

# Motivation, incentives and performance in the public sector

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## Introduction

A now important literature has investigated and still investigates the relationships between motivation, incentives and effort. Even if there is still some reluctance to address this issue, there is an agreement on the fact that incentives are not *always* enhancing effort. Different explanations have been pointed out both in economics and psychology<sup>1</sup>. There is however a less important but fast growing literature concerning the links between motivation, incentives and effort in the *public sector*. Basically, this literature has grown out of the movement for undertaking reforms in most OECD countries in order to render their public sector more efficient and want to measure more precisely the performance of their public activities<sup>2</sup>. In fact, the current contributions in this field of research can be classified into two main categories. The first deals with the definition of principles (mainly methodological) concerning measurement of performance within the public sector (Atkinson, 2005; Bureau and Mougeot, 2007). The second is concerned with the analysis of the relationships between incentives and performance in the public sector<sup>3</sup>. These two frames are not independent and equally necessary but focus on different aspects of what can, broadly speaking, be called the analysis of the efficiency of the public sector.

In this paper, we focus more on the second strand of the literature but make some references to the first one because of the complementarities between the two. In fact, the Performance Related Pay (PRP) system supposes in order to be efficiently set up, that performance can be, even in principle, measured (Marsden and Belfield, 2006; Metawie and Gilman, 2005). Accordingly, if there is a relation between incentives and performance in the public sector, it is necessary in order to identify it to define and measure performance. Now,

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<sup>1</sup> For a recent survey see Festré and Garrouste (2008).

<sup>2</sup> The Al Gore's report (1995) and more recently Atkinson (2005), the reports of Conseil d'Analyse Economique (2000; Bureau & Mougeot, 2007) are examples of this evolution. An increasing number of OECD reports also deal with this topic, warning against the difficulties of implementing performance-related pay in the public sector (OECD, 2005a, p. 75).

<sup>3</sup> This rapidly growing literature concerns, as we will see below economics as well as management and administrative sciences. It is mainly developed in Healthcare and teaching.

measuring performance within the public sector is more complicated than it is in the private sector for the following reasons<sup>4</sup>:

- 1) There is not always a perfectly identified output in the public sector as it is the case in the private sector<sup>5</sup>. The quality of the output is an important element to take into account. Although the problem applies more generally to public goods and services sectors, regardless of them belonging to the public or the private sector<sup>6</sup>, we shall focus here on the public sector.
- 2) The same output can be due to different agencies (or services or departments); it can be produced by different sets of inputs.
- 3) The same agency can produce different outputs; it can participate to the production of different sets of outputs.
- 4) The outputs can be complementary or substitute.
- 5) The agencies may produce positive as well as negative externalities.
- 6) The output is not sold on the market or if it is the case not at its market price.
- 7) Statisticians have to get the information they need knowing the above difficulties. For example if different ministries together produce one output, one needs to obtain the relevant information from all of them.

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<sup>4</sup> According to Dixit (2002), “public sector agencies have some special features, most notably a multiplicity of dimensions-of tasks, of the stakeholders and their often-conflicting interests about the ends and the means, and of the tiers of management and front-line workers. Sometimes these special characteristics explain why these agencies are in the public sector in the first place. They also make inappropriate the naive application of magic bullet solutions like competition or performance-based incentives.” (Dixit, 2002, p. 697). See also Francois and Vlassopoulos (2008). In Dixit (1997), it is assumed that multiple principals contract with one agent as in Martimort (1996) but with adverse selection in this second case.

<sup>5</sup> See for example Burgess and Ratto (2003) for an analysis of the difficulty to measure public sector outcome and performance.

<sup>6</sup> The notion of public utilities would have been more relevant in this case

We will examine more deeply the five first problems<sup>7</sup> and give some elements concerning the two last ones.

**There is not a perfectly identified output in the public sector as it is in the private one.**

Public services are sometimes (if not often) a bundle of complex activities that is difficult to identify. As for education, the output is difficult to define and then to evaluate. If for example one measures the efficiency of public education by the number of students who pass their final exams, even if it is supposed that no moral hazard may result from the teachers' behavior, one takes only a part of the service delivered into account. The acculturation of students, their capabilities to work in groups, to take initiatives, etc. are then not taking into account even if they are however important aspects of their capacities to enter successfully the labor market, which can be considered to be the main role of the public education system<sup>8</sup>. The difficulty is consequently to identify all the dimensions (the characteristics in a Lancasterian parlance) of the output. As such this problem is not completely specific to the public sector, but it becomes essential for this later because it is linked with how one conceives of the role of this sector. Classical explanations of the existence of the public intervention in the economy are basically linked with the problem of externalities, market failures, redistribution and the equity problem. Those problems are the concern of the *economics of welfare* and are strongly associated with some ethical and social dimensions. The characteristics of public services are consequently mainly qualitative and cannot be reduced to a quantitative problem (the search for profit) as it is usually the case in the private sector. As an example, the existence of *merit goods* is relative to 1) the very definition of what is considered as good or not for people to consume and 2) the fact that the public authorities want to do what is good for people if they cannot do it or if they refuse to do it. Consequently, individuals may be unable to ascribe a precise value (if not a price) to the output they

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<sup>7</sup> Dixit (2002) defines the special features of the public sector in a different but not contradictory way. Accordingly, multiple principals, multiple tasks, lack of competition and motivated agents are the main characteristics of the public sector.

