

Public Sector Human Resource Practices to Drive Performance**98810***Nick Manning, Zahid Hasnain, Jan Henryk Pierskalla*

Many Governments wrestle with the issue of designing an appropriate set of human resource practices to motivate public servants to perform. Identifying the right set of practices for the public sector is a source of some controversy, and passions run high particularly in relation to the use of monetary incentives, often referred to as performance-related pay or performance based pay.

This GET Note reviews recent research on a range of practices Governments utilize to drive employee performance, which rest on the assumptions that public servants are motivated in two ways: (i) “intrinsically” (i.e. internal factors motivated by ‘the right thing to do’), and (ii) “extrinsically” (i.e., external validation from rewards offered by others).

Generally, a Human Resource Management (HRM) system designed to motivate employee performance will utilize practices in two broad categories related to: (i) “External Incentives” (e.g., financial incentives), and (ii) “Opportunities to Perform” focusing on ‘intrinsic’ factors (i.e. self-directed work). Within “External Incentives,” a financial incentive may either act over the long term (e.g., deferred compensation) or in the short term (e.g., performance-related pay). This note applies this conceptual framework to more clearly understand the range of practices Governments are using to improve staff performance, as well as the pre-conditions for their success. Given the recent attention on performance-related pay, we take a deeper look at the evidence underlying the shorter term performance-related pay, reviewing evidence from both OECD and middle income countries. Annex 1 provides a brief overview on the theories of motivation for those interested in the theoretical underpinnings of the work, and Annex 2 presents experiences of performance pay in practice. This Note draws heavily from Performance-Related Pay in the Public Sector: A Review of Theory and Evidence (Hasnain and others 2012), a recent review of the literature in fields including political science, public administration, business management, and psychology.

I. External Incentives

“External incentives” can be defined as rewards that influence an individual’s motivation and which come from outside him/herself. The literature shows that the motivating factors are external to an individual.

These external motivating factors are both financial and non-financial and can act in the short term and the long term (see Table 1).

GET Notes – Recently Asked Questions Series intends to capture the knowledge and advice from individual engagements of the World Bank’s Global Expert Team on Public Sector Performance (PSP GET). The authors would like to thank Joanna Watkins for her assistance. The views expressed in the notes are those of the authors and do not necessarily reflect those of the World Bank. For more information about the PSP GET, contact the GET team leaders Bill Dorotinsky (wdorotinsky@worldbank.org) and Nick Manning (nmanning@worldbank.org) or go to <http://ao.worldbank.org/ITQYT7A0K0>

Table 1: Taxonomy of external incentives, with selected examples

	Short-Term	Long-Term
Non - Financial	International Award	Recognition from peers
Financial	Annual Performance Bonus	Deferred Performance Payments

We divide external incentives between those that act in the short term and those that act over the longer term. Long-term incentives play out over the course of a career and include deferred performance payments, steadily increasing pay over a long career, and recognition from peers. Short-term incentives could include performance-related pay in its various forms (group and individual, one-off bonuses and lasting merit increments), non-monetary recognition (see GET Note: Non-monetary Awards for Public Sector Programs and Institutions: Survey of Selected International Experience) and renewal of a fixed term contract – all providing rewards or deterrents in the next salary payment or contract renewal.

A. Long-term external incentives

This section delves into external incentives that Governments use to motivate public servants over the long term. Examples of long-term career incentives include promotion and compensation at higher levels, which influence behavior over the entire public sector career of staff. In summary, the assumptions behind these incentives are that:

1. The public sector attracts people who like stability/certainty/predictability – and traditional incentives in the public sector are designed to work for those type of people by focusing on the longer term;
2. Respect and reputation are important parts of the long-term reward structure;
3. As long as pay is adequate (i) low pay at an early stage attracts people who are attracted by public service and (ii) merit-based promotion providing the prospect of higher pay later in the career is an important part of the reward structure;
4. Job security is provided as this allows the incentives to be offered credibly.

The central idea behind long-term career benefits is that the worker exerts effort in order to influence the actual or potential employers’ beliefs about her or his talent. So, even when employees are paid a fixed wage, they are motivated by the effect that effort has on future wages (Holmstrom 1982). Many argue that in complex public sector environments, with overlapping and occasionally contradictory objectives as well as multiple principals and reporting lines, incentives for performance should emphasize incentives which rely on information that is hard to game as it emerges over the longer term (Burgess and Metcalfe 1999). The assumptions here are that it is difficult to deceive others about effort and ability over a period of many years. However, the worker cannot signal talent and effort to an employer that fails to look afresh at effort on a regular basis, that is more interested in non-merit based signals, or if the breadth and complexity of the employees’ tasks are such that it cannot be clear where and whether they are succeeding (Dewatripont and others 1999a; Dewatripont and others 1999b).

There are two key long-term career-based incentives: competitive promotions and deferred compensation. On the first, competitive promotions have been extensively reviewed with promotions seen as prizes that are allocated to the workers who rank higher than all others over a given period. There is some evidence that successive rounds of competition for jobs can reveal otherwise hidden performance traits (Burgess and Metcalfe 1999). However, the risk is that early promotions can distort the employer’s perceptions of fast-rising staff, tending to promote them more automatically, and there is some evidence of diminished cooperation between staff who are in the same pool of candidates for promotion (Lazear 1989).¹ Overall though, “(s)enior civil servants are likely to be as motivated by (promotions) as they are by financial rewards (since) the incentives to game to achieve reputational rewards are somewhat lower than the incentives to game in relation to financial rewards. This is for the simple reason that if the reward is reputation, a reputation for gaming amongst professional peers undermines the reward itself” (Ketelaar and others 2007, 16).

On the second, deferred compensation is found when wage profiles are structured to reflect experience and expertise. In essence, the argument is that deferred compensation is a mechanism which provides incentives to workers early in their careers to exert effort in order to be promoted or not to be sacked and hence lose the pay-off owed to them later in their tenure (Lazear 1981). The weakness of this mechanism is that if there is no serious risk of losing the long-term compensation gains, then the rewards are simply provided in exchange for length of tenure or seniority. However, if rewards for seniority are provided together with a credible threat of non-advancement or dismissal for poor performance, then seniority is simply an easy to measure proxy for experience and serves to attract risk-averse but talented workers. Both promotions and deferred pay rest on the assumption of a long-term career path.

Beyond competitive promotions and deferred compensation, many studies show that providing opportunities for employees to learn through access to training programs, scholarships, and other educational programs increases employees’ incentives to gain new skills and use it to perform better. Such opportunities also include providing travel awards and paid leave. Such non-monetary opportunities and rewards are perceived to carry more value than the equivalent cash value. Employees consider such opportunities and rewards to be “worth the effort” since receiving rewards is often associated with the higher public recognition from their colleagues/others and give a higher sense of accomplishment.

