

# **MANAGEMENT AND PUBLIC ORGANISATION: The Principal-Agent Framework**

By

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## **INTRODUCTION**

Public sector reform in well-ordered societies has resulted in plural government after New Public Management (NPM). Perhaps this organisational variety that is now characteristic of the public sector can be called "EPG", i.e. enlightened public governance? In any case, we are still left with the task of understanding the present situation, which is neither bureaucracy nor contracting out (Ferlie et al, 1996).

The policy paradigm seems less relevant for the analysis of the post NPM situation. Public sector reform has less changed policy outcomes than the organisational structure of the public sector. It has not significantly reduced the public sector, but it has changed its structure. What we need to understand is the new complexity of public organization. Besides Weberian bureaucracies there are public-private partnerships, networks, mere contractual relationships, various kinds of performance units as well as outsourcing. In addition there has been reregulation introducing new regulatory units.

This organisational heterogeneity or complexity can only be captured with a most general approach to public organization. The distinctive feature of public organization is the political nature of the whole enterprise behind the public sector, or more specifically accountability. Thus, public teams are accountable to government in various forms, which is what sets them off from private organizations. I suggest the principal-agent framework may be developed so that it captures this feature of public teams or agents.

## **THE PRINCIPAL-AGENT MODEL**

The principal-agent approach (P-A) models the interaction between two sets of people, the principal on the one hand and the agent on the other hand (Ricketts, 2002). The interaction is supposed to take some time involving multiple moves and frequent interplay. Thus, it is a game with many moves which can take a considerable time to be played. To analyse such a complicated game and derive strategic solutions the P-A model assumes that the agent works for the principal against remuneration to be paid by means of the value of the output that the agent produces.

The agent is assumed to maximize his/her utility, which depends upon the remuneration and the disutility of his/effort in connection with the production of the output that the principal wants the agent to provide. The principal is maximizing his/her utility in relation to the value of the output minus the remuneration of the agent. The agent is risk/avert whereas the principal is risk neutral. These assumptions set up a game of long duration under which there is both cooperation and conflict.

Thus, both the principal and the agent want an output that has value marketwise or otherwise, as they both get utility from it. What is conflictual concerns the split of the gain from the output where the principal and the agent have opposing interests. The key question is whether the two actors can coordinate upon Pareto optimal outcomes, or whether there is a loss of output due to the strategies of the two players.

The P-A model would not have received so much attention in economics if it had not added one critical assumption to the framework, namely asymmetric information. Given full information the game has the standard solutions in economic theory, which depend upon the type of the market, i.e. the availability of agents resulting in perfect competition or monopoly. With asymmetric information the determinate solutions are more difficult to come by and the game has several interesting applications, as analysed in the economics of information. Asymmetric information games cover insurance, sharecropping, CEO:s and stock brokers (Ricketts, 2002). Can the P-A model also be applied upon plural government?

I suggest that not only that the P-A framework is applicable onto public organization but also that it is highly suitable for analyzing relations involving accountability. The two main phenomena in principal-agent interaction – hidden action and hidden knowledge – may be identified in public organization. In addition, one may speak of transaction costs which the principal incurs when he/she attempts to handle asymmetric information. Let me show what is involved by a few Diagrams.

