

The carrot or the stick? A study on motivation, behavior, and performance of public employees

Christian Bøtcher Jacobsen, PhD Fellow
Department of Political Science, Aarhus University

Introduction

What motivates public employees? Exogenous motivational factors such as regulation and economic incentives are perhaps the most important public sector management device. Regulation has always been part of public sector management, and a still stronger attention to performance has only strengthened the role of regulation. Furthermore, the use of economic incentives is gaining importance in the public sector. Both regulation and economic incentives build on the logic that employees must be induced to perform a desired behavior whether this is done by rewarding compliance or sanctioning noncompliance. However, contrary to the conventional wisdom, recent studies suggest that extrinsic motivation factors may have detrimental effects for employee intrinsic motivation and performance. As extrinsic motivation factors are very important management tools in the public sector, it is essential to improve our knowledge on how they affect intrinsic motivation and performance. This project will undertake this task and contribute to closing the gap in our understanding.

Motivation can be understood as the amount of potential energy an agent is willing to put into achieving a given objective. Therefore, motivation is decisive for how hard a person will work at a given task. Theories on rational behavior have typically regarded motivation as exogenous to individuals. They claim that a principal can induce agents through either monetary incentives or regulation. Extrinsic motivation is the motivation to obtain tangible benefits for the agent himself. In rough terms, the claim has been that more compensation or harder sanctions will provide greater work effort. This logic is the basis of the most influential theories on public administration, such as Principal-agent (PA) theory (Miller, 2005; Fama & Jensen, 1983; Alchian & Demsetz, 1972) and New Public Management (Dunleavy & Hood, 1994).

Nevertheless, empirical studies have shown differing results when exogenous factors have been put to the test – even though some find support for the theoretical expectations, most studies do not (Perry, 1988; Burgess, Propper & Wilson, 2002; Le Grand, 2003). This inconclusiveness is very likely caused by omitted factors. One such factor is intrinsic motivation. In this project, intrinsic motivation is the motivation to work for the benefit of others or for internal satisfaction. Social psychological theory claim that intrinsic motivation is decisive for work effort, and that extrinsic factors (such as regulation and economic incentives) can permanently undermine intrinsic motivation. The overall effect of extrinsic motivational

factors will therefore oftentimes be negative (Deci, 1971; Deci & Ryan, 1995; Deci, Koestner & Ryan, 1999). Nevertheless, social psychology fails to give satisfactory explanations for the combined effects of extrinsic and intrinsic factors.

A solution to this problem has been offered by economist, Bruno Frey, who has bridged the gap between rational theory and social psychology with the Motivation Crowding Theory (MCT). He has shown how the perception of extrinsic motivation factors (regulation and economic incentives) is decisive for its effect on performance. The claim is that, when agents perceive extrinsic motivation factors as controlling, intrinsic motivation is crowded out, which results in lower work effort. Oppositely, when agents perceive the extrinsic motivation factors as supportive, their intrinsic motivation is crowded in, and work effort is increased.

Only a few have tested the MCT hypothesis. Most of these studies have concentrated on economic incentives, and a handful of field studies and laboratory experiments studies have found support for the claim (eg. Andersen & Pallesen, 2008; Benabou & Tirole, 2006; Bertelli, 2006). Motivation crowding of regulation has only been tested in laboratory experiments (eg. Dickinson & Villeval, 2008; Falk & Kosfeld 2006), but outside the laboratory we have no empirical knowledge about crowding effects of regulation. Accordingly, despite we the many theoretical claims on a link between motivation (extrinsic or intrinsic) on performance our empirical knowledge is very limited. Importantly, we have no knowledge of the combined effects of regulation and economic incentives on motivation and behaviour. Neither Frey nor anyone else has dealt with this problem. By studying motivation crowding effects of both regulation and economic incentives in the public sector the project will add nuance to the oversimplified carrot or stick debate. This will begin closing the gap in our knowledge of how extrinsic motivation factors affect motivation of public employees, and how motivation affects performance.

While MCT offers a suitable theoretical frame for this purpose, MCT has some shortcomings. One of these is an unprecise definition of intrinsic motivation is. The term comes from socialpsychology and is related to enjoyment or interest in performing a task. But as it will be demonstrated, Frey's understanding of the term also involves motivation to help others. This kind of motivation is at the core of theory on public service motivation (PSM). PSM is seen as a form of altruism to serve others, and it has been claimed to be important for the performance of public sector employees (Perry & Hondeghem, 2008, Perry & Wise, 1990). In this project the term internal motivation will be used to cover both the socialpsychological intrinsic motivation (enjoyment and interest) and public service motivation. Both kinds of internal motivation are expected to be affected by motivation crowding. Thus, the project will bring new perspectives to the debate on what intrinsic motivation is, how PSM is affected by extrinsic motivation factors, and how it affects performance.

Furthermore, MCT will not necessarily affect all public employees in the same way. Sociology of Professions (SP) has demonstrated how strong professional norms can overrule the effect of economic incentives (Goodrick & Salancik, 1996; Andersen, 2005). It is therefore very relevant to test whether crowding effects of both regulation and economic incentives differ between occupations with varying degrees of professionalism. According to SP (Freidson, 2001; Roberts and Dietrich, 1999; Goode 1969) a profession is characterised as an occupation with a certain kind of theoretical knowledge base and professional norms which guide the behaviour of group members. The degree of professionalism (amount of theoretical knowledge and strength of professional norms) is expected to affect the relationship between motivation and performance (Andersen, 2009). The expectation is that crowding effects are weaker for more professionalized groups.

This project studies professionals in the Danish public service treatment sector: dentists, doctors and physiotherapists. These professional groups are chosen for four reasons. First, there is a significant amount of variation in regulation and economic incentives within each professional group when you look across municipalities and regions. Second, both regulation and economic incentives have been changed over the last few years at both national and local level. Third, there has been a great deal of debate over the use of regulation and economic incentives (eg., Tandlægebladet, 2004; Danske Fysioterapeuter, 2006; Ugeskrift for Læger, 2007) which leads to an expected variation in the perception of these extrinsic motivational factors. Finally, the three groups vary in degree of professionalism, with doctors being the most professional group followed by dentists and physiotherapists. All in all, the variations on the key independent variables – extrinsic motivation factors, perception of extrinsic motivation factors, and degree of professionalism - are ideal for a thorough analysis of the effect of motivation on work effort.

The project thus asks three questions: 1) *What is the effect of extrinsic motivation factors on the internal motivation and performance of public employees when their perception of the extrinsic motivation factors is taken into account?* 2) *How does professionalism affect crowding effects?* 3) *How does professionalism affect the behavior of public employees, when their internal motivation and perception of the extrinsic motivation factors is taken into account?*

First, the theoretical framework will be presented and the interaction between extrinsic motivation factors, the perception of these factors, and performance will be discussed. Furthermore, the contributions of PSM and sociology of professions will be discussed. Finally, the overall research design, the three sub-projects, and their contributions will be presented.

