



Motivations, monitoring technologies, and pay for performance[☆]



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ABSTRACT

Monitoring technologies and pay for performance (PFP) contracts are becoming popular solutions to improve public services delivery. Their track record is however mixed. To show why this may be the case, this paper develops a principal agent model where agents' motivations vary and so the effectiveness of monitoring technologies. In such a set-up, it shows that: (i) monitoring technologies should be introduced only if agents' motivations are poor; (ii) optimal PFP contracts are non-linear/non-monotonic in agents' motivations and monitoring effectiveness; (iii) investments aimed at improving agents' motivations and monitoring quality are substitutes when agents are motivated, complements otherwise; (iv) if the agents' "type" is private information, the more and less motivated agents could be separated through a menu of PFP/non-PFP contracts, designed in a way that only the less motivated ones choose the PFP.

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1. Introduction

In the last two decades, governments across the world have invested massively in monitoring and reporting technologies to improve the quality of public service delivery. The idea that such technologies promote efficiency gained increasing consensus in managerial circles, and it quickly spread to private companies and multilateral organizations.¹

But what are the channels through which monitoring and reporting technologies contribute to an improvement in public sector performance and to the provision of better services? According to the New Public Management (NPM hereinafter) school, the road to efficiency is paved by the three "Ms": markets, managers and measurement (Ferlie et al., 1996); and

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¹ For instance, at the World Bank increased attention is being paid on "deliverology," that is, on how to maximize the developmental impact of the different programs by taking into account the incentives of the different stakeholders.

measurement is what markets and managers have to rely upon to be able to exert control and enforce pay for performance (PFP hereinafter) contracts.² While a lot has been written on the effects of the introduction of PFP on the productivity of public sector organizations (Frey et al., 2013; Moynihan and Pandey, 2010; Weibel et al., 2010), much less has been written on the impact of investments made to increase measurability in public sector PFP schemes. This is quite surprising when many large ICT investments have been justified on the premise that enhanced monitoring and reporting technologies are key elements to improve organizational performances (Brynjolfsson and Hitt, 2003; Dunleavy and Carrera, 2013; Garicano and Heaton, 2010).

To better understand the trade-offs associated with performance measurability, this paper provides a simple theoretical framework to analyze the channels through which monitoring and reporting technologies may (or may not) increase the effectiveness of PFP schemes. The discussion of the relationships between PFP, agents' motivations, and organization performance, in the context of public sector organization, is attracting increasing interest in the economic literature (see, among others, Dixit, 2002; Akerlof and Kranton, 2005; Besley and Ghatak, 2005, and Prendergast, 2008). This literature focuses on the impact of non-monetary incentives on agents' performances and concludes that the effects of incentives schemes on performance may be ambivalent when agents have multiple motivations.

This paper contributes to this debate considering a stylized framework in which the measurement of outcomes is costly, and the alignment between the objectives of the agents and those of the principal is only partial. In such a set up, we show that (i) it is optimal for the principal to introduce a monitoring and reporting technology only if the latter does not impose a too high burden on the agents, and/or if the agents are not sufficiently motivated; (ii) the design of an effective PFP contract is complicated, and the optimal contract is highly non linear and/or non monotonic both in agents' motivations and in the "cost" of the monitoring and reporting technology; (iii) investments aimed at improving agents' motivations and the quality of the monitoring and reporting technology are complements when agents are highly motivated and substitutes when they are not; (iv) if the agents' "type" is private information, an effective way for the principal to separate the more motivated from the less motivated agents is to offer a menu of contracts designed in a way that only the latter choose the PFP.

The above findings may shed a new light on the fierce debate on public administration reforms and on the role played by e-government investments aimed at increasing performance measurability and hence transparency and accountability of public sector organizations (Barzelay, 2001; Bertot et al., 2010; Dunleavy et al., 2005; Pina et al., 2007). On one side, NPM advocates argue that investments in technologies that increase performance measurability boost organizations' productivity by facilitating the alignment of public servants' motivations with predefined organizational objectives (Aral et al., 2012; Ba et al., 2001). NPM advocates also point at the increasing popularity of PFP and e-government projects around the world as a measure of their success.³ On the opposite side, NPM critics argue that the increasing reliance of government programs on PFP schemes is a fad driven by consulting firms, which by no means is justified by the actual record of PFP or of e-government solutions.⁴

Our own reading of the literature is that, overall, the adoption of PFP schemes and the diffusion of e-government programs in the public sector has delivered mixed outcomes. Our model, suggesting that no one-size-fits-all solution exists, may thus provide a clear rationale for why this may be the case.

Of course, we are not the first who have looked at performance measurability in a principal agent framework; our model builds upon Holmstrom and Milgrom (1991),⁵ which first suggested that if agents have to perform multiple tasks, some monitorable and some not, incentive based contracts, which (necessarily) focus on the latter, may induce agents to reallocate effort in an inefficient way. Given that most of the goals associated with the actions of public sector organizations are by nature not univocal and cannot always be planned and defined before their executions (Moore, 1995; Alford and Hughes, 2008), it is difficult to map them in performance indicators (Propper and Wilson, 2003; Behn, 1998 2003). Baker (2002), Langbein (2010), and Le Grand (2010) provide comprehensive discussions of the costs and benefits of using PFP when goals are not univocal and/or quantifiable and performance indicators are difficult to establish. However, to our knowledge, there is no contribution that discusses how investments in monitoring and reporting technologies affect the enforcement of PFP schemes in such an environment.

Our main contribution to this literature is in modeling explicitly the costs associated with the introduction of monitoring and reporting technologies – the costs of managerial attention, according to Halac and Prat (2014) – and in studying how the interaction between such costs and agents' motivations affects the optimal PFP scheme. Agents' motivations, in our view, are indeed a critical factor to take into consideration when discussing PFP. In this dimension, we build upon Dixit (2002) who emphasizes that many public sector employees (judges, teachers, doctors, social workers) may share some "idealistic or ethic purpose served by the agency" (p. 715). Starting from such a premise, Delfgaauw and Dur (2008) show that a PFP system, offering steep incentives to the more dedicated workers, may help attract them to the public sector. Our model shares some of Delfgaauw and Dur's (2008) features. However, in our set-up, performance assessment schemes detract resources from

² See Picot et al. (1996).

³ See, for instance, OECD (2005).

⁴ See, Perry et al. (2009) and Prendergast (2015) for a comprehensive discussions of the effects of PFP schemes on public sector organizations and of the reasons why performance-related pay may fail to affect their performance.

⁵ For a comprehensive survey to the theoretical and empirical work on the provision of incentives in firms, see Prendergast (1999).

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