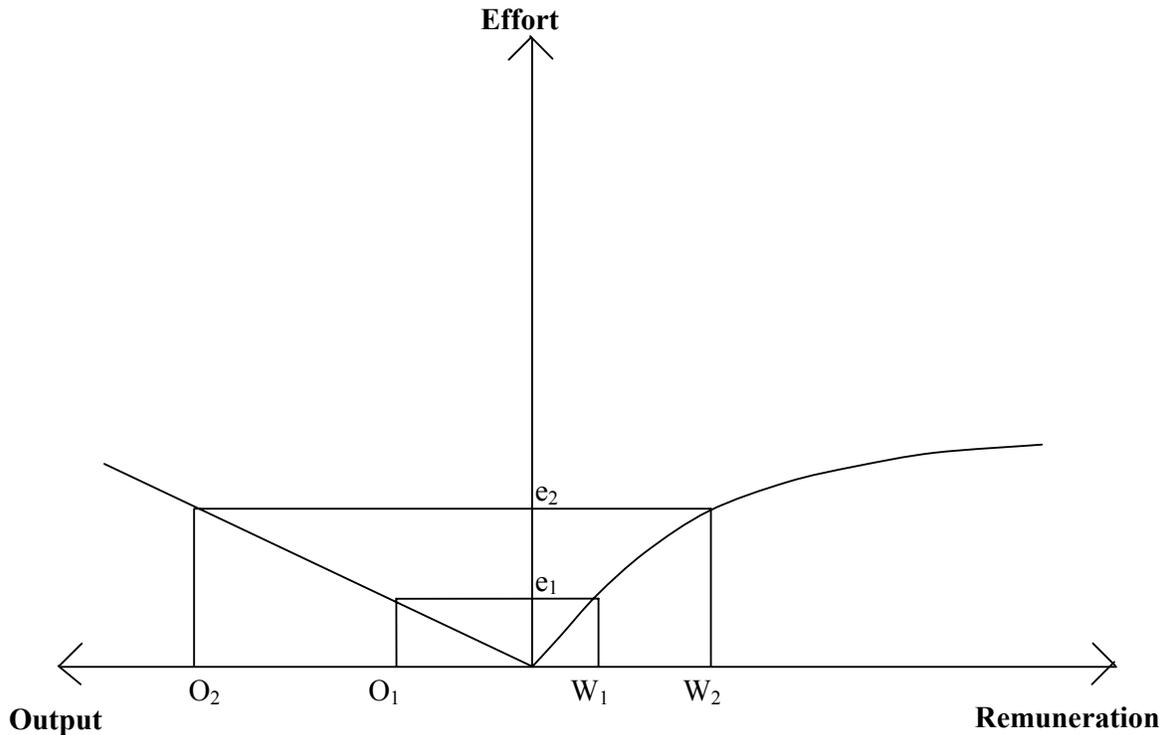
## **PUBLIC ORGANISATION FROM A PRINCIPAL-AGENT APPROACH**

The employees in the public sector, constituting about 20 to 30 per cent of the work force in a well-ordered society, may be seen as a collection of teams, headed by a chief or two or more chiefs. Government employs these teams to fulfil their electoral promises concerning the public sector and its services or money contributions. The problem in public organization is to choose the mechanism of structuring these teams so that they operate both efficiently and in an accountable manner. All the experiments in public sector reform show that there is no standard solution to the problem of organizing public teams so that they achieve policy objectives. Let me pin down where the difficulties lie with the help of the principal-agent model.

### a) No transaction costs, perfect information

The problem of hiring and instructing the agent to provide an output of services in the public sector would be trivial if the principal knows the technology to be used and can hire agents that are either low effort or high effort agents. Diagram 1 shows the two contracts that the principal will offer these two sets of agents, including the wages  $w_1$  and  $w_2$  corresponding to the effort levels  $e_1$  and  $e_2$  which result in different outputs,  $O_1$  and  $O_2$ . The solutions are Pareto-optimal and both players maximize their utility.