Theoretical framework

The theoretical framework of this project is based on MCT. Building on a PA framework MCT emphasizes the importance of a hierarchical relationship between principal and agent, where information asymmetry and incentives play a great role. Thus, the outset of MCT and PA theory is basically the same claim of economically rational actors with the objective of maximizing individual utility. However, MCT departs from PA theory's exclusive focus on exogenous factors as drivers of utility. Bringing in arguments from social psychological theory, MCT claims that both extrinsic and intrinsic factors are necessary for explaining agent behavior. This allows MCT to explain agent behavior as rational even when agents act against the extrinsic motivation factors.

To provide a better understanding of how MCT can explain the behavior of doctors, dentists and physiotherapists in the Danish public sector, the PA foundations of MCT will be presented and discussed. This leads on to a discussion of MCT and the relevance of intrinsic factors. Finally, PSM and sociology of professions will be brought in to qualify the theoretical model further.

The framework of MCT: Principal-agent theory

PA theory focuses on the hierarchical relationship between principal and agent. The principal depends on the agent to perform a task, but due to the stochastic nature of the work environment, the principal has imperfect knowledge of the agent's work effort: "in general the outcome is determined in part by some exogenous factor that appears as a random variable in the production function... This random variable creates variability, or risk, in the outcome, and in the principal's well-being" (Miller, 2005; 233-234). As the agent's preferences differ from the principal's preferences, agents will be tempted to exploit the information asymmetry. This leads to a problem of "moral hazard" (Holmström, 1979), since agents are tempted to shirk by putting in less work effort than expected by the principal (Alchian & Demsetz, 1972; Douma & Schreuder, 2002: 121). The principal can impose monitoring in an attempt to obtain better information on agent effort. However, full observation of actions is either impossible or prohibitively costly (Holmstrom, 1979: 74). Alternatively, the principal can use his authority and impose incentives on the agent to make effort more attractive: "the question is whether the principal can induce the more expert agent to take those actions that the principal would take if the principal had the same information as the agent." (Miller, 2005: 204). Thus, the principal can generally choose two ways of making the agent put in more effort: incentives or regulation - the carrot or the stick.

PA theory has typically focused on the use of monetary incentives. This part of the PA literature has focused on how the principal can reward agents for performing desired behavior and minimize agent shirking. This will reduce losses imposed on the principal by the inability to align the agents' self-interest with that of the principal (for a review, see Miller, 2005).

Later, this economic perspective has been extended to include regulation (Mitnick 1980; 1993; Weingast 1984). PA regulation literature has seen regulation as restriction of choice ultimately based on the threat of sanctions: “[Regulation is] a process consisting of the intentional restriction of a subject’s choice of activity, by an entity not directly party to or involved in that activity... In order to regulate the agent – restrict his choice of actions – the principal can employ incentives or directives” (Mitnick, 1980: 9). Importantly, Mitnick describes directives as “negative incentives”. (Ibid.: 9).

Thus, regulation and incentives are tools that serve the same function of disciplining agents, but they are directed in opposite directions –an incentive a carrot and regulation a stick. Economic incentives involve linking rewards to either work effort (process) or performance (outcome). For the agent this gives an incentive to work harder, since more work effort (following process) or better performance means higher payment. As work effort and performance are only rarely self-evident, the principal will need to obtain information on these factors by using of monitoring. This represents costs to the principal. Another cost comes from agent demands. Since the agent has now been forced to bear more risk than with a flat wage, the agent will demand a higher average wage (Miller, 2005: 208). For the principal more monitoring and putting more risk on agents lead to an expected higher outcome and revenue. However, both monitoring and higher economic incentives are costly affairs. The principal’s problem is therefore to perform a cost-benefit analysis of imposing more monitoring, putting risk on agents and expecting higher revenue from doing so. Consequently, more monitoring and higher economic incentives are not necessarily preferred by the principal.

Regulation means that the principal sets up directives for agent behavior, which are continuously monitored, while noncompliance is sanctioned. Accordingly, regulation involves punishment of undesired behavior and lack of desired behavior. As economic incentives, regulation can be directed at work effort (process) or performance. Whereas economic incentives leave a choice for the agent between working or not working, regulation involves an amount of force and a clear restriction of agent behavior. Since regulation is based on the use of directives, the principal sets standards for what the agent can do or not do (or what the agent has to achieve) to avoid sanctions. In an economic perspective the threat of sanction is expected to discipline the agent into following the directives. In fact regulation and economic incentives are expected to follow the same underlying rational, economic logic: “The two labels of the payment as price or fine are equivalent” (Gneezy & Rustichini, 2000: 14). In a purely economic logic this leads to an expectation that regulation and economic incentives have the same effect, when they are of equal strength (in opposite direction). However, as we shall see later, this is not the case for MCT.

The disciplining effects of regulation and economic incentives are shown in figure 1. In model (a) the positive slope of the labor supply curve corresponds to an expected “disciplining”

effect of regulation. This effect means that harder regulation is expected to make the agent work harder. In model (b) for economic incentives the disciplining effect of economic incentives means that the agent will work harder for higher payment¹.

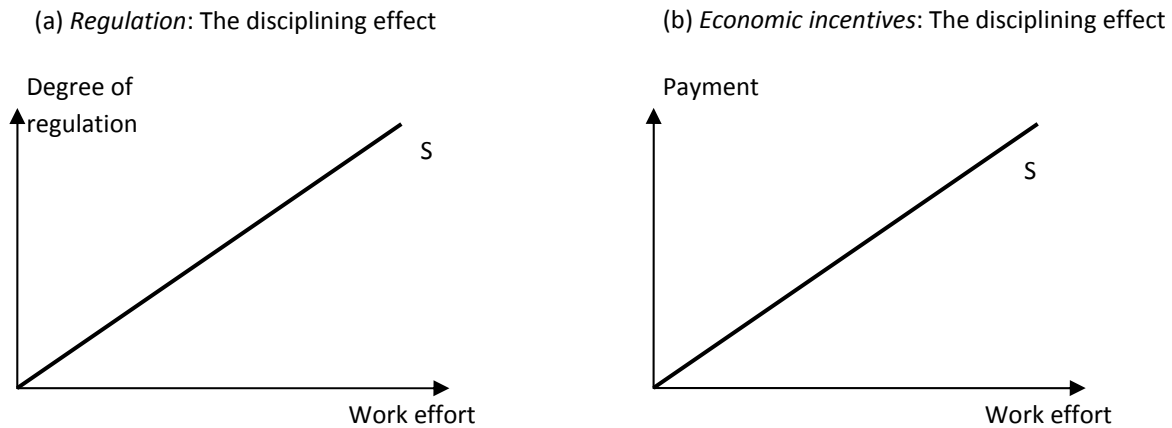


Figure 1: *Disciplining effects of regulation and economic incentives*²

Some economists have; however, objected to the logic of incentives. They have argued that agents may be controlled by incentives, but that incentives are not always the most effective solution. These arguments are grounded in beliefs that incentives can sometimes be undermined by other factors (eg., measurability, multiple goals, teamwork, and autonomy) or that agent behavior is determined by other factors than incentives alone (intrinsic motivation, payment relative to other agents (for an overview see Langbein, 2009)). As these factors are relevant and important, this project is designed to take them into consideration as much as possible. I will return to this in the appendix on data and methods. Intrinsic motivation is another important factor that can surmount the effect of extrinsic motivation factors. As an important part of MCT, this will be discussed next.

