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# Are the responsibility and yardstick competition hypotheses mutually consistent?



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### 1. Introduction

#### ABSTRACT

This paper tests the consistency between the responsibility and the yardstick competition hypotheses. If no evidence is found that voters reelect mayors comparing their performance with those of neighboring jurisdictions, strategic interactions among municipalities cannot be properly interpreted as yardstick competition. We innovate on the literature by looking at different indicators of popularity and several specifications of inter-jurisdictional comparisons. The dataset includes all Italian municipalities for the entire period when mayors could set the property tax rate, e.g., 1995–2004, considering all interjurisdictional comparisons and relaxing the implicit hypothesis of cross section analysis that observed phenomena are on their steady state equilibrium. The estimates confirm the presence of electoral concerns of the incumbents and a significant spatial correlation of the tax rates, especially among neighboring nonterm limited mayors. Given these results, strategic interactions among Italian municipalities appear consistent with the predictions of yardstick competition theory.

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Do fiscal decisions of incumbent mayors affect their probability of being re-elected? Do they consider the fiscal decisions of the other mayors when they face an election?

In order to answer these questions, and to clarify the motivation and contribution of our analysis, three concepts must be introduced upfront: 1) the 'responsibility hypothesis'; 2) the 'yardstick competition hypothesis'; and 3) the link of consistency that exists among the two. Essentially, the responsibility hypothesis affirms that, in democracies, policy choices affect the probability of reelection of the politicians who take them. In other words, voters hold politicians responsible for the policy choices that they make (Lewis Beck and Paldam, 2000). The first question is thus related to the responsibility hypothesis. The yardstick competition hypothesis, on the other hand, is based on an information spillover. Voters who are imperfectly informed about the costs and suitability of the policies introduced by their incumbent government derive such information by comparing the choices and performance of their government with those of other similar and/or neighboring governments (Salmon, 1987; Brueckner, 2003; Besley and Smart, 2007). Because this comparison enters into voters' decisions of whether to re-elect the incumbent, this creates a strategic interaction between neighboring and/or similar jurisdictions, especially in the context of local politics, where these information spillovers are likely to be important. The link of consistency between the responsibility and the yardstick competition hypotheses is that: the first is the logical and necessary presupposition for the analysis of the second. If voters did not include the incumbent mayors' fiscal choices in their electoral calculus, these decisions would not affect the incumbent mayors'

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probability of being re-elected, and mayors would have no reason to look at what the neighboring colleagues are doing when they take their fiscal decisions. Hence there would not be any proper yardstick competition.

The main motivation of this study is that this link of consistency is often neglected in the empirical literature on yardstick competition. A first contribution of this analysis is therefore to estimate the correlation between the popularity of the mayor and his fiscal decisions in a way that is consistent with yardstick competition theory. To this end, we introduce the information that, according to yardstick competition models, voters' use when they make their electoral decisions in the vote popularity function. By that we verify whether the responsibility and the yardstick competition hypotheses are based on the same process of electoral decisions. Once this result is achieved, in the second step of the analysis we focus on the yardstick competition hypothesis. Specifically, we estimate a tax setting equation that distinguishes between the reactions of the domestic tax rates to the neighbors' tax rates ('spatial lag') and the spatial correlation of the unobservable variables in the error term ('spatial error').

The other contributions of this paper derive from the properties of the dataset, which was especially built for this analysis. As it includes all the Italian municipalities for the whole period when the mayors could set the local property tax rate, (1995–2007), the dataset spans some 67,000 observations per variable, making it the largest sample ever examined in yardstick competition analyses. Several important advantages derive from the use of our sample. First, the analysis of yardstick competition is performed on a sample that is not characterized by any arbitrarily imposed boundary of time and space. All previous empirical studies of yardstick competition instead adopted sub-samples of jurisdictions determined either by the choice of the analyst or by data limitations. This introduces distortions in the analysis, because sample boundaries that do not coincide with the limits to voters' possibilities of making inter-jurisdictional comparisons imply that some across-the-boundary comparisons are not taken into consideration. Such distortions might be responsible for the mixed results found in previous empirical tests of the yardstick competition hypothesis.

Second, cross-section analyses that average out the time dimension implicitly assume that the phenomena under study are in equilibrium conditions. In the case of the yardstick competition and responsibility hypotheses this is not necessarily true, as many countries are decentralizing their powers to tax and spend to make local governments more accountable (OECD, 1999). Italy is indeed a case in point. The time dimension of our panel allows us to relax the assumption that all variables are on their long-run steady state, and thus to control for transitory departures from the equilibrium path.

Third, the testing ground offered by the Italian sample is especially suitable for joint tests of the responsibility and yardstick competition hypotheses. In Italian municipalities inter-jurisdictional comparisons have been associated with accountability considerations from the very beginning. That because in Italy the possibility for voters to directly elect their mayor and for mayors to decide the property tax rate to finance municipal expenditures was introduced almost simultaneously in 1993. This created, at the same time, an institutional setting where inter-jurisdictional comparisons of fiscal performances were possible and elected mayors were directly accountable to voters.

Finally, the Italian sample satisfies the informational requirements of the responsibility and yardstick competition hypotheses fairly well. As we shall see in Section 3, the choice of the domestic property tax rate by the mayors is one-dimensional, is taken almost simultaneously by all municipalities and is very visible, because municipalities draw most of their revenues from that tax. Moreover, as more than 80% of Italians are homeowners, voters are well informed about the tax rate that the mayor has set, which generates re-election concerns for the incumbent mayors.

The rest of the paper is organized as follows. Section 2 reviews the economic literature on the responsibility and the yardstick competition hypotheses. Section 3 introduces the empirical analyses, describing the Italian institutional setting and the dataset. The estimation results of the vote popularity function and of the tax setting equation are presented respectively in Section 4 and Section 5. Section 6 reassumes the main findings of the analysis.

#### 2. Literature review

Yardstick competition has been proposed as a solution to the agency problem that arises when voters and incumbent officials have asymmetric information about the cost of public provision of goods and services (Besley and Smart, 2007; Besley and Case, 1995a,b; Salmon, 1987). When the cost shocks for the provision of a service are spatially correlated, voters may compare the fiscal performance in their jurisdiction with the neighboring ones and draw information about the relative competence of their administrator. The choice to re-elect the incumbent depends on the outcome of this comparison. The fiscal decision of the incumbent in jurisdiction *i* represents the best reaction to the strategy played in the neighboring (or similar) jurisdictions-*i* (Brueckner, 2003).

The yardstick competition model, however, supports a pooling equilibrium in fiscal decisions. There is a range of values of the cost shock for which the bad incumbent has an incentive to reduce the amount of his rent seeking activity to signal good competence to the voters. Bordignon et al. (2003) solved this signaling problem and derived the formal conditions for successful mimicking to occur. Under equilibrium mimicking the fiscal instrument is no longer an informative signal of competence and the agency problem is not solved. In such case, the appeal of yardstick competition lies in limiting the possibility for a bad incumbent to appropriate rents during an electoral year, rather than in the revelation of information about the competence of the incumbent.

The empirical literature tested the prediction of a pooling equilibrium in tax rates in many countries (see Allers and Elhorst, 2005; Dubois and Paty, 2010; Revelli and Tovmo, 2007; Edmark and Agren, 2006). Most of the studies, however, mix yardstick competition with tax competition à la Tiebout (1956). Both phenomena predict a reduction of tax rates for a given level of provision of public goods, but with two important differences. The first difference is that, when the tax base is mobile, voters may simply relocate to jurisdictions with a better tax/services mix, taking advantage of the exit option (Hirschman, 1970). In this case,

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