**Diagram 1. Principal-agent interaction I**



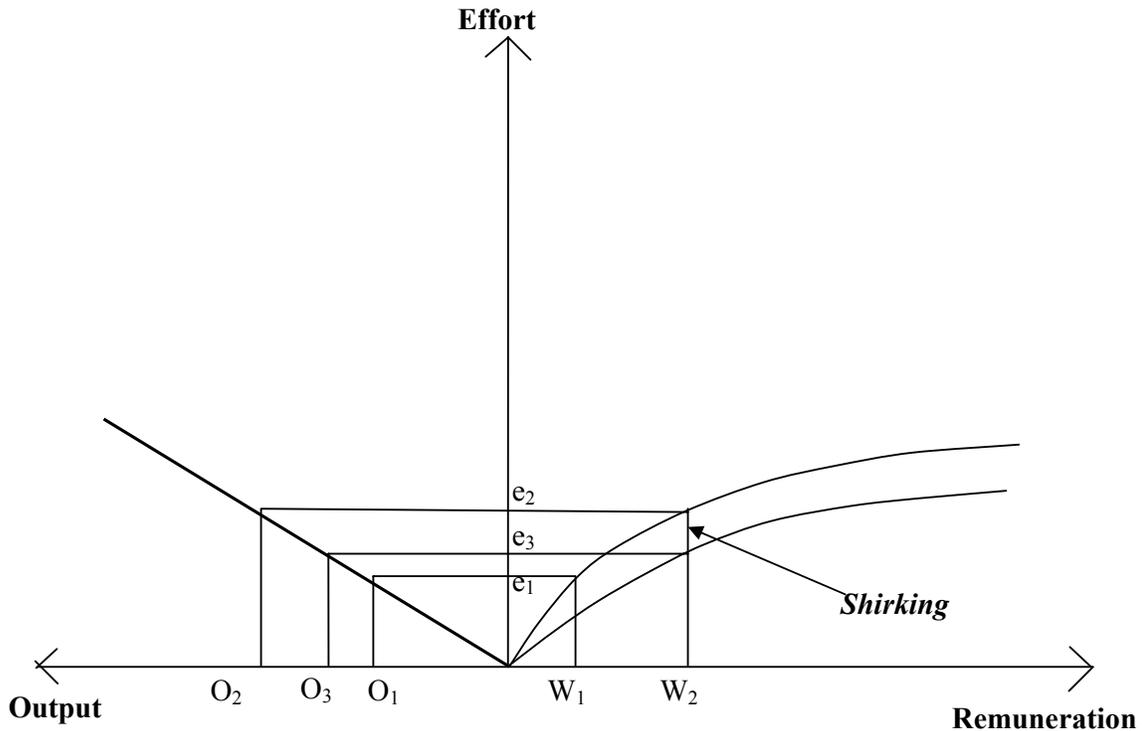
The solutions will vary depending upon the number of agents competing for the contracts. The agent may capture the entire gain if he/she is the sole agent. But this is not a likely outcome in the public sector where teams are often abundant.

Diagram 1 offers a naïve solution to the problem of implementing public policies. Since government has set the objectives and knows the technology, it hires the agents it needs, offering  $w_1$  to a low effort agent and  $w_2$  to a high effort agent. Both contracts maximize the gain for the principal and they are Nash equilibria. Matters become entirely different when the assumption about perfect information is replaced by the asymmetric knowledge assumption (Rasmusen, 1994).

b) Hidden action, no transaction costs

In the principal-agent framework, the principal cannot observe the effort put in by the agent. He/she can only verify output in the court. But since output depends upon both effort and the situation including randomness, it is impossible for the principal to control post-contractual opportunism on the part of the agent. Thus, it is probable that the agent will shirk, meaning take one wage according to an agreement about effort but put in another and lower level of effort. Diagram 2 shows this.

