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# THE HIERARCHICAL CONSTRAINT WITHIN REPRESENTATIVE GOVERNMENTS

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# The hierarchical constraint within representative governments[*]

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## Abstract

Democratic governments are hierarchical structures in which the decision making activity of elected representatives is organized at different levels. Since political representation is geographic, policy decisions, though taken at different levels, may produce overlapping effects in the same area. When competing governmental units have contrasting views over policy choices and representatives are re-election oriented, this overlap may produce incoherent decisions. Moreover, when institutional arrangements foresee joint decision of several government units, these contrasting views may yield decisional holdouts. In this framework, the decision process of any government unit may be constrained by political actors that are hierarchically placed either above or below it. This paper provides a theoretical framework that measures the binding force of this political constraint. This force depends on a) the distance among the preferred position of each government units along the policy space and b) the distribution of political power across the government levels that compete for electoral support in any geographical area. The stringency of the political constraint produces important consequences on political accountability and effective governance.

# 1 Introduction

Modern democratic governments are hierarchical structures in which the decision making activity of elected representatives is organized at different government levels: from the bottom to the top, local, regional, national and, in cases like the European Union, supranational. Inasmuch as citizens elect their political representatives in these different government levels from the same geographic base (constituency), the policy decisions that these government levels take may produce overlapping effects in that constituency. When political representatives maximize their likelihood to be re-elected to the same post or elected to a higher one, this situation may give rise to three sorts of problems: 1) *Incoherent policy decisions*, when institutions do not separate the competencies and responsibilities of each government level and government units have different views over policy choices; 2) *Decisional holdouts*, when institutions sanction that different government levels are competent over a given policy and require them to take joint decisions (unanimity) and, again, government units have different views over policy choices; 3) *Political collusion*, when institutions address the overlapping competence problem in such a way as to make it difficult for voters to recognize the responsibilities of each government unit for the policy results in their geographic area. Representatives in any given government unit may exploit this situation to take policy decisions in their own favor at the expense of voters' welfare, placing the blame for these outcome on the decisions of other government levels. from voters to their in their own favor

In this paper we analyze the second problem, decisional holdout, in a stylized institutional framework that represents the hierarchical organization of an elected government. In a decisional holdout within a hierarchical organization of government, the policy decision making process of any government unit is constrained by other units placed at either higher or lower levels. We call this situation the *hierarchical constraint* of representative governments. As for any constraint, its binding force may vary according to the situations. This paper aims to provide a theoretical framework that explains the determinants of the hierarchical constraint and measures its binding force. Our analysis is thus instrumental for an empirical evaluation of this constraint and of its effects on policies within alternative institutional and political settings. We stop short of providing an explanation of why voters at the constitutional level organize government with the possibility of a hierarchical constraint embedded in it and, at the electoral level, choose the degree of stringency of this constraint.

As for the determinants, the theoretical framework demonstrates that the binding force of the hierarchical constraint depends on a) the distance among the preferred position of each government unit along the policy space and b) the distribution of political power across the government levels that compete for the electoral support in a given constituency. As for the consequences, the stringency of the hierarchical constraint produces important consequences on both effective governance and political representation. Specifically, a stronger constraint limits the possibility for each government level to have its preferred policies implemented, thereby reducing the government's effective governance.

Inasmuch as each government unit represents the preferences of its voters, a reduced effective governance implies that voters preferences receive less effective representation by the government system as a whole.

The paper is organized as follows. Section 2 reviews the related literature. Section 3 explains the theoretical framework that allows to measure the degree of stringency of the hierarchical constraint and explains its determinants. Section 4 reassumes the results and indicates the possible developments, especially in the form of empirical analyses, of our inquiry.