From the PA theory the following hypotheses can be drawn:

- H₁: The stronger economic incentives are, the better agents perform
- H₂: The stronger regulation is, the better agents perform

Motivation Crowding Theory

MCT agrees with PA theory that extrinsic motivation factors, regulation and economic incentives, affect agent behavior. However, MCT argues that intrinsic motivation may have an

¹ The supply of labor curve will at some point be backwardbending. This occurs, when the agent's marginal utility for leisure becomes higher than the marginal utility for money. However, this curiosity is beyond the point of this project.

² As it is tradition in economic theory, the dependent variable is depicted on the x-axis and the independent variable on the y-axis.

even bigger effect on work effort (Frey, 1994; 1997; Frey & Jegen, 2001). This assertion is reached by adding insights from social psychological research to PA theory. Social psychological research has demonstrated the relevance of intrinsic motivation for work motivation and that extrinsic motivation factors may reduce intrinsic motivation permanently (Deci, 1971; Deci and Ryan, 1985; Deci, Koestner and Ryan, 1999). Synthesising the PA and social psychological approaches, MCT holds that the work effort of employees depends on money income and sanctions, but that the perception of these may be more important for behavior than the extrinsic factors themselves. Extrinsic motivation factors are an important part of public sector management, but intrinsic motivation from the performance of work tasks certainly exists (Miller & Whitford, 2007: 229). Although few public employees work just for the enjoyment of the work itself, intrinsic factors can be important for the work effort.

Most studies of motivation crowding have concentrated on monetary incentives (e.g., Frey & Jegen, 2001; Bertelli, 2006; Andersen & Pallesen, 2008). These studies support the MCT claim that payments perceived as controlling decrease intrinsic motivation and thereby reduce work effort, whereas payments perceived as supportive have the opposite effect. Only a few studies have tested the motivation crowding proposition for regulation (eg., Bohnet et.al., 2001; Falk & Kosfeld 2006; Dickinson & Villeval, 2008), and these also support the MCT claim. However, all studies on regulation are experimental. The only field study known to have tested the interplay between regulation and intrinsic factors (Barkema, 1995) has not tested the motivation crowding propositions directly. Most importantly, no studies have tested the combined effects of regulation and economic incentives.

When a principal introduces extrinsic motivation factors Frey separates the disciplining effect from the crowding effect (Frey, 1994: 338; Frey & Jegen, 2001; 593). The disciplining effect of regulation and economic incentives is the effect of altering costs on shirking or rewarding the agent for work effort. The crowding effect is the effect of regulation or economic incentives on intrinsic motivation. Crowding out is when the external intervention undermines the intrinsic motivation, and crowding is when the external intervention raises intrinsic motivation. Whereas the disciplining effect is always expected to be positive, the crowding effect can be either positive or negative. But how is the direction of the crowding effect determined?

Whether the crowding effect works in the same direction as the disciplining effect (and increases the agents' motivation to perform) depends on the perception of the extrinsic motivation factors as either controlling or supportive (Frey and Jegen, 2001: 594-595). According to Frey (1994: 337), "[w]hen individuals perceive the external intervention to be controlling in the sense of reducing the extent to which they can determine actions by themselves, they substitute intrinsic for extrinsic control". In this situation, MCT argues that the introduction of extrinsic motivation factors actually counteracts the targeted behavior.

Frey generalizes the possible dual impact of extrinsic motivation factors by distinguishing between situations in which the extrinsic motivation factors are perceived as controlling and situations in which the regulation is seen as supportive (Frey, 1997: 18). Specifically, extrinsic motivation factors are expected to crowd out intrinsic motivation if the individuals affected perceive them as controlling. If the crowding out effect on behaviour is greater than the disciplining effect, we might even see that interventions reduce the targeted behavior. If extrinsic motivation factors, on the other hand, are seen as supportive, both the crowding in effect and the disciplining effect are expected to increase the work effort, and the extrinsic motivation factors will 'over-perform' in terms of increasing the targeted behavior. The implication is that the perception of the extrinsic motivation factors may be more important for performance than the extrinsic motivation factors themselves.

Figure 2 demonstrates how the individual supply of labor curve shifts to the left after the introduction of an extrinsic motivation factor (panel a). Consequently, the agents work effort is reduced at a given level of extrinsic motivation. Contrary, if the agents perceive the extrinsic motivation factor as supportive crowding in of intrinsic motivation is expected to happen. Consequently agents will be more motivated to deliver a higher work effort (panel b).

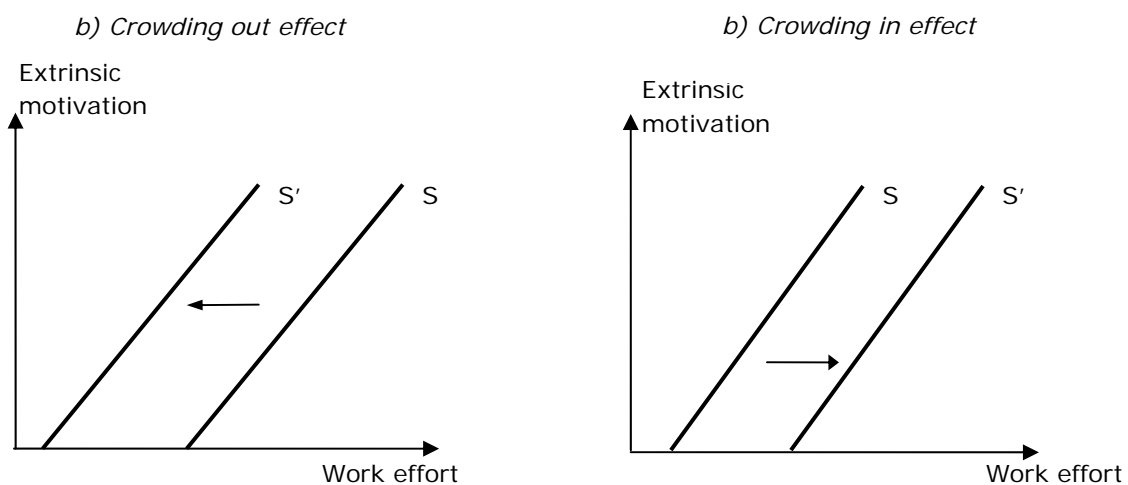


Figure 2: Crowding in and crowding out effects of extrinsic motivation factors (regulation or economic incentives)