**Diagram 2. Principal-Agent Interaction II**



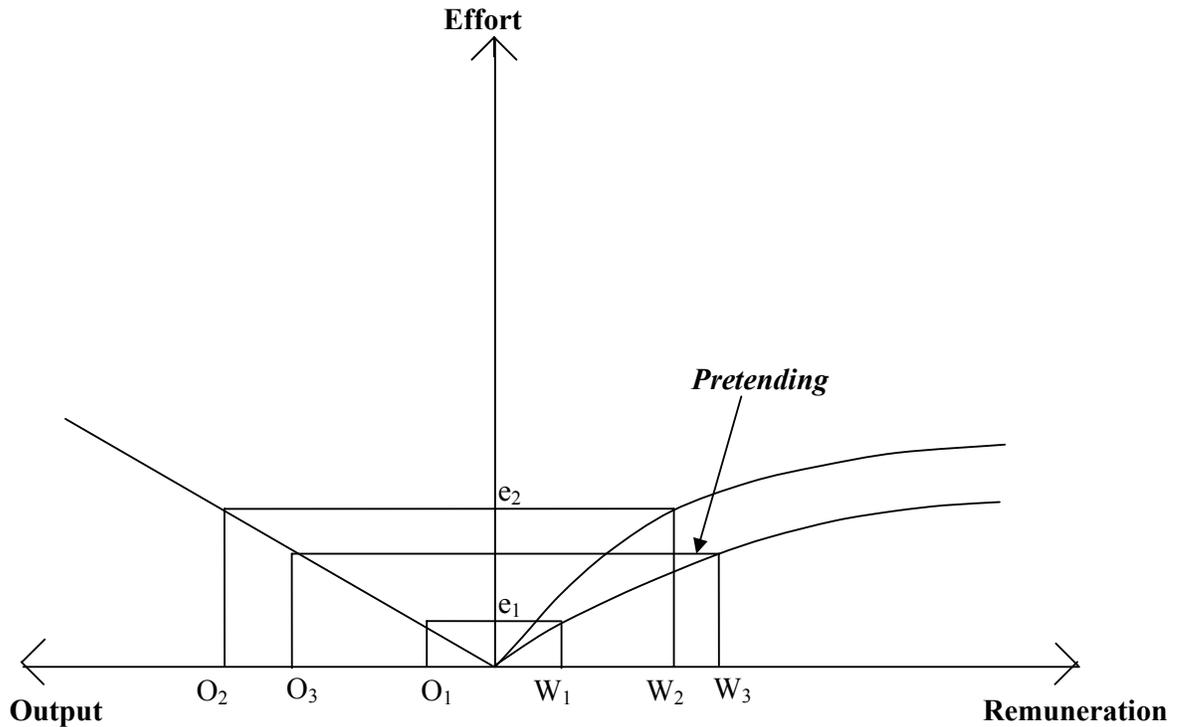
Shirking may be so costly to the principal that he/she loses all the gain from interaction. The agent increases utility by moving to lower indifference curves in the Diagram 2 according to the trade-off between salary and effort. However, a lower effort translates into a lower output, which hurts the principal.

Bureaucracy is the institution which is most vulnerable to shirking. Using long-term contracts with bureaucrats in order to enable them to develop policy expertise, government opens itself up for post contractual opportunism. As a response government prefers the solution  $w_1$  and  $O_1$ , which is a Nash equilibrium that is not Pareto optimal.

c) Hidden knowledge, no transaction costs

The principal wants to offer a low effort agent one wage and the high effort agent another wage. What happens if he/she cannot separate the two kinds of agents when contracting with the agent? The problem is not moral hazard as in Diagram 2, but adverse selection. The agent will pretend. Its logic appears from Diagram 3.

