



The architecture of federations: Constitutions, bargaining, and moral hazard[☆]



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ABSTRACT

The paper studies a federal system where (a) a region provides non-contractible inputs into the social benefits from a public policy project with spillovers to other regions, and (b) where political bargaining between different levels of government may ensure efficient decision making ex post. Allowing intergovernmental grants to be designed optimally, we ask whether project authority should rest with the region or with the central government. Centralization is shown to dominate when governments are benevolent. With regionally biased governments, both centralization and decentralization yield inefficiencies and the second-best institution depends on parameter values if political bargaining is prohibited. When bargaining is feasible, however, the first best can often be achieved under decentralization, but not under centralization. At the root of this dichotomy is the alignment of decision making over essential inputs and project size under decentralized governance, and their misalignment under centralization.

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1. Introduction

The choice between centralized or decentralized political governance is arguably the most critical design element in federal systems. It is not surprising, therefore, that this issue has received considerable attention in the economic literature, starting with the pioneering work of Oates (1972). The main goal of the present paper is to study several empirically relevant – but previously disregarded – additions to the existing paradigm. In doing so, we are able to shed new light on why decentralization will often be beneficial. As in previous work, our starting point is a generic scenario in which a policy project that involves spillovers across the federation can be pursued in one of its regions. A federal constitution assigns authority over project choice either to the regional

government or the central government, which may or may not be benevolent.

Models based on this standard setting usually posit that autonomous regional governments choose policies non-cooperatively. The failure to internalize spillovers on other regions then causes a suboptimal outcome under decentralization.¹ Policy choice under centralization is hampered by other imperfections. A benevolent central authority, for example, is often subject to exogenous restrictions such as policy uniformity requirements. Self-interested governments which are composed of regionally biased federal politicians, in contrast, will use their agenda setting power to distort project choice away from the welfare maximizing level. Under this traditional approach, second best optimal governance then selects the regime that causes smaller distortions.

The present paper offers a different perspective of the tradeoffs at work. Our model uses the following building blocks. First, in a critical departure from most of the existing literature,² we explicitly account for ex post improvement in the policy outcome through negotiations

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¹ This is not necessarily true if individuals or production factors are mobile and the resulting equilibria may be efficient. For a recent interesting work with this outcome in a setting with mobile capital, see Ogawa and Wildasin (2009). For a model with both mobile capital and mobile individuals (labor), see Kessler et al. (2002).

² To our knowledge, the only exception is Harstad (2007) which is discussed below.

between jurisdictions. Bargaining over political projects across different layers of government is often observed in practice, regardless of whether decision power rests with the local or the central level of government.³ Furthermore, although transaction costs may often prevent efficient bargaining, a frictionless world provides a benchmark against which alternative views of political negotiations can be judged. This is true a fortiori as there is a lack of compelling arguments why these frictions should be more severe under decentralization than under centralization. In the end, it may not matter much whether regional delegates come together in a federal assembly to bargain for a 'centralized' political outcome, or whether they meet as representatives of decentralized regions to negotiate political issues of mutual concern.

Second, in order to successfully reach a mutually beneficial agreement in reality, horizontal or vertical transfers are often called for. This leads us to illuminate the role of grant systems in the determination of optimal governance, and to endogenize the corresponding constitutional provisions.⁴ While Oates' original work emphasizes the role of Pigouvian grants and subsidies to resolve spillover problems, the more recent literature usually considers funding provisions as exogenously given at the constitutional stage, rather than being optimally set. In contrast, the present paper investigates optimally designed cost matching grants in both institutional regimes.

Finally, pursuing and implementing political projects usually involve resource consuming preparations on the part of the project region. The process involves several stages, and a whole range of measures are paramount for ensuring the final success. Many of these efforts are subject to moral hazard considerations: they are intangible in nature and therefore, cannot be made part of cost sharing arrangements among the member states in a federation. We argue that one important goal of efficient governance is to design authority and funding systems in a way as to resolve or at least alleviate moral hazard concerns.

As an example that illustrates these issues, consider the Canada Line Rapid Transit Project, a rail-based rapid transit line linking the Vancouver Airport to downtown Vancouver, BC. With its more than \$ 2.1 billion capital cost, the transit line is one of the largest single public projects in the Vancouver area to date and was completed in Fall 2009. On December 1, 2004 the local agency Greater Vancouver Transportation Authority (TransLink) gave its final approval to the completion of this project. Notably, although Translink alone was put in charge of the Canada line, there had been prolonged negotiations involving agreements securing substantial funding contributions from both the federal and the provincial governments prior to the time of final approval.⁵ Moreover, even before approval, Translink had already spent an estimated sum of at least \$30 million on the project, primarily on the administration of the procurement process, property acquisition, community liaison, and public consultations.⁶

The example exhibits the central features – mixed funding, political bargaining, and a costly planning process likely subject to moral

hazard – that are often integral elements of public policy formation. All affected levels of government participate in the process through talks and negotiations. The final decision involves financial contributions through cost-sharing (matching) grants or other inter-governmental transfer mechanisms.⁷ The way in which this cost-sharing arises is partly codified in the federal constitution, and it is logically distinct from the question of who has authority to implement a certain project. Finally, the support of the local authority is essential for a successful implementation: there are local citizens to convince, local laws to modify, local red tape to overcome; and local infrastructure to make compatible with the project size and design. The efficiency issue is to choose the system of governance and the project output and cost grants so that the local region will have the incentive to make these intangible investments into the success of the project optimally.

