

# Policy consequences of pay-for-performance and crowding-out

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## Abstract

Crowding Theory is part of Behavioral Economics; it takes into account that human beings are motivated by both extrinsic and intrinsic motivation. In contrast, pay-for-performance intends to raise performance by making compensation dependent on the performance determined ex ante by relying on extrinsic motivation. Yet, empirical evidence demonstrates that pay-for-performance under identifiable conditions leads to undesired worker performance. As a policy consequence, the government in the public sector, as well as charitable and humanitarian organizations relying on volunteers, should be very careful to institute pay-for-performance schemes due to the risk of crowding-out intrinsic motivation. Using pay-for-performance in such activities is in most cases incompatible and inconsistent with the organizations' goals and tends to lead to poor or at least unsatisfactory work activities.

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## Keywords

crowding-out — pay-for-performance — intrinsic motivation — extrinsic motivation — anomalies

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## Crowding theory as a behavioral anomaly

Behavioral Economics is understood to be the import of psychological insights into economics. Its roots date back to the beginning of economics (see Sent 2004) but have come to the fore only recently (e.g. Thaler 1992, Mullainathan and Thaler 2001, Camerer, Loewenstein and Rabin 2011, Samson 2016). Crowding Theory is part of Behavioral Economics; it takes a step beyond Standard Economics by taking into account that human beings are motivated not only by extrinsic, but also by intrinsic motivation. This extension leads to a fundamental policy change in how employees' performance should be influenced.

Section 2 discusses the dominant approach to raise performance by making the wage dependent on the performance determined ex ante by the management of a firm or other organization. This is in line with Standard Economics solely based on extrinsic motivation and is widely practiced in today's economy. Section 3 deals with the behavioral extension brought in by Crowding Theory. Based on extensive empirical evidence it is shown that pay-for-performance under identifiable conditions leads to undesired results with respect to workers' performance. Section 4 gives reasons why this behavioral insight has been widely neglected. The concluding Section 5 identifies the policy consequences.

## Pay-for-performance

In wide circles of business as well as academia it is taken for granted that the right way to induce employees to raise their work effort is to set them a goal ex ante. The more they surpass this goal, the higher is the monetary bonus received. Following the relative-price effect (see e.g. Becker 1976, Frey 1999) this system induces individuals to put in more effort. The relative-price effect proposes that the higher the monetary incentive offered, the higher is the supply of goods and services.

Pay-for-performance is an important part of New Public Management that has been introduced in large parts of the public sector in order to increase efficiency. It has even become fashionable (Rost and Osterloh 2009, Frey, Homberg and Osterloh 2013, with extensive references). Pay-for-performance has not only been applied to public administration in the narrow sense but also to areas beyond it. In particular, it has been introduced in the educational system. At German universities, for instance, scholars taking up a professorship must agree to reach specific goals such as publishing a set number of articles in academic journals (whose quality is defined by an official ranking) and getting outside research funding of a particular sum of money. If they surpass these goals, they get a raise in salary (or tenure, to begin with). Pay-for-performance has even been introduced in the humanitarian sector, including church services. In some churches, a pastor who exceeds the number of infants he or she baptizes gets a higher income.

## Crowding-out intrinsic motivation

It has been known for many years in the social sciences that, under specific conditions, pay-for-performance crowds out employees' intrinsic motivation. Conditions require that workers at the outset to some extent are motivated intrinsically, and that they perceive the outside intervention to be controlling. The intrinsic motivation is no longer needed to perform the work. It is therefore substituted by the extrinsic motivation to gain a higher income. This effect, of course, requires that there exists an intrinsic work motivation at the outset. Moreover, the recipients have to perceive the monetary intervention to be controlling. The crowding-out effect is an empirically testable effect based on a theory of human behavior, which takes preferences not to be fixed as in Standard Theory but to be variable and endogenous. The crowding effect can under specific conditions bolster extrinsic motivation. This is the case if the outside intervention acknowledges and praises the work done for extrinsic reasons. An outside intervention meeting this condition is handing out awards. Prizes are publicly given in a formal ceremony where the existing work motivation of the recipient is explicitly praised (Frey and Gallus 2015, 2017).

