter-municipalities[44]. In order to preserve the comparability of the 101 observations, we choose the biggest municipality of the inter-municipalities as the public actor. We also consider the 6 PPP projects that are concluded by 3 municipalities at different years as 6 distinct observations. We then collaborate with the MaPPP department to collect the main project characteristics such as the concerned public entity, the year of signature, the type of project, as well as its capital value.

Figures 4.1 and 4.2 describe the trend of PPP at the French municipal level since 2005. The number of PPP has stayed stably from 2007 to 2010, then grown up considerably since 2011, and finally slowed down in 2013. Regarding

[44]The other two levels of public administration have 37 PPP projects concluded.

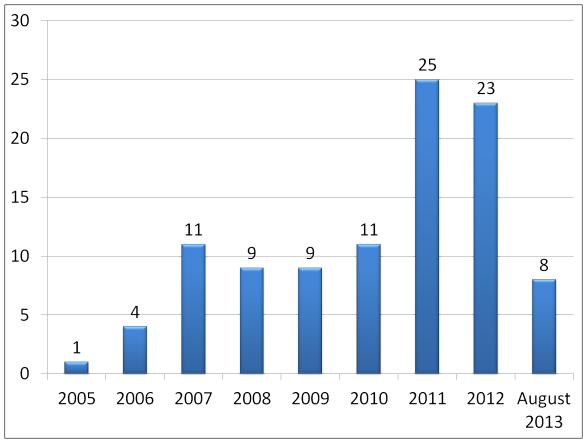

Figure 4.1: PPP trend in France: Number of projects at the municipal level

the cumulative amount of projects, *i.e.* the value of the projects' capital investment, it has grown up until 2008, then gone down in 2009, then one more time up in 2010, and finally down until 2012. Although we observe a slow recovery in 2013, the reduced number of assessment studies suggests that the number of PPP will not rebound to pre-2011 heights in the near future (Klien and Tran (2014)). We also note that our sample includes 55 PPP projects before 2011 and 56 after 2011. Therefore, the two groups are equivalent in terms of number for the comparison of the effect of the Decree in 2011.

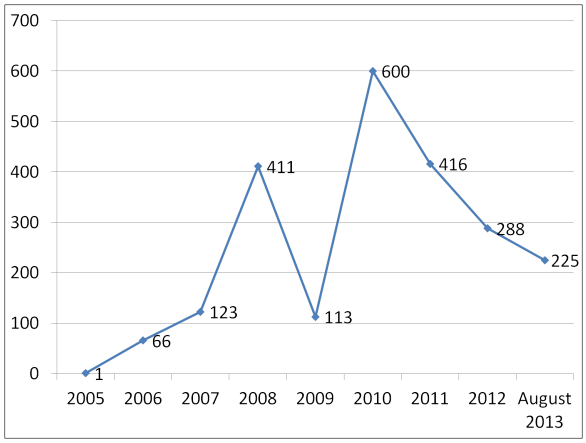

Figure 4.2: PPP trend in France: Cumulative amount of projects at the municipal level

4.1.2 Control Group: Matching Strategy

To analyze the reasons behind the choice of PPP in France under budget constraints context, we perform a matching strategy to select a control group that is similar to our treated group in terms of need for public infrastructures. This need is collected through the dataset describing the characteristics of the whole of 36,000 French municipalities from the French National Institute of Statistics and Economic Studies (INSEE)[45]. The use of matching strategy fits particularly our need. Indeed, this choice-based sampling design is frequently chosen in evaluation studies to reduce costs of data collection in situations where the potential control population is much larger than the treatment sample (Rosenbaum and Rubin [1985], Rubin and Thomas [2000], Heckman and Todd [2009]).

We first estimate the propensity score using a logistic regression and a nearest neighbors estimation. The dependent variable is a dummy describing whether or not a municipality has undertaken a PPP investment. The covariates represent the need for infrastructures of municipalities. We not only follow Bahl and Duncombe [1993] in using the population and the income level of municipalities to measure public investment demand but also include other variables covering the year 2009, 2010, 2011: population, area, number of households, total income, total tax revenues, number of workers, number of unemployed people, population age distribution, number of firms in different sectors, number of public firms and number of small and medium enterprises. Second, we choose the two nearest neighbor observations in terms of propensity score for each municipality in our treatment group. We finally obtain a sample of 303 municipalities with 101 for the group with PPP (hereafter "treated" group) and 202 for the group without PPP (hereafter "control" group). We report the similarity of our two groups during the period of study in Tables

[45]This dataset is available on the INSEE website.

4.4 and 4.5 in the Appendix.

4.1.3 Financial and Political Datasets

In order to analyze our research questions, we have collected financial data for virtually all French municipalities from the website of the Ministry of Economy and Finances for the period between 2004 and 2012[46]. This dataset records general financial information on the yearly accounting statement of municipalities such as investment, expenses, but also the revenue structure including deficit and public debt. In this dataset, municipalities are organized in 30 "reference groups" classified by population size, participation in public establishment of inter-municipal cooperation, and any additional tax systems adopted by the inter-municipal institution. For each reference group, the average value of each financial dimension is provided. Therefore, in our analysis, we are able to consider the difference of each financial variable of each municipality with its reference group. In doing so, we are therefore able to compare municipalities among them and also in comparison to the reference group over time. We also consider the gross value of each financial dimension for robustness check and find that results are not affected. For the remaining of the paper, we therefore only mention the difference value of municipalities' financial dimensions.

Two other datasets are used to capture political and managerial dimensions. The first one comes from the Center of Socio-Political data of the Paris Institute of Political Studies (Sciences Po). This dataset contains the main information about the municipal elections, for example the political party of the mayor. We complement this by adding information on the personal characteristics of the mayor from the National Repertory of Politicians dataset of

[46]These financial information is available on the website www.colloc.bercy.gouv.fr. We collect these information through the Python program. The dataset is therefore available upon request to the authors.

the Ministry of Interior[47].

4.1.4 Final Panel Dataset

	Treated 101 obs	Control 202 obs
PPP_amount	32,3	0
Annual_Investment	26,2	29,9
Operation_result	4,8	5,5
Overall_result	4,7	5,9
Debt	63,6	45,2
Annual_debt_payment	9,3	5,6
Subsidies	24,4	21,6

Reported value is the means in million euro over the period 2003 - 2012

Table 4.1: Panel Dataset Description

Finally, we obtain a panel dataset allowing us to compute the effect of the municipality's financial constraint on the use of PPP instead of alternative organizational forms. Table 4.1 gives the main financial characteristics of our treated and control groups. The reported value is the means over the period 2003 - 2012. As the treated group is composed of 101 municipalities with PPP concluded, the level of investment under PPP is on average 32,3 million euro. This value is logically 0 for the control group, *i.e.* the group without PPP. In general, we observe a better financial situation of the control group. Indeed, this group has a higher positive level of result in both the operation section of the budget, *i.e. operation_result* (5,5 million euro versus 4,8 million euro) and the overall budget result, *i.e. overall_result* (5,9 million euro versus 4,7 million euro). At the same time, the control group has less subsidies coming from the central government helping the operation section (21,6 milion euro versus 24,4 million euro). Moreover, while the control group annually invest more (29,9 million euro versus 26,2 million euro), they have a lower level of

[47]These two datasets are available upon request to these organizations.

debt, both in terms of stock of debt (45,2 million euro versus 63,6 million euro) and in terms of debt annual payment (5,6 million euro versus 9,3 million euro). These figures therefore show that the control group has a better self-financing capacity than the treated group. The level of annual investment of these two groups also show that municipalities in the control group have their own investment strategies, but did not choose PPP as organizational form.

4.2 Variables Description

As we use a panel database covering the period 2003 to 2013, all variables are defined for each municipality i and each year t. The variables' descriptions with the expected signs are reported in Table 4.2.

Table 4.2: Definition of variables and expected result

DIMENSION	VARIABLE	DEFINITION	EXPECTED RESULT
DEPENDANT VARIABLES			
	ppp_{it}	Equals to 1 if municipality i already invest in PFI/CP at time t	
INDEPENDANT VARIABLES (all variables are defined as difference with the average of the reference group)			
Budget constraint	$debt_{it-1}$	log of debt amount of each municipality at time t-1	+
	$annual\_payment_{it-1}$	log of debt annuity of each municipality at time t-1	+
	$self\_finance_{it-1}$	log of the capability of self financing at t-1	-
Legal change	$rule_t$	Equals to 1 since 2011; 0 otherwise	-
	$rule_t * debt_{it-1}$	Interaction between the variable rule and debt	-
	$rule_t * annual\_payment_{it-1}$	Interaction between the variable rule and annuity	-
	$rule_t * self\_finance_{it-1}$	Interaction between the variable rule and CAF net	+
Demand side	$population_i$	Equals to the log of the population of each municipality	
	$income_i$	Equals to the log of oncome of each municipality	
	$firm_i$	Equals to the log of nb. of firm	
Supply side	$budget\_results_{it-1}$	Equals to the log of the budget result of municipality i at t-1	
	$grants_{it-1}$	Equals to the log of the subventions of municipality i at t-1	
	$investment_{it-1}$	Equals to the log of the investment of municipality i at t-1	-
Political variables	$female_{it-1}$	Equals to 1 if the mayor at t-1 is a women	
	$left_{it-1}$	Equals to 1 if the mayor at t-1 is form the left wing party	-
	$center_{it-1}$	Equals to 1 if the mayor at t-1 is form the center party	
	$right_{it-1}$	Equals to 1 if the mayor at t-1 is form the right wing party	+
Others	EQI_i	Equals to the European Quality of Region Government Index	

4.2.1 Time Variables

As previously discussed, we are interested in explaining the use of PPP by French municipalities. We introduce our dependent variable which represents municipalities that made PPP as an organizational choice. If municipality i in year t has implemented a PPP, ppp_{it} equals to one in t and until the end of the period, *i.e.* 2013; and equals to zero for all the period before the year t[48].

4.2.2 Explanatory Variables

As there is no universally accepted measure of financially constrained firms (Linck et al. [2013]), even less for the public sector and municipality financial situation, we consider three measures for our explanatory variables. To avoid endogeneity issues, these variables are lagged by one year. We follow Bahl and Duncombe [1993] in using both stock and flow measures for debt burden. The stock variable, $debt_{it-1}$, captures the municipality's *ex ante* exogenous situation. We then use two other measures that are flow variables to describe how the municipality's conditions change during the period preceding the investment start: $annual\_payment_{it-1}$ captures the annual debt expense (interest and capital reimbursement), $self\_finance_{it-1}$ captures the self-financing capacity of the municipality (the surplus from the operating budget that can be used for financing new investment).[49]

Debt hiding reasons for engaging in PPP in France were ruled out in 2011. We take into account this legal discontinuity by introducing the variable $rule_t$, which equals to one for periods of time preceding January 1st 2011 and

[48]This type of variable is the instrument to perform the duration analysis that we present in the Section 4.3

[49]The notation of financial agencies such as Moody's would be a good measure for the financial situation of the municipality. However, this notation is currently not available for all French municipalities.

zero otherwise.[50] We are interested in the interaction term between $rule_t$ and each financial restraint proxy. These interaction terms show how much the effect of each proxy changes after 2011.

Finally, we include the variable *post*2011 which is the sum of the effects of each financial proxy and its interaction term. This variable captures the effect of each proxy on the use of PPP after 2011.

4.2.3 Control variables

Given that we have a panel database and are comparing similar municipalities in terms of population features, we first select those financial covariates that vary over time and could influence both the dependent variable and financial restraint proxies. We consider financial variables that reflect municipalities' capacity to deal with both the investment's demand and the balanced budget requirements. The first two variables control for the balancing of the operating and the investment budgets as required by the balanced budget specifications. $operation\_result_{it-1}$ which is the difference between the operation revenues and the operation spending of municipality i at $t-1$, and $budget\_result_{it-1}$ which is the difference between the $operation\_result_{it-1}$ and the spending of the investment of municipality i at $t-1$. We then consider two other variables that control for both the size of the investment and the level of the *ex ante* available resources: $investment_{it-1}$ which captures the total level of investment of municipality i at $t-1$, and $subsidies_{it-1}$ which reflects the level of national support the municipality received for its investment plans at $t-1$.[51]

We then include three political dimensions that may affect the choice of

[50] In our regressions, we use the interaction between the dummy $rule_t$ and a trend variable to capture the change in trend on the probability to implement PPP after the application of the Decree.

[51] To prevent collinearity problems, we perform our regressions with each control variable as robustness check.

PPP at the municipal level. $left_{it-1}$, $center_{it-1}$, or $right_{it-1}$ equals to one if the mayor of municipality i is from the left (center or right) wing party at $t-1$; and zero otherwise. This measure is largely used in the PPP literature (see Klien and Tran [2014] for a review). $female_{it-1}$ represents the sex of the mayor. It equals to one if the mayor of municipality i is female at $t-1$ and zero otherwise. This measure is mostly used in the management literature to explain the organizational choice (see Klien and Tran [2014] for a review). We also include the institutional proxy EQI (European Quality of Government Index) at the regional level (Charron et al. [2014]). This index is the combination of the level of corruption, protection of the rule of law, government effectiveness, and accountability at regional levels in the 27 EU Member States. The measures are collected in 172 EU regions, based on a survey of 34 000 residents across 18 countries (Charron et al. [2014]). It controls for the municipality's institutional aspect.

Finally, we add three main variables used for the matching strategy as control variables to verify its efficiency: $population_{it-1}$ (the log of the population of each municipality), $income_{it-1}$ (the log of the income of each municipality), $firm_{it-1}$ (the log of number of firms in each municipality).

4.3 Empirical Strategy

We aim at exploring the determinants of a municipality's decision to use PPP or wait before and after 2011, when the new accounting rule was introduced into the legal system.

As some municipalities decide to invest after the creation of a PPP market, different investment times are available over the period from 2005 to 2013. The starting year is the same for every municipality (2005), but data are incomplete. Municipalities that did not invest within the period are necessarily

right censoring. Duration or hazard models are designed to take this issue into account (Hosmer et al. [1999], Machin et al. [2006], and Chen [2002]).

In duration or survival analyses time is the outcome variable of interest. More precisely, the dependent variable is defined as survival time because it provides the interval until a certain event (failure) occurs. The terminology suggests the main application areas are health and financial economics. However, this approach can be applied to any type of event that affects individuals in different moments. Our research question is a suitable application of the duration analysis because more and more municipalities have used PPP over the period 2005 to 2013 and we can expect that, in the long run, this technique would be widespread among public operators.

In our case, the investment action under PPP represents the event (failure), while the survival time is given by the number of years until the investment under PPP takes place. In such an analysis, we use the entire database composed of our treatment and control groups. Thus, the time is right censoring for all municipalities that do not experience the event prior to 2013.

The introductory step of the survival analysis consists of the computation of the Kaplan-Meier survival curve, $S(t)$, and the Hazard rate function, $h(t)$. The first is computed year by year and reports the proportion of municipalities that survive (do not use PPP) over time. The second gives the instantaneous potential per unit time for the event to occur given the survival up to time t.

The next step allows us to assess the relationship between explanatory variables and survival time. More precisely, it allows us to identify the factors that determines the probability to implement PPP and how the new rule affected this propensity to use PPP. We approach the problem through two methods that aim at computing the hazard rate, that is the instantaneous event rate.

The first one is a semi-parametric method, the Cox proportional hazard model. This model makes a main assumption that the hazard rate (instantaneous event rate) is proportional to the covariates (PH assumption). It means that the risk of failure (PPP use) is the same no matter how long the municipality has been followed (Hosmer et al. [1999]). This assumption is plausible for our analysis where the probability to invest in PPP should not depend on how much time is elapsed from 2004, the starting year of our study. However, we perform a statistical test (*stphtest*) to assess the PH assumption: we first implement a PH global test that controls for all covariates simultaneously; then, we graphically test the PH assumption for the budget constraint regressors. The main regression for the Cox-Ph model is the following:

$$h(t, x, \beta) = h_0(t) f(x, \beta) \tag{4.1}$$

where $h_0(t)$ is proportional to the survivor time, while $f(x, \beta)$ characterizes how the hazard function changes as a function of our covariates.

The strategy's second method consists of implementing a full parametric model where survival time is assumed to follow a known distribution.

We assume the most common Weibull distribution, which is a general distribution based on two parameters that can be reduced to an exponential distribution if the hazard is assumed to be constant over time. The hazard rate function that we are going to estimate through this method looks as in the following expression:

$$h(t, x, \beta, \lambda) = \frac{\lambda t^{\lambda - 1}}{(e^{\beta_0 + \beta_1 x})^{\lambda}} \tag{4.2}$$

We then run a parametric model for each proxy of the financial restraints. A graphical method for checking the validity of the Weibull distribution is

provided by examining the Kaplan-Meier log curves against log survival time. The graph in Figure 4.3 reports a straight line providing evidence that the distribution of survival times follows a Weibull distribution.

