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Auditing and competitive bidding in the public sector

Gervan Fearon [a,*], Lutz-Alexander Busch [b]

[a] *Economics, York University, Canada*
[b] *Department of Economics, University of Waterloo, Waterloo ON N2L 3G1, Canada*

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Abstract

This paper investigates the impact of a ministry's budget size on the choice between auditing a (Niskanen)bureau and employing competitive bidding in the provision of a publicly funded good. The ministry's marginal expected payoff increases fastest with budget size for auctioning as opposed to auditing. However, the ministry is shown to switch from a purely public provision to a competitive provision as the budget size increases even if expected fixed costs favor the audit. The study contributes to the literature by extending the Niskanen framework and by endogenizing the institutional arrangements for the provision of public sector goods.

JEL classification: H11; H4; D44; D73
Keywords: Niskanen bureau; Public good provision; Mechanism design; Audit; Auction

1. Introduction

Just as the private sector, in recent years governments have looked towards outsourcing and privatization for the provision of goods and services by the public sector (De Fraja, 1993; Feenstra and Hanson, 1996). An increasing number of prison facilities in the USA are operated by private contractors and reportedly have 10% lower costs than their public sector counterparts (Hart et al. (1997)). Significant cost advantages for privatization over public provision have been found for refuse collection services in cities with 50,000 or more residents, while no significant difference was found for cities with fewer residents

* Corresponding author.
E-mail addresses: gfearon@yorku.ca (G. Fearon), lbusch@uwaterloo.ca (L.-A. Busch).

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(Stevens (1978), Savas (1977)). For policing, it has been found that cities with a population of 80,000 or more had more costly and less efficient policing services than smaller cities, even in the presence of monitoring or auditing activities by citizens (Davis and Hayes (1993)).

The key economic problem facing a ministry responsible for the provision of a public good lies in the asymmetric information about costs between the producer of the good or service and the ministry. This is true both if the producer is a profit maximizing private firm and if the producer is a government bureau. As a result, the ministry has to pay informational rents to each type of provider. If the provider is a profit maximizing firm, informational rents are minimized through the use of an auction mechanism, which introduces competition at the bidding stage (Osborne and Gaebler (1993)). McAfee and McMillan (1987) suggest that such competitive provision tends to involve first-price sealed bid auctions.

Public sector bureaus have been characterized as Niskanen budget maximizing institutions (Niskanen (1975), Mueller (1997)). Bendor et al. (1985) and Breton and Wintrobe (1975) suggest that monitoring and management compensation packages may lessen the informational rents of such Niskanen bureaus. Monitoring has been defined by Mookherje and Png (1992) as the commitment of resources towards the detection of an offense prior to receiving information about an occurrence. They term the commitment of resources after an offense has been reported as investigation. Auditing, as analysed by Baron and Besanko (1984) in a principal-agent model with asymmetric information about a firm's realized costs, involves the expenditure of resources in order to detect misreporting after receiving a signal about costs.

This paper investigates the impact of budget size on the choice between auditing and competitive bidding in the provision of a publicly funded good. Auditing and competitive bidding raise several questions. First, what is the impact of the budget size on the funding source's choice between competitive bidding and auditing? Second, what cost distributions will result in the ministry having a non-trivial choice between competitive bidding and auditing the bureau for a given budgetary allocation? Third, what are the implications of the number of firms capable of providing the public sector good on the ministry's choice of competitive bidding or auditing?

In order to address these questions, the equilibrium outcomes of two mechanisms are compared: one is an auditing mechanism offered by the ministry, as principal, to a bureau, the agent. As in Baron and Besanko (1984) and Lacker and Weinberg (1989), the first order approach to the principal-agent problem is used. In this approach, the global incentive compatibility constraint for the agent is replaced by a local incentive compatibility constraint, allowing the use of optimal control techniques. The second mechanism under investigation is an auction mechanism. Due to its greater analytical simplicity, a second-price sealed bid auction is used to characterize the outcomes. The revenue equivalence theorem assures us that this auction will lead to the same (expected) utility for the ministry as the first-price sealed bid auction observed in practice.[1]

[1] See McAfee and McMillan (1987), or Milgrom (1987), among others. Jehle and Reny (2001) also provide an overview of auctions, the revenue equivalence theorem, and mechanism design.