<sup>8</sup> "Teaching is multidimensional and aimed at much wider outcomes than exam results or test scores." (Burgess and Ratto, 2003, p. 20) or "other academic subjects (such as science) and dimensions of learning that contribute to the public good (such as civics) are typically assigned zero value." (Kane and Staiger, 2002, p. 106.)

“consume”. All these different elements are linked to the Weberian conception of the State as the entity that has the “monopoly of the legitimate violence” and can therefore impose its will.

### **The same output can be produced by different sets of inputs**

In a firm it is usually the case that individuals are interdependent and that the global output is determined by the coordination between them. The team theory perfectly analyses the consequences of this kind of problem in terms of incentives (Holmström, 1982), communication and internal organization (Radner, 1992). Moreover, the idea that different firms, producing each a specific product are interdependent in the sense that they permit together the production of a final good does not affect the identification of their own output. In the public sector, the problem is due to the fact that a given output may be obtained as the result of different services that are individually realizing their own missions. In the case of cancer disease, for example, the reduction of the number of cases can be the consequence of improvements in the training of the healthcare employees, but may also result from public or targeted information campaigns or from the prohibition of certain activities or consumption of toxic substances. If the two first of these missions depend on the healthcare ministry, the latter falls within the competence of the police.

### **The same agency can produce different sets of outputs**

This case is the exact opposite of the previous one. The achievement of a given mission can produce an output that, in principle, depends on another mission. As an example the mission devoted to the police is to enforce law and maintain public order. By this way it arrests or even sometimes punishes directly the delinquents, for example, those people who are smoking in public buildings. In doing its job the police services not only maintain public order but also make the number of cancers due to smoking decreasing. This second output is however a mission of the healthcare ministry. Such an example can be generalized and justifies distinguishing between *output* (the actual result of a service) and *outcome* (the realization of an objective) as it is advised in the Atkinson’s report (2005).

### **The outputs can be complementary or substitute**

This problem is not exactly the same as the previous one. In this case, the relations involved are not accidental but result from the fact that the output of one service or agency

necessarily complements another or substitutes to it. Let us consider that the efficiency of healthcare services can be roughly evaluated by the average life expectancy of the population. We suppose, for the sake of simplification, that this target can be achieved by the healthcare services only (i.e., we rule out possible contribution from other public services). Consequently, the higher the output of the healthcare mission the higher the number of old persons living in a given country. This good result is however regarded as a bad one by economic and social agencies because it increases the cost of redistributing income. In this case, the two outputs are substitutes. As for the case of smoking prohibition, the outputs of the police and of the healthcare are complementary.

### **The agencies may have positive as well as negative externalities**

This problem concerns the cases when the production of an agency positively or negatively impacts on the production of another, i.e. when different missions devoted to those two agencies more or less overlap. This overlapping can produce both positive and negative externalities and may be solved by a more precise definition of the missions of the different agencies. For example, in France, until recently the “gendarmerie” (linked with the ministry of Defense) and the police (linked with the ministry of the Interior) were ascribed close and sometimes identical prerogatives. This overlapping has sometimes engendered negative effects in terms of the achievement of their own missions<sup>9</sup>. This idea is at the origin of Dixit’s (1997) idea that the accomplishment of multiple principals’ tasks by an agent can produce externalities (positive or negative) between the principals’ payoffs.

The fact that the output of public activities is not sold on the market or is not sold at its real price is the distinctive feature of what is commonly referred as the ‘non market sector’. Consequently, the basic solution was, until recently, to evaluate the public sector production on the basis of the following equation: *input = output*. The corollary was the impossibility to measure the productivity of the public sector. It is one of the elements that explain that the ONS (Office for National Statistics) asked for researches in order to directly evaluate the production of the public sector. The Atkinson report (2005) is one of the byproducts of this

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<sup>9</sup> Even in the same agency some negative externalities may occur. An example, again in France is the famous rivalry between Lucien Aimé-Blanc and the superintendent Broussard in the attempt to arrest Jacques Mesrine. Although the individual characteristics of these two persons might be an important explanation, the fact that their respective roles were not precisely defined permitted their opportunisms to manifest.

attempt to precisely measure the output of the public sector. The idea that performance is to be measured taking into account all the elements that explain the level of the output is a consequence of the five problems presented above. The difference introduced between *output* and *outcome* is also due to the existence of the problems 1 to 5. Accordingly the second Atkinson's report principle (principle B) states that "the *output* of the government sector should in principle be measured in a way that is adjusted for quality, taking account of the attributable incremental contribution of the service to the *outcome*". (Atkinson, 2005, p. 42, italics from us)<sup>10</sup>.

All the problems listed above need to be solved before being able to analyze the relationships between motivation, incentives and performance in the public sector. We will now propose some element of analysis of these relationships.

### **Motivation, incentives and performance in the public sector**

It could be said that the very existence of the specificity of the relationships between motivation incentives and performance in the public sector is only due to the difficulties of measuring performance. It could be indeed considered that if both problems of definition and measurement of performance are solved, nothing prevents from applying the same kinds of solutions that are proposed in order to solve the problems of incentives inside private organizations<sup>11</sup>. Even the limits of those solutions can be extended to the public sector<sup>12</sup>.

In order to defend this point of view two problems need however to be solved. The first one concerns the relationships between the public sector and civil servants' motivation. The second is a consequence of the performance-related pay (PRP) system on the civil servants' motivation. Let's look at them successively.

The first problem concerns the kind of motivation that the public servants share. As we will see below, most studies converge towards the idea that those motivations are specific.