Bruno Frey's aim with MCT is to explain behavior and not intrinsic motivation directly. Therefore, he is not very precise about what intrinsic motivation is. Frey's definition of intrinsic motivation is: "one is said to be intrinsically motivated to perform an activity when one receives no apparent reward except the activity itself" (Frey, 1997: 13). This definition is not suitable for explaining a causal relationship between intrinsic motivation and behavior. It is functional, too wide and behavior (the dependent variable) is part of the definition itself. Since this project seeks to open up the relation between intrinsic motivation and behavior, more

precision is needed here. Le Grand has suggested that intrinsic factors: “include interest in or enjoyment of the work for its own sake” (2003: 53). This definition is more precise and it also corresponds better with the social psychological understanding of intrinsic motivation. In fact this definition can also be found in MCT: “People do things by intrinsic motivation when they are just enjoying them” (Frey, 1997:1), but the MCT understanding of the term is wider. In fact, the MCT understanding of intrinsic motivation seems to contain what will be termed “public service motivation”. I will therefore suggest that the overarching term “internal motivation” is used to cover intrinsic motivation (motivation from enjoyment and interest) and public service motivation (motivation to help others). I will return to this in the chapter on public service motivation. So far it suffices to say that motivation crowding is expected for both kinds of internal motivation.

The claim to be tested in this project is that both regulation and economic incentives are incentives, but that they may imply very different signals. According to Bruno Frey, the message implied by an external intervention is very important. The more an external intervention implies an acknowledgement of the employee’s intrinsic motivation, the more it supports intrinsic motivation (Frey, 1997: 33). It is difficult to make directives, monitoring and sanctioning as acknowledging as economic incentives. This effect is enhanced, since regulation leaves less choice for the agent than economic incentives do. Frey (1997: 31-32) therefore expects regulation to crowd out more intrinsic motivation than rewards. He also expects hard regulation (enforceable directives including convincing threats of punishments of non-compliance) to crowd out more intrinsic motivation than soft regulation (non-enforceable directives implemented by agreement and without threats of punishments). This does not mean that regulation will necessarily lead to crowding out, but that it is more likely to do so than economic incentives.

These hypotheses follow from MCT:

- H₃: The more agents perceive extrinsic motivation factors as controlling (supportive), the more internal motivation is crowded out (in)
- H₄: The more internal motivation is crowded out (in), the more performance is reduced (increased)
- H₅: Regulation is perceived to be more controlling than economic incentives

Internal motivation and Public Service Motivation

In opposition to economic theory, PSM claims that employees working with public service are motivated by a wish to do good and shape the well-being of society (Hondeghem & Perry,

2007: 3). PSM can be seen as a special kind of altruism relevant for people performing public service: "a general, altruistic motivation to serve the interests of a community of people, a state, a nation or humankind" (Rainey & Steinbauer, 1999: 20). PSM is not restricted to the public sector, but is attached to the delivery of public service (Perry & Hondeghem, 2009: 3). Much debate has been centered on the construct of PSM and how it is best measured. Most scholars have agreed that four dimensions are relevant for PSM: 1) Attraction to policy making, 2) Commitment to the public interest, 3) Compassion, and 4) Self-sacrifice (Perry, 1996). It has been debated whether all four dimensions are relevant (merging self-sacrifice and compassion has been suggested) and whether some questions (operationalization of the dimensions) should be rephrased or even replaced to fit national particularities. However, the basic model has shown a remarkable degree of consistency across borders with only minor adaptations (Vandenabeele, 2008; Andersen, Pallesen & Pedersen, 2009). Recent results suggest that a fifth dimension, user orientation, should be incorporated into the construct of PSM (Andersen, Pallesen & Pedersen, 2009). Another debated issue has been whether it is best to use the overall construct of PSM or the individual dimensions for testing the effect(s) of PSM on other factors, such as performance. By studying PSM across three different professional groups in the Danish public sector, this project will benefit to the measuring debate. Furthermore, the project will go into another PSM debate on whether it is most fruitful to use the aggregate measure of PSM or the underlying dimensions.

However, the greatest contribution of this project regarding PSM will be to bring dynamic to the construct. So far most of the debate has focused on how PSM differs among sectors and how PSM relates to other types of motivation. By bringing PSM into the framework of MCT, I can study how PSM responds to management in the public sector. In other words, I will treat PSM as a kind of internal motivation that can be crowded in or out by extrinsic motivation factors. I have already suggested that the term intrinsic motivation is restricted to enjoyment and interest. I suggest that the term "internal motivation" is used to encompass PSM (helping others) and intrinsic motivation (enjoyment and interest in the task). I suggest the following definition for internal motivation: "Motivation to obtain benefit for others or internal satisfaction." Using internal motivation as an overarching term makes it clear that different kinds of motivation can be crowded out by extrinsic motivation factors.

Even though MCT has not been very clear on this issue, it has been implicit in Frey's writings, that his intrinsic motivation is wider than the psychological understanding of the term. A few pages after describing intrinsic motivation as enjoyment, Frey broadens the definition: "the problems identified [in this book] are directly relevant for a wide range of socio-economic issues" (ibid.: 9). He refers to the famous argument of Titmuss (Titmuss, 1973) (Titmuss' argument found some empirical support (Mellström & Johannesson, 2008)) that introduction of pecuniary rewards for blood donation will lead to a situation with less blood

being donated: “Paying for blood or for other social services offered in order to help sick and disadvantaged members of society runs the danger of undermining the very motivation for doing so” (Frey, 1997: 9). Thus, it seems more plausible blood donors are motivated by helping society, than by the seeing blood donation as joyful! This imprecision in MCT can be alleviated by reserving the term intrinsic motivation to motivation out of enjoyment and interest and PSM as the wish to do good for others or society. The overarching term for these two types of motivation in this project will be internal motivation:

Table 1: Motivational typology

Motivation			
The amount of potential energy an agent is willing to put into achieving a given objective.			
Extrinsic motivation		Internal motivation	
Motivation to obtain tangible benefits for the agent himself.		Motivation to obtain benefit for others or internal satisfaction	
Economic incentives	Regulation	Intrinsic motivation	PSM
Rewarding agents for performance or intended behavior	Directives for agent behaviour or performance, continuous monitoring, and sanctioning of noncompliance	Motivation to work for expected enjoyment or interest in a task	A general, altruistic motivation to serve the interests of a community of people, a state, a nation or humankind

In the literature the question of crowding effects of PSM has already been posed more or less explicitly (Crewson, 1997; Taylor & Taylor, 2009). But it has remained a question only. This project will go further and study whether PSM is affected by extrinsic motivation factors and the perception of these in the same way as intrinsic motivation. A related question is how intrinsic motivation and PSM interplay. How interdependent are they, how do they in combination react to extrinsic motivation factors, and how do they affect the behavior of public employees? These open, empirical questions will be tested in the project.

These hypotheses follow from PSM:

- H₆: The higher PSM (user orientation, compassion and public interest) a public employee has, the higher priority is given to treating complicated patients
- H₇: The more controlling agents perceive extrinsic motivation factors, the more extrinsic motivation factors reduce their PSM

Sociology of professions

The sociology of professions has dealt with the interaction between professionalism and extrinsic motivation factors. As studies have found empirical support for a claim that professional norms can cool the effects of extrinsic motivation factors, sociology of professions is expected to provide interesting perspectives to MCT. What role does professionalism play in the relation between extrinsic motivation factors, intrinsic motivation and behavior?