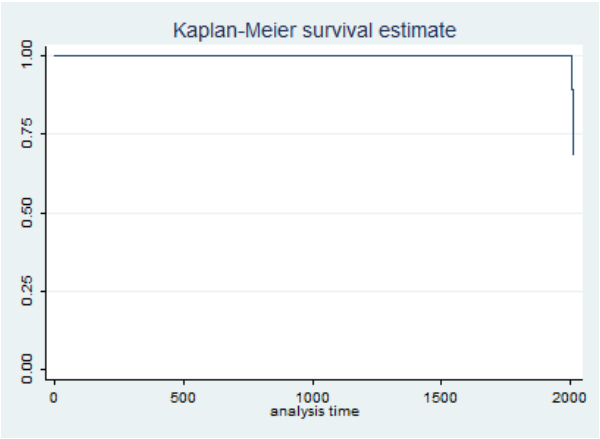

Figure 4.3: Kaplan - Meier Survival Estimate

5 Results and Robustness Checks

5.1 Results

We first report the results of the computation of the Kaplan-Meier survival curve, $S(t)$, and the Hazard rate function, $h(t)$, in Figure 4.4. The first graph looks like a step function given the discrete time. Prior to 2005, the survival probability equals to 1, after which some municipalities started to invest. At the end of the time period, the probability of investment is approximately 30%. This result reflects the composition of our dataset, which comprises 101 municipalities with PPP and 202 control municipalities that did not implement any PPP. The Hazard rate function highlights the increasing conditional probability to invest under PPP up to year 2011. Subsequently, after the application of the new accounting rule, the line shows a downward trend.

Before presenting the main results of the semi-parametric method under the Cox proportional hazard model, the global test lets us argue that the

Figure 4.4: Survival and Hazard Rate Curves

PH assumption is not violated in the implemented models. We further control for whether or not the budget constraint proxies separately respect the PH assumption. Figures 4.5, 4.6 and 4.7 in the Appendix reports that fitted curves appear horizontal, which means that the scaled Schoenfeld residuals are independent with respect to survival time.

Our main results of the Cox proportional hazard model are reported in Table 4.3. We report both coefficients and hazard rations in order to have a complete interpretation of our results.

The first set variables reports the political features of the municipality. The EQI index (the institutional aspect) is positive, but not significant. The coefficient of the dummy female is also positive, but not significant. Finally, among dummies that reflect the political side of the municipality's governments, only the dummy $right$ is significant; thus, when the mayor is from the right side, the propensity to implement PPP increases. This result is in line with previous studies on PPP's determinants.

Among variables that control for the financial side, $budget - result_{it-1}$ has a positive impact, while effects of $investment_{it-1}$ and $subsidies_{it-1}$ are negative. Nevertheless, none of the covariates significantly affect the propensity to invest in PPP.

Table 4.3: Duration estimation: Cox PH Model

	(1)		(2)		(3)		(4)		(5)		(6)	
	coeff.	hazard ratio	coeff.	hazard ratio	coeff.	hazard ratio	coeff.	hazard ratio	coeff.	hazard ratio	coeff.	hazard ratio
EQI	0.107	1.113	0.110	1.116	0.0866	1.090	0.0912	1.095	0.0273	1.028	0.00887	1.009
	(0.28)	(0.28)	(0.28)	(0.28)	(0.22)	(0.22)	(0.23)	(0.23)	(0.07)	(0.07)	(0.02)	(0.02)
female	0.0556	1.057	0.0561	1.058	0.0463	1.047	0.0472	1.048	0.0182	1.018	0.00228	1.002
	(0.16)	(0.16)	(0.16)	(0.16)	(0.13)	(0.13)	(0.13)	(0.13)	(0.05)	(0.05)	(0.01)	(0.01)
left	-0.0731	0.930	-0.0729	0.930	-0.0916	0.912	-0.0899	0.914	-0.0653	0.937	-0.0605	0.941
	(-0.29)	(-0.29)	(-0.29)	(-0.29)	(-0.36)	(-0.36)	(-0.36)	(-0.36)	(-0.26)	(-0.26)	(-0.24)	(-0.24)
center	-0.321	0.726	-0.320	0.726	-0.326	0.722	-0.325	0.723	-0.404	0.668	-0.418	0.658
	(-0.31)	(-0.31)	(-0.31)	(-0.31)	(-0.31)	(-0.31)	(-0.31)	(-0.31)	(-0.38)	(-0.38)	(-0.40)	(-0.40)
right	0.647**	1.910**	0.639**	1.894**	0.603**	1.827**	0.596**	1.814**	0.660**	1.936**	0.662**	1.939**
	(2.41)	(2.41)	(2.38)	(2.38)	(2.24)	(2.24)	(2.21)	(2.21)	(2.46)	(2.46)	(2.46)	(2.46)
budget_result	-0.0177	0.982	-0.0178	0.982	-0.0182	0.982	-0.0183	0.982	-0.0301	0.970	-0.0313	0.969
	(-0.95)	(-0.95)	(-0.96)	(-0.96)	(-0.98)	(-0.98)	(-0.98)	(-0.98)	(-1.53)	(-1.53)	(-1.59)	(-1.59)
grant	-0.000676	0.999	-0.000980	0.999	0.000583	1.001	0.000239	1.000	0.00243	1.002	0.00563	1.006
	(-0.02)	(-0.02)	(-0.02)	(-0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.06)	(0.06)	(0.13)	(0.13)
investment	-0.0676	0.935	-0.0671	0.935	-0.0993	0.905	-0.0976	0.907	-0.0862	0.917	-0.0910	0.913
	(-1.14)	(-1.14)	(-1.13)	(-1.13)	(-1.60)	(-1.60)	(-1.57)	(-1.57)	(-1.44)	(-1.44)	(-1.51)	(-1.51)
debt	0.142***	1.153***	0.166**	1.180**					0.154***	1.167***	0.156***	1.169***
	(2.59)	(2.59)	(2.40)	(2.40)					(2.79)	(2.79)	(2.81)	(2.81)
rule_debt			-0.0343	0.966								
			(-0.61)	(-0.61)								
annuity					0.244***	1.277***	0.270***	1.310***				
					(2.98)	(2.98)	(2.85)	(2.85)				
rule_annual-payment							-0.0408	0.960				
							(-0.60)	(-0.60)				
self-finance									0.0340*	1.035*	0.0124	1.012
									(1.65)	(1.65)	(0.50)	(0.50)
rule_self-finance											0.0520	1.053
											(1.44)	(1.44)
N	2395	2395	2395	2395	2395	2395	2395	2395	2395	2395	2395	2395
post2011			0.132***	1.141***			0.229***	1.258***			0.0644**	1.067**
t			2.316	2.316			2.710	2.710			2.072	2.072
PH gl. test (chi2)	9.40	10.54			9.93	9.40			11.63	11.72		
p value	0.7417	0.5691			0.6225	0.7418			0.5584	0.6290		

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In these regressions are furtherly included as covariates: population, income, n. of firm. All budget covariates are computed as difference with the reference group.

Differently, financial restraints proxies have a significant impact on the propensity to implement PPPs. First, we observe a positive and significant effects of $debt_{it-1}$ and $annual\_payment_{it-1}$ on the use of PPP, that continue to persist after 2011[52]. The debt positively impacts the hazard ratio by 18% before 2011 and 14% after 2011, while the effect of the annual payment is 31% before the application of the rule and 26% after the new legislation. While the rule was found to have a negative effect, this was never significant. As a consequence, municipalities have not used PPP for minimizing their debt, both at the stock and the flow level. Second, for the proxy $self\_finance_{it-1}$ (which captures the self-financing capacity of the municipality), the effect of the rule becomes significantly positive (a 6.7% increase in the probability that the use of PPP will occur). This change may be explained by a shift in French municipalities' behavior. Before 2011, for a given level of debt, the availability of resources for further investment did not affect the propensity to implement PPP. After the introduction of the rule, a municipality showed a higher tendency to use PPP only when its budget is balanced and represents a high self-financing capacity.

Results of the full parametric model where survival time is assumed to follow a known distribution are substantially equal to the ones of the Cox proportional Hazard model (Table 4.6 in the Appendix). Indeed, we still found that the level of debt and annual payment increases the probability of PPP use. These effects remain positive and significant after 2011, while the interaction term is not significant. We also found similar result regarding the self-financing capacity of municipalities. The interaction term $rule * self\_finance$ affects positively the use of PPP. This highlights how the presence of internal resources became a significant argument in favor of PPP investment, essentially after 2011.

[52]Effects after 2011 are reported through the *post*2011 statistic.

5.2 Robustness checks

We performed various checks on robustness in order to assess the sensitivity of our results. These are discussed below and results are reported in the appendix section.

Matching strategy and Time Periods Issues

We have already show how the treated and control groups are similar not only with respect to the matching variables, but also by controlling for population characteristics related to the 2000 to 2009 time period. We include, as an additional test, all matching variables in our duration regressions. Results are not substantially affected.

A further source of uncertainty remains in the interpretation of the interaction term between the accounting rule and the financial restraint proxy. In fact, the policy's impact can be anticipated or identified with hindsight by public actors. We therefore place the rule at different years only found non significant impacts. Furthermore, external factors could exist that influence the trend of the budget constraint proxy that are also correlated with the PPP dependent variables. An example would be a financial crisis that could make PPP investment more costly for the public buyer, especially when the latter is constrained in terms of total available resources (Marty and Tran [2014]). This effect should overemphasize the rule's potential impact, therefore we would be potentially overestimating the size of the debt hiding motivations and underestimating the relevance of alternative channels.

However, to control for the validity of our strategy, we further apply our duration analyses to the entire population of 36,000 French municipalities using our matching variables as controls. Results of the level of debt and the

annual payment for debt are not substantially affected, while the effect of the self-financing capacity of municipalities become not significant also after 2011 (Table 4.7 in the Appendix).

Panel Strategy

We propose an alternative empirical strategy in order to check whether or not our results depend on the adopted specification. We choose to implement a panel strategy with a nonlinear model, where the dependent variable is a dummy that equals 1 if municipality i invests under PPP during year t. Applying a fixed-effect estimation with a nonlinear model can be problematic. In fact, first differencing or using within a transformation does not permit elimination of unobserved heterogeneity. Moreover, attempts to add municipality or time dummy variables to the logit or probit estimations will result in biased estimators due to the incidental parameters problem unless the time period is very large. A possible solution to this problem may come from using the traditional Random Effect Probit. This strategy is appealing, but assumes that the unobserved components are strictly exogenous and thus independent from our covariates. An alternative approach would be the Mundlak estimation, which assumes an explicit function for the latent variable. This method allows correlation between the random effect and regressors and permits the marginal effects to be calculated. It can be applied to our full sample and consists of computing a random effect logit or probit estimation including the average value over time for each of our regressor municipalities. In this paper, we first estimate a simple OLS regression with clustered standard errors (by municipality). Results are reported in Table 4.8 in the Appendix. Subsequently, we implement the Random logit and the Mundlak Random logit approaches. Results are reported in Tables 4.9 and 4.10 in the Appendix.[53] Results in Tables 4.8 and 4.9 do not substantially change with respect to the duration

[53]Tables report directly marginal effects.

analysis. As in the previous regressions, budget constraint effects are relevant both before and after the rule's application. The new accounting law affects the impact of the self-financing proxy as well as the relevance of the new debt taken out at time $t-1$. When the Mundlak approach is followed (Table 4.10), while results for the level of annual payment and self-financing capacity stay the same, the ones for debt level become non significant for the two periods. The debt level has therefore no impact on the use of PPP.

Endogeneity problems

Finally, we try to get rid of the debt endogeneity problem by substituting our financial constraints with their values in 2004 (before the period of interest). Results are reported in Table 4.11 (duration models). Results are not substantially affected apart from the impact of the self-financing capacity of municipalities that is negative both before and after 2011.

6 Discussion

In this paper, we found different results demonstrating the impact of financial restraint on the use of PPP. We also find evidence about the persistence of this impact even when the off balance sheet accounting was no longer possible. As a consequence, debt hiding motivation is not relevant when French mayors use PPP as organizational form for public investments.

However, we find that the Decree shows its efficiency in several ways. First, as shown in the Figure **??**, the conditional probability for a municipality to choose a PPP has increased until 2011. Subsequently, after the application of the new accounting rule, the line shows a downward trend. Klien and Tran [2014] found a similar trend after 2011 for PPP projects under the preliminary assessment phase. We can therefore consider that mayors pay more attention

to the use of PPP when there is no more the debt hiding possibility. Second, our results also show that the rule partially changed the relevance of financial restraints in explaining the propensity to choose PPP as organizational choice. Indeed, the impact of the self-financing capacity of each municipality shows a change in the reasons behind the municipality's investment choice. Before the application of the rule in 2011, the presence of internal resources was not a determinant of PPP investment. After, a strict relation between the investment and the balanced accounts was created, making a municipality's investment decision directly affected by the balanced budget requirements. We can then conclude that even if the accounting advantage of PPP is not the only driver of this organizational choice, the Decree in 2011 helps improving municipalities' attentiveness about their financial situation before taking an investment decision.

Our main results show that municipalities under financial restraint situation choose PPP for other reasons than the accounting advantage that normally characterizes this organizational type. Some explanations of our results can be discussed. The first argument stays in the financial dimension. Governments can face temporary liquidity constraints. In such a case, the upfront spending required by traditional procurement can become more expensive than the future transfers required by PPP because the distortionary cost of taxation is higher now than in the future (Engel et al. [2013]). This benefit holds unless the planner can decide to optimally postpone the project (Engel et al. [2013]) or traditional procurement repayment systems can be delayed by mimicking the timing allowed under PPP.[54]. Second, from an efficiency point of view, the introduction of asymmetric information can affect the choice towards the PPP model rather than the traditional procurement by giving relevance to the shadow cost of public funds. In fact, through PPP, governments can entrust the project to better informed agents (the private operator) and a better controller

[54]It is also important to highlight how high levels of public debt do not directly imply government liquidity constraints.

(the lending bank) (Auriol and Picard [2013]). Under such an organizational choice, governments can also save incentive rents thanks to the private agent's long-term involvement (Buso and Greco [2014]). Third, as demand factors and institutional constraints are the main drivers of the level of debt rather than governments' capacity to finance (Bahl and Duncombe [1993]), public actors might pay less attention to their level of debt burden. Instead, the efficiency of the organizational form might be more at the core of the strategy evaluation. However, even if we control for some political dimensions, there are other political channels that may explain our results. For example, Maskin and Tirole [2008] finds that under a context with high lobby, it is easier for the government with PPP to favor some operators. Finally, we can also argue that even after introduction of the 2011 rule, debt hiding motivations could persist. This explanation should not be so relevant given the effectiveness of the French Decree in ruling out accounting advantages (see Section 2 which discusses the French institutional context).

7 Conclusions

In this paper, we first study whether or not a public authority burdened by a hard budget constraint is more likely to choose PPP. Second, we examine the nature of this effect, *i.e.*, is it only for debt hiding motivation? We find that a budget constraint is associated with higher use of PPP. However, while the new accounting rule in 2011 might significantly change the temptation for municipalities to hide debt and consequentially decrease the impact of financial pressure on employing a PPP investment, the budget constraint effect continues to be positive and significant for some financial constraints proxies. We therefore conclude that debt hiding is not the only motivation when financially stressed municipalities choose PPP as organizational form.

Our empirical results contribute to the literature in several ways. First,

we corroborate the traditional view in Public Administration literature. Indeed, as we do not find evidence about creative accounting adoption when financially constrained French mayors make their organizational choice, our results support the idea that public managers' motivations are to serve the public interest, to effect social change, to shape the policy that affects society (*e.g.*, Frederickson and Hart [1985], Perry and Porter [1982], Perry and Wise [1990]). Second, we contribute to the PFM literature as we found that a large debt burden level is not necessarily connected with a strategy of offloading debt. This is an interesting result in the context of financial crisis, where governments around the world are forced to cut budgets, restructure service delivery strategies, reset priorities, and assume enormous new financial responsibilities (Kioko et al. [2011]). Third, we point out how PFM's concerns can contribute to PAM core questions such as decision making, performance management and organizational strategy. Finally and more narrowly, we contribute to the existing literature on PPP. Our results do not only detect the effect of budget constraints on the use of PPP, but also look at the possible motivations that induce constrained public authorities to choose this organizational form. This paper is, to the best of our knowledge, the first direct empirical analysis on this topic.

