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Revisiting the determinants of local government performance

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ABSTRACT

Managing financial resources efficiently is a requirement for all levels of government. However, measuring the performance of governments or other public authorities is usually highly complex. The results of this type of assessment are likely to be biased or perverse. This study attempts to identify non-discretionary or exogenous variables that are associated with better/worse economic performance of local governments (the determinants of efficiency). Based on past research, the paper starts by providing a classification for the different types of determinants of local government performance. Afterwards, using data from all Portuguese municipalities, the relationship between a large number of factors and the efficiency scores is assessed. To accomplish this, several Tobit, OLS and double-bootstrap models were implemented. The efficiency scores are computed through non-parametric frontier methodologies. The results indicate that analysts must be prudent while interpreting the economic results achieved by each municipality. To be impartial and robust any performance evaluation model should (at least) consider the effects of the determinants of cost efficiency identified in this paper.

1. Introduction

In most developed countries, local governments are responsible for a significant number of public services [1]. For instance, in the European Union (EU), local governments have been endowed with an increasingly wider range of duties (in line with the subsidiarity principle). The new competences coupled with the growing financial constraints rekindled an old concern: the measurement of local government efficiency. Indeed, the "measuring government activity" movement finds its roots in the 1800s Enlightenment Europe [2] and, most notably, in the reforms of the Progressive Era in the U.S. (in the early 1900s, see [3]). For instance, in the 1930s, Professor Renne [4] was already stating the following:

> *Efficiency means the ratio of output to input: for example, how much value in terms of services is secured in return for a given expenditure of money in the form of taxes?*
>
> *This measure of efficiency may have several phases. There is, first of all, the determination of a general index of efficiency for the local governmental organization as a whole, based on the average cost per unit of work done. (…) These indexes, computed for various counties or cities, make possible a general comparison of efficiency between them, but there are many difficult problems and shortcomings connected with research designed to compute accurately such composite indexes. (…) Most discussions of governmental efficiency have been confined to expenditure comparisons, and few serious attempts have been made to measure the amount and quality of services rendered by local officers. This is because data showing the amount and quality of services rendered the public are not readily available. (…) Yet, how are we to secure even a rough approximation of the relative efficiency of different offices and forms of local government, or discover the basic factors upon which efficiency and the framework for a desirable reorganization program really depend, if some measure of the amount and quality of services is not devised?*

Notwithstanding the slight confusion between the concepts of "efficiency" and "unit cost" (where the former is certainly more comprehensive), after 75 years, the argument of Professor Renne is still quite timely. The notion of efficiency as a ratio of outputs and inputs, the need to have a composite indicator that represents the overall performance of the organization, the usefulness of comparing (benchmarking) the efficiencies of local governments, and the difficulties associated with this purpose, are all widespread issues in the recent public administration and management literature. The major advances in efficiency measurement have been methodological; for instance, the development of stochastic frontier analysis (SFA, [5]), a parametric methodology, or data envelopment analysis (DEA, [6]), a non-parametric methodology, both in the late 1970s.

The need for an efficient and accountable government (and, therefore, the need for establishing targets and evaluating results) was one of the banners of the New Public Management paradigm [7].

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Due to its narrow scope and limited ability to capture the complexity of public sector organizations, the pro-NPM arguments have been dismounted by theoretical and empirical research (e.g. see [8]). This does not mean, however, that measuring the efficiency of local governments is not in the current agenda (it simply should not be an end in itself). As mentioned above, local governments will have to "do more with less" to cope with present and future challenges.

In principle, providing incentives for efficiency and foster a "healthy competition" among local governments to enhance economic performance is a worthy intent. Beyond the obvious academic interest, developing a system for evaluating the performance of local authorities that would allow benchmarking and monitoring trends over time could have practical relevance [9]. The results could be publicized on a regular basis, encouraging economic performance [10]. However, since it is quite difficult to take into account all relevant variables and explanatory factors, very often the performance evaluation methods (partial or global, parametric or non-parametric, etc.) render "unfair" or biased results [11]. Namely, some units may be regarded as "poor performers" because they are impaired by exogenous factors, while some units may be praised because they benefit from optimal conditions (i.e. they are scoring without merit). This problem is particularly important when the units under analysis are as complex as local governments. The current paper addresses these issues, assessing the associations between a comprehensive set of variables and the economic performance of the Portuguese municipalities (data pertains to the year 2009).