The theoretical framework we develop to study the above features is simple. There is a federation consisting of two regions. In the 'project' region a local public project of variable size becomes available. If implemented, this policy project causes spillovers to a second 'composite' region that comprises a majority of the federation's inhabitants. Representatives from both regions initially sign a 'constitution' that allocates authority rights, and details cost matching and output grant provisions.⁸ In a decentralized regime, the project region has the authority to determine the project size. In a centralized regime, authority rests with the federal government which does not pursue the overall public welfare, but is composed of regionally biased delegates who take decisions by majority rule. Hence, the composite region decides on project size. We account for the essential role of regional involvement by assuming that after signing the constitution, the project region can make preparatory investments into the project, which are non-contractible and thus subject to moral hazard. The return accrues in the form of increased project quality, positively depends on implemented project size, and is identical across governance structures. Before the final decision on project size is made, regions may negotiate over this decision to ensure a Pareto improvement, taking into account the regime-dependent default outcome.⁹

We first show that a centralized system works efficiently in a benchmark scenario where the central government is benevolent. The remainder of our analysis then adopts the more realistic view that central decisions are politically motivated rather than benevolent. Importantly, it also allows for inter-governmental negotiations at the project implementation stage to avoid inefficient policy choices. The corresponding bargaining surplus is assumed to be shared according to a simple Nash bargaining solution. Ex post bargaining ensures that projects are chosen efficiently in either governance structure, irrespective of the grant system in place. This outcome does not imply efficient investments, however. Investments affect the project region's payoff through two channels: first, there is a direct effect because investments change the project region's payoff for given project size. Second, a region's payoff from investments is indirectly affected because larger investments boost the project quality and therefore, increase the default project size that would be realized if negotiations fail. Since the sign

³ A good example of efficient inter-regional bargaining in a decentralized setting is Chernobyl. The remaining blocks of the Chernobyl nuclear power plant were finally shut down in December 2000 after intense negotiations between Ukraine and the EU. Under the terms of the accord, the EU provided almost one billion US dollars in compensation, and agreed to help build two modern replacement nuclear reactors. Another example are national tax policies in the EU. Although the tax authority lies on the national (decentralized) level, member countries in 2006 agreed on exchanging information on capital flows in an attempt to crack down on tax evasion.

⁴ Wildasin (2010) provides a systematic overview about intergovernmental transfers and grants in the US.

⁵ To oversee procurement, design, construction, and implementation of the entire project from start to finish, TransLink created Canada Line Rapid Transit Inc. (CLCO, formerly RAVCO) as a special-purpose subsidiary. Apart from Translink itself, there are three other public funding sources: the federal government of Canada (\$421 million), the provincial government of British Columbia (\$ 387 million), and the Vancouver International Airport Authority (\$251 million). In 2006, the Provincial government agreed to pay additional \$65 million in exchange for design changes. Data Source: RAVCO Annual Report 2004 and Quarterly Report # 1, January–March 2005.

⁶ While the amount of these costs appears small relative to the overall project budget, notice that the *benefits* of these investments in terms of improving the project value will likely have been much more significant.

⁷ Since almost half of the population in British Columbia lives in and around Vancouver, the benefits to the provincial government are obvious. The federal government's interest in the Canada Line could possibly be attributed to the fact that it was part of the city's preparations for hosting the 2010 Olympics. That the local authority would approve the project was not certain until the final vote in the Translink Board of Directors, a body composed of mayors and officials of all cities that are part of the Greater Vancouver Area. Indeed, there had been several rounds of voting, each of which was followed by a federal or provincial pledge for new funding. For a complete history of the project, see <http://www.richmond.ca/discover/services/rav.htm>.

⁸ Depending on the context, the notion of a constitution should be interpreted broadly as an initial treaty that governs the subsequent financial relationship among the regions involved.

⁹ In the absence of moral hazard, political bargaining would always ensure an efficient outcome, regardless of the authority structure. But even without political bargaining, a constitutional Pigouvian grant easily resolves the externality problem, again rendering the choice of governance structure inconsequential. Hence, the choice between decentralization and centralization can be meaningfully addressed only if either subsidies are sub-optimal and bargaining is inefficient, or if a moral hazard problem exists.

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