Non-monetary rewards can motivate individuals through their intrinsic value and translate to a potential increase in productivity and innovation, as well as increased loyalty to the organization.² But in order to preserve an award’s intrinsic value, designers of award schemes must protect the fidelity of the selection process and the fairness and impartiality of the result.

¹ See also the emphasis given to employment security and recruitment in the seven HRM practices identified by (Pfeffer 1998b), (Pfeffer 1998a) as key to organizational effectiveness. These have been validated more widely, although an empirical review of the impact of these practices found no direct relationship between employment insecurity and organizational performance but noted that insecurity seemed to hinder development of other useful HRM practices with a stronger link to performance (Ahmad and Schroeder 2003).

² For further details of country case studies, please refer to the GET Note: Public Sector Awards Programs *Non-monetary Awards for Public Sector Programs and Institutions: Survey of Selected International Experience*, April 2010

B. Short-term external incentives

We now turn to external incentives that Governments use to motivate public servants in the short term. Short-term performance incentives, such as performance bonuses, do not make the same assumptions concerning job security. The assumptions here are that:

1. Gaming can be managed by frequent changes in targets and by emphasizing dialogue as much as reward/punishment (but gaming is a real challenge and performance-related pay can crowd out “intrinsic incentives” – “if you’re going to treat me like a factory worker on piece rate, I’ll act like one”);
2. Performance rewards can drive a significant increase in outputs, at least in the short term – and not just with very simple outputs; there is evidence of short-term improvements in revenue collection and teaching;
3. The big return from performance-based rewards might be over time – as staff who work well under performance-based incentives are attracted into a public service that has it in place.

Short-term incentives can include performance-related pay of various kinds – a highly charged and frequently contentious arrangement. There is some research evidence that it can be effective in improving performance, but the evidence is distinctly mixed. In a recent review of the research evidence, a majority (65 of 110) of studies found a positive effect of performance-related pay, showing that explicit performance standards linked to some form of bonus pay can improve, at times dramatically, desired service outcomes. However, there is insufficient evidence, positive or negative, of the effect of performance-related pay in contexts such as the core civil service, characterized by complex tasks and with few measurable outcomes, to reach a robust general conclusion – and there is distinctively little evidence from such contexts in developing countries or over a long period of time (Hasnain and others 2012).

As noted above, avoiding moral hazard and adverse selection are often used to advocate for forms of performance pay in the public sector. Such incentive schemes fundamentally require the ability to measure some relevant outputs, design a scheme that properly links unobserved actions to outcomes (the incentive constraint) and offer bonuses that induce agents to increase effort (the participation constraint). Incentives work best if the agent's actions are tightly linked to observable outcomes, i.e. the random noise is not overpowering the incentive effects. Incentive schemes are also affected by employees’ risk aversion. Since an incentive scheme links outcomes that are only partially under the control of the agent, making final pay outcome-dependent decreases the utility of risk-averse employees, who usually demand an upward adjustment of average pay to compensate for the increase in risk. Even with very simple models, the optimality of the incentive scheme is sensitive to important design aspects, like the schedule of bonuses (linear, stepwise or other) and depends on the particularities of the employee's task.

Research findings suggest a somewhat supportive picture of performance pay for jobs within the public sector where the outputs are more readily observable, such as revenue collection or some teaching and health care jobs – and is less supportive if its use for general administration.



Performance-related pay schemes do not necessarily have to reward individual performance, but can focus on rewarding teams. Rewarding team performance can have certain advantages, ranging from reduced evaluation costs to avoiding harmful competition between employees. However, basing rewards on team outputs can also lead to problems of free-riding where some team members willfully reduce their efforts in the expectation of relying on the work of others. The strength of free-riding problems depends on the size of the team and internal monitoring and punishment norms (Dixit 1999).

Trends in the use of monetary incentives from the OECD indicate that the use of such incentives is generally increasing in OECD countries, yet it represents rarely more than 15% of total pay for individuals. Two-thirds of OECD member Governments have implemented performance-related pay or are still in the process of developing the system (OECD 2005b). However, there are large variations in the degree to which performance-related pay is actually applied throughout civil services. Only a handful of OECD countries have developed an extended, formalized performance-related pay policy (Denmark; Finland; Korea; New Zealand; Switzerland; the UK).³

Picking the correct size of bonus brings its own challenges. Small bonuses will have little incentive effects and fall short of expectations, while large bonuses can lead to cheating and to employees treating incentive schemes as lotteries, especially if outcomes are highly variable (e.g. student test scores (Neal 2011)). Some suggest that rewards be a minimum of 5% of the base salary (Makinson 2000). Table 2 provides an overview of the form and size of merit increments and bonuses across a select number of OECD countries (Canada, France, Finland, Korea). Merit increments are permanent increases to base pay. In other words, they are a permanent award until retirement, factoring into pension payments in systems where pensions are a function of pay levels while employed. On the other hand, bonuses are a one-time payment and do not effect base pay or pensions. OECD experience suggests that there is no one-size-fits-all approach to allocating bonuses. Some countries do it on an individual basis, others on a team basis (or a combination thereof). Bonuses can be set centrally, or determined by individual departments (New Zealand, Denmark). Some target senior managers, others target mid or lower level employees. The range between bonuses is wide – from 1.7% (Finland) to 100% of base salary (Czech Republic).

Table 2: Form and maximum size of individual performance-related pay payments

Country	Merit Increments	Bonuses
Canada	5% per year, up to 3 years	10-25% bonus lump sum
France	--	Performance-related pay for top level civil servants in six pilot ministries (up to 20% of base salary)
Finland	Max merit increase between 25-	Team basis, ranging from 1-8.3%

³ A series of OECD reports and associated discussion papers chronicles the type and extent of pay related civil service reforms in advanced industrialized countries. See (Burgess and Ratto 2003), (Perry and others 2006), (Perry and others 2009), (Ketelaar and others 2007), (Kim 2002), (OECD 1993), (OECD 1996), (OECD 1997), (OECD 2004), (OECD 2005a), (OECD 2005b), (OECD 2008), (OECD 2009), (Rexed and others 2007)

	50%	among agencies
Korea	Up to 7% of half of annual salary	Mid to lower level employees. Varies from 40-100% of the monthly base salary per year

Source: Adapted from (OECD 2005b)

The co-factors usually associated with performance-related pay are a strong personnel performance assessment system and good records management (for HR, salary, bonuses).

II. Opportunities to perform

Moving beyond external incentives, we now turn to incentives that act on an individual’s intrinsic motivation – the motivation derived from inside an individual. We group those practices that focus on these intrinsic factors under “Opportunities to Perform.” Examples include the space for self-directed work, and adequate resources including, for managers, reasonable confidence that they can obtain results via the staff they direct.

On self-directed work, (Pink 2009) concludes from other research that tasks should be constructed to maximize: (i) an individual’s sense of *autonomy* (Ryan and Deci 2000; Chirkov and others 2003); (ii) *mastery* through continuous incremental learning and improvements rather than distant targets (Sauermann and Cohen 2008); and (iii) *purpose* including aspirations for personal growth and close relationships (Niemiec and others 2009).