## 2    Literature review

There are very few references to the analysis of political constraints inherent to the vertical organization of government. The so-called "war of attrition" literature studies decisional holdouts in the context of coalition governments, namely, in a "horizontal" setting with only one government level composed by decisional units with temporally diverging interests ((Alesina and Drazen 1991); (Persson and Tabellini 2000) and (Drazen 2000) for reviews). This literature stresses the importance of the degree of fractionalization of coalition governments, as well as the polarization of the ideologies of parties member of the coalition to explain the likelihood that the government remains "fixed" in a decisional holdout after an exogenous shock. This theories receive considerable empirical support ((Persson and Tabellini 1994); (Padovano and Venturi 2001); (**?**)). The strand of literature on checks and balances and political accountability is another that analyzes how the different institutions that compose the government (the legislative, the executive and other branches) strategically interact in the decision making process. These models focus, however, on the kind of decisions that different institutional settings (presidential vs. congressional and parliamentary systems; proportional vs. majoritarian electoral systems; the distribution of the agenda setting power in the budget approbation process) are likely to produce, rather than on the likelihood that a decision be taken. Since the kind of decision is evaluated in terms of the welfare of voters relative to that of elected representatives, this literature is generally known as "political accountability" ((**?, ?**); (Persson and Tabellini 2000)). However, generalizations of these models ((Breton 1996); (Bavetta and Padovano 2000)) indicate that the vertical organization of government produces the same results in terms of decision making outcomes as the usually studied horizontal one. Yet no attempt has been made to assess how different government levels constrain each other.

Also the literature on fiscal federalism has analyzed how the vertical organization of government affects the outcomes of decision making outcomes. The general message of this literature is that decentralization favours accountability ((**?**); (Brennan and Buchanan 1980); (Breton 1996), among others). The arguments basically are that voters' preferences are more homogeneous among small jurisdictions, that the lower information costs and the smaller numbers make citizens' participation to and control of the government easier, and that local governments have better information about individual demands functions

on public goods. These results, however, are not linear in the centralization-decentralization space. If an inter-jurisdictional transfer system is in place then costs are spread among all jurisdictions whereas benefits fall on some. (Weingast, Shepsle and Johnsen 1981) and (**?**) show that this leads to fiscal irresponsibility at the level of local government and to inefficiencies in the allocation of resources. And the positive literature on "new fiscal federalism" (Perotti 2001) challenges the standard result of welfare economics that redistribution yields superior results when the central government administers it ((**?**)). Again, all these strands of inquiries focus on the outcomes of attributing the decision making power for a given task to alternative levels of government. They neglect the fact that certain tasks are performed by several government levels simultaneously and conjointly[1]. An analysis of the constraints that arise in such situations within hierarchically organized governments is thus warranted.

# 3    The theoretical framework

## 3.1    The institutional setup

We can study the determinants and the effects of a hierarchical constraint in the stylized context of a government where there are $N = 1, \ldots, n$ decision units. We can conceptualize these units as several distinct government levels, hierarchically organized from local to supernational, all elected from a nested geographic base (constituency) in different instants of time. The electoral system (PR, majoritarian) and the type of government (presidential, parliamentary and the like) present at each level are not relevant for the analysis. As we shall see, our analysis applies both to coalition governments and to governments where one actor (be it a party or a single representative, as it is sometimes the case in lowest government levels) holds all the decision making power. Furthermore, there are $P = 1, \ldots, k$ policies over which some units (not necessarily all) have such competence as exogenously assigned by the Constitution. Letting 0 denote "no competence" and 1 "competence" we obtain the political competence matrix $A_{nk}$

$$A_{nk} = \begin{matrix} a_{11} & a_{12} & a_{13} & \cdots & a_{1k} \\ a_{21} & a_{22} & a_{23} & \cdots & a_{2k} \\ a_{31} & a_{32} & a_{33} & \cdots & a_{3k} \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ a_{n1} & a_{n2} & a_{nk} & \cdots & a_{nk} \end{matrix}$$

which may take the form

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[1] (**?**) studied how the interaction of several government levels affects the taxpayer's position along the Laffer curve. This study has not generated a significant follow-up.

$$A_{nk} = \begin{matrix} 1 & 1 & 1 & \cdots & 1 \\ 0 & 1 & 1 & \cdots & 1 \\ 0 & 0 & 1 & \cdots & 1 \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & 0 & \cdots & 1 \end{matrix}$$

Given a matrix $A$ ($n \times k$), there is *potential* hierarchical constraint iff

**Definition 1** $\exists\ a_{i,j},\ a_{k,l}$ *such that* $a_{i,j}, =a_{k,l} = 1$ *and* $i \neq k$, $j = l$

Note that the hierarchical constraint is only potential. Its effectivity depends on two factors:

1. The voting rule that the constitution assigns to the joint decision of the government units. To the extent that "competence" implies that all government units must agree for the policy to be implemented, rather than simply providing an advice, the potential hierarchical constraint becomes more binding.

2. The distribution of preferences over policies of the elected decision makers across the different government levels. If the elected decision makers of two government units, say $i$ and $k$, that share competence over a given policy $j$, have the same preferences over $j$ the decision of one of them will not constrain that of the other.

