No. 390

(Not) Hanging on the Telephone: Payment Systems in the New Sweatshops

Sue Fernie and David Metcalf

May 1998

Abstract

"The ultimate objective of empirical work on incentives should be to find out why firms use the compensation systems they do…huge advances in our understanding could be made by a concerted effort to collect data on contracts." So concludes the 1998 Journal of Economic Literature survey on compensation systems. This paper does just that. It presents very detailed case study evidence on contracts in four organizations, three of which are call centres, the fastest growing sector of employment in the UK. This evidence is used to test predictions from the New Economics of Personnel (NEP) concerning the incidence of payment systems. We also contrast and test predictions from NEP with those of the earlier British Institutional School, which anticipated many of NEP's ideas on payment systems. Variations in the ratio of performance-related to basic pay among our organizations can, broadly, be explained by the costs and benefits of monitoring inputs and measuring output, which comprises the core of NEP. Indeed, the monitoring of our case study employees is the theme which binds the paper together – for call centres Jeremy Bentham's 1791 Panopticon was truly the vision of the future.

This paper was produced as part of the Centre's
Industrial Relations Programme

(Not) Hanging on the Telephone: Payment Systems in the New Sweatshops

Sue Fernie and David Metcalf

May 1998

Series Editor: Graham Ingham

Published by
Centre for Economic Performance
London School of Economics and Political Science
Houghton Street
London WC2A 2AE

ISBN 0 7530 1217 0

Individual copy price: £5

(Not) Hanging on the Telephone: Payment Systems in the New Sweatshops

Sue Fernie and David Metcalf

The Centre for Economic Performance is financed by the Economic and Social Research Council

Acknowledgements

We acknowledge with thanks the great trouble taken by management and employees at our four case study organizations (plus two where the study was piloted). We cannot, alas, name individuals because that might identify the organizations. We benefited from comments from John Kelly and participants at the weekly LSE Management and Organization seminar.

Sue Fernie and David Metcalf are at the Centre for Economic Performance, London School of Economics.

(Not) Hanging on the Telephone: Payment Systems in the New Sweatshops

Sue Fernie and David Metcalf

> "There is an enormous variety of contractual arrangements under which workers sell their services to firms. Economic theory has had little to offer, however, by way of explaining why particular firms choose particular contractual arrangements" (Stiglitz 1975)

1. Introduction

In the two decades since Stiglitz bemoaned the lack of interest among economists concerning what goes on inside the firm, the "new economics of personnel" (NEP) has attracted growing interest. There is now a substantial text book (Lazear 1998) and a Journal of Economic Literature survey on compensation systems (Prendergast 1998). Although there is now no shortage of theories – as Baker and Holmstrom (1996) put it "internal labour markets: too many theories too few facts"– less empirical "attention has been paid to what may be among the most important and obvious distinction in methods of compensation, namely, the choice between a fixed salary for some period of time, that is paying on the basis of input, and paying a piece compensation that is specifically geared to output" (Lazear 1986, 405-6).

NEP analyses the choice of payment in a cost-benefit framework and is therefore diametrically opposed to the traditional approach to personnel matters "that there are no universal objectives just as there are no absolute principles governing personnel policies and practices" (Armstrong and Lorentzon 1982). NEP is very rich in its predictive powers concerning compensation systems. It incorporates the measurement of performance and output, monitoring behaviour and effort and various product and labour market characteristics like quality/quantity trade-offs and the extent of technical change. In this paper we test the predictions of NEP concerning the incidence of alternative payment systems. Previous studies, noted below, used econometric techniques to model the choice of incentive systems. By contrast, our data are very detailed case study information from four service organizations. Thus we have taken to heart Prendergast's strictures (1998) that "advances in this field can be obtained by collecting more data on contracts" and using such information to test one or more theories.

Our contribution rests on a number of factors. First, very few studies systematically confront NEP with empirical evidence. We do this but, in addition, we contrast the predictions of NEP with those of British Institutional School (BIS) writing in the late 1960s and early 1970s. This permits us to evaluate the merits of the respective approaches.

Second, we conducted detailed case studies involving questionnaires, long duration site visits and the collection of documentary evidence on contracts and monitoring mechanisms. The questionnaire took at least half a day to complete and our visits to case organizations each took between 2 and 6 of our person days and corresponding management time. These cases are fully described below and therefore our research can be thought of as complementary to econometric analysis of payment systems which trades many more observations for much less detail (see, e.g., Brown (1990) on the USA, Drago and Heywood (1995) on Australia and Heywood *et al* (1997) on Great Britain).

Third, we focus on service sector occupations and organizations whereas previous research on the choice of payment systems studied piece rates in manufacturing. Our four organizations are a bookmaker, an (ex-civil service) executive agency, a contracted-out (from local authority) unit collecting parking fines and the classified advertising section of a daily newspaper. These organizations were chosen deliberately because we wished to mainly study computer telephony. We also include for comparative purposes a more traditional service occupation – cashiers taking bets and paying out winnings.

Computer telephony is the fastest growing occupation in the UK and is so new that it does not appear in the UK Dictionary of Occupational Titles. Employees are located in call centres and process information from phone calls with desk-top computers. For example, one of our call centres receives over 400,000 calls a year allocated among only 27 employees. There are presently some 7,000 call centres employing some 200,000 computer telephonists ("agents") in the UK, which accounts for half the agent positions in Europe (Call Centre Focus 1997 and Datamonitor 1996). Thus "1.1% of the workforce are employed in call centres, and this figure is likely to rise to 2.2% by 2001" (Arkin 1997).