From a practical point of view, our paper has also several managerial implications. First, our results give more insight to regulation instances such as the MaPPP. Indeed, the non relevance of debt hiding motivation is an argument to continue developing the PPP organizational form. Moreover, the impact of the Decree on the attentiveness of public actors in choosing PPP may help these instances in improving PPP institutional framework in the future. Second, our results might also make public actors who are tempting to use PPP for financial motivations reconsider this organizational choice. Third, our study may helps private actors and private lenders in their consideration of collaborating with the public sector. Indeed, knowing that public managers

are not choosing PPP for debt hiding motivations may incite the private sector to financially participate in such a strategy. Finally, our results have "solved" the myth about PPP's motivation among practitioners. Our results can also partially explain why countries have increasingly turned to PPP in recent years despite all these criticisms. In fact, an OECD report in 2009 stated that PPP had grown to comprise a portion, although not the majority, of capital budgets in several countries.[55]. This evolution experienced a temporary decline during the current economic crisis (European PPP Expertise Center [2012a]), however, the long term trend is expected to be positive (Wagenvoort et al. [2010]). Our research addresses a very relevant problem in the current situation where resources are scarce and much creativity is needed to incentivize economic growth.

Our results are the first to go against current ideas about the use of PPP both among practitioners and academics. As a consequence, the first extension would be to include a larger sample of municipalities using PPP in other countries in order to validate our results. Moreover, even if we conclude that the use of PPP is not associated with the debt hiding motivations, we can not conclude if public managers use PPP for its potential performance. Even if the study of Saussier and Tran [2013] reported a high level of satisfaction about PPP's performance, it would be more useful to have a comparison of performance between PPP and the traditional public procurements.

[55]The United Kingdom has had the longest experience, with PPPs currently comprising from 10% to 15% of the capital budget in recent years. France and Korea have had similar experience, with PPPs comprising 20% and 15% of those countries' capital budgets respectively. Portugal reported the highest payments for PPPs, representing nearly 28% of the national budget or 9.4% of GDP; projects could add up to nearly 20% of GDP eventually (Posner et al. [2009])

8 Appendix

Table 4.4: PS Test

Variable	Treated	Control	%bias	t	p>t
population_2009	35367	25448	12.5	1.35	0.181
population_1999	33663	24598	12.1	1.28	0.202
area	28626	31886	-3.1	-0.47	0.638
population_2009_men	16976	11728	14.2	1.38	0.169
accomodations_2009	19662	14281	12.9	1.25	0.213
main_residences_2009	16976	11728	14.2	1.38	0.169
second_residences_2009	1240.9	1517.9	-7.2	-0.43	0.667
vacant_accomodations_2009	1444.6	1034.6	11.8	1.24	0.217
owned_residences_2009	6965.3	5266.6	10.9	1.24	0.216
income_2009	4.7e+08	3.3e+08	13.0	1.32	0.189
taxpayers_2009	20678	14983	12.2	1.32	0.190
workers_2009	20195	14291	15.8	1.25	0.215
long_term_workers_2009	18327	13000	15.9	1.23	0.222
workers_1999	17857	12670	15.6	1.22	0.223
population_15-64_2009	23938	16610	14.0	1.41	0.159
unemployed_15-64_2009	2419	1658.1	13.3	1.43	0.155
employed_15-64_2009	16637	11732	14.0	1.38	0.169
total_firms_2010	3471.8	2432.9	12.8	1.34	0.181
agriculture_firms_2010	46.94	37.58	15.8	0.93	0.354
industry_firms_2010	155.95	118.12	11.6	1.25	0.214
construction_firms_2010	241.12	194.08	6.6	0.94	0.346
services_firms_2010	2466	1717.9	13.1	1.31	0.192
trade_firms_2010	702.65	536.27	10.7	1.09	0.279
public_firms	561.76	365.2	14.3	1.52	0.131
SMEs	998.84	706.87	13.7	1.34	0.183
No_SMEs	268.11	196.87	14.4	1.19	0.235

Table 4.5: PS Test pre 2009

Variable	Treated	Control	% bias	t	p>t
taxpayers_08	26544	23728	3.3	0.24	0.808
net_income_08	5.8e+08	6.4e+08	-2.3	-0.16	0.874
total_tax_08	3.4e+07	5.5e+07	-6.1	-0.42	0.673
taxable_income_08	4.7e+08	5.5e+08	-3.2	-0.23	0.821
notaxable_income_08	1.1e+08	9.2e+07	6.6	0.51	0.611
taxpayers_07	26398	23598	3.3	0.24	0.808
net_income_07	5.7e+08	6.3e+08	-2.4	-0.17	0.867
total_tax_07	3.7e+07	5.9e+07	-6.0	-0.42	0.678
taxable_income_07	4.6e+08	5.5e+08	-3.3	-0.23	0.818
notaxable_income_07	1.0e+08	8.5e+07	7.0	0.54	0.591
taxpayers_06	26198	23445	3.3	0.24	0.810
net_income_06	5.4e+08	6.0e+08	-2.3	-0.16	0.873
total_tax_06	3.5e+07	5.5e+07	-6.0	-0.41	0.680
taxable_income_06	4.4e+08	5.2e+08	-3.2	-0.23	0.821
notaxable_income_06	1.0e+08	8.6e+07	6.7	0.51	0.610
taxpayers_05	25780	23239	3.0	0.22	0.823
net_income_05	4.2e+08	4.7e+08	-2.4	-0.17	0.864
taxpayers_04	25755	23259	3.0	0.22	0.827
net_income_04	4.1e+08	4.6e+08	-2.6	-0.18	0.856
taxpayers_03	25594	23261	2.8	0.20	0.839
net_income_03	4.0e+08	4.5e+08	-2.6	-0.18	0.854
taxpayers_02	25277	23001	2.7	0.20	0.841
net_income_02	3.8e+08	4.3e+08	-2.6	-0.18	0.855
taxpayers_01	24883	22830	2.5	0.18	0.855
net_income_01	3.6e+08	4.2e+08	-3.1	-0.22	0.826
taxpayers_00	24514	22288	2.8	0.20	0.840
net_income_00	3.5e+08	4.1e+08	-3.0	-0.21	0.833
taxpayers_99	24184	22021	2.7	0.20	0.843
net_income_99	3.4e+08	3.9e+08	-3.0	-0.21	0.834
taxpayers_98	23890	21870	2.6	0.19	0.852
net_income_98	2.1e+09	2.4e+09	-2.8	-0.19	0.846

Figure 4.5: PH Tests for Financial constraints covariates: Debt and Rule*Debt

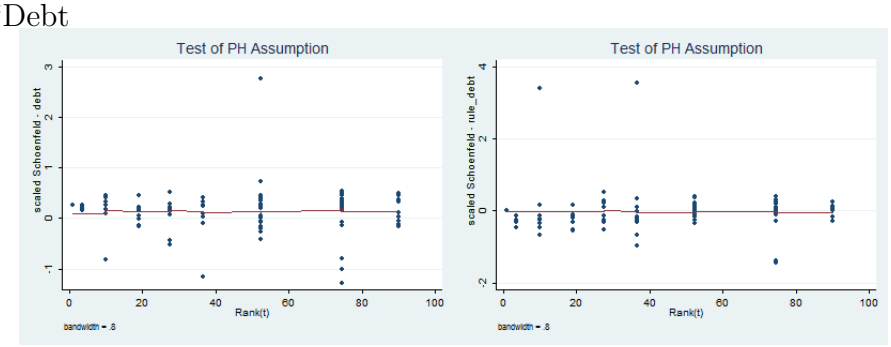

Figure 4.6: PH Tests for Financial constraints covariates: Annual_payment and Rule*Annual_payment

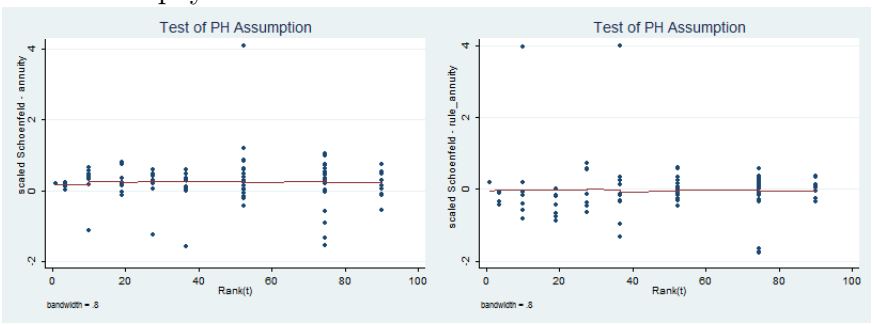

Figure 4.7: PH Tests for Financial constraints covariates: Self_finance and Rule*Self_finance

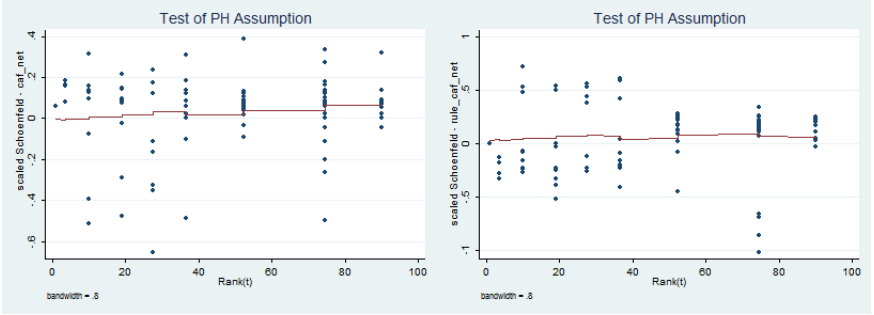

Table 4.6: Parametric Survival Model

	(1)		(2)		(3)		(4)		(5)		(6)	
	coeff.	hazard ratio	coeff.	hazard ratio	coeff.	hazard ratio	coeff.	hazard ratio	coeff.	hazard ratio	coeff.	hazard ratio
EQI	0.128	1.137	0.126	1.135	0.120	1.127	0.114	1.120	0.0406	1.041	0.0213	1.022
	(0.33)	(0.33)	(0.33)	(0.33)	(0.31)	(0.31)	(0.29)	(0.29)	(0.11)	(0.11)	(0.06)	(0.06)
female	0.0607	1.063	0.0588	1.061	0.0591	1.061	0.0568	1.058	0.0253	1.026	0.00556	1.006
	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.16)	(0.16)	(0.07)	(0.07)	(0.02)	(0.02)
left	-0.0388	0.962	-0.0384	0.962	-0.0623	0.940	-0.0632	0.939	-0.0298	0.971	-0.0358	0.965
	(-0.15)	(-0.15)	(-0.15)	(-0.15)	(-0.25)	(-0.25)	(-0.25)	(-0.25)	(-0.12)	(-0.12)	(-0.14)	(-0.14)
center	-0.370	0.691	-0.373	0.688	-0.395	0.674	-0.399	0.671	-0.403	0.668	-0.394	0.674
	(-0.35)	(-0.35)	(-0.36)	(-0.36)	(-0.38)	(-0.38)	(-0.38)	(-0.38)	(-0.39)	(-0.39)	(-0.38)	(-0.38)
right	0.740***	2.096***	0.746***	2.109***	0.693**	2.000**	0.699***	2.012***	0.753***	2.124***	0.743***	2.102***
	(2.74)	(2.74)	(2.76)	(2.76)	(2.56)	(2.56)	(2.58)	(2.58)	(2.78)	(2.78)	(2.74)	(2.74)
budget_result	-0.0135	0.987	-0.0136	0.986	-0.0139	0.986	-0.0140	0.986	-0.0244	0.976	-0.0255	0.975
	(-0.73)	(-0.73)	(-0.73)	(-0.73)	(-0.75)	(-0.75)	(-0.76)	(-0.76)	(-1.25)	(-1.25)	(-1.31)	(-1.31)
grant	0.00519	1.005	0.00589	1.006	0.00827	1.008	0.00911	1.009	0.00800	1.008	0.0126	1.013
	(0.12)	(0.12)	(0.14)	(0.14)	(0.19)	(0.19)	(0.21)	(0.21)	(0.19)	(0.19)	(0.29)	(0.29)
investment	-0.0703	0.932	-0.0704	0.932	-0.0972	0.907	-0.0999	0.905	-0.0883	0.915	-0.0939	0.910
	(-1.18)	(-1.18)	(-1.18)	(-1.18)	(-1.56)	(-1.56)	(-1.60)	(-1.60)	(-1.48)	(-1.48)	(-1.56)	(-1.56)
trend_rule	-0.153***	0.858***	-0.205***	0.815***	-0.155***	0.856***	-0.208***	0.812***	-0.154***	0.857***	-0.205***	0.815***
	(-3.08)	(-3.08)	(-2.61)	(-2.61)	(-3.13)	(-3.13)	(-2.64)	(-2.64)	(-3.12)	(-3.12)	(-3.60)	(-3.60)
debt	0.143***	1.154***	0.121**	1.129**					0.153***	1.166***	0.155***	1.167***
	(2.61)	(2.61)	(2.07)	(2.07)					(2.79)	(2.79)	(2.81)	(2.81)
rule_debt			0.0424	1.043								
			(0.86)	(0.86)								
annual-payment					0.239***	1.270***	0.216**	1.241**				
					(2.92)	(2.92)	(2.55)	(2.55)				
rule_annual-payment							0.0531	1.055				
							(0.87)	(0.87)				
self-finance									0.0310	1.032	0.00337	1.003
									(1.52)	(1.52)	(0.14)	(0.14)
rule_self-finance											0.0742*	1.077*
											(1.95)	(1.95)
N	2395	2395	2395	2395	2395	2395	2395	2395	2395	2395	2395	2395
post2011			0.164***	1.178***			0.269***	1.308***			0.0775**	1.081**
t			2.662	2.662			2.959	2.959			2.293	2.293

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In these regressions are furtherly included as covariates: population, income, n. of firm. All budget covariates are computed as difference with the reference group.

Table 4.7: Duration estimation: all municipalities

	Cox PH Model						Parametric Survival Model					
	1	2	3	4	5	6	1	2	3	4	5	6
female	-0.0879	-0.0813	-0.0705	-0.0719	-0.221	-0.223	-0.196	-0.197	-0.175	-0.175	-0.364	-0.366
	(-0.19)	(-0.17)	(-0.15)	(-0.15)	(-0.43)	(-0.43)	(-0.41)	(-0.41)	(-0.37)	(-0.36)	(-0.68)	(-0.69)
center	-0.118	-0.125	-0.152	-0.153	-43.90	-43.90	-0.344	-0.347	-0.367	-0.369	-13.67	-13.66
	(-0.11)	(-0.12)	(-0.14)	(-0.15)	(.)	(.)	(-0.33)	(-0.33)	(-0.35)	(-0.35)	(-0.02)	(-0.02)
right	1.094***	1.084***	1.091***	1.083***	1.223***	1.211***	1.187***	1.191***	1.174***	1.175***	1.332***	1.327***
	(3.21)	(3.19)	(3.20)	(3.18)	(3.37)	(3.34)	(3.52)	(3.53)	(3.48)	(3.48)	(3.63)	(3.61)
budget_result	0.0532	0.0542	0.0331	0.0320	-0.102	-0.0966	0.0514	0.0514	0.0337	0.0339	-0.135	-0.133
	(0.35)	(0.35)	(0.22)	(0.21)	(-0.65)	(-0.61)	(0.34)	(0.34)	(0.22)	(0.22)	(-0.85)	(-0.84)
grant	-0.0490	-0.0439	0.00153	0.00764	-0.124	-0.120	-0.0600	-0.0615	-0.0165	-0.0170	-0.129	-0.127
	(-0.31)	(-0.28)	(0.01)	(0.05)	(-0.77)	(-0.75)	(-0.38)	(-0.39)	(-0.10)	(-0.11)	(-0.80)	(-0.79)
investment	-0.667*	-0.675**	-0.864**	-0.874**	-0.205	-0.208	-0.635*	-0.630*	-0.854**	-0.852**	-0.634*	-0.634*
	(-1.95)	(-1.97)	(-2.35)	(-2.38)	(-0.60)	(-0.61)	(-1.89)	(-1.87)	(-2.36)	(-2.36)	(-1.74)	(-1.74)
debt	0.684***	0.788***					-0.0856	-0.157	-0.0884	-0.109	-0.0906	-0.0844
	(2.72)	(2.87)					(-1.51)	(-0.74)	(-1.56)	(-0.59)	(-1.50)	(-1.31)
rule_debt		-0.187					0.612**	0.584**			0.775***	0.770***
		(-0.97)					(2.50)	(2.28)			(2.80)	(2.77)
annual-payment			0.893***	0.996***				0.0530				
			(3.05)	(3.17)				(0.35)				
rule_annual-payment				-0.179					0.892***	0.882***		
				(-0.90)					(3.05)	(2.88)		
self-finance					-0.115	-0.0934				0.0192		
					(-0.78)	(-0.61)				(0.12)		
rule_self-finance						-0.0000245					0.0295	0.0392
						(-0.62)					(0.18)	(0.23)
N	18878	18878	18813	18813	16228	16228						-0.0000107
post2011		0.601		0.817		-0.0934						(-0.27)
t		2.293		2.700		-0.614	18878	18878	18813	18813	16155	16155

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In these regressions are furtherly included as covariates all the matching variables