On resources, there are the obvious issues of physical office or other conditions and, in the case of specialized workers (sanitation, medical, etc.) adequate technical equipment. But there are also the less obvious questions of whether managers in turn have staff whose incentives and opportunities shape them into a resource that can be usefully directed by the manager. Recent work within Mauritius (World Bank 2012) provides an example where the staffing resources necessary to provide senior management with the opportunity to perform hinged on: managerial authority to recruit within budgetary ceilings; system-wide mitigation of recruitment delays, high turnover rates and skill shortages; availability of long-term HR planning at the departmental level; and improved target-setting and performance management systems for staff.

Many successful organizations in the past decade have realized that giving employees more personal autonomy – whether through flexible work hours, designated time to pursue personal interests, or by limiting group work and meetings – often is a reward unto itself. Several private sector companies report that allowing employees to determine their own tasks on designated workdays increases productivity and creativity dramatically. A number of public sectors have introduced flexible working hours, but the application of these other ideas may be limited.

III. Conclusion

Both external incentives and opportunities to perform are important, particularly for managers. Highly incentivized managers without the opportunity provided by space for creativity and the

ability to drive or lead their agencies towards better performance is a recipe for frustration. Equally, providing those opportunities to managers lacking drive is a wasteful endeavor.

Given the complexity of the context and uncertainty of the evidence, it is difficult to make a definitive statement on whether performance-related pay is strongly correlated with better performance. What is evident, however, is that performance-related pay does not work in isolation and that due consideration needs to be given to the range of practices that may contribute to improved staff performance as well as the design and implementation of the performance-related pay system, which is not a trivial task.

Annex I: Theories of motivation

Staff motivation is a complex issue in any organizational setting – but particularly so within the public sector. Public sector agencies often have *multiple principals* in that there are many powerful groups able to influence the agency and who might want to since they are affected by the agency’s work. Other large and influential departments, ministers and cabinet members, individual members of the legislature, labor unions, lobby groups and community organizations – all can have a powerful influence on the work of the agency. To add to the multiple principal complications, the staff of the agency themselves can be associated with these principals. Public sector agencies also have *multiple tasks*. Even apparently simple and single tasks such as mail delivery or payment of benefits can be combined with many other only marginally related tasks such as issuance of licenses or determination of eligibility for other programs. Many of the tasks are only loosely defined in legislation, requiring continuous interpretation in practice much of which is undertaken by front-line staff. Other tasks are implicit but politically significant – such as courtesy or fairness in the way in which the core mission is undertaken. Also, generally there is a *lack of competition* which, although this is often framed as if it is a distinctive public sector advantage, in fact provides significant challenges as it removes any ability for the agency to demonstrate a bottom-line success, leaving it permanently susceptible to criticism. Finally, public sector jobs are often associated with a distinctive *public sector ethos* and, by contrast with many private sector production organizations, public agencies employ a high proportion of professional staff with associated professional mores. Thus working in the public sector can be much more than simply doing a job.

In the face of these complexities, human resource management arrangements in the public sector use many types of incentives to encourage better performance at the individual, team, or organizational level to improve the effectiveness and efficiency of public sector programs and activities. Broadly speaking, there are three main perspectives on how incentives should be designed.

First, expectancy and reinforcement theories suggest that when employees believe that increased effort leads to increased performance recognized by management, they adjust their work effort on the expectation of future rewards – a mindset reinforced through repetition and establishing the new level of effort as the behavioral norm.

Second, principal-agent and contract theories are premised on a simple microeconomic principal-agent model of labor relations, in which a principal (the employer) uses rewards and punishments to induce an agent (the employee) to perform a certain task, with the well-known risks of moral hazard and adverse selection and leading to careful design of employment contracts with explicit, monitorable requirements on both parties.

Thirdly, behavioral economics identifies a distinction between intrinsic and extrinsic motivation – with the former stemming from objectives that are related to the individual’s sense of the right thing to do, and the latter stemming from their interest in obtaining rewards offered by others. This theory has been particularly prevalent in the recent design of incentive schemes.

Each of these theories, in turn, is presented in more detail here. Expectancy theory builds on psychological insights about repeated behavioral patterns and learning under positive and negative stimuli (Porter and Lawler III 1968; Vroom 1964). In its simplest form the theory suggests that explicit incentives (for example short-term increases in pay, promotion with longer-term pay rises and increased status) work under two conditions. First, employees need to believe that increased effort leads to increased performance, second increased performance leads to desired outcomes and is recognized by management. If the two conditions are met, employees form a behaviorally salient expectation about a future reward and adjust their work effort upwardly. Reinforcement theory stresses the effect of cultivating a behavioral norm of high work effort through reinforcing behavior with positive rewards (Luthans 1973; Skinner 1969).

Many of the arguments around incentives are founded in a simple microeconomic principal-agent model of labor relations, in which a principal (the employer) wants to induce an agent (the employee) to perform a certain task. Such principal-agent relationships are commonly affected by two problems (Dixit 1999): moral hazard and adverse selection. Moral hazard describes a scenario in which the employee's effort at work is not directly observable, but influences productivity and other outcomes which the employer cares about. It suggests that fixed pay contracts in the public sector give the employer little leverage to influence employee effort once the original hiring decision has been made, particularly if employees are hard to fire. Principal-agent theory suggests that rewarding observable outputs through bonus or merit pay schemes can mitigate this problem.⁴ However, the idea is not just that incentives can be designed that have an impact on working practices, contract theory also includes a proposition that pay incentives can attract particular types of staff – the “sorting” effect. “Sorting” means that the type of contract and work environment determines the type of staff who are seeking employment. Thus explicit performance-based contracts could attract staff who work particularly well under those circumstances.

Behavioral economics identifies a distinction between intrinsic and extrinsic motivation – with the former stemming from objectives that are related to the individual's sense of the right thing to do, and the latter stemming from their interest in obtaining rewards offered by others. This theory has been particularly prevalent recently in designing incentive schemes. Building on the argument that worker motivation is significantly driven by intrinsic concerns, behavioral economists warn that explicit monetary incentives for employees with strong intrinsic motivation can have the effect of “crowding-out” these intrinsic affects – i.e. that staff lose one of their most powerful motivators leading, perversely, to worse performance. There is some evidence concerning this and even small changes in pay structure can induce a change in staff attitudes, leading them to switch from seeing the task as something they want to do commensurate with what their employer is paying, towards a perspective in which it is just low paid contract service with no particular meaning for them.

The debate around the significance of intrinsic motivation for public sector workers has been crystallized in the debate led by Le Grand about whether public service workers are “knaves or knights” (Le Grand 2003). Le Grand argues that post-war public administration theory in the UK

⁴ For the private sector see (Prendergast 1999), (Prendergast 1998), and for the public sector (Dixit 1999), (Burgess and Ratto 2003).