This occupation merits study because the possibilities for monitoring behaviour and measuring output are amazing to behold – the "tyranny of the assembly line" is but a Sunday school picnic compared with the control that management can exercise in computer telephony. Indeed, the advertising brochure for a popular call centre software package is boldly titled **TOTAL CONTROL MADE EASY.** All this has been noted in the trade press where Apostol (1996), Garrod (1996) and Roncoroni (1997) describe call centres either as the new sweatshops or dark satanic mills. And in the personnel managers' professional monthly journal farmyard analogies abound. Arkin (1997) states "call centres have been likened to battery farms", while Roncoroni (1997) writes that in many offices "individuals sit in tiny pig pens". Over 200 years ago Jeremy Bentham put forward a design for the ideal prison, the Panopticon (see page 3, right) and Foucault (1977) used this composition as a metaphor for the coming workplace. We shall show that, for call centres, Bentham's Panopticon was truly the vision of the future and these organizations are the very epitome of what Foucault had in mind.

There are more computer telephonists than employees in vehicle production, steel and coal put together. Our focus on new service jobs is designed to contribute to a move in industrial relations research towards emerging forms of employment relationships and away from traditional preoccupations with male, full-time, unionised, manufacturing jobs.

The remainder of the paper is organized as follows. Theory and hypotheses are set out in Section 2. Our case study organizations are described in Section 3, which also goes into some detail concerning the characteristics of the specific occupations under review. Attributes of the payment systems in our chosen occupations and organizations are provided in Section 4. It transpires that the ratio of maximum performance-related pay to basic pay ranges from 0 to 0.53, which therefore provides a strong test of any theory purporting to explain the incidence of different payment systems. Results are presented in Section 5. Summary and conclusions are given in Section 6. An appendix sets out the BIS predictions more fully.

2. Theory and Hypotheses

a. Alternative Theories

NEP yields numerous testable predictions concerning the choice and incidence of payment systems. These propositions turn mainly on the relative costs and benefits of measuring output and monitoring inputs. There are two issues concerning testing. First, are the predictions from NEP consistent with the case study evidence? These predictions are summarised in Table 1. It is convenient to divide the NEP approach to the choice of payment system into two categories dealing with the relative costs and benefits of measuring output and monitoring effort and behaviour plus the nature of the job itself and the characteristics of the product market and the labour market.

Second, does NEP outperform alternative theories concerning the choice of payment system? Unfortunately, other approaches such as institutionalization theory (e.g. Meyers and Rowland 1977, Zucker 1987), organization theory (e.g. Pearce 1987), strategic choice (e.g. Kochan *et al* 1986) or expectancy theory (e.g. Furnham 1997) provide insights but no series of predictions, so they cannot be used as fully fledged alternatives to NEP. However, there is one other approach – not discussed in any recent textbooks – which is almost as rich in predictions as NEP.

Payment systems attracted considerable attention in Great Britain in the 1960s and 1970s. At the firm and workplace level the focus was on eliciting effort and ensuring that the payment system was appropriate for the activities of the organization (see e.g. Lupton and Gowler 1969). At the macroeconomic level there was concern that degenerating payment-by-results systems contributed to an underlying problem of wage inflation (see e.g. Donovan Report 1968). An official investigation (NBPI 1968) into incentive systems analysed firms' choices between performance pay and time rates and links with both firm efficiency and macroeconomic performance. The predictions of BIS writers concerning the choice of payment systems are not as well grounded in theory as those of NEP – the context and concerns were different – but they are almost as numerous.

These predictions from the BIS are set out in the appendix, following the NEP sequence from Table 1. It will be noted that on many items the BIS writers anticipated NEP and had similar or identical predictions. However, on three items – skill-biased technical change, union recognition and product market competition – the predictions from the two approaches are different and on one further item – risk aversion on the part of employees – the focus is different. Therefore, we are able to contrast NEP with BIS on four different items. In the next part of this section we set out the reasoning behind the NEP predictions. At the end of the section we compare NEP and BIS on the four items yielding contrasting predictions.

b. New Economics of Personnel

Lazear (1986, 1995) distinguishes between performance-related pay (PRP) and basic salary. Under PRP, such as piece rates, there is "synchronisation between output and compensation". He emphasises that "the measure of output, of course, need not be in physical units". Thus, under PRP, this period's output or performance influences the pay received in this period. By contrast, under the basic salary, workers' pay is independent of this period's output or performance.

The most common explanations for the incidence and depth of basic pay compared with PRP turn on measurement and monitoring costs. When monitoring of behaviour and

effort is costly the firm is less likely to use straight time rates or salary but rather will use an output or performance-based pay measure. Alternatively, when the cost of measuring output is high the organization will use time rates. It should be emphasised that such predictions are not the exclusive preserve of NEP (or BIS). For example, Marx (1954) stated that under PRP the "superintendence of labour becomes to a great part superfluous".

Monitoring input can be thought of in terms of programmability and the span of control. Programmed jobs "are ones in which behaviours can be precisely defined" (Eisenhardt 1988) – cashiers are given as an example of a programmed job. When behaviour can be defined and evaluated – as it can in programmed jobs – time rates of pay are more likely, but when it is difficult to evaluate behaviour incentive pay will be used.

