Corruption in Public-Private Partnerships, Incentives and Contract Incompleteness

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Introduction

When a contractor operates a highway on behalf of a government, who should bear traffic risk, the contractor or the government? When new sector legislation changes the required standards, who should pay the adaptation costs on ongoing projects? When a contractor operates a staff canteen on behalf of a university, should it be allowed to increase coffee prices if the price of coffee granules increases? And should all the possible contingencies that may materialize during the contract life be regulated by the contract?

These questions typically arise for complex procurement projects such as Public-Private Partnerships (PPPs), which are concession contracts whereby the supplier (typically a consortium of firms) takes responsibility for building and managing a public infrastructure for a number of years. PPPs are widely used across Europe, Canada, the US and a number of developing countries in sectors such as transport, energy, water, IT, prisons, waste management, schools, hospitals and others; and are attracting growing attention from policymakers because of their potential to use private finance in infrastructure development.

Somewhat surprisingly, the contracts used in practice provide different answers to the questions above. For example, in PPPs for highways, the World Bank recommends that traffic risk be borne entirely by the contractor, whilst in the Indian's standardized contract for highways, traffic risk is borne by the contractor unless the fall in traffic is caused by a change in macroeconomic conditions. Furthermore, contracts show different degrees of completeness, i.e. different degrees of comprehensiveness in the number of contingencies regulated by the contract. In the UK, for example, risk allocation is typically summarized in an extensive *risk matrix* appended to the contract, which spells out each specific risk that may arise under the contract and how such risks will be shared between the contractor and the public authority (HM Treasury 2007). In Italy, by contrast, risk matrixes are rarely used and risk allocation is often left vague.

The problem with using contingent clauses to regulate the parties' relationship when specific circumstances arise is that contingent clauses require the anticipation, description and verification of the events that subsequently occur. A traffic-risk clause, such as the one mentioned above, will require, for example, that the parties specify how to define, measure and verify the change in macroeconomic conditions that may trigger the application of revenue compensation to the contractor. More generally, anticipating, describing and verifying contingent clauses involves contracting costs that may vary with project characteristics, such as complexity or value, with the efficiency of a country's institutions, and with the maturity of the PPP market. Verifying materialized contingencies can also be difficult both in terms of the technologies and the degree of expertise required. For example, in the case of highways, it may be impossible to perfectly ascertain whether a traffic reduction is caused by poorer macroeconomic conditions or by higher fuel prices.

In Iossa and Martimort (2014), we investigate the benefits and costs of writing complete, and more flexible, contracts in a risky environment. We consider a principal agent model with a three-tier relationship between a public authority (principal), a public official (supervisor) and a firm (the agent), in a public procurement context where project revenues are affected by the contractor's operating effort and by exogenous shocks. Contingencies (such as a change in macroeconomic conditions) may occur at the contract execution stage that exogenously affect revenues from operations (for example, because highway traffic falls).

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Regulating those contingencies in specific contractual clauses involves contracting costs that are the private knowledge of the public official. Incentives to the contractor are provided through a payment structure that allocates revenue risk between the contractor and the public authority. Contingent clauses may provide for the contractor to receive monetary compensation when shocks occur. Contingent clauses are triggered by self-reports made by the contractor. In PPP practice, self-monitoring is often used, with the contractor verifying the contingencies that have materialized and his own degree of compliance with the contractual obligations whilst the contract manager, hired by the public authority, supervises the process.

We show that when the state is verifiable, namely when contingencies can be objectively verified at no cost, optimal risk-sharing calls for contingent clauses to fully compensate the contractor for revenue shocks outside his control. In terms of our motorways example, this suggests the desirability of the Indian contractual approach, where changes in macroeconomic conditions trigger compensation for the contractor. This is because full insurance on exogenous and verifiable events reduces the risk premium that is due to the contractor for undertaking the project, without weakening operational effort incentives. As these shocks (macroeconomic conditions in the example) are beyond the control of the contractor, effort incentives are unaffected, all other things being equal. In fact, the better insurance that a more complete contract provides may result in stronger incentives to make an operational effort, as it becomes overall optimal to agree that the contractor will bear a greater *share* of traffic revenue. In economists' jargon: "complete contracts are higher powered."

In cases where, by contrast, the state is not verifiable, as it is the case when the contractor has private information on the realized contingency, contract manipulations may occur and this has an impact on the optimal design of the PPP contract. The contractor may misreport his information, always claiming that a negative macroeconomic shock reduced the traffic demand and thus its revenues, in order to obtain compensation from the public authority. To prevent such misreporting, offering full compensation to the contractor for the (presumably) lost revenues becomes suboptimal. This, in turn, implies that more demand risk is transferred to the contractor under the PPP contract, and that a higher risk premium will have to be paid to induce the firm's participation.

However, the precise degree of demand risk transfer may change across countries and projects. Our analysis suggests that different types of contracts are optimal depending on the level of contracting costs: more complete contracting providing for state contingent clauses should be chosen only when contracting costs are sufficiently low relative to the benefit from lower risk premia and better incentives. When contracting costs are high, using contingent clauses to regulate risk allocation becomes too costly, making rigid, incomplete contracts preferable to flexible, complete ones.