In this theoretical framework we will henceforth interpret competence in the strict sense of joint decision by all government units. This interpretation in fact gives to each government unit an effective veto power - the voting rule is unanimity.

## 3.2   Preferences and measure of constraint

We define a *status quo* policy $X_0$ as the prevailing policy at any given time. Each representative to the government has preferences over policies. For computational ease, but with no loss of generality, we suppose that preferences over policies are independent and identically distributed (henceforth, i.i.d.) from a uniform and unidimensional policy space $S = [0, 1]$. The government unit $i$ derives utility from the policy outcome $X$ equal to

$$U_i(X) = -|X - X_i| \tag{1}$$

(1) has a maximum at 0, when $X = X_i$ and a minimum at $-1$, when $X = 0$ and $X_i = 1$, or vice versa.

We are now able to provide a definition for the measure of the hierarchical constraint.

**Definition 2** *The measure of the hierarchical constraint equals 1 minus the expected range of policies for which a change in the* status quo *can be agreed upon by all decision units with decision making power*

The idea underlying this measure is quite simple. Given that the policy space $S$ is defined over the interval $[0, 1]$, the maximum discretion that the government unit $i$ can enjoy is 1. Since the constraint is the opposite of discretion, the measure of the hierarchical constraint for government $i$ is (1 – political discretion). To make an example, an independent local government $i$ can obtain its ideal policy, thereby achieving its maximum utility $(U_i(X) = 0)$, if it enjoys maximum discretion, i.e., if no other government has competence or, even if so, contrasting views about policy $X$. According to Definition 2, in this case the hierarchical constraint for government unit $i$ is of degree $1 - 1 = 0$, and, by equation (1), its total utility level is also 0. Conversely, if the government unit $i$ was to agree with government unit $k$ over policy $j$ and the two units had opposite preferences over it, the two government units had discretion equal to 0. This implies a hierarchical constraint of degree $1 - 0 = 1$ and, by equation 1, a total utility of $|1|$ for both government $i$ and $k$.

Since preferences are i.i.d. and drawn from a uniform distribution, the expected difference between the preferences of any two decision units over any policy can be expressed as $D = 1/(n + 2)$ ((?)), where $n$ is, again, the number of decision units involved in the policy decision making process (the number of government units that have competence over such policy). If, for instance, there are $n = 2$ government units with competence over any policy $j$, the initial preference draw yields an expected preference difference $D$ equal to 1/(2+2)=1/4.

There are six possible preference orderings that are assumed to be equally likely to occur in practic.
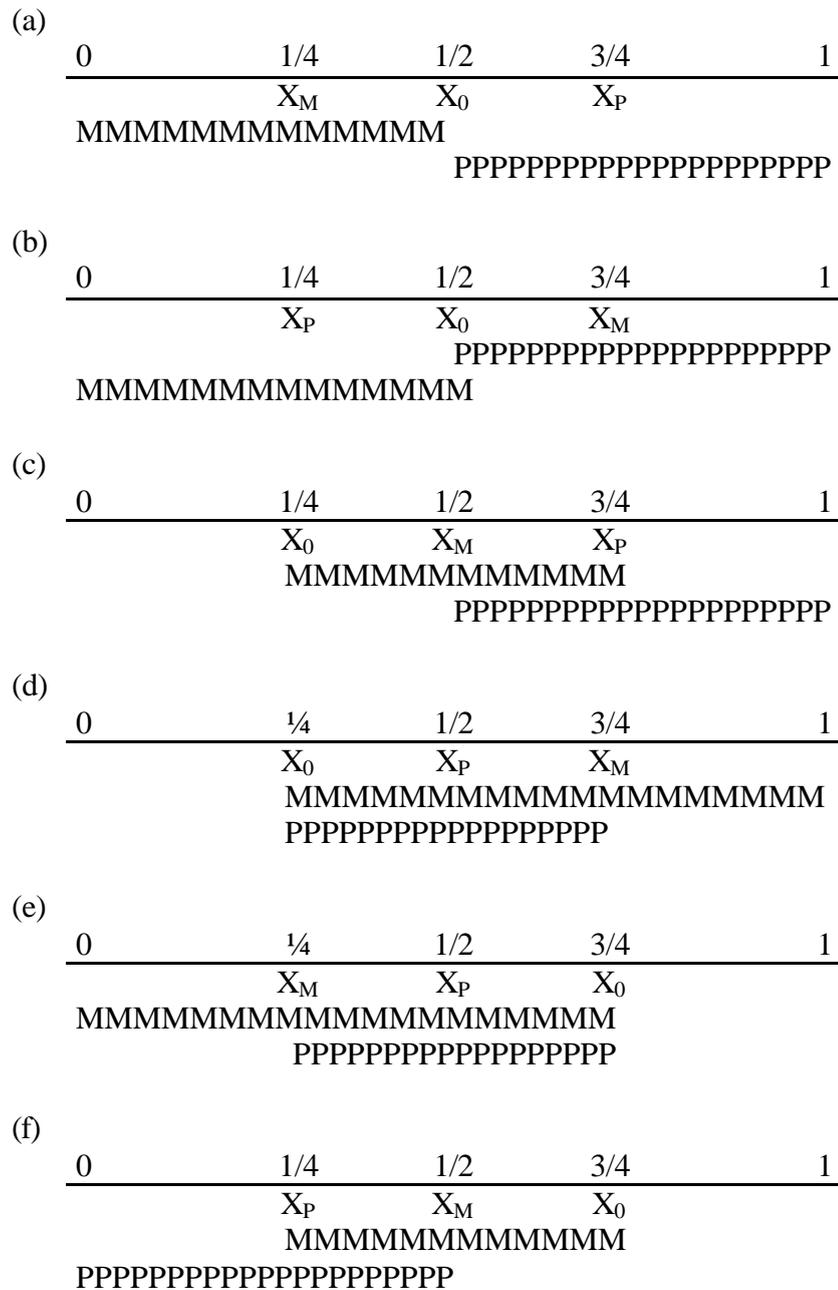
## 3.3   Alignment