Managerial span of control also plays a part in the choice of payment system. In retailing, for example, "managers learn about employee behaviour primarily through informal supervision" (Eisenhardt 1988). Thus, when their span of control is low, managers can maintain close supervision and have good information upon which to evaluate employee behaviour. In effect "a low span of control is a way of investing in information about what employees are doing". Having made this investment the organization will tend to use time rates because, when behaviour is known, there is no need to use PRP to bypass evaluation of behaviour.

Firm and workplace size is predicted by NEP to be positively related to the use of performance-related pay. It is held that larger firms cannot monitor effort so easily and therefore will adopt more formal incentive schemes. Further, large organizations may be more hierarchical and are also able to spread the fixed costs of any incentive system over more workers. If intensive supervision of effort and behaviour is possible – as it probably is in smaller workplaces – then time rates are more likely to be used. It should be noted, however, that firm and workplace size is probably not the appropriate unit of observation to think about measurement and monitoring costs. The key unit is the work group: it might be quite possible to measure and monitor the performance of a smallish group in a larger workplace, for example, the classified advertising department inside a large national newspaper. Workplace size was forced upon the econometricians because that was the only unit available to them. By contrast, our case study method permits us to use the correct workgroup unit to analyse monitoring costs.

Production technology also influences choice of payment system via factors like the nature of the task, whether team or individual production dominates, labour intensity and the rate of technical change.

First, repetitive jobs permit greater use of PRP whereas a job with a wide range of tasks points to the use of basic pay. This might be, for example, because some facets of multi-task jobs are easily measurable, whereas others are not. If pay was based on the easily measurable components this would send the wrong signal to the employee who would devote too little effort to the unmeasurable tasks.

Second, when it is impossible to measure the contribution of any one individual to the output of the organization, individual PRP is unlikely. Similarly, when group norms are important, individual PRP will not be so high powered (Rebitzer *et al* 1996). So organizations will avoid the use of PRP if "the cost of determining how much each individual employee has produced at each stage in a production process is excessive" (Beach 1975). However, team PRP is possible providing the contribution of the team is measurable. Once team PRP is used we come up against the familiar peer pressure versus 1/n problem – can the team overcome shirking – or what occupational psychologists e.g. George (1995) call "social loafing" – by one (or more) members imposing group norms? Econometric analysis can never hope to study this problem directly. By contrast, we paid much attention to the role and contribution of individuals in teams in our four case study organizations. It should be

noted that the predictions of NEP concerning team production are very similar to those from organizational theory. Thus, Pearce (1987) states: "the greater the uncertainty, interdependence, and complexity of organizational work, the greater the co-operation among employees required for successful organizational performance and PRP can provide powerful disincentives for co-operation."

Third, labour intensity may play a part. Labour-intensive workplaces will tend to use more PRP. Greater amounts of capital per worker implies that the organization needs to devote greater resources to monitoring employees' behaviour. Further, PRP may lead employees to worry less than they should about the quality of the capital.

Fourth, rapid technical change can also influence the use of alternative systems. If such technical change is skill-biased this may make monitoring effort more difficult and point to greater use of PRP. By contrast, if it leads to de-skilling, time rates coupled with monitoring are more likely. Rapid technical change may also imply a boost to labour productivity which may require costly revisions of a PRP rate structure, leading firms to prefer time rates.

It is now time to turn to the influence of the characteristics of the labour and product markets. Lazear (1986) and Stiglitz (1975) set out the theory in some detail. When potential employees are heterogeneous the organization will tend to use PRP as a sorting device to take account of the variance in workers' abilities. In such circumstances a firm which only uses time rates may end up employing the least able workers.

If an employee can earn a relatively high wage in another firm but is prepared to respond to the use of incentives the firm will be likely to use PRP. The employee can then boost his or her earnings via extra effort and will not quit to join the firm paying the alternative wage. This implies that PRP-intensive firms have higher average wages than time-based paying organizations and both US and UK evidence confirm this prediction (Pencavel 1977, Seiler 1984, Booth 1997).

Where the employee is more risk averse than the firm, time rates will be favoured. This permits the firm to bear the brunt of fluctuations in revenue, providing the worker with more certain pay as long as s/he is employed. A recent interesting study (Bloom and Milkovitch 1995) confirmed that business risk and the use of PRP are inversely related.

There is agreement in the economics literature that union recognition goes hand-in-hand with the use of basic time rates rather than PRP. For example, unions might prefer time rates to protect members from arbitrary decisions by supervisors. Even if PRP is based on an objective measure – say revenue earned – rather than subjective assessments of merit, the union may still worry that the link between pay and revenue can be arbitrarily altered. Further, to the extent that there is less variance in pay with time rates, this promotes solidarity among the members. The strategic choice literature (e.g. Levine and Tyson 1990) has a different angle on the link between union recognition and incentives. It suggests that it is the adversarial nature of industrial relations which causes unions to resist PRP. Where, instead, the climate is co-operative, group incentive systems may be found more frequently.

Where an organization operates with long tenures, supervision, promotion with experience and deferred payment it will tend to use basic time rates to secure effort. By contrast, PRP is more likely to be used where there is a spot match between pay and performance and where tenures are likely to be shorter. Similarly, those with little or no firm-specific human capital are the best candidates for PRP. This is because those with firm-specific human capital already have higher productivity than they would elsewhere, so there is little point in spending money on measuring their output and it is better to pay them on time rates. There is evidence (Gregg and Wadsworth 1995) that tenure rates are lower for females than males, for young than prime-aged and for part-timers compared with full-timers.

So it is expected that female-, youth- or part-time-intensive workforces are more likely to be on PRP than their counterparts.