Professionalism can be defined as the co-existence of specialized, theoretical knowledge and professional norms, that is, prescriptions for the acceptable actions under given conditions applying to and sanctioned within a given occupation (Andersen, 2005: 25). In this literature strong professional norms are expected to overcome the effect of extrinsic motivation factors. This poses the question of how motivation is crowded out for occupations with different degree of professionalism. Will professionalism also dampen the crowding effects of extrinsic motivation on internal motivation? Furthermore, scholars in this literature have dealt with the impact of professional groups on policy (Freidson, 2001; Burrage, Jarasch og Siegrist, 1990). This poses the interesting question of how professional groups engage in the political game of affecting the extrinsic motivation factors and what role professionalism plays in this game. Finally, the literature on PSM has treated professionalism as an antecedent of PSM. However, the PSM literature has not been very faithful towards the literature on professions in their treatment of professionalism as a variable. This project will try to alleviate this by doing a thorough study of the relationship between professionalism and PSM.

The literature on sociology of professions sees a profession as an occupation with a collective, specialized knowledge and a set of norms commonly known and used by the members. Specialized knowledge and a set of common norms as commonalities of professionals can be seen as shared ground for much of the sociology of professions. However, scholars have not in found agreement on what professionalism is. The disagreement is not clear cut, but the most important lines of conflict are whether specialized knowledge is necessary and what the motives are behind the common norms.

In this discussion two schools have been dominant. The first school consists of the functionalists who see specialized knowledge as defining for a professional group and assume that professional norms are made out of altruistic reasons. Professionals are not concerned with their own gains but with helping society or the client. The second school, neoweberians, assume oppositely that professional groups seek to maximize power, wealth and status. Furthermore, they pursue their interests through a range of strategies using their specialized knowledge and norms as a cover for obtaining the goals of the professional group. In this perspective the primary purpose of special physical and social abilities of a professional group is to legitimize the struggle for power, wealth, and status. Accordingly, the behavior of the

professionals is driven by the urge to maximize the utility of the professionals and not to benefit society as a whole.

In the neoweberian power perspective, it is central to study what strategies the professionals use in order to achieve influence (Andersen, 2005). Classical neoweberianism; however, is very determined in its opinion that professional groups only act out of self-interest. More recent theorists have softened this view and suggested that working for the best of society and maintaining the overall utility of the professional group are not necessarily opposed as claimed so far. Instead they are interdependent: "professional ethics are the filter through which economic and social power mutually reinforce each other. Without social status, as recognized in a professional ethic, the potential offered by economic power cannot be realized. Without an economic basis social recognition, and the power this engenders, has no context." (Roberts & Dietrich, 1999: 989). These recent trends in sociology of professions combine insights from the functional school and the neoweberian school. In fact professionals can be seen as socially coherent groups that form a social closure, but at the same time has an ideological standpoint that secures their interest in the welfare of society: "True, no one can deny that all professions, like all workers, have an economic interest in making what they regard as a good living. But the professional ideology also asserts another primary interest – commitment to the quality of work." (Freidson, 2001: 200).

This view on professions also corresponds to what we have learned from PSM: that public servants (professional groups are not always public servants, but typically they are) will often be motivated by altruism and the need to help others, but that they at the same time may be motivated by other factors, such as economic incentives. PSM literature has found indications that professionalism works as an antecedent for PSM (Perry, 1997; Moynihan & Pandey, 2007). However, the operationalization of professionalism has not been done satisfactorily as it has been based on survey questions of sentiments towards a certain professional group. By looking at three professional groups that are most similar on all other variables than professionalism, this project will make a better test of how professionalism works as an antecedent for PSM. Furthermore, professionalism may not foster PSM as a whole, but rather strengthen some dimensions of PSM while weakening others. The expectation is, that professionalism will strengthen public interest, but weaken public policy making and possibly compassion.

An important question in sociology of professions is how professional groups respond to external interventions. The theoretical expectation has been that strong professionalism overrules the effects of external intervention: "the sociology of professions expects that if a firm professional norm prescribes a given behavior, the professionals will always act accordingly, regardless of other motives" (Andersen, 2009: 82). This expectation has found some empirical support (Andersen, 2005; Goodrick & Salancik, 1996). This project will benefit

to this debate by looking at how the motivation and behavior of three professional groups with varying degree of professionalism are affected by extrinsic motivation factors.

Despite the acceptance of some functional logic the professions are still expected to seek power, wealth and status when possible. Accordingly, the professions are expected to seek influence on policy. The relevant policy in this project is the extrinsic motivation factors that has ultimately been formulated politically. The professions are expected to be interested in and agitate for as little extrinsic motivation factors as possible. Due to their high professional status, higher professionalized groups are expected to be most successful in this attempt. As a secondary purpose, professions are expected to secure the best possible match between extrinsic motivation factors and professional norms. It is also expected that higher professional groups will be most successful in this attempt. Furthermore, less intrinsic motivation should be crowded out, when the agents feel that they have been allowed to participate in the decision process (Frey, 1997: 29). Accordingly, agents are expected to perceive extrinsic motivation factors as less controlling, when there is a better match between extrinsic motivation factors and professional norms.

The sociology of professions provide the following hypotheses to be tested:

- H₈: The higher the degree of professionalism, the higher intrinsic motivation is
- H₉: The higher the degree of professionalism, the higher the public interest dimension of PSM is
- H₁₀: The higher the degree of professionalism, the lower the public policy making and compassion dimensions of PSM are
- H₁₁: The more professional an occupation is, the lower extrinsic motivation factors are
- H₁₂: Higher professionalism leads to more success in affecting extrinsic motivation factors, so it matches the professional norms of the profession
- H₁₃: A better match between extrinsic motivation factors and professional norms leads to less controlling perception of extrinsic motivation factors

Research Design

The overall theoretical model of this project is an elaborated version of the MCT crowding argument. Thus, extrinsic motivation factors are expected to affect performance directly (discipline effect), but also indirectly effect through the crowding effect on internal motivation. Furthermore, professionalism is expected to directly affect the degree of extrinsic motivation factors and internal motivation, and have a contingent effect on the relationships between extrinsic motivation factors and performance and between internal motivation and performance. These effects are due to the overruling effect of strong professional norms.