(and in Europe more generally) saw public servants as public-spirited altruists, a misleading interpretation of reality which was recognized in, although not adequately redressed by, the 1980s introduction of various New Public Management reforms. On the opposing side of the argument, (Pink 2009) has developed the critique of monetary and other extrinsic incentives into a broader theory, hypothesizing that they are both counterproductive, as they frequently undermine intrinsic incentives, and unnecessary, as intrinsic incentives can be harnessed and used to maximize individual productivity.

Annex II: Performance Pay in Practice

Given the intensity of the debate around performance-related pay, this Annex summarizes some highlights from recent research. A review of incentive programs in the US, particularly the Performance Management and Recognition System, the UK's Inland Revenue Service performance scheme and similar attempts in Australia highlights how performance-related pay can go wrong (Cardona 2007). Failure is predicted by several features, particularly employees rarely being scored less than satisfactory in their evaluations, concerns about subjectivity or unfairness (referred to by some researchers as a lack of procedural justice (O'Donnell and O'Brien 2000)) and bonus systems designed so that only very few employees actually received any payments. The consequence can be staff finding the system de-motivating and inciting jealousies.

Strong incentives with inadequate checks on the quality of the organizational outputs are also a predictor of failure, as they can lead to “gaming” in which less visible aspects of output quality are sacrificed in order to trigger a larger bonus. Performance-related pay was introduced under the US Job Training Partnership Act (JTPA). Under the Act, 620 semi-autonomous training centers were responsible for implementing job training programs for the indigent, and were given financial incentives tied to labor market outcomes — employment status, earnings — of the trainees. These bonuses were given to the training centers thereby augmenting their budgets but could not be used to supplement staff salaries. (Courty and Marschke 2004) find evidence of the prevalence of gaming among the agency staff in the choice of termination date of the training for the participants. Similar effects have been found by related studies of the program (Heckman and others 1997). Similarly, a study of performance pay by (Asch 1990) collected data on the behavior of Navy recruiters, subject to a point-based performance system. The incentive consisted of a point-scheme for the quality of recruited candidates, a fixed time frame for evaluation and a minimum threshold of points needed to qualify for a bonus. Asch shows that the incentive scheme did increase the effort of recruiters and led to the recruitment of more high-quality candidates, but also induced recruiters to game by increasing recruiting efforts early in the cycle but then reducing efforts after the bonus level was achieved.

Historical examples of gaming can be found. (Wilms and Chapleau 1999) note that performance-based pay began in the UK in about 1710, with salaries based on test scores in reading, writing and arithmetic. The rationale was that it would help keep students from poor families in school, where they could learn the basics. In reality, the incentives encouraged teachers to narrow the curricula to include only easily assessed subjects, and cheating by both inspectors and teachers made the system ultimately untenable. The system was dropped in the 1890s. A similar scheme was introduced briefly in Canada in 1876, but it ran into similar difficulties and was terminated around the same time.

I. Specific cases with some success

A. OECD settings

1. Tax administration, job placement

Revenue authorities are examples of public sector agencies where outputs — number of audits conducted and tax fines collected — are more easily measurable and there is a clearer link between the efforts of, for example, individual tax auditors and revenue collection. In 1988 the Brazilian government created a bonus program for tax officials that rewarded the identification of tax violations. Base salary was augmented on a monthly basis on an individual and group basis. The group reward was calculated based on the relative performance of one local agency versus others, with relative performance measured based on total fines collected, attainment of pre-defined quotas (total tax collection, number of inspections, collection of overdue taxes) and the size of the agency. Individual rewards were based on monthly evaluations by the direct supervisor, which combined objective performance criteria and managerial discretion. The value of individual rewards was determined by the overall availability of funds (which are proportional to the collected fines) and the performance of co-workers. It was not unusual for total bonus payments to reach 200% of base pay. (Kahn and others 2001) found that this incentive scheme resulted in a 75% increase in fines per inspection. At the same time, they also found substantial regional variation, with responses ranging from 19% to 145%. They caution that diverse management techniques resulted in some regions targeting wealthier sources (such as corporations), more aggressively, which points to the potential negative effects of such high powered incentive schemes which may encourage extortion.

(World Bank 2001) used survey data from revenue departments in 14 low, middle and high income countries, and detailed case study evidence from 7 of those, to review the effectiveness of bonus and salary supplement systems as a means to enhance effectiveness in revenue departments. They concluded that the “circumstantial evidence” suggests that bonus systems do indeed seem to have an impact on organizational effectiveness. They note that in a number of countries the introduction of bonus systems have had a measurable impact on recruitment and retention of employees. However, they note that the success of bonus systems relies heavily on “legitimacy”, i.e. the internal and external “acceptance” of the bonus system.

2. Teaching

In the American context researchers have evaluated the effects of teacher quality on student outcomes (Hanushek and Rivkin 2006; Clotfelter and others 2007; Goldhaber and Brewer 2000). Since performance pay is argued to be one important tool for attracting and retaining highly-qualified teachers, it is important to determine the effectiveness of merit systems in that regard. (Clotfelter and others 2004; Clotfelter and others 2008) show, using detailed data from North Carolina's schools, that accountability and performance pay systems contribute positively to retaining quality teachers. The introduction of merit pay can also be linked to student test scores, but with varying empirical robustness. (Cooper and Cohn 1997) find for a sample of over 500 South Carolina classes and find a positive effect merit awards for teachers on mathematics and reading test score achievements.

Cross-sectional studies using data from the American National Educational Longitudinal Survey has been used to show a positive link between individual merit awards for teachers and student test scores (Figlio and Kenny 2007). Positive effects of performance pay have also been found in Arkansas kindergartens (Winters and others 2009). By utilizing particular features of Tennessee's Career Ladder System and the Project STAR field experiment, (Dee and Keys 2004) were able to link teachers' quality assessments, as expressed in the career ladder grouping, to student test scores. They find that the official career ladder system had only mixed success in rewarding teachers with the highest test score gains, but nonetheless teachers with merit awards had positive effects on student's math scores. They found however no statistically significant effects on reading scores.

Several studies from the context of American school reform also document the role of unintended side effects of explicit accountability programs. Large-scale testing of students as part of the 2001 No Child Left Behind Act ties student test scores to important resource allocations for schools, giving schools incentives to improve student learning, but also to increase pure test-taking ability or to engage in outright cheating (Jacob and Levitt 2003; Jacob 2005). Quite surprisingly, (Figlio and Winicki 2005), using daily lunch menu data from a random sample of 23 school districts in Virginia, show that even the caloric content of school lunches was adjusted upwardly to improve cognitive ability on test days.