When there are many separate jobs in a workplace of a given size it is costly to establish and process PRP. For example, appraisal ratings for merit pay which compare the individual worker's performance to the group average will be less accurate because there are fewer people to compare to get a benchmark performance measure. We therefore anticipate that the greater the occupational dispersion within the workplace the less use will be made of PRP.

The product market matters too, and here quality and cost considerations tend to pull in opposite directions. Output-based pay systems may result in sacrifices in quality. In the service sector, for example, there may be less concern for "customer care". Further, there must always be some minimum standard of service. Therefore, when it is difficult to verify and measure the "quality" of service the firm would be more likely to use time-rates. Where PRP is used NEP predicts that it would be group-based, profit-sharing for example, rather than individual payment by results.

On the other hand, it is sometimes suggested that where an intensification of competition promotes a requirement to cut costs the firm will be required to adopt some form of PRP. The strategic choice theorists (e.g. Kochan *et al* 1986, Mitchell *et al* 1990) normally trace the growth of PRP systems to the globalization of product market competition. And earlier empirical work (e.g. McKersie *et al* 1964) confirmed that intense product market competition results in the use of PRP as a vehicle to ratchet-down labour costs.

c. British Institutional School

It is clear from the evidence in the appendix that BIS writers anticipated many NEP predictions. However, on four items there is disagreement between NEP and BIS. These are set out in Table 2 and involve skill-biased technical change, union recognition, product market competition and risk aversion on the part of employees. The evidence on these four items is used to compare the predictive performance of NEP and BIS.

NEP states that skill-biased technical change may make monitoring effort more difficult and point to greater use of PRP. Alternatively, if it leads to de-skilling, time rates coupled with monitoring are more likely. The BIS predict the reverse. For example the NBPI (1968 para 107) suggests that "the area appropriate to PBR will eventually decline in the face of technological advance, as new equipment reduces the amount of purely manual work, and as the pace of such manual work as remains is increasingly dictated by machines rather than men".

NEP suggests that union recognition is associated with the use of time rates rather than incentive systems. By contrast BIS states: "unions generally support such [incentive] systems. They appear to regard PBR primarily as one means among others of securing higher pay for their members" and "a union may prefer such a system to ensure that workers share in any gains resulting from higher productivity, whatever the source of that high productivity" (NBPI 1968, paras 8, 60).

Where product market competition is intense, NEP states that firms pay greater attention to their costs and may be required to adopt some form of PRP. By contrast, BIS states baldly (NBPI 1968, para 58) that "easy [i.e. monopolistic] product markets favour the introduction of PBR". Unfortunately, there is little in BIS writing which spells out the reasoning underpinning this association. It may be, for example, that the causal relationship runs from easy markets to monopoly profits and the use of incentive systems as a vehicle to distribute some of the rents to employees.

Where workers are risk averse NEP focusses on the variance in pay and predicts greater use of time rates. By contrast the BIS paid greater attention to employment, and predicted more use of PRP: "PBR systems provide more security of employment in industries where demand fluctuates; in times of recession workers on PBR can slacken off performance or have the available work and earnings shared out and are thus less likely to face redundancy than time workers in the same situation" (NBPI 1968 para 92).

3. Sample: the Jobs and Organizations

The organizations we study are a major bookmaker (BM), a public sector executive agency (EA), a contracted-out department of a London borough (PK) and the advertising department of a major daily newspaper (AD). We pay special attention to the payment systems operating for computer telephonists at EA, PK and AD.

Computer telephonists work in call centres. The majority of call centres and agents deal with incoming calls and it is this task we focus on. The minority making outgoing calls – "telemarketing" to sell insurance, for example – are not discussed here. The employee ("agent") answers the phone call routed to him/her and simultaneously uses a computer to process the information. At most centres, including PK and EA, the incoming calls are force-fed – the agent has no control over whether or not to answer – and all calls are automatically distributed (known as the ACD system). This eliminates the need for a central switchboard and operator. As soon as one call is over, another is automatically put through to a free agent – an unstoppable telephonic conveyor belt. If the agent has to finish ("wrap up") any paperwork after the call, he or she must, at PK for example, go into "wrap" mode, during which time no calls will be put through. Any other time during which an agent is unable to take a call is described as "idle" mode, and is also monitored. At AD on the other hand, there are no time constraints on taking calls. All calls come through to the advertising number, and are answered at the agent's leisure. In addition to taking down the customer's requirements, help is often given by the agent in wording, layout, etc. The agent then processes the advert on the computer and gets it ready to be sent for composition. The emphasis is on customer service, and not time taken to process each task.

Agents' activities are monitored in real time by the supervisor and there is debate in the industry whether this amounts to "big brother" or simply a tool for "better productivity". Real time monitoring is described as follows: "Real-time screens display status information such as the existing number of calls in queue, age of the oldest call, how many TSRs [telephone service representatives] are on calls and how many are logged out or unavailable to take calls… Schedule adherence monitoring takes this one step further by allowing the call centre managers to see not just what all the TSRs are doing, but whether they are adhering to what they are scheduled to be doing at that moment… [This system] gives the user the ability to manage by exception – that is, to see only those representatives who are out of adherence" (Reynolds 1994). Some of the literature suggests advantages for the agents too: "the benefit to the representatives is freedom from uncertainty – management can state clear performance objectives and use the adherence statistics as one way to provide clear and quick feedback on each individual's attainment of these objectives". The director of the L & R Group, a consulting and training business that has developed a new certificate in call centre management for the Institute of Direct Marketing, puts all this rather starkly: "the call centre provides management with the ultimate opportunity for control" (quoted in Arkin 1997). Indeed, his organization has a module on "staying sane in the call centre". Call centres are therefore the archetypal organization to represent Foucault's (1977) application of Bentham's Panopticon to the workplace. "All that is needed, then, is to place a supervisor in a central tower and to shut up in each cell…a worker…