Table 4.8: OLS cluster estimation

	(1) treatment	(2) treatment	(3) treatment	(4) treatment	(5) treatment	(6) treatment
EQI	0.0816	0.0834	0.0532	0.0578	0.0370	0.0315
	(0.26)	(0.26)	(0.17)	(0.18)	(0.12)	(0.10)
female	0.000359	0.000932	-0.00538	-0.00491	-0.0146	-0.0238
	(0.00)	(0.00)	(-0.02)	(-0.02)	(-0.05)	(-0.08)
left	-0.0447	-0.0446	-0.0593	-0.0568	-0.0400	-0.0301
	(-0.20)	(-0.20)	(-0.27)	(-0.26)	(-0.18)	(-0.14)
center	-0.586	-0.581	-0.618	-0.612	-0.623	-0.637
	(-0.55)	(-0.54)	(-0.59)	(-0.59)	(-0.57)	(-0.59)
right	0.540**	0.531**	0.503**	0.495**	0.546**	0.540**
	(2.31)	(2.26)	(2.15)	(2.11)	(2.31)	(2.27)
budget_result	-0.0187	-0.0187	-0.0198	-0.0198	-0.0266	-0.0275
	(-0.94)	(-0.95)	(-1.00)	(-1.00)	(-1.27)	(-1.33)
grant	0.000113	-0.000348	0.00142	0.000902	0.00161	0.00457
	(0.00)	(-0.01)	(0.03)	(0.02)	(0.03)	(0.10)
investment	-0.0617	-0.0608	-0.0949**	-0.0920**	-0.0742*	-0.0810*
	(-1.37)	(-1.36)	(-2.09)	(-2.05)	(-1.65)	(-1.74)
trend_rule	-0.959**	-0.958**	-0.970**	-0.970**	-0.960**	-0.958**
	(-2.29)	(-2.29)	(-2.31)	(-2.31)	(-2.30)	(-2.29)
debt	0.136***	0.172**			0.142***	0.145***
	(3.32)	(2.36)			(3.39)	(3.35)
rule_debt		-0.0539				
		(-0.78)				
annual-payment			0.242***	0.282***		
			(3.96)	(3.03)		
rule_annual-payment				-0.0649		
				(-0.79)		
self-finance					0.0216	-0.00524
					(1.24)	(-0.22)
rule_self-finance						0.0679*
						(1.96)
_cons	9.129*	9.214*	9.328*	9.408*	9.883*	9.813*
	(1.72)	(1.74)	(1.74)	(1.76)	(1.84)	(1.83)
N	2658	2658	2658	2658	2658	2658
post2011		0.118***		0.217***		0.0627**
t		2.862		3.559		2.399

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
In these regressions are included as covariates: population, income, n. of firm and year dummies
All budget covariates are computed as difference with the reference group.

Table 4.9: Random Logit Estimation

	(1)	(2)	(3)	(4)	(5)	(6)
	treatment	treatment	treatment	treatment	treatment	treatment
EQI	0.0816	0.0834	0.0532	0.0578	0.0370	0.0315
	(0.20)	(0.20)	(0.13)	(0.14)	(0.09)	(0.08)
female	0.000352	0.000924	-0.00539	-0.00491	-0.0146	-0.0238
	(0.00)	(0.00)	(-0.01)	(-0.01)	(-0.04)	(-0.06)
left	-0.0447	-0.0446	-0.0593	-0.0568	-0.0400	-0.0301
	(-0.17)	(-0.17)	(-0.23)	(-0.22)	(-0.15)	(-0.12)
center	-0.586	-0.581	-0.618	-0.612	-0.623	-0.637
	(-0.55)	(-0.55)	(-0.58)	(-0.58)	(-0.59)	(-0.60)
right	0.540**	0.531*	0.503*	0.495*	0.546**	0.540*
	(1.97)	(1.93)	(1.83)	(1.80)	(1.98)	(1.96)
budget_result	-0.0187	-0.0187	-0.0198	-0.0198	-0.0266	-0.0275
	(-0.97)	(-0.97)	(-1.02)	(-1.02)	(-1.30)	(-1.34)
grant	0.000113	-0.000349	0.00142	0.000902	0.00161	0.00457
	(0.00)	(-0.01)	(0.03)	(0.02)	(0.04)	(0.10)
investment	-0.0617	-0.0608	-0.0949	-0.0920	-0.0742	-0.0810
	(-1.01)	(-0.99)	(-1.50)	(-1.44)	(-1.21)	(-1.30)
trend_rule	-0.959**	-0.958**	-0.970**	-0.970**	-0.960**	-0.958**
	(-2.36)	(-2.36)	(-2.39)	(-2.39)	(-2.36)	(-2.35)
debt	0.136**	0.172**			0.142**	0.145**
	(2.42)	(2.39)			(2.53)	(2.55)
rule_debt		-0.0539				
		(-0.93)				
annual-payment			0.242***	0.282***		
			(2.88)	(2.88)		
rule_annual-payment				-0.0649		
				(-0.92)		
self-finance					0.0216	-0.00524
					(1.12)	(-0.23)
rule_self-finance						0.0679*
						(1.88)
_cons	9.129	9.214*	9.328*	9.408*	9.883*	9.813*
	(1.64)	(1.65)	(1.66)	(1.67)	(1.77)	(1.75)
N	2953	2953	2953	2953	2953	2953
post2011		0.118**		0.217**		0.0627**
t		2.032		2.500		2.016

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
In these regressions are included as covariates: population, income, n. of firm and year dummies
All budget covariates are computed as difference with the reference group.

Table 4.10: Chamberlain's Random Logit Estimation

	(1)	(2)	(3)	(4)	(5)	(6)
	treatment	treatment	treatment	treatment	treatment	treatment
EQI	-0.0749	-0.0706	0.0358	0.0439	0.0584	0.0290
	(-0.19)	(-0.18)	(0.09)	(0.11)	(0.15)	(0.07)
female	0.131	0.136	0.0337	0.0391	-0.0541	-0.0344
	(0.33)	(0.34)	(0.08)	(0.10)	(-0.14)	(-0.09)
left	-0.294	-0.285	-0.274	-0.277	0.0293	0.0178
	(-1.09)	(-1.06)	(-1.00)	(-1.01)	(0.11)	(0.07)
center	-0.122	-0.0974	-0.221	-0.228	-0.673	-0.623
	(-0.11)	(-0.08)	(-0.19)	(-0.20)	(-0.63)	(-0.58)
right	0.531*	0.527*	0.422	0.407	0.569**	0.552**
	(1.82)	(1.81)	(1.40)	(1.34)	(2.05)	(1.98)
budget_result	-0.0112	-0.0112	-0.0108	-0.0110	-0.0206	-0.0212
	(-0.50)	(-0.50)	(-0.48)	(-0.49)	(-0.97)	(-0.99)
grant	0.0105	0.0112	0.00121	0.00173	-0.00977	-0.000356
	(0.19)	(0.21)	(0.02)	(0.03)	(-0.20)	(-0.01)
investment	-0.0436	-0.0471	-0.0731	-0.0751	-0.0255	-0.0301
	(-0.58)	(-0.62)	(-0.90)	(-0.92)	(-0.36)	(-0.42)
trend_rule	0.759	0.733	0.769	0.754	-0.955**	-0.959**
	(1.47)	(1.42)	(1.48)	(1.45)	(-2.34)	(-2.34)
debt	0.120	0.170			0.0998	0.106
	(1.34)	(1.53)			(1.34)	(1.09)
rule_debt		-0.108				
		(-0.79)				
annual-payment			0.308***	0.315**		
			(2.66)	(2.48)		
rule_annual-payment				-0.00710		
				(-0.09)		
self-finance					0.0400*	-0.00641
					(1.76)	(-0.23)
rule_self-finance						0.111**
						(2.45)
_cons	-6.798	-6.698	-7.096	-7.175	6.717	5.960
	(-1.35)	(-1.33)	(-1.37)	(-1.37)	(1.54)	(1.35)
N	2103	2103	2103	2103	2953	2953
post2011		0.0622		0.308**		0.104***
t		0.571		2.569		2.797

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
In these regressions are included as covariates: population, income, n. of firm and year dummies
All budget covariates are computed as difference with the reference group.

Table 4.11: Duration Estimation: Financial constraints in 2004

	Cox PH Model						Parametric Survival Model					
	1	2	3	4	5	6	1	2	3	4	5	6
EQI	0.133	0.133	0.124	0.127	0.189	0.190	0.149	0.145	0.142	0.140	0.214	0.215
	(0.34)	(0.34)	(0.32)	(0.33)	(0.49)	(0.49)	(0.39)	(0.38)	(0.37)	(0.36)	(0.56)	(0.56)
female	0.0560	0.0561	-0.00268	-0.00302	-0.0542	-0.0549	0.0654	0.0615	0.00705	0.00492	-0.0595	-0.0598
	(0.16)	(0.16)	(-0.01)	(-0.01)	(-0.15)	(-0.15)	(0.18)	(0.17)	(0.02)	(0.01)	(-0.16)	(-0.17)
left	-0.103	-0.103	-0.117	-0.115	-0.104	-0.104	-0.0792	-0.0790	-0.0943	-0.0946	-0.0814	-0.0813
	(-0.41)	(-0.41)	(-0.46)	(-0.45)	(-0.42)	(-0.42)	(-0.31)	(-0.31)	(-0.37)	(-0.37)	(-0.32)	(-0.32)
center	-0.335	-0.334	-0.498	-0.496	-0.451	-0.452	-0.396	-0.399	-0.544	-0.548	-0.518	-0.518
	(-0.32)	(-0.32)	(-0.47)	(-0.47)	(-0.43)	(-0.43)	(-0.38)	(-0.38)	(-0.52)	(-0.52)	(-0.49)	(-0.49)
right	0.598**	0.597**	0.560**	0.552**	0.587**	0.588**	0.684**	0.690**	0.649**	0.652**	0.673**	0.674**
	(2.21)	(2.21)	(2.06)	(2.03)	(2.18)	(2.19)	(2.52)	(2.54)	(2.37)	(2.39)	(2.49)	(2.49)
budget_result	-0.0186	-0.0187	-0.0199	-0.0202	-0.0126	-0.0127	-0.0150	-0.0150	-0.0163	-0.0163	-0.00912	-0.00916
	(-1.00)	(-1.00)	(-1.06)	(-1.08)	(-0.66)	(-0.67)	(-0.81)	(-0.81)	(-0.88)	(-0.88)	(-0.49)	(-0.49)
grant	0.000325	0.000311	0.0114	0.0113	0.00254	0.00246	0.00572	0.00696	0.0140	0.0146	0.00871	0.00875
	(0.01)	(0.01)	(0.25)	(0.25)	(0.06)	(0.06)	(0.13)	(0.16)	(0.32)	(0.33)	(0.20)	(0.20)
investment	-0.0461	-0.0460	-0.0851	-0.0851	-0.0288	-0.0287	-0.0466	-0.0485	-0.0765	-0.0769	-0.0296	-0.0296
	(-0.75)	(-0.74)	(-1.22)	(-1.21)	(-0.45)	(-0.45)	(-0.76)	(-0.78)	(-1.14)	(-1.15)	(-0.46)	(-0.46)
debt	0.110**	0.112*			0.0973*	0.0973*	0.111**	0.0849			0.0973*	0.0973*
	(1.99)	(1.78)			(1.74)	(1.74)	(2.00)	(1.47)			(1.72)	(1.72)
rule_debt		-0.00329						0.0583				
		(-0.07)						(1.23)				
annual-payment			0.204**	0.245**					0.196**	0.178**		
			(2.35)	(2.37)					(2.32)	(2.01)		
rule_annual-payment				-0.0556						0.0328		
				(-0.83)						(0.57)		
self-finance					-0.0320**	-0.0297					-0.0334**	-0.0323
					(-2.14)	(-1.38)					(-2.23)	(-1.55)
rule_self-finance						-0.00422						-0.00204
						(-0.15)						(-0.07)
N	2392	2392	2392	2392	2392	2392	2392	2392	2392	2392	2392	2392
post2011		0.109*		0.189**		-0.0339*		0.143**		0.211**		-0.0344*
t		1.860		2.139		-1.740		2.234		2.367		-1.719

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In these regressions are furtherly included as covariates: population, income, n. of firm and, for the Parametric Survival Model, the trend_rule variable (that is significant)

All budget covariates are computed as difference with the reference group.

General Conclusion

The popular belief in the inefficiency of the public sector has attracted the attention of scholars of both Management and Economics. As in-house government provision weaknesses have been observed during the last thirty years, a global trend toward greater involvement of the private sector in the delivery of public services has arisen. Since the trend is then to "buy", the question of "how to buy" starts becoming unavoidable in the community of public sector practitioners.

Recently, in a context of budget restraint, PPP has been adopted by many countries as an alternative to traditional public procurement and complete privatization. However, since its creation in 2004, PPP has continuously been criticized. We can refer to several press articles in many countries, for example, "Public Private Partnerships are bad for tax payers" (US), "Around Alberta, Public Private Partnership is a dangerous way to fund projects" (Canada), "The time bomb of Public Private Partnerships" (UK), "Bercy face à la bombe à retardement des partenariats public-privé" (France). More officially, the report of the House of Commons in July 2011 in the UK recommended to limit the use of PPP. They pointed out that PPP has been used for other reasons than providing value for money. The most important statement is

that PPP might be used to circumvent fiscal rule. The foundation of such criticism may come from a lack of empirical research on the topic of PPP.

Regarding the outcomes, theoretically, PPP is supposed to have a higher level of incentive which may lead to cost reducing innovation (Hart [2003]). It is also considered as an hybrid solution which may address several governance problems such as partners' opportunism, specific assets and unspecifiable performance *ex ante* (Heide and John [1988], Williamson [1975]). Nevertheless, it might potentially be more costly due to its legal ramifications and coordination complexities (Hennart [1993], Kogut [1991], Murray and Siehl [1989]). Moreover, this governance form has a higher financing cost than traditional public procurement due to the private financing mechanism (Marty and Tran [2014]). As a consequence, the advantages have to outweight these inconvenient so that PPP may become an efficient organizational form. Yet, empirical evidences about PPP outcomes are scarce. There are some studies on the topic but the results are not conclusive in favor of PPP (Hodge et al. [2010], Whittington [2012], Blanc-Brude et al. [2009], Blanc-Brude [2013], Raisbeck et al. [2010]).

Given the lack of feedbacks about PPP's performance, practitioners question about the motivations behind its adoption. Indeed, as a strategy in the public sector, PPP is not only motivated by the question of efficiency and effectiveness, but also by the political-policy question (Kettl [2005]). In addition, PPP's risk allocation system allows its corresponding debt to be accounted as off balance sheet following the Eurostat guidance in 2004. As a consequence, the accounting rule for PPP may lead public actors to its adoption for opportunistic motivations. But there is a lack of empirical research on the topic to verify this. There are some studies investigating PPP's determinants (see for example Hammami et al. [2006] for the national level and Albalate et al. [2012] for the sub-national level). However, these studies do not correspond to the actual decision making structure. Moreover, while their findings support the

idea that PPP is used when the public actors are financially restrained, the motivation behind this behavior is not investigated.

This dissertation fills these gaps by providing an analysis of PPP in France since their creation in 2004. In the following, we present the dissertation's main results concerning PPP's outcomes and determinants in the French context and discuss their managerial implications.

Summary of Main Findings

On PPP's Outcomes

On the whole, results from Chapter 1 show that public actors are satisfied about their PPP performance, both in terms of deadlines, costs and quality. This level of satisfaction also stays quite stable from one sector to another and over time. However, it is worth mentioning that the quality in the operational phase achieves a lower level of satisfaction than in the construction phase, and also lower than other dimensions of performance. This result is in line with the frequent critics about contracting out strategy in the public sector. In fact, while the most cited advantage of contracting is cost savings, critics often raised the problems of sacrificed service quality, accountability, service coordination, and democratic values (DeLeon and Denhardt [2000], Milward [1996], Milward and Provan [2000], O'Toole [1996], Wise [1990]).

PPP model also shows its resilience during the financial crisis as demonstrated in Chapter 2. Since the financial crisis, public authorities have faced a dilemma between re-internalizing risks to limit their additional cost and thus enabling fiscal sustainability (preservation of *affordability*) or accepting such additional costs in order to ensure an optimal allocation of risk (conservation of the *value for money*). Our results show that the financial crisis does not

lead to a gradual abandonment of the PPP model as British HM Treasury perspectives predicted (HM Treasury [2012]). I find that in order to both continue using PPP as an anti-crisis package and keep them affordable, French public authorities have increased their role in risk taking with objective of lower financial cost. Indeed, their guarantees consist of providing lenders guarantees of debt payment and refinancing solution in case of default of the SPV. In other words, these mechanisms enhance the credit of senior debt assets by insulating the senior lenders from both construction and operational risk. In doing so, public authorities limit the continuously increasing risk premium charged by lenders since 2009 (Marty et al. [2012]).