An interesting study of private schools in India assesses the role of teacher unionization on student outcomes (Kingdon and Teal 2008). While not explicitly evaluating performance pay, unionization of teachers represents an increase in job security and uniform, higher pay, without being linked to explicit performance standards. (Kingdon and Teal 2008) find strong negative effects of unionization on student outcomes, utilizing a within-pupil across subject variation fixed effects design. The study by (Ladd 1999), mentioned above, on school accountability in Dallas, uses panel data and finds positive effects of merit pay on student performance and dropout rates.

A comprehensive study using cross-national data on performance systems in schools and PISA test scores also finds an positive association between pay-for-performance type reforms, improved teacher quality and student test scores (Woessman 2010).

3. Health care jobs

(Dowling and Richardson 1997) evaluate the effect of performance pay on British National Health Service (NHS) managers. Using self-reported data from a survey, they find a modest effect of pay incentives on manager motivation and effort. However, in analyzing performance pay for actual health services providers and staff, a series of studies has evaluated the potential effects of financial incentives for primary care physicians. The British NHS introduced performance-pay elements into the remuneration of family practitioners in 2004. (Doran and others 2006) use data on over 8000 family practices and evaluate the effect of performance pay on patient outcomes and find overall high performance in the first year of the incentive scheme, but also evidence of “gaming” through the exclusion of patients. (Campbell and others 2007; Campbell and others 2005) also analyze the role of financial incentives in a stratified random

sample of British general practices focusing on care for coronary heart disease, asthma and type 2 diabetes, finding a substantial effect of financial incentives introduced in 2004. (Steel and others 2007) find positive effects on asthma and hypertension treatment, as do (Vaghela and others 2009).

In the U.S. context, several insurance providers and health maintenance organizations have experimented with elements of financial incentives for care providers in various states. An early study of health maintenance organizations (HMO) managers' views on financial incentives found mixed support for the effectiveness of performance pay (Hillman and others 1991) in the eyes of managers.

More recently several studies have found fairly positive effects of performance incentives on health services, patient outcomes and satisfaction. (Safran and others 2000) use a cross-sectional study of Massachusetts adults to assess the effects of various health-maintenance organizations and their specific contract elements on primary care. One of the results links financial incentives for physicians to patient satisfaction. An evaluation of performance pay pilot program for physicians found meaningful improvements for diabetes patients compared to the control group (D. and Horrigan 2005). Small positive or mixed effects were also found studies by (Morrow and others 1995; Coleman and others 2007; Mandel and Kotagal 2007; Young and others 2007; Felt-Lisk and others 2007; Levin-Scherz and others 2006; Amundson and others 2003; Mcmenamin and others 2003; Casalino and others 2003).

(Rosenthal and others 2005) analyze a natural experiment, comparing quality improvements in two physician groups in the U.S. from 2001 to 2004. They find improvements in cervical cancer screenings but not other outcomes, largely rewarding practices with a high baseline performance. In a cross-sectional sample of primary care physicians that contracted with Medicaid managed care organizations in 2002 in California found a partially positive effect of incentive pay on STD care (Pourat and others 2005).

(Lindenauer and others 2007) analyze the effects of public reporting and pay-for-performance in hospital care in a Medicare/Medicaid demonstration project. Hospitals participating in the performance scheme show a significant improvement in overall measures of patient care quality, including care for heart failure, acute myocardial infection and pneumonia by up to 16%, compared to the control group. However, in a related, but patient-level study (Glickman and others 2007) evaluate the largest pay-for-performance pilot project in the U.S., finding no conclusive effects for several treatments and patient outcomes. Similarly, (Pearson and others 2008) find that pay-for-performance elements in physician contracts in Massachusetts did not add any significant gains above and beyond secular improvement in a time period from 2001-2003. In a study of public community health centers in Houston, (Gavagan and others 2010) also find no effects of performance pay, while (Chung and others 2010) find no effects for primary care physicians in California.

Mirroring the results found in other areas, while financial incentives can improve particular behavioral responses of staff members, it is difficult to design an incentive scheme that does not also produce unintended consequences and rewards unwanted behavior. (Shen 2003) provides

evidence of gaming and selection effects of financial incentives for substance abuse care providers. (Li and others 2011) utilize a natural experiment in Ontario, assessing the effect of performance-related pay on physician behavior and targeted primary care provision. They do find positive results for some, but not all financial incentives, providing a cautionary message with regard to the potential impact of performance pay.

B. Developing country contexts

Importantly, all the above examples are based in highly institutionalized environments with powerful monitoring capabilities. Understanding of performance pay in the developing country context is much less developed: the few available studies on performance pay in low and middle income countries generally find positive results, but largely illustrate the lack of systematic findings and evidence. (Mcnamara 2005) discusses six cases of payment for quality in the health services sector across developed and developing countries, with cases in Nicaragua and Haiti having had a positive effect. However, the Nicaraguan reform efforts through combined decentralization of decision-making authority, increased local accountability with explicit performance agreements, and while being judged to have led to an overall improvement (Jack 2003), it is hard to disentangle the effects of each reform element. Similarly, in a recent study by (Witter and others 2011) a pay-for-performance arrangement in a NGO-led health project in the Battagram district of Pakistani was evaluated and found to have improved general services provision, but with an unclear effect of the performance-based elements. The study highlights though the weak link between bonus pay and performance, as well as the low amount of monetary incentives in relative terms.

A study of health care reform efforts in two Rwandan districts shows that the use of performance elements paired with increased autonomy seems to offer a viable and cost-effective way to improve health care delivery (Meessen and others 2006). In a later study, (Meessen and others 2007) evaluate the performance of 15 health centers in Kabutare, Rwanda. They document a sharp increase in staff productivity after the introduction of output-based bonuses. (Soeters and others 2006) highlight the potential applicability of the Rwandan experience in sub-Saharan Africa more generally.

Efforts to improve health services provision in Haiti using performance-based payment for NGOs in a USAID pilot project showed encouraging effects on immunization coverage and organizational behavior (Eichler and others 2001).

II. Other effects of performance-related pay

Any gains from performance-related pay can be self-reinforcing if staff who are particularly responsive to performance-related pay are more attracted to join the agency and subsequently work well. Findings about this “sorting” effect of performance pay are robust (Delfgaauw and Dur 2008; Booth and Frank 1999; Cadsby and others 2007; Bandiera and others 2006). While large parts of the theoretical and empirical literature have focused on the productivity-enhancing effects of performance pay, existing observational and experimental studies find clear support for the effect pay-for-performance has on attracting particular types of employees. Individuals

sorting into jobs with performance pay are on average higher educated, more qualified and less risk-averse.