They are like so many cages, so many small theatres, in which each actor is alone, perfectly individualised and constantly visible… Visibility is a trap… Each individual is securely confined to a cell from which he is seen from the front by the supervisor; but the side walls prevent him from coming into contact with his companions. He is seen but does not see; he is the object of information, never a subject in communication…this invisibility is the guarantee of order… there are no disorders, no theft, no coalitions, none of those distractions that slow down the rate of work, make it less perfect… power should be visible and unverifiable." In call centres the agents are constantly visible and the supervisor's power has indeed by "rendered perfect" – via the computer monitoring screen – and therefore "its actual use unnecessary."

It is perhaps reassuring, however, that even with "ultimate" or "total" control disaffected agents still find ways of avoiding work. They might, for example, take a call and say nothing so that the caller hangs up, or alternatively let the caller hang up first and remain on the line so no-one else gets through.

Technological advances have fundamentally altered the nature of our chosen jobs in recent years. For example, advertising and the payment of parking fines used to involve manual clerical skills rather than word and data processing. In advertising, there used to be a set script which the employee followed, but now s/he has greater discretion. In bookmakers, winnings on a bet were calculated by a superior cashier ("settler") but that occupation has virtually died out now. Further, the technology now makes it possible to monitor the labour inputs and measure the output with a previously undreamed-of measure of precision – both of which are central to the NEP explanation of the incidence of different payment systems (see Section 5).

The organizations studied are as follows. First, a major bookmaker (BM), one of the "Big 3" in the UK and one of the world's largest operators of betting and gaming facilities. It accounts for over a quarter of industry turnover (which totalled £7 billion in 1997) and employment and owns one fifth of the licensed betting offices. Its racing division, studied here, is part of a larger group which includes hotels, property and casinos; its management is, however, completely autonomous. In 1997 BM had around 10,000 employees, split roughly equally between full- and part-timers, working in some 1850 shops. Around 7,000 employees are cashiers, the occupation under scrutiny. At BM the cashier in the betting shop takes the money for the bet and enters the data into a computer linked to headquarters. A winning bet is paid according to the information yielded by the central computer accessed locally.

Second, an executive agency (EA) of the Department of Social Security, which provides, either internally or through contacts with the private sector, the information technology services required to support social security provision. EA has three main functions (ITSA 1996): (i) it monitors and manages the contracts outsourced to private service providing companies; (ii) EA develops in-house software systems for new benefits (e.g. Job Seekers Allowance) or policy developments; (iii) a service help desk ensures that customers' – Benefit Agency employees, for example – queries concerning the delivery of the social security system are dealt with promptly. We focus on this helpdesk below.

The helpdesk employs 80 people and receives nearly 600,000 calls per year. DSS has some 1,500 different hardware and software systems at 2,000 locations. If there is a problem that cannot be resolved at, say, the Benefits Agency, an employee there, usually the IT "expert" who has undergone specialist training, phones the helpdesk. The call must be answered within 15 seconds, it gets logged and a priority is agreed concerning resolution time. The helpdesk agent follows a script on her computer such that the fault is accurately described. She then gets in touch with the appropriate service provider (normally one of the firms to which DSS has outsourced its operations – EDS, SEMA, ICL) who liaises with the Benefits Agency via the agent, resolves and closes the "incident". There are very strict time limits for answering and logging the initial query and for assigning and resolving the incident (see Section 5).

Third, a market-tested department of a London Borough which collects parking and clamping fines via a credit card (PK). The Road Traffic Act 1991 switched parking offences from criminal, dealt with by the police, to civil cases, dealt with now by local authorities. Initially, allocating permits, processing fines paid by cheque and by credit card was an in-house local authority activity. Subsequently, the service was market-tested and the contract awarded to a group led by the existing management team. It is a fixed price contract, to last for 3 years, when the authority will again put it out for tender. The local authority monitors the operation and performance of PK. We are focussing on the half of the organization which collects fines and arranges for declamping on the telephone. The number of calls dealt with has risen to 224,000 per annum two years ago to 400,000 now. The organization employs 27 collection agents and 7 duty officers (supervisors) on one site. They are employees of the local authority and PK must follow its guidelines concerning, for example, equal opportunities. But PK operates its own payment system.

Finally, AD is the classified advertising department of an important daily paper with a circulation under 0.5 million and a readership of 1.2 million. It is located on the same site as journalists and management, but the newspaper is actually printed a few miles away. There are 120 employees at AD of whom 40 are concerned with reception sales – our focus here – dealing with customers who have phoned wishing to place an advertisement. Other employees are canvassers and field sales people, who actively seek business, and those involved in administration and management.

We chose to limit our sample to four organisations so that we could go into great detail about their pay systems, performance measures, methods of appraisal and monitoring and the various product and labour market characteristics. Our contacts were initially sent a very detailed questionnaire which required considerable fact finding on their part. We then visited each organisation at least once to discuss the responses and deepen our understanding of particular issues. These interviews lasted a minimum of one day. In each organization we observed working practices, including for example listening in to incoming phone calls, and talked with employees. At BK we visited a number of different workplaces (shops). Thus our research is case study based involving documentary evidence, detailed questionnaire, lengthy semi-structured interview and observation of working methods.