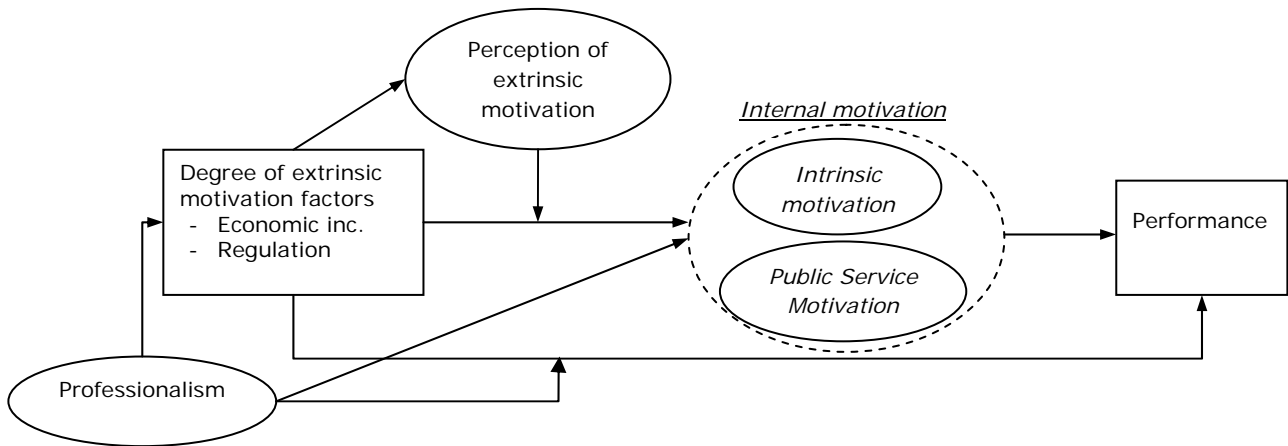


Figure 4: Overall theoretical model

The theoretical model will be approached in three subprojects each dealing with separate parts of the theoretical model.

Subprojects

Sub-project 1: Extrinsic motivation factors, perception and performance

The first subproject tests the basic MCT claim: that the perception of extrinsic motivation factors is decisive for the overall effect of the extrinsic motivation factors themselves. The contribution of this project is to provide knowledge of the combined effects of regulation and economic incentives on employee motivation and performance. The theoretical model to be tested is shown below:

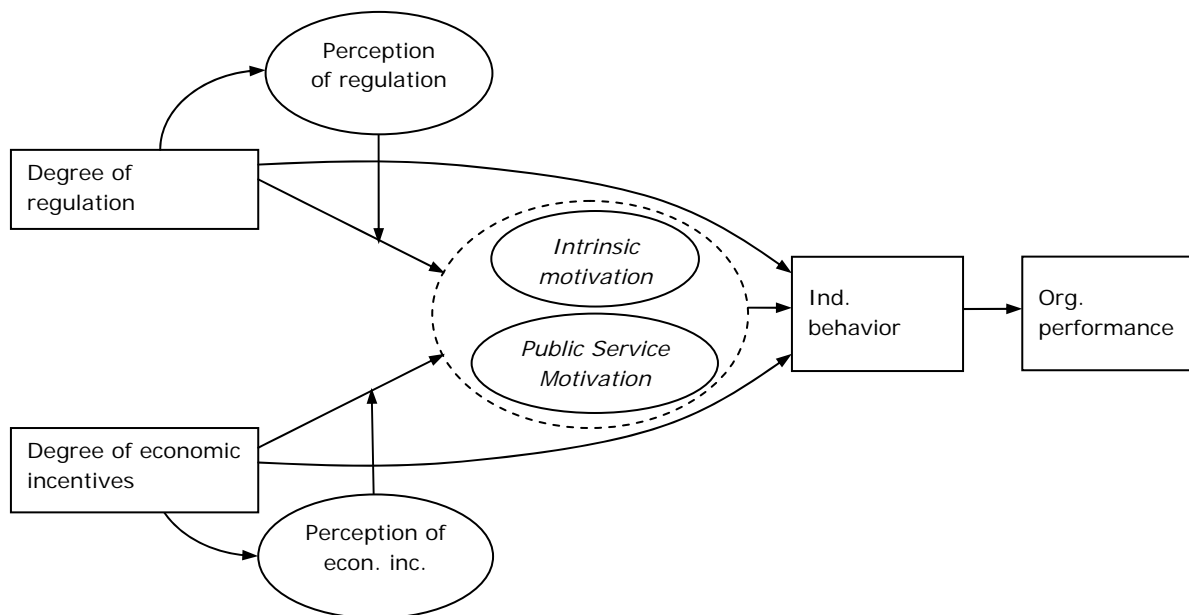


Figure 5: Theoretical model for subproject 1

In this subproject the effect of professionalism is held constant by focusing on one profession, dentists. The dental sector is chosen for several reasons. First, investigating dentists allows me to analyze performance at the outcome level at almost perfectly similar clinics in the 98 Danish municipalities. Most children's dentist clinics are organized with one dentist in charge of several dental therapists (few clinics have two or more dentists). This means that in most cases the results in a certain clinic can be attributed to the work of one person, the dentist. This is a great advantage, since it solves problems with team based work. A drawback of selecting only dentists is that the external validity will be limited. However, I have prioritised the internal validity, because the causal association between extrinsic motivation factors, perception of extrinsic motivation factors and performance needs proper testing. Second, quantitative data for the performance of Danish childrens' dentists can be collected from a central government register (SCOR). Furthermore this part of the project relies on good measures of extrinsic motivation factors, perception of extrinsic motivation factors and internal motivation. Operationalization and methodology will be discussed in a separate chapter below.

Thus, choosing the dentist sector allows for a very solid test of the MCT claim. The main research question is how regulation and economic incentives affect the performance of dentists, when their perception of the extrinsic motivation factors is taken into account. This subproject will (as the other two subprojects) rely on qualitative as well as quantitative techniques. Qualitative methods as interviews and document studied will be used to map the degree of extrinsic motivation factors. Perception of extrinsic motivation factors and internal motivation will be mapped through surveys. These variables will be quantified and used in a panel analysis that seeks to answer the overall research question of this subproject.

The three planned contributions of this subproject can be seen below:

Table 3: *Contributions from subproject 1*

Artikel - titel	Problemstilling	Publikationstype
1. Stick or carrot? Why the effectiveness of management initiatives depends on how they are perceived	How is the performance of dentists affected by extrinsic motivation factors (regulation and economic incentives), when the dentists' perception of the extrinsic motivation factors is taken into account?	General Public Administration
2. Crowding of internal motivation: Public Service Motivation and intrinsic motivation	How do extrinsic motivation factors affect PSM and intrinsic motivation of dentists, when the dentists' perception of the extrinsic motivation factors is taken into account?	PSM
3. Public Service Motivation og	How do extrinsic motivation factors affect the	PSM

motivation crowding	subdimensions of PSM of dentists, when the dentists' perception of the extrinsic motivation factors is taken into account?	
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Sub-project 2: Professionalism, management and internal motivation

In subproject 2 the effect of extrinsic motivation on internal motivation factors is studied more deeply. Whereas professionalism is held constant in subproject 1, this variable will now be examined further. By analyzing motivation crowding effects of regulation and economic incentives for the three professional groups (dentists, doctors and physiotherapists) with varying degree of professionalism the project will help shed more light on whether motivation crowding effects vary between professional groups.