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<sup>10</sup> The nine Atkinson's principles are in the appendix.

<sup>11</sup> "The break up of large bureaucracies into specialist agencies responsible for the delivery of specific services, each with its own set of performance targets has reduced the problems posed by conflicting levels of political and management leadership" (Marsden, French and Kubo, 2001, p. 2).

<sup>12</sup> "Teachers, health service professionals, job placement advisers and many tax officials have considerable control over how they work, and in many cases, it is very hard for management to monitor the degree of effort and care they put into their jobs. In this regard, public sector employees differ little from their private sector counterparts. They also resemble private sector employees in that assessment of their performance relies heavily on subjective appraisal by line managers." (ibid.)

This specificity can however be intrinsic or result from the very fact that individuals work as civil servants. In the first case, individuals enter the public services because they are for example more altruists, less money-interested or lazier than the others; in the second case, due to the very characteristics of the public services they become either more others-regarding or more opportunist. The first case is linked to what economists use to call a selection problem; the second relates to moral hazard. If the principal wants an efficient agent in terms of the costs of the achievement of a mission, he may indeed hire an egoist (or as in Prendergast (2007), an agent hostile to the client as in the tax evasion problem). If however his main objective is to satisfy the clients, he would prefer to select a more altruistic agent. As for the moral hazard problem, its existence is linked with the difficulty or impossibility of measuring the performance of the agent or of the team he or she is involved in. This difficulty of measuring performance may induce a double moral hazard phenomenon inasmuch as the principal can also manipulate that performance. (Marsden, French and Kubo, 2000, 2001)<sup>13</sup>.

To sum up, intrinsic motivation implies a selection problem and is conditioned by the compatibilities between the agent's characteristics and the principal's interests.

The 'evolution' of the motivations of the agent can be 'natural', i.e., produced by his 'mission' or result from an opportunistic behavior, hence involving a (sometimes double) moral hazard problem.

The second problem concerns the relationships between PRP and the motivations of civil servant. According to the literature, both in economics and in public administrative science, the effects of the implementation of the PRP in the public sector are far from unambiguous. In fact it strongly depends on 1) the assumption made concerning individuals' (the employer-principal and the employee-agent) characteristics and rationality, 2) the existence of asymmetry of information, 3) the fact that this asymmetry is *ex ante* (adverse selection) or *ex post* (moral hazard). Broadly speaking, economists are used to assume that individuals are perfectly rational, even if some recent models introduce the idea that they can be altruists, reciprocators or others-regarding, whereas in administrative science there is a

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<sup>13</sup> "Across the organizations we surveyed, it was widely thought that performance pay was a device to cut the pay bill. Over 60% thought management applied a quota to good appraisals; around 55% of employees thought they would not be awarded performance pay even if their work was good enough; and over 40% thought line managers used performance pay to reward their favourites." (Marsden, French and Kubo, 2001, pp. 5-6)

more complex typology based on the idea that individuals can be intrinsically motivated by working in the public sector (Public Service Motivation).

In order to disentangle those different elements, we present successively the public administration science approaches of the relationships between motivation, incentives and performance and the economic ones. What is striking at first glance is the paradoxical fact that, although evidence of increased effort and productivity in the public sector is put to the fore by many economic studies (Burgess and Croxson, 2001; Atkinson et al., 2004) as well as psychological ones (Dowling and Richardson, 1997; Marsden and French, 1998) when different PRP systems were applied, their impact on employees' motivation often proved to be negative (Thompson, 1992; Marsden and French, 1998; Dowling and Richardson, 1997; and Marsden, French and Kubo, 2000, 2001).

### **Motivation, incentives and performance in public administration science**

The public administration science conception of the relationships between motivation incentives and performance in the public sector is usually based on the idea that individuals who work in the public sector have some specific characteristics.

According to Wise (2004) the characterization of bureaucratic postures supposes the following assumptions to be made:

1. "Some individuals are predisposed to a particular set of motives.
2. Variations in the strength of different motives for work are related to work-role choices and sector of employment, as well as personal characteristics.
3. Contextual factors affect the salience of different motives for work and the postures bureaucrats take.
4. Individuals are complex, with mixed and competing motives, and they may display multiple and competing motives for work-related behavior.
5. The posture that a bureaucrat takes within a given organization can be categorized into different modal behaviors. However, these modal categories do not fully account for the behavior of individuals.
6. No single modal behavior accounts for the posture that all bureaucrats take." (p. 671)

Accordingly Wise identifies four bureaucratic postures and groups them in the following (figure 1):

Approach/attribute	Weberian or responsible	Representative bureaucracy	Public service motivation	Public choice
Substantive form	Delegate	Trustee or delegate	Trustee or politico	Politico
Scope/coverage	Applies to all	Applies to most	Applies to some/few	Applies to all or most
Motive	Obedience and service to an organization and its executive; logic of appropriateness	Serve and advance reference group and minority interests; logic of appropriateness	Promote the public good, advance special policy interests or programs; logic of consequentiality	Rational motives linked to personal or organizational advancement; logic of consequentiality
Origins	Sociology, political science, administrative law	Administrative law, political science	Public administration, political science, social psychology	Economics, political science, political economy, political science,
Bureaucrat's posture	Neutral and loyal	Advocate	Advocate	Self-interest
Net impact on public interest	Neutral—Advancement of the public interest is in the hands of policy makers	Positive to the extent that significant groups are represented in the bureaucracy	Positive to the extent that presumed benevolent acts and assumed public goods are beneficial Negative if pursuit of PSM challenges other interests	Neutral if competing interests means no actor gains advantage
Net impact on bureaucratic performance	Positive (efficiencies from specialization and hierarchy) and negative (excessive rules, procedures, and documentation)	Positive if greater diversity leads to more creative and effective problem solutions. Negative if diversity introduces dysfunctionalities	Positive (PSM may stimulate extraordinary effort) and negative (pursuit of PSM may reduce efficiency)	Positive in that it assumes competition and accountability creates efficiency