In the last 20 years, nearly three dozen articles were published in reputed scientific journals with the purpose of measuring the efficiency of local governments using different methodologies. The focus of this paper is on the determinants of performance (in other words, the non-discretionary or exogenous variables that affect the efficiency scores attained by local governments). The current study contributes to the literature in three major aspects. First, it suggests a taxonomy for the operational environment of a generic efficiency analysis problem. Indeed, the literature lacks a clear and standard classification of the various types of non-discretionary variables. Through a systematic literature review, the determinants of local government performance identified in previous studies are categorized according to this taxonomy. Second, it assesses the potential influence of the most comprehensive set of variables to date. Third, this is the first two-stage study to use super-efficiency scores and a double-bootstrap procedure to uncover associations between exogenous variables and the overall performance of local governments; it is also the first study to apply the methodology proposed by [12] in this scope (to disclose the relationship between the determinants of local government performance and the variables used to compute efficiency).

The paper is structured as follows: after this introduction, Section 2 reviews the literature and suggests a general classification for the determinants of local government performance. Section 3 describes the Portuguese local administration and Section 4 presents the computed efficiency scores. The empirical analysis of the determinants of performance is provided in Section 5 while the Section 6 concludes the paper.

2. Measuring local government performance

2.1. Literature review

The large majority of studies that assess the performance of local governments as a whole refer to their overall efficiency. Formally, the higher the ratio of outputs to inputs, the more efficient a decision-making unit (DMU) is. This should be achieved by decreasing the quantity of inputs consumed to produce a certain level of outputs, by maximizing the outputs produced for a certain level of inputs, or by decreasing inputs and increasing outputs simultaneously. There are several parametric and non-parametric methodologies to compute the efficiencies of a set of DMUs. Among the non-parametric techniques, DEA and Free-Disposal Hull (FDH) have been widely applied to various sectors. Parametric approaches include corrected ordinary least squares (COLS) and SFA that can adopt different cost or production functions, for instance, the Cobb-Douglas or Translog (see [13] for further reading on methodologies). In 2000, Worthington and Dollery [14] carried out a detailed literature review on efficiency measurement in local government and, by that time, most studies focused on a single local public service. These authors alerted for the fact that efficiency analyses that do not explicitly acknowledge the significance of the operational environment should be "treated with caution" and that in the "complex politicized milieu of local government" effectiveness may be as important as economic efficiency.

For the current study, a systematic literature review procedure was followed. First, the terms "efficiency", "performance", "benchmarking" and "productivity" were combined with the terms "local government" and "municipalities" to perform searches in two recognized bibliographic databases: Scopus and Thomson Reuters Web of Knowledge. The objective was to identify articles that addressed these topics published in peer-reviewed and top-ranked journals. Arguably, this should warrant the overall quality of the studies identified. The search results rendered 250 full-length articles. The oldest article was published in 1937 (the article by Professor Renne) and the most recent ones during 2012 (the search was conducted in June 2012). However, only 23 of these articles carried out a global performance assessment of local governments. These studies are presented in the Appendix.[1] The remaining articles were focused on a single service or competence of the local government (15 papers), relied on partial measures of performance such as indicators (20 papers) or perception-based surveys (13 papers), were theoretical analyses on the effects of certain phenomena on municipal performance (22 papers) or theoretical arguments regarding the need for, and the difficulties of, performance measurement (52 papers). More than 100 articles retrieved in the process were unrelated to the economic performance of local governments.

As the Appendix shows, most authors use DEA, FDH or SFA methodologies. Although a few studies applied other methods, for instance, the Malmquist Productivity Index (MPI) or the Total Factor Productivity (TFP). Sporadically, past studies attempted to adopt different approaches such as the Analytic Hierarchy Process (AHP) or other additive aggregation models, however, these tentative approaches still present some problems (mainly in the determination of weights). The set of inputs and outputs selected by the authors are contingent on the competences of the local governments of each country. Despite some few exceptions, most authors adopt an input minimization approach. This makes sense since, in principle, local governments want to curb costs for a certain level of service (or reduce inputs for a certain level of outputs that is fixed or imposed). The majority of studies considered the effects of a set of exogenous variables on performance (the Appendix summarizes their perceived impact). Typically, this is carried out through a two-stage analysis (in the first stage the efficiencies are determined and in the second stage they are regressed on a set of variables [15]). Nevertheless, some authors opt to use these variables as non-discretionary outputs and compare the efficiencies attained with and without their inclusion.

[1] The appendix is put separately as electronic supplementary material.