The focus will be on crowding of internal motivation and not on performance indicators. Performance indicators are most often tied to the task of the specific professional group. For example it is difficult to compare dental health to recovery of broken bones or bad backs. Focusing on motivation allows a comparable study of motivational effects. Internal motivation is more comparable than performance, since it is expressed in general terms. The study will therefore provide more knowledge on how intrinsic motivation and PSM are affected by extrinsic motivation factors for professional groups with differing professionalism.

The theoretical model for subproject 2 is shown below:

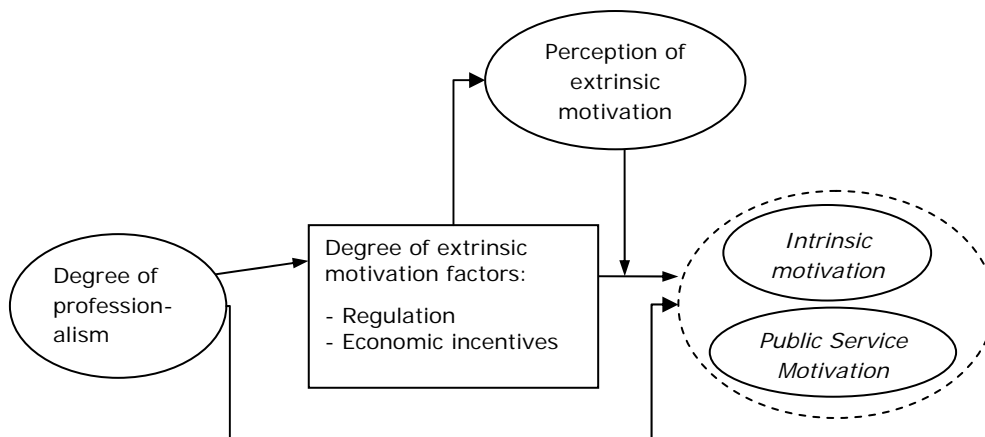


Figure 6: *Theoretical model for subproject 2*

The overall research question of subproject 2 is how extrinsic motivation factors affect internal motivation, when perception of the extrinsic motivation factors and the degree of professionalism is taken into account. As in subproject 1 this question will be approached by both qualitative and quantitative methods. In subproject 2 much data from subproject 1 is used, but also involves further collection of data on extrinsic motivation factors, perception of extrinsic motivation factors and internal motivation.

Subproject 2 is expected to produce two international articles (table 4).

Table 4: Contributions from subproject 2

Artikel – titel	Problemstilling	Publikationstype
4. Professionalism: Shield or mediator for motivation crowding?	How does extrinsic motivation factors affect internal motivation (intrinsic and PSM) of doctors, dentists and physiotherapists, when their perception of the extrinsic motivation factors is taken into account?	Public Administration
5. Professionalism and Public Service Motivation	How does degree of professionalism affect the public service motivation?	PSM

Sub-project 3: Professionalism, management and behavior

In the third subproject focus moves from internal motivation to behavior. It will be tested how extrinsic motivation factors affect the behavior of two occupations with varying degree of professionalism. The study will look at how extrinsic motivation factors affect the intrinsic motivation of dentists and physiotherapists, and their inclination to treat different kinds of patients. Since behavior can be measured by using a common variable, "Tendency to treat "difficult" patients", behavior is more easily compared between occupations than performance is. Patients (within dentistry and physiotherapy) differ in the complexity of their problems. Some patients are "easy" in the way that they don't require anything but normal treatment, while other patients are more complex and very often have extraordinary problems. Management can try to induce employees to handle these differences through either economic incentives or regulation. It is; however, an open question whether these control devices affect employee behavior, and if it has unintended effects on employee motivation. In relation to the professionals' prioritizing of these groups the project will look into situations with differing economic incentives and degrees of regulation. The project will look for within-group as well as between-groups variance.

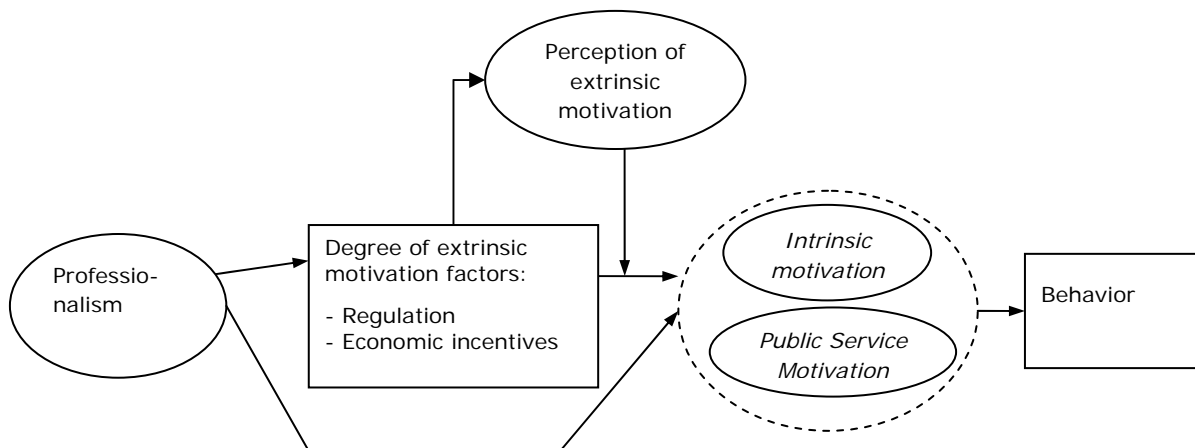


Figure 7: *Theoretical model for subproject 3*

In subproject 3 the research question is how employee behavior is affected by extrinsic motivation factors, when perception of these and internal motivation are taken into account. Data collected for subproject 2 will be used for measurements of extrinsic motivation factors, perception of motivation factors and internal motivation, and data on employee behavior will be collected.

Subproject 3 is expected to produce 2 international articles, which can be seen in the panel below.

Table 5: *Contributions from subproject 3*

Artikel – titel	Problemstilling	Publikationstype
6. Motivation crowding and behavior of professionals	How does degree of professionalism affect the relationship between extrinsic motivation factors and behavior of dentists and physiotherapists, when their perception of the extrinsic motivation factors is taken into account?	Public Administration
Public service motivation and behavior of professionals	How does public service motivation affect the behavior of physiotherapists and dentists?	PSM

Contributions of the project

This project investigates the relationships between motivation and performance. Despite much theorizing on this issue, there is a significant gap in our empirical knowledge. This project will assess MCT to increase this knowledge by doing a study the combined effects of regulation and economic incentives on internal motivation, employee behavior, and performance, and take account of the perception of the extrinsic motivation factors. Perspectives from theories on public service motivation and sociology of professions are brought in to alleviate some of the shortcomings of MCT.

The project's main contributions are:

1. Improving knowledge on how economic incentives and regulation in combination affect the performance of public employees.
2. Adding more precision to the concept of intrinsic motivation. Introducing the concept of internal motivation allows a separation of motivation from

enjoyment or interest (intrinsic motivation) and motivation from helping others (public service motivation). Importantly, this also brings more dynamic to the theory on PSM than has been found so far.