Marsden identifies an additional impact of performance-related pay in terms of the dialogue concerning the “effort bargain” (Marsden 2004) – the implicit understanding between staff and management about “how hard we work around here”. Performance-related pay can offer an additional and less coercive point of entry into renegotiating this bargain. (Marsden 2004) cites two examples of changes in working practices that were sought in hospital management and in the tax service, both in the UK. In both cases, the task of implementing the changes fell to managers who were under pressure from their staff to be lenient with work assignments and generous with pay increases.⁵ In both cases, he argues, that individual incentives were only a modest part of the function of performance-related pay. Its real contribution was “to enable management to redefine the established performance norms in their organization, and then to obtain effective compliance with those norms, with the explicit or tacit agreement of as many employees as possible” (Marsden 2004, 351). In sum, by incrementally ratcheting up the performance expectations through the many thousands of performance appraisal discussions, the informal agency working culture was changed.

⁵ See (Milkovich and Wigdor 1991) for an example of the literature on the upward drift in performance appraisals.

References

- Ahmad, S. & Schroeder, R. G. (2003) "The Impact of Human Resource Management Practices on Operational Performance: Recognizing Country and Industry Differences." *Journal of Operations Management* 21: 19-43.
- Amundson, G., Solberg, L. I., Reed, M., Martini, E. M. & Carlson, R. (2003) "Paying for Quality Improvement: Compliance with Tobacco Cessation Guidelines." *Joint Commission Journal on Quality and Safety* 29 (2): 59-65.
- Asch, B. J. (1990) *Navy Recruiter Productivity and the Freeman Plan*. Santa Monica, CA: RAND Corporation.
- Bandiera, O., Barankay, I. & Rasul, I. (2006) "Incentives for Managers and Inequality among Workers: Evidence from a Firm Level Experiment." Discussion Paper No. 2062, Institute for the Study of Labor, Bonn, Germany.
- Booth, A. L. & Frank, J. (1999) "Earnings, Productivity, and Performance-Related Pay." *Journal of Labor Economics* 17 (3): 447-463.
- Burgess, S. & Metcalfe, P. (1999) *Incentives in Organisations: A Selective Overview of the Literature with Application to the Public Sector*. Bristol: University of Bristol, CMPO and CEPR.
- Burgess, S. & Ratto, M. (2003) "The Role of Incentives in the Public Sector: Issues and Evidence." Working Paper, Centre for Market and Public Organisation, Bristol, UK.
- Cadsby, C. B., Song, F. & Tapon, F. (2007) "Sorting and Incentive Effects of Pay-for-Performance: An Experimental Investigation." *Academy of Management Journal* 50 (2): 387-405.
- Campbell, S. M., Reeves, D., Kontopantelis, E., Middleton, E., Sibbald, B. & Roland, M. (2007) "Quality of Primary Care in England with the Introduction of Pay for Performance." *New England Journal of Medicine* 357: 181-190.
- Campbell, S. M., Roland, M., Middleton, E. & Reeves, D. (2005) "Improvements in the Quality of Clinical Care in English General Practice: Longitudinal Observational Study." *British Medical Journal* 331: 1121-3.
- Cardona, F. (2007) *Performance-Related Pay in the Public Service in OECD and EU Member States*. Paris: OECD SIGMA.
- Casalino, L., Gillies, R., Shortell, S., Schmittdiel, J., Bodenheimer, T., Robinson, J., Rundall, T., Oswald, N., Schaffler, H. & Wang, M. (2003) "External Incentives, Information Technology, and Organized Processes to Improve Health Care Quality for Patients with Chronic Diseases." *Journal of the American Medical Association* 289 (4): 434-441.
- Chirkov, V. I., Ryan, R. M., Kim, Y. & Kaplan, U. (2003) "Differentiating Autonomy from Individualism and Independence: A Self-Determination Theory Perspective on Internalization of Cultural Orientations and Well-Being." *Journal of Personality and Social Psychology* 84: 97-110.
- Chung, S., Palaniappan, L. P., Trujillo, L. M., Rubin, H. R. & Luft, H. S. (2010) "Effect of Physician-Specific Pay-for-Performance Incentives in a Large Group Practice." *American Journal of Managed Care* 16 (2): 35-42.
- Clotfelter, C., Diaz, R. A., Ladd, H. & Vigdor, J. (2004) "Do School Accountability Systems Make It More Difficult for Low-Performing Schools to Attract and Retain High-Quality Teachers?" *Journal of Policy Analysis and Management* 23 (2): 251-271.
- Clotfelter, C., Glennie, E., Ladd, H. & Vigdor, J. (2007) "How and Why Do Teacher Credentials Matter for Student Achievement?" Working Paper 2, National Center for Analysis of Longitudinal Data in Educational Research, Washington DC.
- Clotfelter, C., Glennie, E., Ladd, H. & Vigdor, J. (2008) "Would Higher Salaries Keep Teachers in High-Poverty Schools? Evidence from a Policy Intervention in North Carolina." *Journal of Public Economics* 92: 1352-1370.

- Coleman, K., Reiter, K. L. & Fulwiler, D. (2007) "The Impact of Pay-for-Performance on Diabetes Care in a Large Network of Community Health Centers." *Journal of Health Care for the Poor and Underserved* 18 (4): 966-983.
- Cooper, S. T. & Cohn, E. (1997) "Estimation of a Frontier Production Function for the South Carolina Educational Process." *Economics of Education Review* 16 (3): 313-327.
- Courty, P. & Marschke, G. (2004) "An Empirical Investigation of Gaming Responses to Explicit Performance Incentives." *Journal of Labor Economics* 22 (1): 23-56.
- D., B. N. & Horrigan, D. R. (2005) "Putting Smart Money to Work for Quality Improvement." *Health Services Research* 40 (5): 1318-1334.
- Dee, T. S. & Keys, B. J. (2004) "Does Merit Pay Reward Good Teachers? Evidence from a Randomized Experiment." *Journal of Policy Analysis and Management* 23 (3): 471-488.
- Delfgaauw, J. & Dur, R. (2008) "Incentives and Worker's Motivation in the Public Sector." *The Economic Journal* 118: 171-191.
- Dewatripont, M., I.Jewitt & J.Tirole (1999a) "The Economics of Career Concerns, Part 1: Comparing Information Structures." *Review of Economic Studies* 66: 183-198.
- Dewatripont, M., I.Jewitt & J.Tirole (1999b) "The Economics of Career Concerns, Part 2: Application to Missions and Accountability of Government Agencies." *Review of Economic Studies* 66: 199-217.
- Dixit, A. (1999) "Incentives and Organization in the Public Sector. An Interpretative Review." *The Journal of Human Resources* 34 (4): 696-727.
- Doran, T., Fullwood, C., Gravelle, H., Reeves, D., Kontopantelis, E., Hiroeh, U. & Roland, M. (2006) "Pay-for-Performance Programs in Family Practices in the United Kingdom." *New England Journal of Medicine* 355: 375-384.
- Dowling, B. & Richardson, R. (1997) "Evaluating Performance-Related Pay for Managers in the National Health Service." *The International Journal of Human Resource Management* 8 (3): 348-366.
- Eichler, R., Auxila, P. & Pollock, J. (2001) "Performance-Based Payment to Improve the Impact of Health Services: Evidence from Haiti." *World Bank Institute Online Journal* April 2001.
- Felt-Lisk, S., Gimm, G. & Peterson, S. (2007) "Making Pay-for-Performance Work in Medicaid." *Health Affairs* 26 (4): 516-527.
- Figlio, D. N. & Kenny, L. W. (2007) "Individual Teacher Incentives and Student Performance." *Journal of Public Economics* 91: 901-914.
- Figlio, D. N. & Winicki, J. (2005) "Food for Thought: The Effects of School Accountability Plans on School Nutrition." *Journal of Public Economics* 89: 381-394.
- Gavagan, T., Du, H., Saver, B., Adams, G., Graham, D., Mccray, R. & Goodrick, K. (2010) "Effect of Financial Incentives on Improvement in Medical Quality Indicators for Primary Care." *Journal of American Board Family Medicine* 23: 622-631.
- Glickman, S., Ou, F., Delong, E., Roe, M., Lytle, B., Mulgund, J., Rumsfeld, J., Gibler, W., Ohman, E., Schulman, K. & Peterson, E. (2007) "Pay for Performance, Quality of Care, and Outcomes in Acute Myocardial Infarctions." *Journal of the American Medical Association* 297 (21): 2373-2380.
- Goldhaber, D. D. & Brewer, D. J. (2000) "Does Teacher Certification Matter? High School Teacher Certification and Student Achievement." *Educational Evaluation and Policy Analysis* 22: 129.
- Hanushek, E. A. & Rivkin, S. G. (2006) "Teacher Quality." In Hanushek, E. & Welch, F. (Eds.) *Handbook of the Economics of Education*. Amsterdam, North-Holland. Chapter 18.
- Hasnain, Z., Manning, N. & Pierskalla, J. H. (2012) "Performance-Related Pay in the Public Sector: A Review of Theory and Evidence." Policy Research Working Paper 6043, World Bank, Washington DC.
- Heckman, J., Heinrich, C. & Smith, J. (1997) "Assessing the Performance of Performance Standards in Public Bureaucracies." *The American Economic Review* 87 (2): 389-395.