**Diagram 3. Principal-Agent Interaction III**



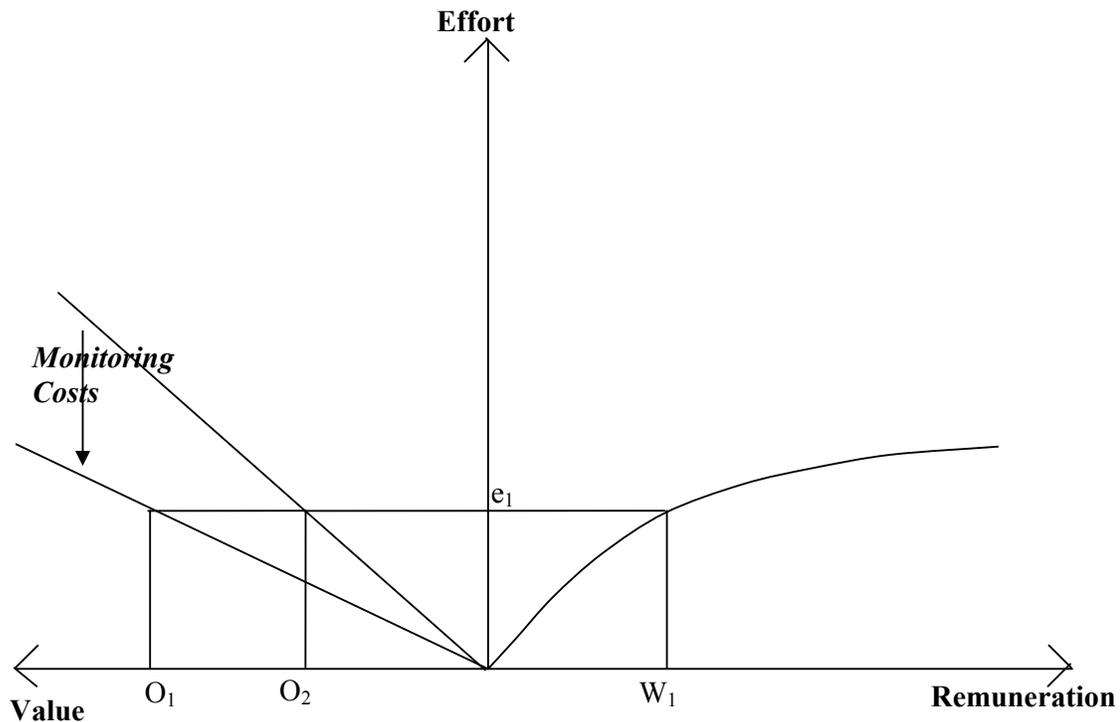
The principal would like to offer the low effort agent  $w_1$  and the high effort agent  $w_2$ . Both contracts may fulfil the agent's reservation utility, but they are not incentive compatible. The high effort agent will pretend he/she is a low effort agent, which forces the principal to offer this agent contract  $w_3$ , where there is again a loss of output. Pretending leads to informational rents.

When government employs short-term contracting to buy services from various teams, then it opens itself up for the risk of pre contractual opportunism. It cannot separate the agents into low and high effort agents when arranging for tournaments or auctions. Thus, contract  $w_2$  and  $O_2$  that is Pareto optimal is not enforceable.

d) Transaction costs

When the principal would like to undo asymmetric knowledge by investing in monitoring, then he/she has to pay transaction costs. They may be heavy – see Diagram 4.

**Diagram 4. Transaction costs**



Evaluating the agent to find out his/her effort level is costly to the principal, especially if the agent acts strategically or if agents collude among each other. Monitoring costs have to be covered by the principal from his revenue connected with the output. Thus, they reduce the value of the output – see Diagram 4. Monitoring costs can go so high that there is no gain from the provision of the services to the principal.

Transaction costs are difficult to identify fully and measure. They do not play the same dominating role in public organization as within private organization though. Public organization has one principal – the government or the state – which is under an accountability norm in relation to its principal, the body politic, the nation or the population as it were. Public organizations cannot minimize transactions no matter what, since they must maximize accountability, given certain restrictions such as efficiency.

## **CONCLUSION**

The principal-agent framework was developed for modelling long-term interaction between two persons, where one knows more than the other. Such interaction was not easily put into the categories of classical game theory. Principal-agent relationships were identified in the private sector, especially where risk was to be allocated between the parties in a joint venture (Rasmusen, 1994).

If the principal knows how to produce an output and he is risk neutral, then he can just employ an agent and instruct him/her what to do. However, if the agent knows more about the output and the agent is risk averse, then the principal may contract with the agent about some risk sharing arrangement under which both benefit. There are no determinate solutions to the ensuing game, where the principal and the agent fight about the split of the mutual gain. Given hidden knowledge or hidden action, the solutions may not be Pareto optimal.

This kind of thinking is applicable to the public sector, especially the provision of services. Bureaucracy poses the problem of hidden action whereas New Public Management entails the difficulty of hidden knowledge.

## **LITERATURE**

Ferlie, E. et al (1996) The New Public Management in Action. Oxford: OUP.

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Ricketts, M. (2002) The Economics of Business Enterprise: An Introduction to Economic Organization and the Theory of the Firm. Ashgate: Edward Elgar.

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