3. Allowing variations in motivation crowding effects between occupations with varying degree of professionalism. Thus, motivation crowding may be more relevant for some professional groups than others.

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Appendix: Data and methods

In this section case selection, data and operationalization and methodology will be presented and discussed.

Case selection

The cases are selected so they allow a test for how the degree of professionalism interacts with the crowding argument of MCT. Three professional groups are selected that are most similar on all other variables than degree of professionalism. The selected professional groups are doctors, dentists and physiotherapists.

Table 2: *Selection of professional groups*

Degree of professionalism	Professional group
Very high	Doctors (sub-field will be selected so it matches the two other groups in the best way possible)
High	Dentists
Medium	Physiotherapists

Doctors are considered to be the most professional group. They have a strong common theoretical knowledge, acquired through many years of schooling and practical work. Furthermore they have strong norms guiding the behavior of group members. These two characteristics (knowledge and norms) are strong, but still weaker with the dentists, and even weaker with the physiotherapists.

Due to the selection of these cases external validity is limited. Generalization is limited to doctors, dentists and physiotherapists and at the furthest to professional groups resembling the characteristics of these three groups. However, this is done purposively - internal validity has been prioritized over external validity in order to make a proper test of professionalism and MCT. The full scale of professionalism cannot be tested here as it is impossible to find an occupational group with low professionalism that resembles the three others. This is not a problem for the test, but it limits the external validity to professional groups with medium professionalism or higher.

An advantage of the case selection is that it overcomes the most serious arguments against the effect of incentives (see Langbein, 2009). All three groups are in the treatment sector, and they treat patients regularly - often in a course of treatments. Furthermore, the measurability of output and outcome of these groups are quite similar. Both output and outcome can be measured by indicators (eg., hours worked, number of treatments applied,

patients' health) that to some extent reveals agent effort, but they are in no way perfect measures. Accordingly, the principal can acquire some knowledge of agent effort, but a problem of measurability exists. Furthermore, this problem can only be alleviated by the help of the specialized, technical knowledge of the professions themselves. This situation increases the information asymmetry. Even though this should theoretically reduce the effect of incentives, the reduced effect should be more or less the same for all three professions.

The selected professions all work quite individualistically. Even though they work with colleagues they perform very specific tasks with great importance for the final results. Therefore, teamwork is not expected to be a problem. Other common characteristics of the three professions are that they are dominated by women and organized under decentral political authorities (municipalities or regions).

Operationalization of variables

Economic incentives

The measurement of degree of economic incentives corresponds to that used in earlier studies of MCT and economic incentives (Andersen & Pallesen; 2008: 38). The variable will be measured as a continuous variable from (0) no economic incentives to (4) very strong monetary incentives (specific demands to obtain bonus and non-discretionary release of bonus). Modest economic incentive (1) means that employees must make a minimum effort to get some of the pay supplements. The measurement will be based on a systematic coding of documents (local agreements and internal documents from municipalities and regions) based on a predefined set of criteria.

Regulation

As with economic incentives, the measurement of regulation matches that of existing literature (Jacobsen & Andersen, forthcoming). Regulation is also measured as a continuous variable from 0-4. Hard regulation (4) is defined as enforceable directives including convincing threats of punishments of non-compliance, whereas soft regulation (1) consists of non-enforceable directives without threats of punishments. No regulation (0) means, that there is no regulation what so ever. To measure this variable, I will utilise both existing documents (action plans, annuals, and target and means) and semi-structured interviews with top- and middle-managers in the municipalities, regions and ministries, union representatives and ordinary employees. These texts will be theoretically coded to find directives, monitoring and sanctioning mechanisms.

Perception of regulation and economic incentives

The perception of the extrinsic motivation factors will be measured through a survey. This survey will sent by e-mail to all individuals of each professional group. The survey consists of a

well-tested questionnaire consisting of a series of likert-scaled items. The items will be calculated to an additive index spanning from (0) maximum controlling to (100) maximum supportive. Thus, controlling and supportive perception are expected to be opposite ends of a continuum. As the question of dimensionality has been a debated question in the literature, it will be tested and discussed in the project whether a two-dimensional measurement of perception corresponds better to the theoretical claims of MCT.

Public service motivation

The measuring of PSM will benefit greatly from a Danish research project on PSM (<http://www.akf.dk/psm>) with researcher from Aarhus University as well as other research institutions. This project is also part of the national PSM project. Perry's original PSM scale has with slight changes been added to a Danish context. The original measure consists of four dimensions: 1) Public policy making, 2) public interest, 3) Compassion, and 4) Self-sacrifice (Perry, 1996). The Danish research project has added a fifth dimension, user orientation, to the PSM measure. Since the three selected professional groups in the project are expected to be very user oriented, the full five-dimension scale will be assessed here. The PSM questionnaire will be part of the survey that will also cover the perception of extrinsic motivation factors and intrinsic motivation.

Intrinsic motivation

Intrinsic motivation will be measured through an already tested questionnaire. This will be part of the survey on perception of extrinsic motivation factors and public service motivation.

Performance of dentists: Dental health

Since 1972 government has maintained a central registration system (SCOR) for all children in Denmark. Since each child can be traced back to a certain clinic, the hypotheses can be tested at the individual clinics. Since MCT is based on methodological individualism this is a great advantage for making a proper test. Furthermore, other scholars have found dental health of children to be a good performance indicator (Andersen & Blegvad, 2006), when controlling for a few central variables (socio-economic and geological (amount of fluoride in tap water)).

Behavior of dentists and physiotherapists: Selection of patients

Register data on the selection of patients in the individual clinic will be collected from the National Board of Health (Sundhedsstyrelsen).

Methodological approaches:

I will use qualitative as well as quantitative methods. The qualitative methods are used for operationalizing central variables (all central variables will be quantified) and for acquiring information for qualifying the quantitative studies. The quantitative studies consist of surveys and collection of register data. All quantitative data will be analyzed using OLS regression and panel analysis.

Qualitative studies

Qualitative methods are needed for mapping the degree of extrinsic motivation factors in the Danish municipalities. This mapping will be carried out through document studies and a round of semi-structured interviews with municipality managers and representatives from the dentists' union. The interviews will also be used to prepare the quantitative survey about the perception of extrinsic motivation factors and internal motivation of dentists.

Quantitative studies

Quantitative methods will be used to test the hypotheses of the project. The data will be analyzed using panel analysis. This will alleviate problems with endogeneity that could otherwise undermine the causal claims made using OLS regression. However, a panel study requires at least two measures for each variable in the study. Consequently, the participants will be asked about their perception of extrinsic motivation factors and their internal motivation in two rounds of surveys. The first survey will be run in December 2009 and the second in May 2011. At the same time the extrinsic motivation factors will be coded qualitatively. Data on performance and behavior (patient selection) can be collected from the National Board of Health.