- Hillman, A., Pauly, M., Kerman, K. & Martinek, C. (1991) "Hmo Manager's Views on Financial Incentives and Quality." *Health Affairs* 10 (4): 207-219.
- Holmstrom, B. (1982) "Managerial Incentive Problems: A Dynamic Perspective." *Review of Economic Studies* 1: 169-182.
- Jack, W. (2003) "Contracting for Health Services: An Evaluation of Recent Reforms in Nicaragua." *Health Policy and Planning* 18 (2): 195-204.
- Jacob, B. A. (2005) "Accountability, Incentives and Behavior: The Impact of High-Stakes Testing in the Chicago Public Schools." *Journal of Public Economics* 89: 761-796.
- Jacob, B. A. & Levitt, S. D. (2003) "Rotten Apples: An Investigation of the Prevalence and Predictors of Teacher Cheating." *Quarterly Journal of Economics* 118 (3): 843-877.
- Kahn, C. M., De Silva, E. C. & Ziliak, J. P. (2001) "Performance-Based Wages in Tax Collection: The Brazilian Tax Collection Reform and Its Effects." *The Economic Journal* 111: 188-205.
- Ketelaar, A., Manning, N. & Turkisch, E. (2007) "Performance Based Arrangements for Senior Civil Servants - OECD Experiences." Governance Working Paper, OECD, Paris.
- Kim, P. S. (2002) "Strengthening the Pay-Performance Link in Government: A Case Study of Korea." Prepared for the Governing for Performance in the Public Sector: OECD-Germany High-Level Symposium. Berlin.
- Kingdon, G. & Teal, F. (2008) "Teacher Unions, Teacher Pay and Student Performance in India: A Fixed Effects Approach." Working Paper No. 2428, Ifo Institute, Center for Economic Studies, Munich, Germany.
- Ladd, H. F. (1999) "The Dallas School Accountability and Incentive Program: Evaluation of Its Impacts on Student Outcomes." *Economics of Education Review* 18: 1-16.
- Lazear, E. (1989) "Pay Equality and Industrial Politics." *Journal of Political Economy* 97: 561-80.
- Lazear, E. P. (1981) "Agency, Earnings Profiles, Productivity and Hours Restrictions." *The American Economic Review* 71 (5): 606-20.
- Le Grand, J. (2003) *Motivation, Agency and Public Policy: Of Knights and Knaves, Pawns and Queens*. New York: Oxford University Press.
- Levin-Scherz, J., Devita, N. & Timbie, J. (2006) "Impact of Pay-for-Performance Contracts and Network Registry on Diabetes and Asthma: Hedis Measures in an Integrated Delivery Network." *Medical Care Research and Review* 63 (1): 14S-28S.
- Li, J., Hurley, J., Decicca, P. & Buckley, G. (2011) "Physician Response to Pay-for-Performance: Evidence from a Natural Experiment" Working Paper 16909, National Bureau for Economic Research, Cambridge, Mass.
- Lindenauer, P., Remus, D., Roman, S., Rothberg, M., Benjamin, E., Ma, A. & Bratzler, D. (2007) "Public Reporting and Pay for Performance in Hospital Quality Improvement." *New England Journal of Medicine* 365 (5): 486-496.
- Luthans, F. (1973) *Organizational Behavior*. New York, NY: McGraw-Hill.
- Makinson, J. (2000) *Incentives for Change: Rewarding Performance in National Government Networks*. London, Public Services Productivity Panel, HM Treasury.
- Mandel, K. & Kotagal, U. (2007) "Pay for Performance Alone Cannot Drive Quality." *Archives of Pediatric Adolescent Medicine* 161 (7): 650-655.
- Marsden, D. (2004) "The Role of Performance-Related Pay in Renegotiating the "Effort Bargain": The Case of the British Public Service." *Industrial and Labor Relations Review* 57 (3): 350-370.
- Mcmenamin, S. B., Schaufli, H. H., Shortell, S. M., Rundall, T. G. & Gillies, R. R. (2003) "Support for Smoking Cessation Interventions in Physician Organizations: Results from a National Study." *Medical Care* 41: 1396-1406.
- Mcnamara, P. (2005) "Quality-Based Payment: Six Case Examples." *International Journal for Quality in Health Care* 17 (4): 357-363.