It transpires that the organizations chosen provide an array of different payment systems (described in detail in Section 4). BM make virtually no use of PRP and rely almost exclusively on time rates. EA make some modest use of PRP. PK has a team-based PRP system with a maximum PRP: basic pay ratio of 0.20. AD has a PRP system with both individual and team components where the PRP:basic ratio equals 0.53.

The tasks in our four organizations are similar. In three cases employees collect revenue for the organization. The exception is EA, but without the helpdesk EA would generate less revenue because their clients would go elsewhere. The specific jobs chosen are "passive" rather than "active" in revenue generation. Cashiers at BM wait for punters to come into the shop; agents at PK collect, over the phone, parking fines; reception sales staff at AD process incoming calls where the customer has normally already decided to place an advert; helpdesk personnel at EA deal with queries as they come in.

Some further characteristics of our chosen organizations are described in Table 3. First, EA and PK are public sector market-tested organizations, while BM and AD are private sector firms. Second, relations between management and employees are treated seriously at all four of our organizations. All have a board member responsible for personnel matters. All make efforts to involve employees in the organization via communication, consultation and information. Our questionnaire listed seven types of communication (team meetings, supervisor-worker meetings, senior management-workforce meetings, management chain, suggestion schemes, newsletters, surveys) and all had at least some of these items. Third, the two public sector organizations

recognize a union to represent the chosen occupation: the Civil and Public Service Association and PTC at EA and UNISON at PK. By contrast AD is "not keen" on unions (having recognized SOGAT until 1990) while BM is "hostile" – once summarily dismissing a number of employees in Scotland who joined the TGWU.

Fourth, all our four organizations attach considerable importance to their relationship with customers. A measure of this is the industry standard of describing a call as "lost" if it is not answered before the fifth ring. AD reported a honing of customer service skills after the last recession, and aim now to give a more personal, efficient service. At PK agents spend an initial three weeks being trained how to ask the right questions of calls, how to pace calls, and how to deal with contentious callers. EA puts customers first in its mission – they are on everyone's agenda within an empowering framework. EA has set up joint structures with customers involving more teamworking, sometimes in conjunction with suppliers. Fifth, three of the organizations are members of employers associations but none of these associations determines the pay and conditions for the occupations being studied here. Finally, there are two key externally validated stamps of organizational equality: the award of ISO9000 and Investors in People signal, respectively, an excellent standard of service to customers and excellence in staff development. EA has both quality stamps, BM has one while the other two organizations have neither.

4. Payment Systems

Given the similarity in the occupations being studied the diversity in the payment systems is remarkable. They vary by method and process of setting pay, hierarchy for the job, existence or not of job evaluation schemes, appraisal method, and pay mechanism, including width of basic pay band and extent of individual- and team-based PRP. The bare facts are summarised in Table 4. It will be noted that the ratio of maximum PRP:basic pay varies from zero to 0.53.

In the two private sector firms, BM and AD, management unilaterally sets the level and structure of pay. The **process** is similar in that a certain fixed amount is made available by higher management for the total wage bill and the composition of this amount is decided by the human resources director at BM and local management at AD. Things are different in the two public sector organizations. Management **negotiate** with the relevant union over basic pay, but will impose a settlement if an impasse is reached. The Treasury and local authority management set, respectively, the parameters for aggregate pay but EA and PK management have considerable discretion in determining the mix of basic and PRP.

The two public sector organizations have **job evaluation** schemes into which our particular occupations fit. EA has 48 job titles and 8 overlapping pay bands. The helpdesk embraces three of the bands but most employees are in band 8 which has a pay range of 38%. Agents at PK are part of their specific local authority job evaluation scheme. Thus at EA and PK the two components of pay rest on completely different underpinnings. Basic pay is job-related via the job evaluation scheme. By contrast, the PRP component depends on individual or team performance – how well the individual or group performs in the particular job. The PRP element provides flexibility to reward good performance within the tidy overall structure of job evaluation. Both BM and AD have eschewed job evaluation because they have a limited number of jobs to compare and evaluate.

Appraisal methods vary considerably among our four organizations in terms of, for example, formality, frequency, individual or team, and target setting. At BM cashiers are appraised informally by the shop manager and, as a result, can progress up the hierarchy from trainee to assistant manager. A mystery shopper also monitors shop performance including

the role of the cashier, and fills out a detailed report for senior management. At EA the incident analysts are formally appraised once a year by their immediate superior. The appraisal examines skills, attributes, knowledge and achievement of key objectives. EA also uses 360 degree feedback as part of their competency framework. Agents are set personal targets and their appraisal grade determines the PRP amount. PK is a team operation and team targets are set four times a year. In addition each individual is appraised formally four times a year and informally on a regular basis. AD appraises employees formally once a year, in part to determine whether they are ready for promotion, and in part to establish individual and team targets. In addition the reception employees have to fill out, daily, a "tally sheet" detailing all their in-coming calls and business generated and are thus subject to daily monitoring too.

Payment systems in the four organizations are diverse. The PRP:basic pay ratio varies from 0 at BM to 0.53 at AD. Basic pay is simply that at AD – a fixed amount with no incremental scale; by contrast at EA the pay span for the band containing most incident analysts has a range of 38%. PRP is entirely team-based at PK, a mix of team and individual components at AD and entirely individual at EA; and there is no PRP at BM. Further, the PRP component is varied annually at EA, quarterly at PK and monthly at AD.