On PPP's Determinants

Chapter 3 shows results that PPP adoption is driven by mayors' considerations such as their political ideology, the degree of political competition, as well as their mimetic behavior. However, mayors' characteristics do not have any effect on the use of PPP. We also find that environment's characteristics such as fiscal constraints, municipal size and time trend are important drivers of this strategy. While other results are in line with previous literature on contracting out and privatization, the opposite findings about the impact of political competition are particularly interesting. Our study suggests that municipalities under higher level of political competition are more likely to adopt a PPP, while previous studies found the opposite for privatization. This result may be explained by several alternative facts. First, the level of political competition may not affect PPP choice in the same way as the latter is different from privatization regarding several aspects, *e.g.* restructuring and adverse employment effects. Second, public managers under budget constraints and pressured by the opposite parties might choose to use PPP for debt hiding motivation, while offering new public infrastructure to voters. Similarly, they may be unable to reverse their initial decision to adopt a PPP in order to

avoid criticisms from opposite parties considering the long time and the high cost spent on the PPP procedure. And finally, in a highly contestable political environment, governments might be forced to consider PPP in order to tap existing efficiency potential, *e.g.* through cost economies due to the bundling mechanism in PPP.

In Chapter 4, in line with previous literature, we find that budget constraint is associated with a higher use of PPP. However, while the new accounting rule in 2011 might significantly change the temptation for municipalities to hide debt and consequentially decrease the impact of financial pressure on employing a PPP investment, the budget constraint effect continues to be positive and significant for some financial constraints proxies. We therefore conclude that debt hiding is not the only motivation when financially stressed municipalities choose PPP as organizational form.

Contributions to the Literature

On the whole, the present dissertation lies in the Strategic Management field and the organizational choice topic. More precisely, we focus on the topic of the strategy of "how to buy" instead of the traditional question of "make or buy". While our findings about PPP's outcomes can not show its superiority in comparison to traditional public procurement, the positive results corroborate the TCT's work on the advantages of hybrid organizations in a certain extent (Heide and John [1988], Williamson [1975]). Regarding PPP's determinants, our results support the RBV's work, which gives an important role to human dimensions such as organizations' capabilities or know-how that are embodied by managers, employees or organizational routines (Nelson and Winter [1982]).

Below, we detail the contributions of the present dissertation to different streams of literature.

Contributions to PPP Literature

The findings of this dissertation are among the first empirical results in the PPP topic.

For the first time, PPP performance is apprehended including both the construction and the operational phases. Delays, cost overruns and quality are reported for each project, sector and the whole sample of PPP. We also analyze the preparation phase, which gives valuable information about PPP assessment in terms of time and cost, as well as in terms of the competition level in the PPP market. It is also the first time that financial data of PPP contracts is analyzed project by project. This information provides not only an overview about PPP financing conditions, but also the trend about risk allocation among PPP actors. In the same line, we contribute to the existing literature on PPP as we are the first to shed light on a large number of determinants of this organizational choice at its decision making level. Moreover, we distinguish between the date a PPP process is initialized and when it is concluded. This is a potentially crucial point, as the average PPP process duration is well over two years. We are also the first to investigate the reasons why governments embark on a PPP process but finally decide against this governance mode. In line with the RBV's work, we not only analyze traditional determinants as proposed in the PPP literature, but also integrate human dimensions such as mayors' characteristics and mimetic behavior in the study. Finally, findings about PPP's use under budget constraints context has answered, for the first time, the question about debt hiding motivation of this strategy.

Contributions to Other Literatures

First, findings of the present dissertation corroborate the traditional view in Public Administration literature. In fact, as we do not find evidence about

creative accounting adoption when financially constrained French mayors make their organizational choice, our results support the idea that public managers' motivations are to serve the public interest, to effect social change, to shape the policy that affects society (*e.g.*, Frederickson and Hart [1985], Perry and Porter [1982], Perry and Wise [1990]). In the same line, the result regarding the positive effect of political contestability on PPP adoption is also a contribution to this idea.[56] As we have eliminated the motivation of debt hiding, we discuss this result as an efficiency seeking of public authorities facing a high political competition level, *e.g.* through cost economies due to the bundling mechanism in PPP.

Second, we contribute to the Public Financial Management (PFM) literature with the result about PPP use under budget constraint. Indeed, we find that a large debt burden level is not necessarily connected with a strategy of offloading debt. This is an interesting result in the context of financial crisis, where governments around the world are forced to cut budgets, restructure service delivery strategies, reset priorities, and assume enormous new financial responsibilities (Kioko et al. [2011]). This finding also points out how PFM's concerns can contribute to Public Administration Management core questions such as decision making, performance management and organizational strategy.

Managerial implications

The findings in the present dissertation can partially explain why countries have increasingly turned to PPP in recent years despite all the criticisms. In fact, an OECD report in 2009 stated that PPP had grown to comprise a portion, although not the majority, of capital budgets in several countries.[57].

[56]The findings are traditionally the opposite for privatization.

[57]The United Kingdom has had the longest experience, with PPPs currently comprising from 10% to 15% of the capital budget in recent years. France and Korea have had similar

This evolution experienced a temporary decline during the current economic crisis (European PPP Expertise Center [2012a]), however, the long term trend is expected to be positive (Wagenvoort et al. [2010]). Our research addresses a very relevant problem in the current situation where resources are scarce and much creativity is needed to incentivize economic growth. Our findings about PPP give an insight about the managerial implications.

Regarding the public actors, findings about PPP performance help identifying the strong and weak points of this organizational form and make a better assessment for infrastructure projects in the future. This result may also encourage public managers who are tempted to evaluate the PPP solution alternatively to the traditional way of public procurement. Moreover, the PPP financing conditions evolution gives public policy implications. Indeed, given the rising level of risk taken by public authorities in the PPP market, we suggest that public participation in PPP financing should stay at a reasonable level in order to preserve its potential economic efficiency. We likewise observed that an important PPP project managers turnover is high which increases the potential difficulties that the project can meet. Public authorities may need to take into account this statement and take actions reducing turnover levels or implement relevant knowledge capitalization processes. Also, public actors may use our PPP determinants results regarding municipality's characteristics and conditions in order to consider their future organizational choice for public investment. Our result about the reasons of PPP abandon also gives public managers who are already in the PPP process ideas about others' abandon motivations.

Our findings also give some managerial implications for the private actors. First, findings about PPP performance may help private operators realize

experience, with PPPs comprising 20% and 15% of those countries' capital budgets respectively. Portugal reported the highest payments for PPPs, representing nearly 28% of the national budget or 9.4% of GDP; projects could add up to nearly 20% of GDP eventually (Posner et al. [2009]).

about the potential improvement they can make to obtain the next PPP, such as the quality of the operational phase. Second, results about PPP determinants are valuable information for private operators to develop their PPP market. Indeed, these findings may help them prepare a potential pool of municipalities which are in need for infrastructure and have the characteristics of the ones that started PPP process. As such, private actors can build a potential public purchaser portfolio in order to develop their PPP market. Finally, our results about debt hiding motivation may help private actors and private lenders in their consideration of collaborating with the public sector. Actually, knowing that public managers are not choosing PPP for debt hiding motivations may incite the private sector to financially participate in such a strategy.

To conclude, our findings provide interesting implications to regulation instances such as the MaPPP. First, as we shed light on the reasons behind the adoption and the abandon of PPP solution, our findings can help the MaPPP to improve the legal framework to continue developing PPP in France. Second, the PPP good performance in our results can motivate PPP actors to pursue PPP market development at a larger scale in the future. In the same line, our findings about the non relevance of debt hiding motivation can be considered as an argument to continue promoting this organizational form and invite the critics to dig deeper in their analysis. Moreover, the impact of the Decree on the attentiveness of public actors in choosing PPP may help these instances in improving PPP institutional framework in the future.

Limitations and Area for Future Research

Limitations

In each chapter of this dissertation, we discussed the inherent limitations of our results. We hereby identified several general limitations.

The first limit of our dissertation comes from small sample issues. In fact, the two first chapters are composed of analysis using data from 30–40 observations. While we are able to make a detailed study for each observation, our findings remain descriptive. Even if our studies help to improve the understanding of the actual PPP situation, we are not able to investigate the determinants of the achieved outcomes. Moreover, as PPP is still in its infancy, the outcomes may be divergent when the experience is longer. The two last chapters suffer less from the small sample issues. We therefore conducted econometric methodologies to study PPP's determinants. However, the existing number of PPP did not allow us to analyze our results through different sectors. Yet, sectoral specificities may also lead to divergent results.

Second, our results are subject of bias selection issue. In the first two chapters, data was obtained based on the willingness of public actors to provide information. The positive outcomes of PPP may therefore be biased. We conducted a verification of the outcomes of the 16 projects that we did not have answers. On the whole, there is not any important problem, except for two projects that are in early termination procedure. We did not manage to have further information. Regarding the 30 projects of our sample, given the fact that we collected information from the project manager, his evaluation may be biased as he may want to give a good image of himself. In the two last chapters, we study the use of PPP as organizational choice. Our results therefore suffer from bias selection issues as there are unobservable characteristics that may drive the results. Even if we conducted our studies with a large number of

potential determinants, the preference of the public decision maker, or his experience regarding PPP are typical example that may affect our results.

Finally, the question of the external validity of our study is central. Our findings come from the French context where the PPP market has existed for a long time, the institutional framework is well defined, the PPP taskforce MaPPP plays an active role. While these characteristics give us the best conditions to conduct research about PPP, the applicability of our results to other countries is questionable. Indeed, the quality of the institutions of a country is crucial for the development of public policies such as public investment. This quality may help to prevent the abnormal behavior of public buyers. Thus, while we believe that similar outcomes may be achieved in other developed countries, their application to developing countries is highly debatable.

Area for Future Research

While providing some answers, this dissertation also raises important questions for future research. Indeed, PPP literature is still in its infancy. The main extension would be to include a larger sample of PPP in other countries to validate our results. More specifically, further work regarding PPP outcomes with econometric analysis is needed in order to identify the factors that determine how well PPP perform. Some examples might be the number of candidates involved in the competitive dialogue, its duration, and the turnover rate on the teams in charge of managing contracts. It would also be useful to think about other performance criteria that do not rely only on public authorities' perceptions, as they may have a biased view of how well the contracts they are managing perform. Other universal performance indicators need to be found in order to be able to use them regardless the sector. Finally, in order to have a clearer vision of how well these contracts perform in the operational phase, it would be useful to study their performance when they have been

in operation for longer periods than the ones we were able to observe at the current level of PPP development in France.

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Résumé détaillé

Selon un rapport de l'OECD publié en 2013, l'investissement public est une variable primordiale qui détermine en partie les lieux de résidence des populations, leur qualité de vie, ainsi que la nature et les destinations de l'investissement privé. L'investissement public est considéré comme l'une des dépenses publiques favorisant le plus le développement économique, à la fois au niveau national (Munnell [1992]) et au niveau local (Munnell and Cook [1990]). Une bonne gestion de l'investissement public est par conséquent nécessaire, en particulier en période de crise.

En 2012, les dépenses d'investissement public étaient de 1,17 milliards de dollars dans les pays de l'OECD, ce qui représente 2,7% du produit intérieur brut (PIB) des pays de l'OECD et 15% de l'investissement total (public et privé). Néanmoins, les contraintes budgétaires, imposées à la plupart de ces pays depuis 2010, ont conduit les gouvernements à limiter les ressources consacrées à l'investissement public. Les investissements directs locaux ont ainsi baissé en moyenne de 13% depuis 2009. Cette tendance pouvant potentiellement nuire à la croissance nationale, il semble primordial que les gouvernements nationaux et locaux rationalisent leurs dépenses afin de favoriser l'investissement public, sans porter atteinte à leur équilibre budgétaire (OECD

[2013]).

Le mode de gestion de l'investissement public est l'un des facteurs clé de son efficacité. La question du choix organisationnel retenu par les gouvernements pour la gestion des investissements publics est alors essentielle. La question du choix du mode de gouvernance dans le secteur public s'apparente à celle du secteur privé. Ainsi, les autorités publiques doivent faire un choix optimal entre fournir directement le service public ("faire") ou l'externaliser ("faire faire"). L'externalisation peut passer par une commande classique (qui équivaut dans le secteur privé à l'achat sur le marché ou au contrat d'approvisionnement), mais les managers publics peuvent aussi faire appel à un niveau de participation privée plus élevé en concluant des partenariats public-privé (ci-après PPP) – ces derniers se rapprochant des modes d'organisation hybride de type joint-ventures du secteur privé –, ou même en privatisant les services en question. Les choix organisationnels comprennent par conséquent le choix de "faire ou faire-faire" et de "comment faire-faire". Plusieurs cadres théoriques ont traité cette question, notamment la théorie des coûts de transaction (ci-après TCT) (Coase [1937], Williamson [1975]), la théorie de la ressource (Resource-Based View, ci-après RBV) (Kogut and Zander [1992], Zollo et al. [2002]), et la théorie des options réelles (Real Options, ci-après RO) (Folta [1998], Kogut [1991]). Les travaux de la TCT et de la RO mettent en évidence l'importance de l'incertitude dans ce type de décision.

Dans un premier temps, nous étudierons les choix organisationnels dans un contexte d'incertitude (Section I). Nous analyserons par la suite les particularités du secteur public au regard de ces stratégies de choix organisationnels (Section II), avant de traiter du cas spécifique des PPP (Section III). Cette section comprendra une analyse des avantages du recours aux PPP, mais aussi des limites de ce modèle afin d'offrir une image globale de cette forme organisationnelle et d'en dégager les limites. La Section IV comprend une description des questions de recherche et la Section V un résumé des chapitres de cette thèse.

Enfin, nous mettrons en lumière les contributions et implications managériales de ces travaux, avant d'en souligner les limites et les recherches futures que ces dernières suggèrent.

I. Choix organisationnels et incertitude

L'incertitude est omniprésente dans tous les types d'organisations. Elle affecte les firmes à de nombreux niveaux : choix stratégiques, opérations quotidiennes, mais aussi les décisions de chaque individu (Grote [2014]). L'incertitude est présente dès lors que les résultats potentiels et leurs déterminants ne sont pas clairement compris au sein de l'organisation. Ceci rend l'anticipation des évènements futurs difficile voire impossible, ce qui entrave le contrôle effectif des activités (Miller and Lessard [2001]). Par conséquent, l'un des objectifs primordiaux des décideurs est d'appréhender au mieux ces incertitudes. Dans un tel contexte, les choix stratégiques de "faire ou faire-faire" et de "comment faire-faire" deviennent des questions clés. En effet, les contrats conclus dans un contexte d'incertitude entraînent des coûts additionnels. Ces coûts découlent du fait que les parties au contrat doivent définir, superviser et vérifier les aléas contractuels. Ces aléas peuvent concerner, par exemple, la contribution de chaque partenaire à la valeur ajoutée totale de la transaction, ou encore l'appropriation des savoir-faire (Oxley [1997]). Comme évoqué précédemment, les chercheurs des courants de la TCT et de la RO insistent sur l'influence de l'incertitude sur ce type de décisions. Ces courants ont des arguments contradictoires quant à l'utilisation des modes d'organisation hybrides comme forme organisationnelle permettant de faire face à l'incertitude.

D'une part, la TCT considère la que la transaction individuelle est l'unité d'analyse pertinente pour l'étude des choix organisationnels au sein de la firme. La nature et l'étendue des aléas contractuels relatifs à la transaction sont des déterminants clés des choix organisationnels (voir par exemple Coase [1937],

Williamson [1975], Williamson [1985]). L'une des conclusions principales de la TCT est que les firmes doivent internaliser les transactions ("faire") en présence d' aléas contractuels, et préférer le marché ("faire-faire") quand ces derniers sont absents (voir Shelanski and Klein [1995]). Ainsi, selon la TCT, une forme organisationnelle hybride est plus adaptée que le recours "simple" au marché lorsque la transaction est caractérisée par un niveau élevé de spécificité des actifs et par une incertitude importante quant à la définition et le suivi de la performance. La forme hybride peut alors permettre de gérer une incertitude élevée quant au comportement des parties du contrat lorsque la présence d'actifs spécifiques fonctionne comme une clause d'otages mutuelle et que les coûts engendrés par l'incertitude sont inférieurs aux coûts qu'entraîneraient une détention totale des actifs.