Figure 1: Wise (2004, p. 675)

In this figure, three substantive forms are introduced. The *delegate* who defends the values, preferences and choices of people with whom he or she shares social origins or group affiliations. The “*trustee* is someone who uses his or her judgment to act in the best interests of individuals and groups” and a *politico* is someone who acts to maximize a political position or personal status.” (p. 672).

Those kinds of approaches are then usually based on the idea that the bureaucrat has some specific characteristics, a particular motivation to work for the public sector. As an example, the Public Sector Motivation (PSM) is “an individual’s predisposition to respond to motives grounded primarily or uniquely in public institutions or organizations” (Perry and Wise, 1990, p. 368). This is why “in contrast to private managers, public managers regarded public service and work that is helpful to others as important, whereas higher pay, status, and prestige were less important.” (Moynihan and Pandey, 2007, p. 41). This literature assumes that “rational, normative, and affective processes motivate humans; that people are motivated by their own self-concept; that preferences or values should be endogenous to any theory of motivation; and that preferences are learned in social processes.” (ibid, p. 42).

The Expectancy Valence Theory, the Cognitive Evaluation Theory, Goal Setting theory, Self-Efficacy Theory, or the Self-Determination Theory<sup>14</sup> are generally mobilized to justify the idea that individuals have some intrinsic motivations, basic capacities, or socially determined preferences that make them reacting differently to extrinsic motivations or rewards. As an example, Wright (2007) presents the Figure 2 below that is based on the idea that the kinds of missions as well as the characteristics of the job that civil servants realize are strong determinants of their work motivations

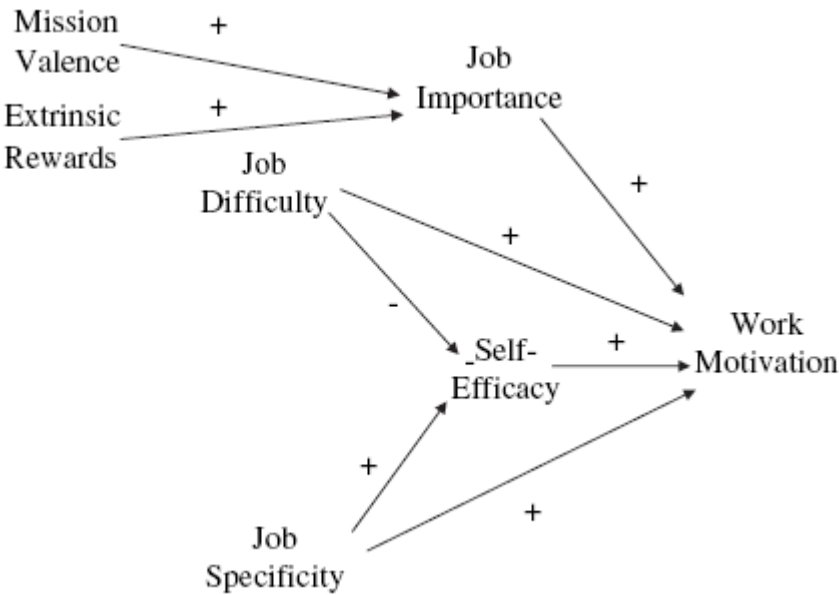


Figure 2: Wright (2007, p. 56)

We see here that extrinsic rewards are only one element that impacts on work motivation. In a similar way, Perry, Mesh and Paarlberg (2006) make a review of the literature on the performance paradigm in the public sector using its four basic elements: employee incentives, job design, employee participation and goal setting. Their review is based on the framework given in Figure 3:

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<sup>14</sup> See Festré and Garrouste (2008) for a presentation of those theories as well as the role they play in the attempt to explain the crowding out effect.