This, in turn, suggests that leaving discretion in contract choice to public officials can be beneficial in order to optimize the trade-off between risk premia and contracting costs: the public official in charge of contracting with the contractor should have the discretion to use his information on contracting costs in order to decide on the level of contract completeness. But this opens up a new problem, as discretion can be abused by rogue public officials to secure personal favors or bribes.

Our comparative statics exercises show that we should expect more complete contracting when uncertainty is greater, as this factor increases the benefit of insuring the private contractor against exogenous shocks. More complete flexible contracts should be used when institutions are stronger, or when the PPP market is more mature, as contracting costs are lower in such cases. Countries where public institutions are weaker and there is high incidence of corruption and poor accountability in the public sector, or countries with little experience in PPP agreements, should opt for more rigid incomplete contracts. The cost – in terms of contractual distortions – of corruption is therefore greater when the value of complete contracting is highest, as it is the case for projects with high uncertainty, greater risk aversion of the contractor and weak institutions.

Conclusions

Our paper emphasizes how incomplete contracting may favor corruption (and vice versa) because of higher risk premia, and that incomplete contracting can be strategically favored by non-benevolent authorities. Whilst the insights of our paper do not confine themselves to PPP practices, they capture institutional issues for these complex projects very well.

Corruption practices in public procurement can take place at different stages of the procurement process:

namely in planning, tendering, contracting, or execution. Corruption at the contracting stage is possibly the most subtle and the most difficult form of corruption to detect, as once a bad contract has been designed, undue benefit for the contractor is difficult to challenge. PPP agreements are particularly vulnerable to corruption because of their complexity and the central role of the design stage. Contracts are typically kept confidential, and little transparency exists on the contingencies that trigger monetary compensations to the contractor, or even on the amounts paid (Hemming 2006). The incidence of corruption has also been recorded (Engel, Fisher and Galetovic 2011).

It is well known that renegotiation of contract terms opens the door to contractual agreements that favor private interests and that are out of public sight because they occur at the post-tender stage. There is indeed ample evidence that corruption can explain the widespread use of post-contractual renegotiations in Latin American concessions (Guasch 2004; Guasch and Straub 2009). Corruption is not the only channel by which non-benevolent policy-makers may influence renegotiation. Engel et al. (2009) discuss evidence from Chilean renegotiations of PPP contracts, and argue that governments had incentives to renegotiate PPP contracts and elude spending limits to favor their re-election.

Our analysis is somewhat complementary to that line of research, since we show that corruption may also have a role to play at the ex-ante stage when parties decide how detailed their agreements should be. Weak institutions which are more prone to corruption may also be associated with incomplete deals. Because those incomplete deals are also those most likely to be renegotiated, the impact of corruption on contract design and economic performances is likely to be even more significant than suggested by the earlier literature that focused only on its ex post role.

Furthermore, the planning and design stages of most PPP contracts involve two different layers of the governmental hierarchy: the central government (for example, the national Department of Transport) and the local government (a local authority). The former typically coordinates the national PPP program and provides guidelines for contracts and tenders; the latter implements and monitors local projects. Such delegation of contracting may help to ensure that the contract reflects relevant local information (such as contracting costs), but it also exposes the central government to the risk of corruption at the local level. Some countries, such as the UK, have made recourse to standardized contracts designed centrally and imposed locally with minor variations, thus reducing the degree of local discretion. Considering the Indian standardized contract mentioned above, our paper suggests that taking away macroeconomic risk from the contractor is indeed optimal; but, as such contingency may be difficult to verify in practice, an institution such as the World Bank may have to give up such contingent clauses in financing and supervising PPP projects in weak institutions. The incompleteness of the standardized World Bank contract is therefore also in line with our predictions. Fighting corruption involves decreasing the discretion of contracting authorities by making greater use of centrally determined guidelines on contracts, or even standardized contracts designed centrally and applied locally, like those used in the UK or by the World Bank. Finally, it has been observed that when institutions are stronger (in the sense that bureaucrats are more accountable), contract completeness is greater (Jakobsen, Sande and Haugland 2010), as predicted by our results.

References

Engel, E., R. Fisher and A. Galetovic (2009), "Soft Budgets and Renegotiation in Public Private Partnerships", *Mimeo Yale University.*

Engel, E., R. Fisher and A. Galetovic (2011), *Infrastructure PPPs: When and How,* Cambridge University Press, Cambridge, UK, in press.

Guasch, J. L. (2004), "Granting and Renegotiating Infrastructure Concessions: Doing it Right", *WBI Development Studies*.

Guasch, J. L. and S. Straub (2009), "Corruption and Concession Renegotiations. Evidence From the Water and Transport Sectors in Latin America", *Utilities Policy* 17, 185–90.

Hemming, R. (2006), *Public-Private Partnerships, Government Guarantees and Fiscal Risk*, Technical Report, International Monetary Fund, Washington, DC.

H.M. Treasury (2007), *Standardization of PFI Contracts,* Crown, London.

Iossa, E. and D. Martimort (2014), "Corruption in PPPs, Incentives and Contract Incompleteness", *Mimeo University Tor Vergata.*

Jakobsen, R., J. B. Sande and S. A. Haugland (2010), "Service Procurement in Public Sector: The Influence of the Institutional Context on the Decision Makers' Attentiveness to Transaction Cost Considerations", *Mimeo NHH Norwegian School of Economics.*