D'autre part, les travaux de la RO soulignent que l'incertitude dans le contexte des choix d'organisationnels doit être traitée de façon flexible, c'est à dire avec une possibilité d'abandonner ou de reporter un investissement lorsque cela s'avère nécessaire (Adner and Levinthal [2004]). L'objectif est alors d'éviter la présence d'incertitude sur des coûts irrécupérables, comme les coûts de mise en place, d'administration et de dissolution d'un contrat (Kogut [1991], Folta [1998]). En d'autres termes, la valeur d'une option réelle augmente lorsque les partenaires disposent d'un pouvoir discrétionnaire leur permettant de reporter les investissements, afin que ces derniers ne se traduisent pas en coûts irrécupérables. Par conséquent, les formes hybrides ne seraient pas les formes d'organisation optimales dans un contexte d'incertitude car, même si les droits d'investir et de percevoir des bénéfices sont suffisamment détaillés dans le contrat, les projets génèrent des coûts de mise en place, de contrôle et de dissolution élevés. Le choix des décideurs devrait alors se porter sur des formes organisationnelles plus flexibles (telles que les franchises), car ces dernières permettent aux partenaires de se tourner vers des formes organisationnelles plus hiérarchiques dans le futur (Steensma and Corley [2001]).

II. Le choix organisationnel dans le secteur public

La question du choix organisationnel pour l'investissement dans le secteur public présente quelques particularités qui méritent d'être débattues.

A la différence des deux courants de littérature évoqués dans la section précédente, les études de la RBV établissent que les aléas contractuels et les options réelles ne sont pas les seuls facteurs qui influencent les choix organisationnels. En effet, la RBV attribue un rôle important aux dimensions humaines telles que les ressources en capital humain des organisations, les savoir-faire des managers et des employés, et la bonne maîtrise des pratiques organisationnelles (Nelson and Winter [1982]). Ces travaux soutiennent, par exemple, que les entreprises peuvent opter pour un mode organisationnel hybride afin de bénéficier des compétences d'un partenaire dans le but de mener à bien un projet déterminé (Nelson and Winter [1982]). Cette littérature est particulièrement appropriée pour analyser les choix organisationnels dans le secteur public car, à la différence du secteur privé, les motivations du secteur public portent sur l'intérêt général et non uniquement sur la recherche du profit. Le choix du manager public doit ainsi non seulement viser la performance financière (réduction des coûts), mais aussi la performance qualitative (bien social). Cependant, ce dernier argument reste sujet à débat.

D'une part, les travaux de la littérature en administration publique (Public Administration) quant à la motivation des acteurs de la fonction publique suggèrent que les employés publics sont plus motivés et plus performants que ceux des entreprises privées (Rainey and Steinbauer [1999]). Dans ce courant de littérature, la motivation pour le service public est définie comme "la prédisposition d'un individu à répondre à des forces motrices portées principalement ou uniquement par les institutions et organisations publiques" (Perry and Wise [1990]). Les fonctionnaires orientent alors leur parcours professionnel grâce à

un ensemble unique de motivations altruistes : servir l'intérêt public, provoquer le changement social et façonner les politiques qui affectent la société (*e.g.*, Frederickson and Hart [1985], Perry and Porter [1982], Perry and Wise [1990]). Des études montrent ainsi que certains organismes publics sont plus performants en termes d'efficacité et de satisfaction client que le secteur privé (Rainey [2009]).

D'autre part, au cours des dernières décennies, les travaux de la littérature en management public ("New Public Management", ci-après NPM) (Barzelay [2001], Osborne and Gaebler [1992]) considèrent que le "management c'est le management", quel que soit le secteur (public ou privé). Cet argument est en partie hérité de la littérature en économie publique, qui postule que tous les individus sont égoïstes et rationnels, et cherchent avant tout à maximiser leur utilité personnelle (voir Niskanen [1975]). Cette littérature définit ainsi les employés publics comme étant semblables à tous les autres employés du secteur privé. En outre, Spiller [2008]) montre que les autorités publiques peuvent également se comporter de manière opportuniste, et ainsi poursuivre des objectifs qui ne servent pas l'intérêt général.

La gestion de l'incertitude est également une dimension qui différentie le secteur public du secteur privé. Le traitement du risque est en effet stratégique, car les investisseurs sélectionnent les projets d'investissement qui maximisent le rendement (en valeur actuelle) ajusté des risques. Ainsi, selon Arrow and Lind [1970], les investissements gouvernementaux ne doivent pas être évalués sur les mêmes critères que les investissements des marchés privés, car les autorités publiques sont plus efficaces dans leur gestion de l'incertitude. En effet, les gouvernements investissent dans un grand nombre de projets, ce qui leur permet de mutualiser davantage les risques. En outre, les gouvernements ont la capacité de répartir les risques entre un grand nombre d'acteurs. Par conséquent, les autorités publiques devraient ignorer l'incertitude, *i.e.* être indifférents au risque.

Ces spécificités des autorités publiques face à l'investissement rendent l'étude de leurs motivations et de leurs choix organisationnels d'autant plus intéressante. Ces trente dernières années, la remise en cause du mode de gestion en régie des services publics a entraîné une tendance mondiale vers une plus grande implication du secteur privé pour la fourniture de ces services. Cette tendance au“ faire-faire ” rend la question de “ comment faire-faire ”incontournable pour les praticiens du secteur public. De plus, le recours aux PPP comme alternative aux marchés publics traditionnels et à la privatisation s'est répandu dans de nombreux pays. Ainsi, les PPP deviennent l'une des réponses possibles à la question “comment faire-faire” pour les pouvoirs publics.

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III. Les partenariats public-privé

Les PPP peuvent en pratique prendre des formes variées. Cependant, le modèle permettant d'intégrer les phases de conception, de construction, de financement et d'exploitation (ci-après DBFO pour Design-Build-Finance-Operate) est le plus répandu. Ce type de PPP regroupe dans un contrat de long terme – conclu entre une autorité publique et un opérateur privé – l'investissement, la conception et la construction des infrastructures, ainsi que les activités de maintenance et parfois d'autres services additionnels. Ce recours à des contrats de long terme est novateur par rapport aux méthodes d'externalisation traditionnelles, où l'autorité publique finance l'infrastructure et choisit un opérateur privé pour chacune des tâches. Il n'existe pas un unique mode de financement de l'opérateur privé pour ces contrats DBFO. L'opérateur peut en effet recevoir une rémunération (*i.e.* un remboursement des coûts) directement de la part de l'autorité publique. En France, c'est le cas pour les contrats de partenariats, auxquels nous ferons par le terme “PPP” dans la suite de cette thèse. Cependant, les contrats DBFO peuvent également prévoir une rémunération de

l'opérateur *via* les tarifs chargés aux utilisateurs ; c'est le cas pour les contrats de concession et contrats assimilés. Dans cette thèse, nous focalisons notre étude sur les PPP (*i.e.* les contrats de partenariat, pour lesquels le gouvernement finance directement l'opérateur), qui ont été récemment mis au point en France afin de favoriser l'externalisation des services publics.

Les PPP ont connu un essor considérable au cours des deux dernières décennies Le pays ayant la plus longue expérience PPP est le Royaume-Uni, pour lequel la part des PPP dans le total des dépenses d'investissement public est passée de 10% à 15% au cours de ces 10 dernières années. La France et la Corée connaissent une évolution similaire, avec des contrats PPP représentant respectivement 20% et 15% de l'investissement public total. Au Portugal, l'investissement par le biais des projets de PPP devrait augmenter au cours des prochaines années, jusqu'à atteindre 20% du PIB (Posner et al. [2009]).

1. Les PPP et l'incertitude

Bien que le recours aux PPP soit répandu partout dans le monde, les résultats de ce type d'arrangement contractuel restent incertains. Selon Moses [2004], le principal facteur qui expliquant le niveau élevé d'incertitude qui caractérise les PPP est son système à grande échelle, ce qui sous-entend : (i) des investissements importants et irrécupérables, avec des coûts de construction élevés et des dettes considérables sur le long terme ; (ii) des variations importantes de la demande, soumises à des estimations, en particulier pour les projets entièrement nouveaux, (iii) des évolutions importantes des marchés financiers (en raison de l'endettement très lourd et à long terme), et (iv) de l'instabilité politique sur le long terme. Les PPP sont donc caractérisés par une matrice de risque complexe, ces risques devant être répartis non seulement entre l'autorité publique et l'opérateur privé, mais aussi entre le partenaire privé et ses sous-traitants. La répartition des risques n'est donc pas toujours claire et objective (Cruz

and Marques [2013]). Par conséquent, les PPP sont soumis à de nombreuses renégociations contractuelles (Engel et al. [2006]).

La présence d'incertitude dans un contrat PPP a un effet direct sur la prestation de services concernée (*e.g.* cette incertitude peut en entraîner des retards de livraison de l'infrastructure), et sur sa viabilité financière du projet (*e.g.* augmentation des coûts ou des pénalités en raison de résultats inférieurs à ceux définis dans le contrat). Ces effets peuvent provenir tant des risques exogènes que des risques endogènes (Akintoye et al. [1998], Bing et al. [2005]). Les risques exogènes sont ceux externes au projet ; ils comprennent, entre autres, les risques liés à la nation ou au secteur économique en question ainsi que les risques de catastrophes naturelles. Ces risques dépendent des contextes politique, juridique, économique et social, voire des conditions météorologiques. Bien que ces risques se produisent en dehors de l'exécution même du projet, ils ont des conséquences sur ce dernier, et sur ses résultats. A l'inverse, les risques endogènes concernent l'exécution du projet. Il s'agit ici des risques liés au projet lui-même et/ou à ses parties prenantes. Les risques liés au projet comprennent les problèmes de mise en œuvre, les risques liés à la demande, à l'utilisation, à l'emplacement, à la conception/construction de l'infrastructure et enfin les risques liés à la technologie. D'autre part, les risques endogènes liés aux parties prenantes sont souvent liés aux difficultés relationnelles entre les parties au contrat, qui surviennent en raison des différences intrinsèques qui existent entre l'autorité publique et l'opérateur privé quant à la gestion des contrats. Ainsi, ces risques proviennent directement de la gestion d'un service public par un opérateur privé et du contrôle nécessaire de ce dernier par la personne publique (Blanc-Brude [2013]).

Les risques exogènes aux PPP peuvent être transférés au secteur privé au moyen d'assurances (Yescombe [2011]) ou au contraire supportés par l'autorité publique en raison de sa neutralité vis-à-vis du risque (Arrow and Lind [1970]). Quelle que soit l'identité de la partie supportant les risques, ces derniers peu-

vent ainsi être quantifiés *ex ante* et ont donc une incidence limitée sur la viabilité financière du projet. Ainsi, les projets de PPP caractérisés par des investissements importants et irrécupérables sont soumis à de l'incertitude, ce qui impacte directement leurs résultats : risques de sous-performance, de retards et de dépassements de coûts (Cruz and Marques [2013]).

2. Les critiques des PPP

L'analyse du niveau d'incertitude dans les projets de PPP que nous venons de développer implique le fait que les PPP sont soumis à des critiques de la part de praticiens, bien que ce type d'arrangement contractuel constitue une forme d'externalisation novatrice. En effet, le niveau de performance et l'utilité de ce nouveau choix organisationnel sont fortement questionnés. La presse internationale émet ainsi régulièrement des critiques vives sur les PPP. Par exemple, " Partenariats publics-privés sont mauvais pour les contribuables " (US), " Autour d'Alberta, le Partenariat public-privé est une façon dangereuse de financer les projets " (Canada), " La bombe à retardement des Partenariats public-privé " (UK), "Bercy face à la bombe à retardement des partenariats public-privé" (France). Au-delà de la presse écrite, le rapport officiel de juillet 2011 de la Chambre des Communes du Royaume-Uni recommandait de limiter l'utilisation des PPP.

Les performances des PPP demeurant incertaines, ces critiques sont généralement fondées sur les règles comptables qui régissent l'utilisation des PPP. En effet, suite à une décision d'Eurostat datant de 2004, le PPP est classé comme "non gouvernemental" selon le critère "risques et récompenses" (Heald and Georgiou [2011]). Les pouvoirs publics peuvent alors comptabiliser les PPP "hors-bilan" lorsque le risque de construction et le risque de disponibilité et/ou le risque de demande sont transférés à l'opérateur privé. Cette règle comptable pourrait ainsi inciter les gouvernements à avoir recours aux PPP, non

plus pour atteindre des objectifs en termes d'efficacité, mais pour effectuer des investissements sans porter atteinte à leur équilibre comptable. Ces incitations seraient d'autant plus importantes au vu des récentes restrictions budgétaires visant à réduire la dette publique. Cette tendance a été observée non seulement au Royaume-Uni, mais aussi dans d'autres pays européens comme la Grèce, l'Espagne, Portugal et Irlande.

3. Les PPP et leurs résultats

Compte tenu de l'incertitude présente dans les projets de PPP et les critiques exposées dans la section précédente, il est nécessaire de réaliser des évaluations des résultats des PPP. Pourtant, les recherches empiriques sur ces sujets sont rares. La plupart des travaux existants font une analyse théorique des avantages et des inconvénients des PPP (voir par exemple les études en économie organisationnelle et en gestion de projet).

La littérature en économie organisationnelle a mis au point des modèles théoriques basés sur la théorie des contrats incomplets, qui permettent d'étudier les avantages et les inconvénients des PPP. Dans ces travaux, le PPP est analysé par le biais de sa caractéristique principale : le mécanisme de "groupement". Les auteurs considèrent alors que, lorsqu'un contrat n'est pas en mesure de gérer les différentes synergies entre les phases d'un projet, un PPP peut encourager les innovations visant à réduire les coûts d'opération (Hart [2003], Bennett and Iossa [2006a]). De plus, lorsqu'il existe une externalité positive entre la phase de construction et la phase opérationnelle, le recours au PPP fournirait au partenaire privé des incitations à investir pour améliorer la qualité (Iossa and Martimort [2008], Martimort and Pouyet [2008b]). Cependant, ces avantages peuvent être partiellement ou totalement neutralisés dans un contexte d'incertitude en raison d'une prise de risque excessive de la part du consortium des partenaires privés, mais aussi en raison du manque de flexibil-

ité du contrat initial (Iossa and Martimort [2008], Iossa and Martimort [2012], Martimort and Straub [2012]).

Certaines études de la littérature en gestion de projet ont également cherché à identifier les avantages des PPP. Par exemple, Li et al. [2005] discutent de l'attractivité et des avantages des PPP. Rangel and Galende [2010] soutient que le PPP encourage l'innovation. De la même manière, Noble and Jones [2006] considèrent que les PPP constituent une opportunité pour l'amélioration de l'économie et de la technologie. La littérature de gestion de projet s'est également focalisée sur l'analyse des facteurs clés de succès (ci-après FCS) des projets de PPP (Tiong et al. [1992], Qiao et al. [2001], Zhang [2005]). Plusieurs FCS ont ainsi été identifiés: un cadre de décision bien structuré et réalisable (Zhang et al. [2002]), une équipe d'appel d'offres et de projet soigneusement sélectionnée (Kumaraswamy and Anvuur [2008]), une analyse de risque spécifique aux facteurs politiques (Wang et al. [2000]), une bonne compréhension des objectifs de chaque partenaire au cours de la négociation (Ahadzi et Bowles 2004), ainsi qu'une bonne gestion des processus managériaux (Ahadzi and Bowles [2004], Algarni et al. [2007]). Un système de mesure de la performance des PPP a été construit par Yuan et al. [2009] en prenant compte les points de vue de toutes les parties prenantes : secteur public, secteur privé, chercheurs, et utilisateurs des services publics.

Cependant, le manque de données adaptées a rendu les études empiriques sur les résultats des PPP rares. Les résultats des études précédemment menées ne sont ainsi pas concluants. Le plus célèbre retour sur la performance PPP est celui de Hodge et al. [2010], qui a mené des études de cas des PPP partout dans le monde. L'étude de cas de Whittington [2012], fournit une évaluation de l'efficacité relative des PPP par rapport aux marchés publics traditionnels. Cette étude est basée sur la théorie des coûts de transaction. Nous avons par ailleurs identifié trois travaux académiques portant sur une évaluation quantitative des PPP (Blanc-Brude [2013], Blanc-Brude et al. [2009], Raisbeck et al.

[2010]). Ces travaux étudient la performance des PPP (en termes de coût) par rapport aux marchés publics traditionnels. Blanc-Brude et al. [2009] et Blanc-Brude [2013] établissent des résultats opposés au sujet de l'efficacité des coûts de construction des PPP dans deux secteurs (autoroutes et écoles) en Europe. Raisbeck et al. [2010] utilise des données issues des évaluations de faisabilité des PPP en Australie, et observe une performance supérieure des PPP sur les dimensions de coûts et de temps. De plus, l'auteur établit que l'avantage du recours aux PPP augmente (en termes absolus) avec la taille et la complexité des projets. Bien que ces études quantitatives fournissent un premier aperçu des résultats des PPP, ces dernières sont uniquement concentrées sur des évaluations en termes de coûts. De plus, les deux premières études mentionnées utilisent seulement les coûts de construction des projets, et la troisième utilise des données issues d'études de faisabilité (qui ne sont donc pas des données définitives).