The crowding-out effect was first identified in psychology by Deci and co-workers (Deci 1971, 1975, Deci and Ryan 1985, Deci, Koestner and Ryan 1999) and was mainly applied to analyse learning. In psychology the effect is known under various names, such as the “overjustification effect”, “corruption effect”, “the hidden costs of rewards”, or “the detrimental effects of rewards on performance”. It has been extensively studied in the context of Cognitive Evaluation Theory (see the surveys in Lepper, Greene and Nisbett 1973, Lepper and Greene 1978, McGraw 1978, Wiersma 1992, Tang and Hall 1995). The effect has become so prominent that some psychologists have made a name by refusing to accept these findings (Cameron and Pierce 1994, Eisenberger and Cameron 1996). However, today the crowding-out effect is well-established based on real life, field, and laboratory evidence (see, e.g. Weibel, Rost and Osterloh 2010).

Titmuss (1970) observed a crowding-out effect for the specific case of blood donations. He argued that paying for blood undermined cherished social values and would therefore reduce or totally destroy people's willingness to donate blood. Titmuss was not presenting any serious empirical evidence. The crowding-out effect was introduced into economics by the present author (Frey 1992, 1997, Frey and Oberholzer 1997, Bohnet, Huck and Frey 2001), who applied it to many different issues in economics, in particular, to the consequences of trying to induce employees to work better and more intensively by raising their salary (for a well-known field experiment see Gneezy and Rusticchini 2000a,b). Many scholars have since then analysed the effect. Most importantly, Bénabou and Tirole (2003, 2006) put the crowding-out effect in the context of signalling theory and attributed it to the fact that individuals are unable to reveal their intrinsic motivation when at the same time an extrinsic incentive is applied.

The crowding-out effect *works in the opposite direction* to the fundamental relative-price effect championed by Becker (1976). The relative-price effect states that an activity is undertaken more if its price (relative to other prices) increases. In contrast, the crowding-out effect states that an activity is reduced when the corresponding price rises because the price increase undermines the intrinsic motivation to undertake the activity. The relative-price effect has been applied to a large number of areas ranging from the family to crime. Many anomalies in human action analyzed in Behavioral Economics only *weaken* the relative-price-effect, but do not reverse it. For that reason, crowding effects have received considerable attention in economics and other social sciences. For example, the survey article by Frey and Jegen (2001), collecting the existing field and laboratory evidence, has been cited 2,400 times (according to Google Scholar, accessed October 6, 2016). There are several other recent surveys and experiments (e.g., Gneezy, Meier, and Rey-Biel 2011, Meier 2007, Falk and Kosfeld 2006). The crowding-out effect was also noted in the general academic journals *Science*, *Nature* and *Harvard Business Review* (Bowles 2008, 2009, Frey and Osterloh 2012). Recently (Murayama et al. 2010) the neural track through which crowding-out operates, was identified using functional MRI. Performance-based monetary rewards are shown to undermine intrinsic motivation. Activity in the anterior striatum and the prefrontal areas falls along with this behavioral undermining effect. These findings have been attributed to the cortico-basal ganglia valuation system underlying the undermining effect through the integration of extrinsic reward and intrinsic task value.

Pay-for-performance strongly contradicts the insights of crowding-out theory, at least when the goals set are perceived to be controlling by the employees. Most goals are considered to be controlling as they are defined and imposed by the superiors. Managers monitor their employees to decide whether their performance conforms to the criteria set by goals defined *ex ante*. To invest time and effort into any aspects not covered by the criteria is wasteful for any rational actor. For instance, to help a colleague with his or her tasks “does not pay” in the literal sense –except if one's formal task is to provide help to colleagues (see Barkema 1995, and Osterloh and Frey 2000, with extensive references to the literature). Obviously, goal setting in order to apply pay-for-performance necessarily leaves out many aspects of work, in particular those referring to parts of work difficult or impossible to define and measure, or only arising in the future.

## Why are the behavioral insights widely disregarded?

The question arises why this clash between Crowding-out Theory and the widespread application of pay-for-performance can persist over time. Three major reasons may be adduced.

First, when pay-for-performance is applied only in sectors in which monetary intervention does not crowd-out intrinsic

motivation, the two theories are compatible. The question is whether and where such areas exist. One might think that purely repetitive and unchallenging tasks would belong to this category. Empirical research suggests that even there intrinsic motivation is not absent (see Frey and Osterloh 2002). Many workers in such activities actively seek to make the work more rewarding. For instance, a cashier in a shopping centre may establish contact with the customers by being friendlier than her or his job requires. If that is the case, pay-for-performance pushes out that friendliness –as the superiors formally declare it– is irrelevant for the job.

The two theories are also compatible if the goals set by pay-for-performance are not perceived to be controlling by the employees affected. There may be cases in which the goals set by the superiors serve as welcome targets to be voluntarily reached by the employees, e.g., if the goals were commonly agreed. This condition applies only under quite restrictive conditions. This may, for instance, be the case when the employees feel uncertain of what to do, or when the tasks are so complex that the employees are lost and seek guidance. Goal setting may also be useful to identify the worst performers, and to help getting rid of them.