- Meessen, B., Kashala, J. & Musango, L. (2007) "Output-Based Payment to Boost Staff Productivity in Public Health Centres: Contracting in Kabutare District, Rwanda." *Bulletin of the World Health Organization* 85 (2): 108-115.
- Meessen, B., Musango, L. K., J. & Lemlin, J. (2006) "Reviewing Institutions of Rural Health Centres: Performance Initiative in Butare, Rwanda." *Tropical Medicine and International Health* 11 (8): 1303-1317.
- Milkovich, G. & Wigdor, A. (1991) *Pay for Performance: Evaluating Performance Appraisal and Merit Pay*. Washington, DC: National Academy Press.
- Morrow, R. W., Gooding, A. D. & Clark, C. (1995) "Improving Physicians' Preventive Health Care Behaviour through Peer Review and Financial Incentives." *Archives of Family Medicine* 4 (2) 1995
- Neal, D. (2011) "The Design of Performance Pay in Education." Working Paper 16710, National Bureau for Economic Research, Washington DC.
- Niemiec, C. P., Ryan, R. M. & Deci, E. L. (2009) "The Path Taken: Consequences of Attaining Intrinsic and Extrinsic Aspirations in Post-College Life." *Journal of Research in Personality* 73 (3): 291-306.
- O'Donnell, M. & O'Brien, J. (2000) "Performance-Based Pay in the Australian Public Service." *Review of Public Personnel Administration* Spring.
- OECD (1993) *Pay Flexibility in the Public Sector*. Paris: OECD.
- OECD (1996) *Pay Reform in the Public Service: Initial Impact on Pay Dispersion in Australia, Sweden, and the United Kingdom*. Paris: OECD PUMA.
- OECD (1997) *Trends in Public Sector Pay in OECD Countries*. Paris: OECD PUMA.
- OECD (2004) "Trends in Human Resources Management Policies in OECD Countries. An Analysis of the Results of the OECD Survey on Strategic Human Resources." Paper presented to the OECD Human Resources Management Working Party, Paris.
- OECD (2005a) *Modernising Government: The Way Forward*. Paris: OECD.
- OECD (2005b) *Performance-Related Pay Policies for Government Employees*. Paris: OECD.
- OECD (2008) *The State of the Public Service*. Paris: OECD.
- OECD (2009) *Government at a Glance*. Paris: OECD.
- Pearson, S., Schneider, E., K., K., Coltin, K. & Singer, J. (2008) "The Impact of Pay-for-Performance on Health Care Quality in Massachusetts," 2001-2003. *Health Affairs* 27 (4): 1167-1176.
- Perry, J. L., Engbers, T. A. & Jun, S. Y. (2009) "Back to the Future? Performance-Related Pay, Empirical Research and the Perils of Persistence." *Public Administration Review* 69 (1): 39-51.
- Perry, J. L., Mesch, D. & Paarlberg, L. (2006) "Motivating Employees in a New Governance Era: The Performance Paradigm Revisited." *Public Administration Review* 66 (4): 505-514.
- Pfeffer, J. (1998a) *The Human Equation: Building Profits by Putting People First*, Cambridge, Mass., Harvard Business School Press.
- Pfeffer, J. (1998b) "Seven Practices of Successful Organizations." *California Management Review* 40 (2): 96-124.
- Pink, D. H. (2009) *Drive: The Surprising Truth About What Motivates Us*. New York: Riverhead.
- Porter, L. W. & Lawler III, E. E. (1968) *Managerial Attitudes and Performance*. Homewood, IL: Dorsey Press.
- Pourat, N., Rice, T., Tai-Seale, M., Bolan, G. & Nihalani, J. (2005) "Association between Physician Compensation Methods and Delivery of Guideline-Concordant Std Care: Is There a Link?" *The American Journal of Managed Care* 11: 426-432.
- Prendergast, C. (1998) "What Happens within Firms? A Survey of Empirical Evidence on Compensation Policies." Working Paper, National Bureau for Economic Research, Washington DC.
- Prendergast, C. (1999) "The Provision of Incentives in Firms." *Journal of Economic Literature* 37 (1): 7-63

- Rexed, K., Moll, C., Manning, N. & Allain, J. (2007) "Governance of Decentralised Pay Setting in Selected OECD Countries." Working Papers on Public Governance, 2007/3, OECD, Paris.
- Rosenthal, M., Frank, R., Li, Z. & Epstein, A. (2005) "Early Experience with Pay-for-Performance." *Journal of the American Medical Association* 294 (14): 1788-1793.
- Ryan, R. M. & Deci, E. L. (2000) "Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being." *American Psychologist* 55 (1): 68-78.
- Safran, D., Rogers, W., Tarlov, A., Inui, T., Taira, D., Montgomery, J., Ware, J. & Slavin, C. (2000) "Organizational and Financial Characteristics of Health Plans. Are They Related to Primary Care Performance?" *Archives of Internal Medicine* 160: 69-76.
- Sauermann, H. & Cohen, W. M. (2008) "What Makes Them Tick? Employee Motives and Firm Innovation." Working Paper No. 1444, NBER, Cambridge MA.
- Shen, Y. (2003) "Selection Incentives in a Performance-Based Contracting System." *Health Services Research* 38 (2): 535-552.
- Skinner, B. F. (1969) *Contingencies of Reinforcement*. New York, NY: Appleton-Century-Crofts.
- Soeters, R., Habineza, C. & Peerenboom, P. (2006) "Performance-Based Financing and Changing the District Health System: Experience from Rwanda." *Bulletin of the World Health Organization* 84: 884-889.
- Steel, N., Maisey, S., Clark, A., Fleetcroft, R. & Howe, A. (2007) "Quality of Clinical Primary Care and Targeted Incentive Payments: An Observational Study." *British Journal of General Practice* 57: 449-454.
- Vaghela, P., Ashworth, M., Schofield, P. & Gulliford, M. C. (2009) "Population Intermediate Outcomes of Diabetes under Pay-for-Performance Incentives in England from 2004 to 2008." *Diabetes Care* 32: 427-9.
- Vroom, V. H. (1964) *Work and Motivation*. Hoboken, NJ: Wiley.
- Wilms, W. W. & Chapleau, R. R. (1999) "The Illusion of Paying Teachers for Student Performance." *Education Week* 19: 10.
- Winters, M. A., Ritter, G. W., Greene, J. P. & Marsh, R. (2009) "Student Outcomes and Teacher Productivity and Perceptions in Arkansas." In Springer, M. G. (Ed.) *Performance Incentives. Their Growing Impact on American K-12 Education*. Washington DC, Brookings Institution Press.
- Witter, S., Zulfiqur, T., Javeed, S., Khan, A. & Bari, A. (2011) "Paying Health Workers for Performance in Battagram District." *Human Resources for Health* 9: 23.
- Woessman, L. (2010) "Cross-Country Evidence on Teacher Performance Pay" Working Paper No. 3151, Ifo Institute, Center for Economic Studies, Munich, Germany.
- World Bank (2001) "Salary Supplements and Bonuses in Revenue Departments." Final Report, World Bank, Washington DC.
- World Bank (2012) "Improving the Performance of the Civil Service in Mauritius." Technical Overview Note April 18, 2012, World Bank, Washington DC.
- Young, G., Meterko, M., Beckman, H. & Baker, E. (2007) "Effects of Paying Physicians Based on Their Relative Performance for Quality." *Journal of General Internal Medicine* 22 (6): 872-887.