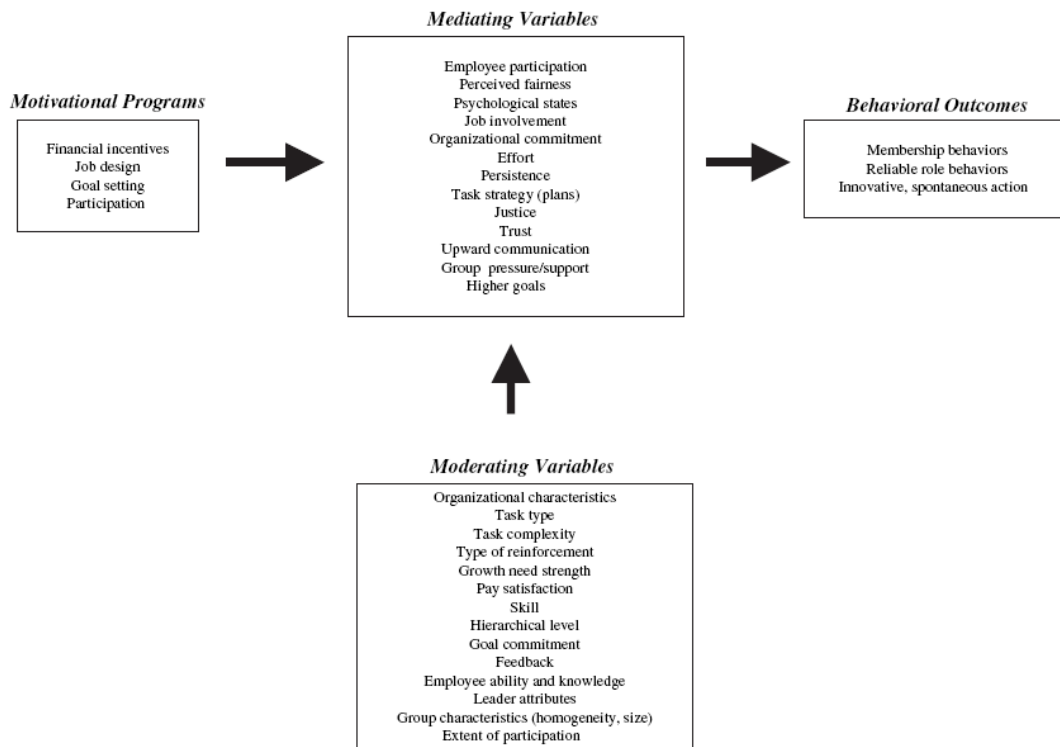


Figure 3: (Perry, Mesh and Paarlberg, 2006, p. 506)

We may notice here that pay satisfaction is only one of the 14 moderating variables.

In every kind of those works, what is tested is the effect that extrinsic rewards, the organization of the service, job design, the kind of missions realized, etc., i.e., contextual factors that may affect the motivation of an employee, have on his work motivation, which is supposed to be specific (for example PSM). What is generally admitted is the following:

- 1) Mission matters. “Again, this suggests that the basic framework provided by goal theory can not only incorporate but also support the fundamental assumption of public service motivation: that the intrinsic rewards provided by the nature or function of the organization may be more important to public sector employees than — or compensate for the limited availability of — performance-related extrinsic rewards.” (Wright, 2007, p. 60). This result is interesting because it can explain the fact that the civil servants that seem to be the less positively influenced by PRP are physicians and healthcare employees.

- 2) Organization matters. As an example, employees who work in a friendly organization where they are empowered have a higher level of PSM than the others. Accordingly, “reducing red tape and undertaking reform that clarifies goals and empowers employees can have a positive effect on employees’ PSM. Other research suggests that helping employees feel as if they are meaningfully contributing to organizational goals reduces employee frustration and strengthens commitment.” (Moynihan and Pandey, 2007, p. 48).
- 3) Job design matters. The way job is designed strongly influences job satisfaction and consequently work motivation. Such an influence is usually considered as mediated by skill utilization. The independent variables are job control (autonomy) and job demand: “Increases in perceived job control lead to the perception of greater opportunities for skill utilization and development and higher levels of intrinsic job satisfaction.” (Morrison, Cordery, Girardi, and Payne, 2005). In the same way, Wright (2007) positively tests i) that even if job-goal difficulty has a negative indirect effect on work motivation through its influence on self-efficacy, it has a direct positive effect on work motivation; ii) that job-goal specificity has a positive direct and indirect (through self-efficacy) effect on work motivation (cf. Figure 2).
- 4) Private and public employees differ. Buelens and Van den Broeck (2007) show that i) compared to private sector employees, public sector ones are less influenced by monetary rewards; ii) if public sector employees do not seem more sensitive to intrinsic factors such as self-development or responsibility, they seem more motivated by a supportive working environment; iii) “public sector employees report fewer working hours and less willingness to exert considerable effort on behalf of the organization”<sup>15</sup>; iv), hierarchical level impact at least equally on motivational differences than sector employment (education, healthcare or police). Finally, if sector employment is not a decisive factor as compared to gender, age or education, public sector employees experience less work-family conflicts than private sector employees. Burgess and Ratto (2003) show that if intrinsic motivation is important in the public sector, what is typical in this sector is the multiple principal problem, the fact that

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<sup>15</sup> As we will see, this result apparently conflicts with Gregg and al. (2008), who show that civil servants are donators of labor.

measurement of performance and efforts is more difficult than in the private sector and the importance of teams in the production of the output<sup>16</sup>.

- 5) Hierarchical position matters. It seems “that motivational patterns differ significantly for higher – and lower – level public sector employees. The former are more private – like, with high commitment, high satisfaction, and smaller gaps between what they want and what they get.” (Buelens and Van den Boeck, 2007, p. 70)<sup>17</sup>.
- 6) Commitment matters. This result may seem to contradict the fourth one. However, civil servants seem to be highly concerned by their commitment. Marsden (2001) shows that civil servants are highly committed to their job.

### **Economics of motivation and incentives in the public sector**

Until the 80s economics attempts to compare private and public sectors in terms of incentives and performance. The results are far from being unambiguous. According to some studies, PRP increases performance, but this result depends on the sector. In healthcare, this is less the case than in education. Basically, the theoretical approach is often (except for example Francois and Vlassopoulos, 2008) a refinement of the incentive theory and, more particularly, the agency theory.

#### **The limits of the application of the ‘standard’ agency theory in the public sector.**

Agency theory, which is based on the idea that two parties (one or more principals, on one hand and one or more agents, on the other hand) have a basic common interest (they both need the effort or payment of the other to obtain a payoff) but also contradictory interests (the principal wants the agent to make the highest effort while giving her the smallest possible wage and bonus whereas the agent wants the highest possible revenue associated with the minimum effort). When information is symmetrical with no uncertainty, it is possible to define the first best optimal contract between the two perfectly rational parties. With

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<sup>16</sup> We find slightly the same characteristics in Dixit (2002).