Our measure of hierarchical constraint is based on assumption of a uniform distribution of preferences. However, we have already suggested that it may be the case that preferences of two or more government units with competence over any policy coincide. We call this case "alignment" of the two government units. This case is worth attention because it should expand the range of political discretion for the aligned government units and reduce the degree of hierarchical constraint they are under.

For example, if the local government $i$ is aligned with local government $k$ over the construction of,say, a highway, we are back to the early case of the unitary actor, where the degree of hierarchical constraint is 0.

In order to allow for the alignment effect on our measure of hierarchical constraint, we need information about the policy preferences of each government unit.

Suppose that preferences over policies are reassumed in a ideology ((?)) and that each party (politician and the like) is defined by a different ideology. Parties closest in the ideology space $I = [0, 1]$ find it easier to form government coalitions and vice versa. Then it may be the case that the government units with overlapping competence are neither completely aligned with nor completely independent. This may be the case when the are led by two government coalitions, with the same members but with opposite vote shares: the leading party in one

**Figure 1. Six possible preference orderings of the game {$X_M$, $X_P$}**

(a)

| 0 | 1/4 | 1/2 | 3/4 | 1 |
|---|---|---|---|---|
| | $X_M$ | $X_0$ | $X_P$ | |

MMMMMMMMMMMMM

                    PPPPPPPPPPPPPPPPPPPP

(b)

| 0 | 1/4 | 1/2 | 3/4 | 1 |
|---|---|---|---|---|
| | $X_P$ | $X_0$ | $X_M$ | |

         PPPPPPPPPPPPPPPPPPPP

MMMMMMMMMMMMMM

(c)

| 0 | 1/4 | 1/2 | 3/4 | 1 |
|---|---|---|---|---|
| | $X_0$ | $X_M$ | $X_P$ | |

      MMMMMMMMMMMM

                    PPPPPPPPPPPPPPPPPPPP

(d)

| 0 | ¼ | 1/2 | 3/4 | 1 |
|---|---|---|---|---|
| | $X_0$ | $X_P$ | $X_M$ | |

      MMMMMMMMMMMMMMMMMMMM

      PPPPPPPPPPPPPPPPP

(e)

| 0 | ¼ | 1/2 | 3/4 | 1 |
|---|---|---|---|---|
| | $X_M$ | $X_P$ | $X_0$ | |

MMMMMMMMMMMMMMMMMMMM

       PPPPPPPPPPPPPPPPP

(f)

| 0 | 1/4 | 1/2 | 3/4 | 1 |
|---|---|---|---|---|
| | $X_P$ | $X_M$ | $X_0$ | |

      MMMMMMMMMMMMM

PPPPPPPPPPPPPPPPPPPP

Note. - M indicates the range of outcomes preferred by the municipal government to the status quo $X_0$
- L indicates the range of outcomes preferred by the provincial government to the status quo $X_0$

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is the smallest member in the other and vice versa. The party composition of the government coalitions that rule each government unit is thus relevant for the feasibility of a policy change. The most similar is that composition, the closest are the two government units to be aligned, the greater is their discretion and the lower is the hierarchical constraint they are under.