4. Les PPP et leurs déterminants

En raison des nombreuses critiques portant sur les projets de PPP, et compte tenu du nombre limité d'évaluations disponibles, les études académiques sur les déterminants de l'efficacité des PPP sont nécessaires. Cependant, ces déterminants sont très difficiles à tester car la contrefactuelle n'est, par définition, que très rarement disponible. Il faudrait en effet comparer des projets similaires réalisés sous différents mécanismes de gouvernance (*e.g.* PPP par rapport à un marché public classique). En outre, les résultats de ces comparaisons dépendent des coûts considérés. Ainsi, Blanc-Brude et al. [2009] et Blanc-Brude [2013] trouvent des résultats contradictoires lors de l'analyse d'un PPP à tâche unique ou d'un PPP qui regroupe plusieurs tâches (*i.e.* construction et opération). Les études qui abordent la question de savoir si le choix du PPP est motivé par des considérations en termes d'efficacité sont donc de nature qualitative. Au contraire, les études quantitatives disponibles utilisent seule-

ment des déterminants représentant des motivations alternatives à l'adoption d'un PPP. Malgré cette lacune, ces études montrent que les PPP ne sont pas seulement choisis pour des raisons d'efficacité (ou alors seulement dans des conditions spécifiques). Ces travaux sont en ligne avec le débat mentionné précédemment sur la motivation dans la fonction publique.

Ces études montrent que certains déterminants institutionnels, tels que les dimensions fiscales et les considérations politiques, ont un impact sur le choix d'avoir recours aux PPP. Hammami et al. [2006] utilise une base de données de plus de 1000 contrats de PPP conclus dans de nombreux pays, afin de comparer les déterminants du recours aux PPP entre les pays développés et les pays en développement. Bien que ces résultats permettent une analyse des caractéristiques institutionnelles comme déterminants des choix de forme organisationnelle, , le niveau d'analyse ne correspond généralement pas à la structure effective de prise de décision. Au niveau local, seul un nombre limité d'études étudie les déterminants des PPP (*e.g.* l'étude de Albalate et al. [2012]). Cependant, cette étude, qui utlise des données américaines, considère le degré de participation du secteur privé dans la gestion des services publics et non la décision de l'autorité publique d'adopter un PPP plutôt qu'un autre type d'arrangement contractuel. L'étude de Russo and Zampino [2010], tente d'expliquer la fréquence de l'utilisation des PPP en Italie, mais elle considère uniquement le sous-échantillon des collectivités locales qui ont conclu au moins un PPP. Ces études ne permettent donc pas de comparer les autorités publiques qui ont recours aux PPP et celles qui n'envisagent pas ce type d'arrangement. De plus, bien que Russo and Zampino [2010] et Albalate et al. [2012] trouvent un impact positif de la contrainte budgétaire sur l'utilisation des PPP, il n'existe aucune preuve quant aux motivations qui sont à l'origine du recours aux PPP en présence de telles contraintes.

IV. Questions de recherche

Compte tenu du nombre restreint d'études académiques portant sur les résultats des PPP et de leurs déterminants, cette thèse tente de traiter ces problématiques en fournissant une analyse des PPP en France, depuis leur création en 2004. Ainsi, nos questions de recherche sont :

- Les PPP sont-ils performants, en termes de respect de coûts, de délais et de qualité ? La performance des PPP est-elle impactée par la crise financière ?

- Pourquoi les managers publics choisissent-ils d'avoir recours aux PPP pour la fourniture de leurs services publics ? Ce choix est-il motivé par des considérations rationnelles, telles que la recherche d'efficience et d'efficacité ? Ce choix est-il au contraire motivé de préoccupations normatives et symboliques, telles que l'idéologie politique ou les comportements mimétiques ? Enfin, ce choix peut-il être considéré comme une stratégie de contournement fiscal permettant de masquer la dette publique ?

L'étude de ces questions est articulée autour des deux parties de cette thèse, chacune de ces parties comprenant deux chapitres. Dans une première partie (Chapitres 1 et 2), nous établissons un état des lieux descriptif et quantitatif des PPP en France, de 2004 à aujourd'hui. Cet état des lieux nous permet de mettre en lumière le développement des PPP, leurs résultats et les défis qu'ils soulèvent. Dans une seconde partie (Chapitres 3 et 4), nous étudions les déterminants du recours aux PPP au niveau des gouvernements locaux, et nous réalisons deux études quantitatives afin d'analyser les raisons pour lesquelles ce type d'arrangement contractuel est autant plébiscité, dans un contexte de forte contrainte budgétaire.

V. Contexte et données

Notre recherche est réalisée à partir de données françaises, en collaboration avec la Mission d'appui aux partenariats public-privé (MaPPP) du Ministère de l'Economie et des Finances.

1. Les PPP en France

Depuis leur lancement en 2004, les PPP ont pris une place importante dans le paysage de la commande publique française. Si les débuts de ce nouveau type d'arrangement contractuel ont posé de nombreux défis, essentiellement du fait de la nouveauté juridique qu'ils représentent, le nombre et le montant des PPP signés à ce jour en France sont significatifs. Depuis 2005, le nombre de PPP conclus augmente chaque année, jusqu'à atteindre plus de 200 projets en octobre 2014, ce qui représente un montant cumulé supérieur à 13 milliards d'euros (4.8). En 2011 et 2012, la France se plaçait au premier rang des pays européens en termes de recours aux PPP, avec un montant des contrats conclus ces années représentant plus de la moitié du marché en volume. Ceci plaçait la France bien devant la Grande Bretagne, pourtant à l'origine du développement de ces contrats dans leur forme anglaise (les Private Finance Initiatives, PFI) dès le début des années 90.

Les collectivités locales sont à l'origine de la majorité des PPP signés (environ 78% du total des PPP français). Elles se sont emparées de cet outil afin de financer de nombreux types d'infrastructures, essentiellement dans les domaines du bâtiment (collèges, lycées, gares, hôtels de ville, etc.), de l'équipement urbain (éclairage public, voirie, etc.) et de l'équipement sportif ou culturel (théâtres, musées, stades, piscines, etc.). Les commandes réalisées par l'Etat et les établissements publics nationaux (EPN) représentent, quant à elles, plus de deux tiers du montant total des PPP signés depuis 2004. Les

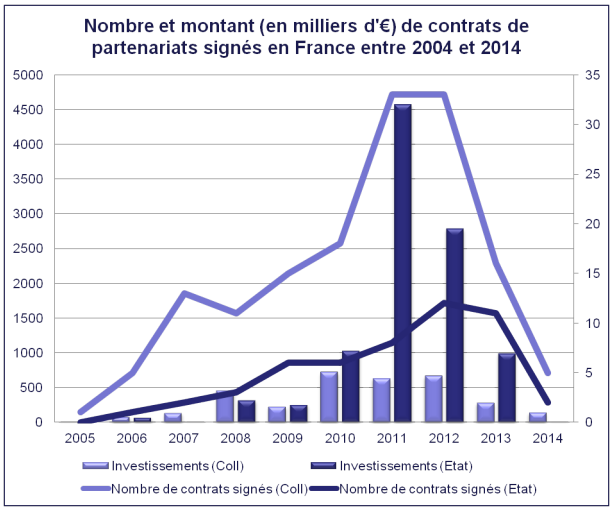

Figure 4.8: Nombre et montant (en milliers d'euros) de contrats de partenariats signés en France entre 2004 et 2014

besoins de l'Etat se sont surtout exprimés dans les domaines du bâtiment et de l'énergie, ou encore du traitement des déchets.

2. Les données

Les données utilisées dans cette thèse sont le résultat d'un travail de codage et de collecte auprès de plusieurs sources. En premier lieu, la collaboration avec la MaPPP nous a donné accès à tous les contrats de PPP (qui sont des documents confidentiels) conclus par l'Etat et les collectivités locales de 2004 à 2012 Le codage de ces contrats nous a permis de construire une base données contenant des informations sur le montant d'investissement, la durée des projets, le secteur concerné, les informations financières contenues dans les contrats, les conditions d'incitation, les objectifs de performance, etc. Nous avons par ailleurs réalisé une enquête auprès des managers publics en charge des projets de PPP en phase d'opération. Nous avons ainsi complété la première base de données (construite à partir des contrats) avec des informations sur la préparation et la mise en place des PPP, par exemple le niveau de concurrence

au stade de l'appel d'offre et les performances réalisées. Enfin, nous avons combiné ces bases de données avec des informations portant sur 36000 municipalités françaises, afin d'ajouter des variables sur leur situation financière, leurs caractéristiques, leur situation politique, ainsi que les caractéristiques de leurs managers publics. L'utilisation faite de ces données sera précisée dans le résumé de chacun des chapitres de la section suivante.

VI. Les quatre chapitres de la thèse

1. Chapitre 1 : Développement des PPP en France et évaluation de leur performance

La littérature en management stratégique place le concept de performance au cœur de la stratégie concernant les choix organisationnels. Les différentes théories dans ce courant de littérature étudient la performance car ce concept permet de vérifier l'efficacité des stratégies employées à travers le temps (Schendel and Hofer [1979]). Cette question est d'une importance majeure dans le secteur public, car les autorités publiques doivent utiliser les fonds publics de manière efficace afin de promouvoir le bien être social. Depuis leur création, les PPP ont connu de nombreuses critiques : cette forme d'externalisation des services publics est considérée comme un outil coûteux pour les gouvernements. (Blanc-Brude [2013]). La littérature théorique en économie organisationnelle et en management de projets débattent des avantages et des limites de ce type d'organisation. Cependant, il existe à ce jour peu d'études empiriques permettant d'évaluer les performances des projets de PPP. Au-delà des études de cas spécifiques (Hodge et al. [2010], Whittington [2012], Campagnac and Deffontaines [2013]), nous avons identifié trois études quantitatives portant sur la performance des PPP (Blanc-Brude [2013], Blanc-Brude et al. [2009], Raisbeck et al. [2010]). Raisbeck et al. [2010] établit que les PPP présentent une meilleure performance en termes de coûts et de délais que les marchés

publics classiques. Cet avantage comparatif des PPP est par ailleurs d'autant plus important que la taille et le niveau de complexité des projets augmentent. Cependant, les deux études de Blanc-Brude et al. [2009] et Blanc-Brude [2013] présentent des résultats opposés quant à la performance en termes de coûts des PPP. Ces résultats sont issus d'une analyse des projets de PPP dans les secteurs des écoles et des autoroutes en Europe.

Bien que ces travaux fournissent une première évaluation de la performance des PPP, ils présentent l'inconvénient de se focaliser essentiellement sur les dimensions de coûts. De plus, étant donné le caractère récent de ce type d'arrangement, Blanc-Brude et al. [2009] et Blanc-Brude [2013] étudient uniquement les coûts de construction, et l'analyse de Raisbeck et al. [2010] se base sur des données issues des évaluations préalables des projets. La phase d'exécution du projet, une fois l'infrastructure livrée, n'a donc pas encore été étudiée par les chercheurs. Cette phase d'exécution est pourtant primordiale et susceptible de générer d'importantes difficultés contractuelles (Williamson 1985). Ce premier chapitre est vise ainsi à fournir une évaluation de la performance des PPP en France. L'objectif est d'analyser non seulement la phase de construction (comme l'ont fait plupart des études réalisées jusqu'à présent), mais aussi la phase d'exécution (ce qui constitue l'apport principal de cette étude).

Afin de réaliser cette analyse, nous avons mené une enquête auprès des managers publics en charge des projets de PPP en phase d'opération ; cette enquête s'est concentrée sur 30 des 46 projets de PPP en phase d'opération sur notre période d'étude (2004-2012). Cette enquête a nécessité l'élaboration d'un questionnaire comportant plusieurs catégories, et qui vise à appréhender le fonctionnement des PPP. Le concept de performance est mesuré grâce à l'appréciation des managers publics. Cet aspect est évalué sur six dimensions : le respect des coûts, des délais et de la qualité lors les deux phases des projets (*i.e.* construction et opération), ainsi que le rapport qualité/prix. Les résultats

de cette enquête nous ont permis de recueillir des informations à la fois sur la création, la mise en place et le développement des PPP en France, et sur les bénéfices et les limites de ce type d'arrangement contractuel.

L'analyse de ces données montre que les acteurs publics sont, dans l'ensemble, satisfaits des projets PPP qu'ils ont menés. Le niveau concurrentiel lors de la phase de préparation des projets (mesuré notamment par le nombre de candidats soumettant une réponse à l'appel d'offre) varie d'un projet à l'autre. Cependant, la perception des managers publics quant à cette phase de sélection des candidats montre que ces derniers considèrent que la procédure de dialogue compétitif permet de générer un niveau de concurrence et de coopération satisfaisant. Par ailleurs, les équipes en charge du suivi des projets ont été modifiées (changement de tout ou partie de l'équipe) dans 43% des cas. Ces changements sont susceptibles d'impacter la performance observée lors de la phase d'exploitation de ces contrats. Cependant, les personnes publiques interrogées ayant répondu à notre questionnaire sont plutôt satisfaites de leur relation avec les opérateurs privés. De plus, les managers publics se déclarent en moyenne satisfaits quant au respect des coûts des travaux lors de la phase de construction des infrastructures. Notre base de données comprend 10% de projets livrés en retard par l'opérateur privé ; cependant, ces retards sont dus à des modifications de l'ouvrage à la demande de l'autorité publique. 77% des projets considérés ont par ailleurs été mis en service dans les délais prévus contractuellement. Cependant, la qualité de construction de l'infrastructure fait l'objet d'une satisfaction moins élevée que les deux dimensions de performance évoqués précédemment. En phase d'exploitation, la performance est globalement satisfaisante. 80% des projets ont respecté les coûts de maintenance et d'exploitation prévus lors la signature du contrat. Les surcoûts sont généralement dus à une modification du périmètre des contrats, suite à des modifications de l'ouvrage lors de la phase de construction. Les objectifs qualité contractualisés sont respectés dans 94% des contrats. Cependant, seuls

47% des projets présentent une qualité d'exploitation satisfaisante ou très satisfaisante. La performance globale est calculées comme la moyenne des notes attribuées par les managers sur les 6 dimensions de performance évoqués. La performance globale moyenne ainsi obtenue est de 5,02 sur 6. Cette performance globale, bien que satisfaisante dans l'ensemble des secteurs étudiés, varie substantiellement d'un secteur à un autre. En revanche, la durée de la phase d'exploitation prévue par le contrat ne semble pas impacter la performance qu'ont les managers publics de la performance globale des projets de PPP.

Ainsi, ce chapitre nous permet de conclure que la très grande majorité des projets des PPP français font l'objet d'une évaluation positive de la performance de la part des managers publics. Néanmoins, compte tenu du caractère très récent de ces projets, nos résultats méritent d'être complétés par d'autres études. Il serait ainsi intéressant de mettre en évidence les facteurs qui sont à la source de la performance des PPP. On peut par exemple penser que le nombre de candidats lors du dialogue compétitif, la durée de ce dialogue, le taux de turn-over des équipes en charge du suivi des contrats peuvent être à la source de la performance. Il serait également pertinent de considérer d'autres critères de performance, critères qui ne se baseraient pas uniquement sur la perception des personnes publiques, lesquelles peuvent avoir une vision biaisée de la performance des contrats qu'ils gèrent. Il s'agirait ainsi de développer d'autres indicateurs de performance, utilisables quel que soit le secteur concerné. Enfin, pour avoir une vision plus juste de la performance des contrats en phase d'exploitation, il sera aussi utile dans le futur d'étudier la performance lorsque l'exploitation sera plus ancienne.

Nos résultats contribuent au débat public, dont la tendance est à la critique des projets de PPP, au point de mettre en danger la pérennité des contrats. Notre étude, qui se base sur la performance perçue par les autorités publiques, apporte ainsi des arguments plutôt en faveur des contrats de PPP.

2. Chapitre 2 : La crise financière remet-elle en cause le modèle des PPP ?

Le premier chapitre nous a également conduits à observer que la plupart des contrats de PPP de notre échantillon ont été renégociés au moins une fois après leur signature. Ces renégociations portent généralement sur des ajustements de périmètre des contrats, mais également sur des modifications de leurs conditions financières. Cette dernière observation nous amène à penser que les conditions financières des contrats de PPP constituent une dimension importante de ces arrangements contractuels. Le chapitre 2 porte ainsi sur les conditions financières des PPP, en se focalisant sur les effets de la crise financière sur ce modèle d'externalisation.

Le PPP est une forme organisationnelle utilisée afin de profiter des compétences du secteur privé en termes de qualité et de coûts dans le cadre de la réalisation d'infrastructures publiques (Hayford and Partner [2006]). Ainsi, les innovations du secteur privé, de la conception du projet à l'exploitation en passant par les techniques de construction, sont exploitées au travers un système d'allocation des risques ; les risques liés à la conception, aux retards de construction et aux surcoûts sont alors sous la responsabilité du/des partenaire(s) privé(s) (Grimsey and Lewis [2002]). De plus, selon les défenseurs de la RBV, le différentiel de performances entre firmes s'explique par leur détention de capacités non imitables et non substituables (Barney [1991], Dosi et al. [2000], Nelson [1991], Wernerfelt [1984]). Par analogie, l'avantage du PPP s'explique alors par l'optimalité de cette allocation des risques que l'on peut considérer comme une capacité difficilement imitable et substituable (Jin [2009]).