EA employees' pay comes largely from their basic salary but some modest use is also made of PRP. The annual basic pay band for incident analysts (for a 37 hour week) ran from £9,411 to £13,011, a range of 38%. Since 1995 there has been no automatic incremental progression up the scale. It is only possible to move up the scale via the award of PRP ("equity shares") based on the performance appraisal. It is an annual amount (paid monthly) and is only altered once a year. PRP is entirely individual-related and has no team component. The relevant information for incident analysts in 1997 was as follows:

Appraisal result	1	2	3	4	5
Equity share (£)	750	600	450	0	0
% receiving	1	17	80	2	0

Thus the maximum performance-related payment only represents 7% of mean basic pay and the bulk of incident analysts receive the equivalent of 4% of basic in PRP. This scheme, while ostensibly performance-related, seems very similar to the previous incremental scale. The (modest) PRP amount gets consolidated each year and for 4-in-5 employees this means an annual pay rise (independent of any change to the scale itself) of around 4%, rather similar to the increase under the previous incremental scale. Initially this was a quite deliberate policy by EA where the Board Member responsible for Change Management stated: "PRP is a token gesture... our staff do not expect big bonuses". Latterly, however, management has desired to reward good performance more generously. The present PRP "ratios" are:

Appraisal result	1	2	3	4	5
Ratio	5	4	3	0	0

But management wish to switch, using the same aggregate funds, from a 5-4-3 ratio to a 3-2-1 ratio. This move to make the performance rewards more high powered has not found favour with the unions and is still the subject of negotiations.

Agents at PK are on a basic pay scale which ranges from £12,759 to £13,932 (for a 37.5 hour week). This basic pay is part of the wider local authority pay structure. There are 4 increments on the scale, and a new recruit is **always** hired at the bottom point and moves up the scale one increment per year. The job is very individualistic: the agent answers force-fed incoming calls to process and collect parking and other traffic-related fines. The duty officer

can monitor each individual's input and measure his or her output with complete precision. However, no agent is given any information about the performance of colleagues – no individual information is on whiteboards in the office, for example. Yet, amazingly, the PRP scheme is exclusively team-based with not one iota related to individual performance. The PRP scheme at PK works as follows.

The team as defined by the PRP scheme is the whole office, all 27 agents (21 full time, 6 part time) and the PRP scheme is designed to achieve "key objectives" (KOs). These KOs are designed to sharpen the performance of the individual and the team by setting clear targets; they are related to PK's business plan and focus on outputs such as courteous customer service and efficient use of technology. These KOs are somewhat elusive and are therefore translated into performance indicators (PIs) such that the PIs have to be:

S specific
M measurable
A achievable
R realistic
T time-related

The performance indicators are "how much, by when and in what manner" and there are three – service level, handling time and calls logged. Collectively they have a weight of 0.8/1.0 in this PRP scheme. Third, the competence of team members is assessed on individual characteristics that make a significant difference from the average performance, such as the ability to shape phone conversations in a way that minimises time spent on each. This component has a weight of 0.2/1.0

Details of the PRP scheme are set out in Table 5. Information on individual and team performance is collated daily but the PRP is paid quarterly. The three performance indicator scores are averaged, and then combined with the competence element, to give an overall score. This translates into a percentage of basic salary which is then paid as a quarterly bonus. No bonus is paid for scores 3 (satisfactory), 2 (disappointing) or 1 (unacceptable). The maximum bonus of 20% of basic salary is paid for exceptional performance. We were told that the team performance scores in 1996 and 1997 (the scheme began operating 1 April 1996) were all 4 or 5, yielding a bonus equivalent to 11%-15% of basic pay.

The special nature of this scheme cannot be emphasised too strongly. The tasks at PK are very individualistic and the information on individual performance is known to the supervisors but not to other team members. It might be expected, therefore, that PRP would be related to individual rather than team performance, yet the reverse is true. Despite the absence of peer pressure – no-one knows colleagues' performance – the PRP scheme is team-based. The 1/n problem is dealt with by monitoring by duty officers,not by peer pressure.

AD is by far the most PRP-intensive of our organizations. The basic pay for reception sales is £12,400 (for a 35 hour week) and there are no increments. The PRP element, based on monthly performance, is worth a maximum of £6,600 p.a. or 53% of basic pay. Approximately two thirds of the PRP payment relates to the performance of the individual and the other one third to team performance. The maximum PRP to basic pay ratio at AD (0.53) is higher than that for two thirds of the chief executives of companies in the FTSE top 100 (see Steiner 1997).

Reception staff normally work in teams of 8 or 12 people plus a group head. The team is set a monthly revenue target, based largely on achieved revenue in the corresponding month a year ago finessed by, for example, changes in the economy. The target amount is then divided pro rata among individual members, but new recruits would be set a lower figure. The incoming calls are not force-fed and there are no time limits for processing a call.

However, each individual has to fill out a daily tally sheet of her work and the daily and cumulative monthly performance of each individual and team is published on a whiteboard in the office. There is a "strong competitive spirit" among team members and between different teams.

An actual example of the target set for a reception team is set out in Table 6. Data refer to the four weeks of May 1997. The team (12 people) was set an overall revenue target for the 4 weeks of £524,158 which translates, after allowing for bank holidays, into £29,120 per day or £2,427 per person per day. The individual targets are equivalent to team revenue divided by 12. The bonus payments received by an individual are based approximately one-third on team performance and two-thirds on individual performance. Thus when a newcomer joins the team, the more experienced employees still get their individual bonus but most nurture the new recruit, who will initially earn less revenue, in order to sustain total team revenue to achieve maximum team bonus.