<sup>17</sup> This result may challenge their idea that, because low level employees in the public sector are more likely to consider their job as less interesting and challenging than do managers, they seem to be more potentially reacting to pay for performance. This is however in line with the Self-Determination Theory that considers that a-motivated people for performing a task need to be extrinsically incentivized, and at the opposite intrinsically motivation can be crowded out by extrinsic incentives.

uncertainty, incomplete contract theory applies (Grossman and Hart, 1986, Hart and Moore 1990). With information asymmetry, classical normative agency theory applies (Holmstöm, 1982; Laffont and Tirole, 1993). The three classical conceptual categories that account for the relationships between the principal and the agent are i) the moral hazard problem, i.e., when “the agent’s action affects the principal payoff, although the action is not directly observable by the principal (Dixit, 2002, p. 697); ii) the adverse selection problem, when “the agent has some information at the time the contract with the principal is being considered” (ibid., p. 698)<sup>18</sup>; and iii) the costly verification problem, when “the agent can observe some outcome better than the principal can, and the principal has to devise a reward scheme and a costly outcome verification scheme” (ibid.). Depending on the forms taken by the asymmetry of information, the principal can propose at best a second-best contractual solution. The possibility to apply those important results in the public sector depends on the satisfaction of some of the assumptions on which they are based. First, some empirical and theoretical studies show that individuals are not uniquely motivated by monetary incentives. Intrinsic motivations are considered as essential by some authors<sup>19</sup>. Reciprocity<sup>20</sup> or altruism<sup>21</sup> may also alter the relationships between incentives and effort. Although those results are not specific to the public sector, they appear to play a more important role in this sector, judging from the literature data available. In particular, this literature has stressed the fact that civil servants are more motivated by the tasks themselves or by non monetary incentives than by monetary ones. Ethical purposes can also be at the origin of the choice for an individual to embrace a public career. Professionalism is also an explanation of the fact that individuals work hard or even harder without obtaining the same monetary compensation as in the private sector. Second, as said above, outcome, i.e., performance is harder to measure in the public sector than in the private one. It is then much more difficult to design an optimal contract as in the case of the moral hazard situation, because of the impossibility of conditioning the agent’s payoff on her performance<sup>22</sup>.

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<sup>18</sup> In Milgrom and Roberts (1992) moral hazard is defined as a post contractual opportunism and adverse selection as a pre contractual form of opportunism.

<sup>19</sup> See for example Deci (1975). For a survey on the crowding out effect in economics and psychology, see Festré and Garrouste (2008)

<sup>20</sup> See Fehr and Fishbacher (2005)

<sup>21</sup> See Rabin (1998)

<sup>22</sup> See the model proposed for example by Baker (2002).

Those two problems, i.e., the specificity of motivation and the difficulties to measure performance have been discussed by economists. Let us recall the main empirical and theoretical results they have obtained.

### **Empirical results**

- 1) Civil servants seem to be sensitive to monetary incentives. The efficacy of PRP however depends on the sector of activity. In particular, Franck and Rosenthal (2006) show that in the healthcare sector there is a weak effect of the financial incentives on the quality of services. Sutton and McLean (2006) show that in Scotland, size and team composition are the most significant factors of performance in clinical practices. However, misreporting of performance occurs in this sector. The given explanation is interesting because it combines classical opportunism and altruism, i.e., the idea that physicians are more motivated by the health of their patients than by monetary rewards. Another explanation by Franck and Rosenthal (2006) is that “the presence of multiple contracts placed too many competing demands on physician’s work.” (Prentice, Burgess and Propper, 2007, p. 25). Finally, “we find evidence that financial incentives can yield productivity improvements for some public sector workers. The evidence is strongest for civil servants and teachers but relatively weak for healthcare workers.” (ibid. 37).
- 2) Civil servants are highly committed. Marsden and al. (2000) have conducted a study after the implementation of PRP in the UK and reported a degradation of working climate, i.e., a “lack of faith among employees in the system’s fairness [that] seemed to transform an essential tool of good management – communicating work targets to employees – into a numbers game.” (Marsden and al., 2000, p. 12). According to the authors, the difficulty to measure performance and the ensuing noise disturbing the relationship between effort and assessed outcome encourage strategic behavior by employees, such as negotiating work targets or manipulating performance data (ibid.). The reason why, given this degradation, performance increased after the implementation of PRP lies in the high commitment of the teachers to organization and work values: “Our commitment variables, reflecting affective commitment to one’s workplace and immediate work colleagues, and commitment to the organisation’s goals helped to sustain work relations with

colleagues and with management. The coefficients on both dimensions were strong, and highly significant.” (ibid.). It is interesting to note that this strange relationship corroborates the idea of a positive relation between job satisfaction and performance. In fact, Marsden and al. (2000) explain that, in the short-term, teachers’ high commitment to their job and organization maintain good performance results but that, in the long-term, this commitment is likely to decrease with degradation of working climate. They add that “one would expect employees’ work behaviour to become gradually more instrumental, and more akin to that of the principal-agent model”. (ibid. p. 13). Another, although not contradictory interpretation, is that employees are conditional reciprocators. If they consider indeed that they are paid in an unfair manner, they reduce or even manipulate their level of effort.