Second, the crowding-out effect is so small that it can be neglected. As explained above, the relative price effect and the crowding-out effect work in opposite directions; what is observed in the field is a combination of the two. It is difficult to say in general which effect is larger. Their sizes depend on a large number of conditions existing in a particular case and at a specific moment of time. Their relative size may possibly be captured in laboratory experiments but their external validity is, of course, always doubtful (see Frey and Jegen 2001). Field experiments are in this respect preferable, but they may find it more difficult to convincingly distinguish the two effects (e.g., Gneezy and Rustichini 2000b, Weibel, Rost and Osterloh 2010).

Practitioners may have hunches under which conditions intrinsic motivation remains more or less unaffected by paying salaries according to performance. If intrinsic motivation is firmly established and remains constant due to tradition or education, or if individuals strongly react to monetary incentives because they urgently need additional income, bonus payments can certainly be expected to raise work effort.

Third, people deciding about incentives may systematically overestimate the role extrinsic, compared to intrinsic, motivation plays for other persons. This particular cognitive bias stipulates an asymmetry in the views between an actor and an observer of an activity. The observers assume that the actors are mainly or solely motivated by extrinsic factors, in particular pay, while it may well be that the actor is intrinsically motivated to undertake the task. This asymmetry in the views has been extensively studied in attribution theory (originally Heider 1958, Jones and Nisbett 1971; a recent study is e.g. Critcher, Inbar and Pizarro 2012). People playing down the importance of intrinsic motivation seek to raise work effort by extrinsic incentives, in particular pay-for-performance

schemes. They disregard the possibility that employees are more strongly intrinsically motivated than they believe is the case.

## Policy consequences

The government may use the insights discussed in various respects. Most important is the organization of its *public administration*. Public officials are assumed to have, and do indeed have, a measure of intrinsic motivation to serve the citizens. This has aptly been referred to as “principled agents” (Besley, 2007) to indicate that they are not solely agents following the orders of their principals. As argued above, such intrinsic motivation may well be crowded out if pay-for-performance is applied –as is today the case in many government administrations in the wake of New Public Management. To forego setting performance criteria *ex ante* does not mean that salaries are kept constant after the performance has been evaluated. If superiors are satisfied with the performance of an employee they observe, they may *ex post* raise his or her salary. Such intervention does not risk crowding-out the recipients’ intrinsic motivation. Rather, the recipients interpret such action as a confirmation of their dedication to work. Nevertheless, other possibilities to incentivize employees in the public sector should be considered. Awards in the form of orders, trophies, certificates or badges are a well-suited means to express satisfaction and appreciation for the work done (see Frey and Gallus, 2015). They are publicly bequeathed to honour extraordinary performance beyond and above what is normal.

The same considerations should be applied to the *general public sector* beyond narrow public administration including the military, the public educational system, as well as the health sector and social services. Employees in these areas often engage themselves to perform in the interest of the public good. Thus, for example, doctors and nurses care for their patients, and teachers wish to contribute to the present and future well-being of their students.

Empirical research (e.g., Amabile 1983, 1996, Rousseau, 1995) has well established that intrinsic motivation is a crucial requirement for creativity in *academic research*. It is certainly possible by offering monetary bonuses to induce researchers to do their “job” and to perform in an “average” way, but the extraordinary and the really creative will not be promoted. As a consequence, the government and other principals should be very careful to institute pay-for-performance schemes in universities and research centers because of the risk of crowding-out the existing intrinsic motivation.

There are also policy consequences for *charitable and humanitarian organizations*, or the third sector. Many of such organizations rely, and are strongly dependent, on *voluntary work* (see e.g. Gallus 2015 for contributions to Wikipedia). By definition, volunteers do not engage themselves to earn money but rather to be part of an enterprise they believe in. A strong intrinsic motivation is a *sine qua non*. For humanitarian tasks some amount of sympathy and understanding

is required. Using pay-for-performance in such activities is incompatible and inconsistent with the organizations' goals and is most likely to strongly affect in a negative way the intrinsic motivation of the persons involved.

Similar considerations apply to some extent to the *private sector* at least as far as unregulated and innovative activities are concerned. Most entrepreneurs engage in building up their firms because they see it as something they care for. The monetary benefits they later reap, often in large scale, are seen as something going with it, but not as an incentive in the first place.

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