Cependant, cette allocation des risques a été bouleversée par la récente crise financière. Tout comme le secteur privé, le secteur public a connu non seulement des difficultés pour obtenir du financement, mais aussi des coûts financiers bien plus élevés (Burger et al. [2009]). Afin de rendre les conditions

de financement plus favorables à l'investissement public au travers des PPP, les acteurs publics ont employé différentes formes de garantie. Plusieurs études ont identifié cette tendance dans le financement de PPP (Marty and Voisin [2008], Burger et al. [2009]). Toutefois, les analyses faites restent globales et ne correspondent donc pas au niveau individuel de chaque projet.

Dans ce deuxième chapitre, notre objectif est d'analyser l'impact de la crise financière sur le bilan économique des PPP. Plus précisément, nous analysons les changements éventuels dans la structure du capital des PPP pendant la crise. Nous nous intéressons à la manière dont évolue le rôle de chacune des parties prenantes (opérateurs privés, personnes publiques et banques) dans le financement des projets de PPP. Afin de traiter cette question, nous avons construit une base de donnés à partir de 36 projets, sur lesquels nous avons exceptionnellement obtenu des informations détaillées relatives au montage financier. La lecture détaillée de ces contrats nous a permis de dégager les résultats exposés dans la suite de cette section.

Nous observons que la répartition des risques entre les trois parties prenantes a évolué pendant la crise financière. Le rôle de la personne publique dans le financement des PPP devient alors plus important. Cette participation se traduit par une augmentation de la part de financement public (y compris les subventions), une garantie de la dette plus élevée, et la participation d'autres institutions publiques dans le financement. Le rôle des prêteurs a quant à lui diminué. La part de risques supportée par l'opérateur privé a au contraire augmenté. Cette dernière est mesurée par la part de capitaux propres de la société de projet dans le financement des PPP. Cependant, ce ratio reste dans les normes définies par une répartition de 10/90 dans le modèle traditionnel de financement de projet. Ce résultat montre la difficulté de faire appel à des fonds privés, qui doivent être mieux rémunérés que les fonds issus du financement bancaire. Nous interprétons l'évolution des comportements des parties prenantes au projet comme un moyen de préserver l'accessibilité financière des

projets. Cependant, notre analyse montre que cette évolution générerait des effets adverses sur la performance des PPP, car elle détériorerait le rapport coûts/avantages. D'une part, les garanties apportées par la partie publique en termes de paiement de la dette réduisent les potentielles pénalités encourues par l'opérateur privé en cas de sous-performance. D'autre par, cette action diminue l'incitation des prêteurs à exercer leur rôle de contrôle en amont (*i.e.* à s'assurer que le projet est viable), et en aval (*i.e.* à contrôler sa bonne exécution).

Ce chapitre met ainsi en évidence une évolution dans le partage des risques des projets de PPP pendant la crise financière. Malgré un échantillon de taillé limitée, nos résultats suggèrent que les décideurs publics devraient préserver une allocation de risques raisonnable dans la négociation des futurs projets.

3. Chapitre 3 : Le choix des PPP par les maires : Quelles motivations ?

Les résultats des deux premiers chapitres montrent que les projets de PPP présentent des niveaux de performance satisfaisants. Cependant, compte tenu du caractère récent des PPP et de leur récente évolution pendant la crise financière, le troisième chapitre analyse les motivations qui poussent les décideurs publics à adopter cette forme organisationnelle.

L'objectif du secteur public est de minimiser le coût des services tout en respectant les contraintes politiques et légales (Ferris and Graddy [1986]). Le management public est ainsi un compromis permanent entre des objectifs rationnels et des objectifs politiques (Overman [1984]). Par ailleurs, les choix organisationnels des autorités publiques sont sujets à deux types de préoccupations : d'une part, l'efficacité du mode de gouvernance et d'autre part les jugements politiques qui peuvent être portés sur ce choix (Kettl [2005]). La

littérature en économie publique (Osborne and Gaebler [1992], Savas and Schubert [1987]), ainsi que certains travaux de la théorie des coûts de transaction (Hefetz and Warner [2011], Bel and Fageda [2007], Brown et al. [2008], Hefetz and Warner [2004], Hefetz and Warner [2004], Levin and Tadelis [2010a]) questionnent le critère de l'efficacité comme motivation du choix organisationnel de la part des autorités publiques. Toutefois, d'autres travaux de recherche ont souligné l'importance des considérations politiques des décideurs publics dans ce choix (Ferris and Graddy [1986], Morgan et al. [1988]), ainsi que leurs caractéristiques personnelles (Boeker [1997]) et comportementales (DiMaggio and Powell [1983]).

Les deux premiers chapitres de cette thèse ont montré que les PPP sont un mode d'organisation caractérisé par un niveau d'incertitude élevé, à la fois en raison de leur caractère récent et de leur sensibilité aux évolutions des marchés financiers. L'utilisation du PPP comme mode de gouvernance pourrait dès lors être considérée comme un choix irrationnel. Dans ce chapitre, nous étudions donc l'impact des caractéristiques individuelles du décideur public et du contexte dans lequel il évolue sur le choix de recourir ou non à un PPP. Ces caractéristiques sont mesuréesau travers un grand nombre d'indicateurs managériaux, qui ont été identifiés dans des travaux précédents. Parmi ces mesures, nous retenons la couleur politique et les caractéristiques personnelles (homme/femme, âge, etc.) des maires, ainsi que les comportements mimétiques (*i.e.* choix des communes avoisinantes).

Afin de réaliser cette analyse, nous comparons les mesures citées précédemment des 400 communes françaises ayant déjà envisagé d'avoir recours aux PPP à celles de 3200 autres communes de plus de 3500 habitants présentant des caractéristiques similaires (*e.g.* population, superficie, nombre de services publics). Notre analyse porte également sur des sous-échantillons spécifiques de municipalités ayant envisagé de réaliser un PPP (démarrage d'une évaluation préalable), mais qui ont finalement abandonné ces projets. Ces données sont

traitées au moyen de différentes techniques économétriques (modèles logit, à effets aléatoires, à effets standards, et test de sélection du modèle d'Heckman).

Nos résultats montrent que les maires de droite favorisent plus le recours aux PPP. Ce résultat est conforme aux recherches précédentes sur le sujet. Le comportement mimétique des maires influence également de manière significative la décision d'adopter un PPP. En revanche, les caractéristiques des maires (âge, genre) ne semblent pas avoir d'impact sur cette décision. Par ailleurs, contrairement aux études précédentes sur l'externalisation et la privatisation, nous trouvons un effet positif de la concurrence politique sur le choix de recourir à un PPP. Note analyse donne plusieurs interprétations possibles de ce résultat. Premièrement, le niveau de concurrence politique affecte différemment le choix d'adopter un PPP et celui de privatiser un service public, dans la mesure où les PPP sont moins sujets aux critiques sur de nombreux points politiquement sensibles (*e.g.* restructuration des équipes). Deuxièmement, les maires peuvent choisir d'avoir recours aux PPP en raison des promesses qu'offrent cette forme organisationnelle, en espérant que les effets bénéfiques des PPP aient des retombées électorales positives. Par ailleurs, étant donné les coûts induits par les procédures des projets de PPP, les maires peuvent difficilement revenir sur leur décision d'avoir recours à ce type d'arrangement contractuel sans être soumis aux critiques de leurs adversaires politiques. Enfin, les maires peuvent avoir recours aux PPP dans le but de masquer la dette publique de leurs communes, afin d'améliorer leur côte de popularité. Ce dernier aspect fait l'objet des plus vives critiques de la part des praticiens. Nous analyserons donc cette motivation dans le quatrième et dernier chapitre.

4. Chapitre 4 : PPP et déconsolidation de la dette publique

Depuis sa création, le recours aux PPP est critiqué car perçu comme une stratégie de contournement fiscal consistant à masquer la dette publique. En

effet, malgré la nouvelle règle de comptabilisation des PPP introduite par Eurostat en 2004, les PPP que nous étudions (*i.e.* pour lesquels l'opérateur privé est rémunéré par l'Etat et non *via* les tarifs chargés aux utilisateurs) n'ont aucune obligation d'apparaître dans les comptes publics. Ceci est dû au fait que l'opérateur privé supporte la majeure partie des risques de ce type de projet. De plus, plusieurs études ont montré que l'une des motivations du recours aux PPP réside dans les contraintes financières imposées aux gouvernements centraux (Hammami et al. [2006]) et locaux (Albalate et al. [2012]). Cependant, les raisons qui motivent le recours aux PPP de la part d'autorités publiques soumises à des contraintes budgétaires n'ont pas été analysées à ce jour.

Ce chapitre vise ainsi à analyser les raisons pour lesquelles les gouvernements adoptent des PPP dans un contexte de contraintes budgétaires. Nous cherchons à savoir si le choix de conclure des PPP est résulte d'une utilisation opportuniste des règles fiscales en vigueur (qui permettent de ne pas faire apparaître la dette publique liée aux PPP au bilan de la municipalité). Dans cette optique, nous utilisons les données de la totalité des 101 PPP conclus par des municipalités. Nous sélectionnons ensuite 202 municipalités parmi les 36000 municipalités françaises ayant les même caractéristiques (en termes de besoins d'infrastructures) que celles ayant signé au moins un PPP. Nous traitons ces données au moyen de différentes méthodes quantitatives : analyse de durée, estimation de panel (stratégie de Mundlack). Dans un premier temps, nous regardons si les municipalités sont davantage susceptibles de recourir à un PPP lorsqu'elles sont soumises à une forte contrainte budgétaire. Le niveau de contrainte budgétaire est mesuré par le niveau de dette de la municipalité et par sa capacité d'autofinancement. Ensuite, nous exploitons étudions l'impact de la modification législatives obligeant les municipalités à inclure les PPP locaux au bilan à compter du 1er janvier 2011. Cette expérience naturelle nous permet de tester l'hypothèse selon laquelle le recours aux PPP serait motivé par la volonté d'utiliser abusivement les règles fiscales. Nos résultats montrent que

la volonté que les communes les plus endettées sont les plus enclines à avoir recours aux PPP, leur comportement n'est pas impacté par la modification du cadre légal. Ainsi, la volonté de dissimuler la dette ne suffit pas à expliquer les choix de recours aux PPP des municipalités. Ce résultat corrobore notre hypothèse précédemment exposée, selon laquelle le recours aux PPP est en premier lieu motivé par les promesses potentielles de ce type d'arrangement contractuel.

VII. Contributions et implications managériales

Cette thèse contribue à la littérature en stratégie, et en particulier l'étude de la question " Comment faire-faire ? ". Nos résultats montrent que l'utilisation d'une forme organisationnelle hybride dans le secteur public peut mener à une performance satisfaisante. Notre analyse montre également que les motivations des managers publics ne sont pas uniquement rationnelles (recherche d'efficacité), mais également personnelles (idéologie politique, comportement mimétique et niveau de concurrence politique). Par ailleurs, notre résultat selon lequel le recours aux PPP n'est pas du à une recherche de manipulation des comptes publics a des implications en termes de gestions des finances publiques et nous informe sur les pratiques de l'administration publique.

Cette thèse apporte une contribution à la littérature empirique sur les partenariats public-privé. Pour la première fois, l'évaluation de la performance des PPP est faite sur plusieurs dimensions, et non seulement sur le respect des coûts. Notre analyse considère en effet la fois la phase de construction et la phase d'exploitation des projets. Nous analysons également plusieurs dimensions importantes de ces projets : la durée et les coûts des procédures, ainsi que le niveau de concurrence lors de l'attribution des contrats. Notre étude constitue également la première analyse financière des projets PPP. Ce travail a fournit une étude détaillée des conditions de financement des PPP, mais

aussi de l'allocation des risques entre les parties prenantes au projet. De plus, cette thèse fournit le premier travail empirique qui étudie le choix de recours aux PPP en utilisant des déterminants au niveau de la structure décisionnelle. Nos travaux présentent également l'avantage d'étudier de façon approfondie les différentes étapes des procédures de PPP : la phase d'étude, la phase d'appel d'offres et la phase de signature du contrat. Ceci est crucial étant donné que la durée des procédures des PPP est longue, et que ses déterminants peuvent ainsi varier durant cette période. Par ailleurs, nous étudions les déterminants des choix des autorités publiques suggérés par la littérature sur les PPP, mais aussi également d'autres déterminants proposés par la littérature générale sur les choix organisationnels, tels que les caractéristiques personnelles des maires et leurs comportements mimétiques. Enfin, nous montrons que le contournement fiscal n'est pas un déterminant du choix de recours aux PPP. Ce résultat est le premier qui clarifie les raisons pour lesquelles les décideurs publics choisissent les PPP afin d'externaliser les services publics.

Au-delà de notre contribution à différents courants de littérature, les résultats de cette thèse ont également des implications managériales, à la fois pour les décideurs publics, les opérateurs privés, et les organismes comme la Mission d'appui aux partenariats public-privé. Tout d'abord, nos résultats permettront aux décideurs publics de mieux appréhender les contrats de PPP. Notre analyse des limites des PPP (première partie) montrent que certaines dimensions, telles que le phénomène de *turn-over* des managers publics et le partage de risques entre les parties prenantes, méritent d'être considérées par les managers publics lors de la négociation des contrats et de la gestion des projets. Notre étude sur les motivations à adopter des projets de PPP (seconde partie) permet aux managers publics de prendre du recul par rapport à leurs décisions organisationnelles. Le caractère non significatif du motif de contournement fiscal est un argument qui répond aux émises par certains groupes de pression au sujet des PPP. Nos résultats quant à la performance des PPP

permet par ailleurs de répondre aux critiques générales émises à l'encontre du secteur privé. Les points faibles détectés lors de la mise en place des PPP dans ce chapitre suggèrent également aux opérateurs privés des améliorations potentielles à mettre en place lors de projets futurs. Enfin, le fait d'étudier des projets de PPP au lieu de se concentrer sur un nombre limité de projets, montre que l'accès aux données fourni par des organismes publics permet de réaliser des études bénéfiques à l'ensemble des parties prenantes aux contrats. Ces études académiques sont nécessaires afin d'améliorer ce mode gestion.

VIII. Recherches futures

Ce travail de thèse présente certaines limites, qui suggèrent la conduite de travaux futurs. Tout d'abord, le caractère récent des PPP limite le nombre d'observations disponibles. Ceci nous a permis d'étudier en détail chaque projet, mais notre analyse en première partie est de ce fait essentiellement descriptive. Nous n'avons ainsi pas pu réaliser d'études quantitatives visant à identifier les déterminants de la performance des PPP. Par ailleurs, le problème de biais de sélection concerne l'ensemble des chapitres. Dans les deux premiers chapitres, les données analysées sont issues des réponses des managers publics à un questionnaire réalisé par nos soins. Les résultats positifs quant à la performance ainsi obtenus reflètent donc la perception des personnes à l'initiative de ces contrats, et pourraient donc être biaisés. Par ailleurs, notre analyse des choix de recours aux PPP s'appuie un nombre important de variables. Cependant, certains facteurs non observables, comme les préférences des décideurs publics ou leur expérience dans les projets de PPP, pourraient également impacter leurs choix lors de l'externalisation des services publics. Enfin, notre étude du cas français peut poser la question de la validité externe de notre travail. En effet, la France a un marché des PPP développé et un cadre institutionnel rigoureux, un cas idéal pour l'étude des PPP. Cependant, les résultats issus du cas français pourraient ne pas être applicables dans

d'autres contextes, par exemple dans le cas des pays en développement.

Compte tenu du caractère récent des PPP, les résultats de cette thèse méritent d'être complétés par d'autres études dans le futur. Concernant la performance des PPP, il sera intéressant de mettre en évidence les facteurs qui sont à la source des succès ou des échecs des PPP. Le nombre de candidats lors du dialogue compétitif, la durée de ce dernier, et le taux de turn-over des équipes en charge du suivi des contrats pourraient ainsi être étudiés sur un nombre plus important de contrats, et sur des contrats plus anciens. Il serait également utile de consiérer d'autres critères de performance, ne se basant pas uniquement sur la perception des personnes publiques, lesquelles peuvent avoir une vision biaisée de la performance des contrats qu'ils gèrent. Il s'agit ainsi de trouver d'autres indicateurs de performance, utilisables quel que soit le secteur concerné. Enfin, pour avoir une vision plus juste de la performance de ces contrats en phase d'exploitation, il sera aussi utile d'étudier leur performance lorsque l'exploitation sera plus ancienne. Quant aux motivations à l'origine de l'adoption de PPP, des études se basant sur des données issues d'autres pays pourraient permettre de confirmer les résultats de cette thèse.