### **Theoretical models**

There is a growing literature seeking to apply incentive theory (mainly agency theory) to analyze working relationships in the public sector. Although “from the perspective of traditional agency theory, providing incentives for a public agency or a privately regulated firm to deliver a service presents the government with generally similar challenges” (Francois and Vlassopoulos, 2008, p. 24), the theoretical literature usually assumes<sup>23</sup> that the agents and the principal are motivated by other aspects than monetary rewards and self-interest<sup>24</sup>. Dewatripont, Jewitt and Tirole (1999) assume for instance that bureaucrats are career concerned and that this motivation is efficient if the mission they have to achieve is narrowly and precisely defined. Dixit (1997) and Martimort (1995) introduce the idea that an agent faces multiple principals, although Martimort (1995) considers the case with the agent’s private information. Accordingly, principals have to deal with the possibility for the agent to make effort for the achievement of the most rewarded task among available principal’s tasks. Depending of the number of principals and the existence of externalities between the tasks, the principal’s systems of incentives are efficient or not. Three possibilities are described by

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<sup>23</sup> Baker (1992) gives a justification of the fact that, when the principal’s objective is not contractible (as it is considered to be the case in the public sector), he or she has to propose a low-powered incentives contract to the agent. Holmstöm and Milgrom (1991) obtain similar results in the case of multi-tasking (as it is also the case in the public sector).

<sup>24</sup> This literature differs from the classical idea that the *Public Choice* approach defends. See Buchanan and Tullock, 1962.

Dixit (1997). First, the principals need to be able to appraise and reward the outcome that concerns them, second the principals can collude if they have the same interests and third, the agencies may design few precise missions.

Prendergast (2007) provides a model where the agents can be either altruist, i.e. they want to satisfy the clients of the public sector, or hostile towards them. Depending on the objectives of the principal, either an altruist, or an hostile, or both types of agent can be hired. He obtains the following results: “For a range of bureaucracies, those who are biased against clients yield more efficient outcomes.” (Prendergast, p. 1) But “although bureaucrats with a particular bias may be desired, self-selection need not produce this. Instead, if the distribution of preferences is sufficiently dispersed, bureaucracies likely become composed of those who are most preferred by the principal, and those who are least preferred. Finally, incentive contracting (the use of “extrinsic motivation”) can reduce effort exerted, by having an adverse effect on who chooses to become a bureaucrat.” (ibid.).

Delfgaauw and Dur (2008) show “that, in addition to workers with a public service motivation (dedicated workers), a public agency may prefer to hire the economy’s laziest workers and provide them with weaker incentives than the market sector does. Even though this reduces aggregate welfare, the majority of the society may be better off, as dedicated workers can be hired at a lower wage, and hence public goods are produced at lower cost. But when effort is to a large extent unverifiable in the public sector, a public agency may hire too many lazy workers as they crowd out dedicated workers.” (p. 186). Acemoglu and al. (2007) show that government can efficiently provide a public service (education, to be specific) when information is asymmetric (the type of the teacher, i.e. its ability, knowing that the tests score is not a perfect signal because it can be manipulated by the teacher) and difficult to obtain, the low-powered incentives being a efficient solution as compared to markets or firms.

Francois and Vlassopoulos (2008) challenge the idea that the non contractability problem of the output justifies the choice of government provision as in standard agency based models. They consider that pro-social motivation is a better candidate. They accordingly develop a model based on the idea that agents have pro-social motivation and can be either pure or impure altruists. In the first case, agents are concerned by the outcome to which they contribute (they are output-oriented) whereas in the second, agents are willing to participate to the production that benefits to the others (action-oriented). They show that if impure altruism does not favor a particular kind of organization (private or public) pure altruism advocates government provision. Gregg and al. (2008) confirm the characteristic of pro-sociability in the

public sector. They show, first, that public services employees are labor donators, and second, that they select between private sector and public sector on the basis of this characteristic.

Prendergast's (2007) argument against self-selection is further challenged by Vytastekova and al. (2006), who present experimental evidence of self-selection<sup>25</sup>. In their production game, two individuals can produce either inside a private or public a firm depending on how they have selected themselves as trustees or reciprocators, to work for either a private or a public firm). They have to accomplish two tasks, one that improves their own payoff and a second one (which may be described as enhancing cooperation) that improves the other's payoff. The interpretation of their results is that if the interdependency between the employees is high and difficult to observe and if their incentives to cooperate are high when incentives are low-powered, then high-powered ones may decrease their outcome. (Vytastekova and al., 2006, p. 31). This result is in line with those of the empirical studies quoted above concerning the healthcare activities.

Let us now attempt to draw out some of the implications of the literature we have surveyed.

### **Some propositions**

The theoretical and empirical results reviewed in this paper permit to define some general propositions concerning the relationships between motivation, incentives and performance. The main point is that a more precise measure of performance is needed if one wants to avoid the problems associated with informational asymmetries (moral hazard, adverse selection and costly verification problems) and their deleterious effect on the efficiency of the PRP system.