To make an example, suppose that party $R$ has majority in the local government units $i$ and $k$. Then the hierarchical constraint is negatively correlated with the concentration and polarization of that majority. The larger and more homogeneous are those majorities, the less costly is the management and control of the legislatures in both local government units. When these units have to take a joint decision over any policy item, these lower costs imply a lower hierarchical constraint.

There are several ways to evaluate the political concentration of any government. One is the Cubbin & Leech index ((**?**))

$$\alpha_h = F \left[ \sum_{i=1}^{h} m_i \left/ \sqrt{H - \sum_{i=1}^{h} m_i^2} \right. \right]$$

where $F[\cdot]$ is the standard normal distribution function, $m_1$ is the share of the cabinet seats obtained by the party with the largest number of seats in the legislature, $m_2$ i the cabinet seats share of the party with the second largest share of seats in the legislature and $m_h$ is the cabinet's seats share of the party with the $h^{th}$ largest seats share in the legislature. It follows that $\alpha_1$ is the measure of control of the government by the largest party, $\alpha_2$ the measure of control of government by the twp largest parties and so on. $H$ is the Herfindhal index of the distribution of the cabinet seats.

Using this index we can refine the measure of hierarchical constraint to allow for the degree of alignment of the various government units.

**Definition 3** *A) The value of the hierarchical constraint when the government unit i is aligned with unit k = value derived under complete alignment + C&L index × difference between the independent and completely aligned values;*

*B) The value of the hierarchical constraint when the government unit i is not aligned with unit k = value derived under complete alignment + (1 - C&L index × difference between the independent and completely aligned values);*

*C) If the alignment is mixed, a weighted sum of the relevant adjustment is used.*

## 3.4   Results

The theoretical framework expressed so far indicates that the degree of the hierarchical constraint is a function of:

1. The number of government units with overlapping competence over any given policy in a given geographical area;

2. The distribution of the policy preferences within and across such government units

A relatively high level of hierarchical constraint indicates that local governments have a reciprocal veto power. Thus a high level of hierarchical constraint produces local governments with scarce autonomy and ability to implement their preferred policy choices. In other words, the overall government system has governance problems.

To the extent that this competence overlap complicates the institutional framework, citizens will face informational costs to attribute the decisional holdout to any specific government units. For instance, citizens will find it difficult to blame or reward for poor or good economic performance any specific representative of theirs, as the effects of policy decisions taken at a given government level can be offset by policy measures decided at another level. This potentially reduces the political accountability of the overall government system, and creates room for the political collusion problem mentioned in the introduction.

# 4    Conclusion

This simple theoretical framework can be refined and extended in several ways. A first development is to model competence not as an all-or-nothing concept, that necessarily implies unanimity as the decision making rule, but to allow for different degrees and forms of participation to the decision making process by the government units involved. By that we could apply our measure of hierarchical constraint to such interactions as those between national governments within supranational organizations that foresee less than unanimous decision rules, as it is the case in the EU. Or more complicated institutional arrangements where an initial veto power can be overridden by a second decision taken by a qualified majority.

Most of all, since the main goal of our analysis is to supply a measure of the hierarchical constraint, it is important to assess the usefulness of such measure. An interesting application of our measure is the analysis of the composition of government expenditures. Many models ((**?**) to name one) predict that highly fractionalized government will tend to favor short term projects, such as redistributive expenditures, over long term ones, like public investments. Empirical tests ((**?**)) are conceived in terms of the composition of central government. It may well be the case that while redistributive expenditures are by and large the responsibility of the central government, public investment projects must be approved by several government levels whose geographic area they affect. This creates room for decisional holdouts and thus the need, in empirical analysis, to account for the hierarchical constraint.

At the constitutional level, the consideration of the hierarchical constraint is important for those reformers who want to simplify the decision making process of the overall government system, or aim to redistribute competencies between the various government levels. This is the case of countries that move towards a

higher decentralization of government or that want to extend the competencies of a supernational organization that they join, like again the EU. To the extent that these reforms increase hierarchical constraints, our analysis suggests that they will worsen the effective governance and political accountability of the overall government system.

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