- 1) What is generally admitted is that the PRP system improves the performance of public sector employees. The problem is however that this effect is dependent on the sector of activity and on the performance-based portion of the salary. When bonuses are low, the effects are also low. In Brazil, for example Kahn, Silva and Ziliak (2001) study the effect of bonuses given to the civil servants as a function of their performance based on the number of inspections and the amount of fines collected from tax evaders (plus subjective performance for individuals). They observe a 75% increase in the rate of

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<sup>25</sup> They use a production game just after a trust game that permits to identify trust and reciprocal behaviors.

growth of tax inspection. The bonus however amounted to 70% of the additional collected fines! At the opposite, even if there is a great dispersion across OECD countries, bonuses based on performance represent no more than 5% of the base salary (OECD, 2005b, p. 53). In the same way, Prentice and al. (2007) explain the relatively bad performance of the PRP system for healthcare employees, as recorded by Franck and Rosenthal (2006), by the combined effect of low bonus rates and multiple tasks. In the education sector, according to Kane and Staiger (2002) “the labor value of the test score increase would have been worth roughly 20 to 50 times the value of the incentives provided in 2001 by California – the state with the most aggressive incentive strategy. (p. 111). Here is a possible paraphrase of Gneezy and Rustichini (2000): “Pay enough or don’t pay at all” or Kohn (2003) who, in a more provocative and negative way writes “pay people well, pay them fairly, and then do everything possible to help them forget about money”. This is important to note because, depending on the weight of individuals’ intrinsic motivation and various other factors such as self-reputational motives or ethical or moral values, the resulting effect of extrinsic incentives may well be either positive (crowding in) or negative (crowding out). Another important aspect concerns how to incentivize: individuals, teams or organizations (the teachers, the teams of teachers or the school). If the system incentivizes the teachers, the level of cooperation between them is likely to decrease while if the target is the school, free-riding is likely to increase.

- 2) If the effect of the PRP depends strongly on the motivation of public sector employees’, but if those motivations are pro-sociality oriented and stable, then it is advisable to design a PRP system in such a way as to avoid crowding out to occur. If civil servants prove to be strongly intrinsically motivated, pay for performance may well undermine their motivation and decrease their performance. If however civil servants have evolving preferences (Prentice and al., 2003) and become more and more akin to the *Homo Economicus*, then the modified agency theory models may perfectly apply. In a way, this amounts to solve the difficulties identified by Dixit (1997, 2002), i.e., to define precisely the missions and tasks of the public sector, to ascribe one task to one principal and to measure specific outputs by agents. Only if we are able to solve those problems can we hope to be able to compare on the same

grounds the relative performance of the private and public sectors. As for Prendergast (2007), such a possibility strongly depends on the objectives of the principal.

- 3) We may finally deplore the lack of attention that both economics and public administrative science devote to the analysis of the role of clients (Prendergast, 2001, 2003, 2007 and Francois, 2006 are exceptions). This aspect is however important in the context of the implementation of a PRP system. Empirical evidence shows that information delivered to the clients can have a counterproductive effect. As in the case of the police, Prendergast (2001) offers evidence that the increase in performance measurement and public oversight on their job undermined officers' willingness to arrest people, which in turn caused a significant increase in crime rates. Furthermore, Prendergast (2003), in a model where clients are allowed to complain, shows that bureaucracies are always inefficient. Most of the results found in the case of healthcare also apply here. Due to intensified supervision over healthcare services, physicians are incentivized to multiply the tests in order to avoid potential prosecution by their clients (Milgrom and Roberts, 1992) (this last problem is however not specific to the public sector).

## **Conclusion**

In this paper, we have shown that the relationships between motivation, incentives and performance have gained much interest since the 80s, as may be judged by the wealth of the available empirical and theoretical literature in the field of social sciences. The survey of the literature has revealed common themes and preliminary results. A first result is that PRP systems do increase performance but generally reduce public sector employees' motivation. The efficiency of the PRP systems seems to depend strongly on the type of mission or activity (for instance, it appears to be less efficient in healthcare than in education). It is also conditioned by the hierarchical position of the employees: higher-level employees seem to be more intrinsically motivated than lower-level employees. When faced with the PRP system, civil servants continue to behave in an altruistic manner but some of them switch to opportunistic behavior (information manipulation, misreporting).

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## Appendix

The nine Atkinson's principles:

"Principle A: the measurement of government non-market output should, as far as possible, follow a procedure parallel to that adopted in national accounts for market output.

Principle B: the output of the government sector should in principle be measured in a way that is adjusted for quality, taking account of the attributable incremental contribution of the service to the outcome.

Principle C: account should be taken of the complementarity between public and private output, allowing for the increased real value of public services in an economy with rising real GDP.

Principle D: formal criteria should be set in place for the extension of direct output measurement to new functions of government. Specifically, the conditions for introducing a new directly measured output indicator should be that (i) it covers adequately the full range of services for that functional area, (ii) it makes appropriate allowance for quality change, (iii) the effects of its introduction have been tested service by service, (iv) the context in which it will be published has been fully assessed, in particular the implied productivity estimate, and (v) there should be provision for regular statistical review.

Principle E: measures should cover the whole of the United Kingdom; where systems for public service delivery and/or data collection differ across the different countries of the United Kingdom, it is necessary to reflect this variation in the choice of indicators.

Principle F: the measurement of inputs should be as comprehensive as possible and in particular should include capital services; labour inputs should be compiled using both direct and indirect methods, compared and reconciled.

Principle G: criteria should be established for the quality of pay and price deflators to be applied to the input spending series; they should be sufficiently disaggregated to take account of changes in the mix of inputs and should reflect full and actual costs.

Principle H: independent corroborative evidence should be sought on government productivity, as part of a process of ‘triangulation’, recognising the limitations in reducing productivity to a single number.

Principle I: explicit reference should be made to the margins of error surrounding national accounts estimates.”