The relationship between revenue and bonus is striking. Until the individual or the team earns 91.5% of their maximum target **no** bonus is paid – the minimum quota to achieve any bonus is over nine-tenths the ultimate target. Once the minimum threshold is reached the bonus rises very rapidly: an increase in revenue of under 10% results in the bonus being more than doubled – over this range the elasticity of the bonus with respect to revenue is 14. However, the individual (and team) receives only a modest fraction of the incremental revenue: an increase in revenue of £3,702 (achieved by each member of the team) adds just £310 to the individual's bonus (team plus individual components). If each individual hit the target total revenue would rise by £44,419 of which the team take only £3,720. This is set out in Figures 1 and 2. It will be noted that once the minimum threshold is reached the team component of the bonus structure is smooth but the structure jumps around for revenue increments achieved by individuals. This bonus structure at AD is very similar to that received by many city traders described by Davies (1997) where a "small change in value generation will result in a very large change in compensation for example where the award of a large lump sum bonus is conditional on the achievement of a profit target." It was emphasised by our respondents that the individual and team bonuses were "designed to be achievable" and that most employees were earning either £460 or the maximum £550 bonus per month. Fluctuations in revenue at AD can have two causes. The employees' own efforts and performance will influence income. But, in addition, changes in competition from other advertising media or in the overall economy can have an impact too. The employees at AD certainly bear some of the risks of this latter ebb and flow in revenue. Assume all the team members perform identically then maximum bonus is paid when the 12 person team bring in at least total revenue of £6.25 million per year. If revenue falls to £5.75 million a year no bonus is paid. Revenue at AD falls by £0.5 million, but bonus payments fall by £80,000. Thus the employees are absorbing around one-sixth of the variation in revenue.

The pay schedules in operation at EA and PK are described in Figure 3. (BM have no PRP and their pay schedule – not included in Figure 3 – would be a horizontal line set at basic pay). At EA performance scores range from 1-5 whereas PK ranges from 1-6 (to make the comparisons between organizations we have moved the EA schedule along one notch, such that 1-5 becomes 2-6). EA has a very shallow PRP schedule, peak performance only yielding 7% of basic pay; despite the switch to Agency status this seems to correspond with traditional civil service norms. The PK schedule is initially flat then rises such that maximum performance is worth 20% of basic pay – treble the EA proportion.

The incentive-insurance tradeoffs in the three organizations with PRP are summarised in Table 7. This describes the maximum PRP amount; the profile of the PRP structure such that the maximum is set equal to 100; and the distribution of employees in receipt of different amounts of PRP. AD is the most "PRP-intensive" on all three counts while EA is the least.

AD has the highest maximum amount (£6,600) and EA the lowest (£750); next, the profile is steepest at AD and shallowest at EA; finally, AD has the most employees earning the maximum PRP and EA the least. PK is in the middle on all three indicators. One feature of the profile at AD and PK is worth noting. Both accord with tournament theory (Lazear and Rosen 1981) because there is a real incentive to reach the highest PRP amount as the biggest "step" comes at the top of the scale.

5. Results

We initially analyse the predictions of NEP. Next we interrogate the opposing predictions from NEP and BIS. Finally, we take stock of NEP for our case study organizations.

a. Testing NEP

There are two main results to be explained. First, the more traditional cashier occupation has no performance element in the pay whereas the newer computer telephony occupations do. But, second, the amount of PRP in the three computer telephony occupations varies hugely despite the jobs being similar. Our purpose it to see whether NEP can explain these facts. The core of NEP concerns the relative costs and benefits of monitoring input and effort and measuring output so we initially focus on this. But NEP is rich in additional predictions concerning the choice of payment system; fortunately we are able to confront all the theoretical predictions set out in Table 1 with evidence from our case studies.

Consider first the distinction between cashiers at BM and the other occupation. The cashiers are paid on an hourly basis. We checked that the payment system at BM was not an aberration by visiting the headquarters of two other bookmaking organizations. One of these is publicly owned and has betting shops (like BM) and on-course pool betting. The other is the largest UK independent (i.e. outside the "big 3") bookmaking firms. In each case the cashiers are paid by time rates. None has individual or shop-based PRP. The dearth of PRP is confirmed by an ex-betting shop employee (Burke 1994) who writes: "In the 3 years with a major firm, not one penny of my income was at any time directly linked to turnover or profitability." Thus BM is typical of the pay system norm in this sector. Why does BM have no PRP?

NEP seems to deal with this pretty convincingly. Refer to Table 1. At BM the **workgroup size** is small, typically a manager and between 1 to 4 cashiers at any one time. The **span of control** is low and, correspondingly, the intensity of supervision – what Eisenhard (1988) called **"programmability"** – is high. The manager is able to informally monitor the input/effort of the employee very easily almost every minute of the day. The slight doubt over NEP's predictions turns on the cost of measuring output. Full details of shop revenue are collected automatically because all bets are recorded and the information transmitted instantaneously to HQ. It might be expected, therefore, that PRP would be an element of pay, perhaps on a shop rather than individual basis, maybe based on actual revenue against target revenue to allow for extraneous factors that influence shop revenue like a factory closure.

NEP faces a more difficult task in trying to account for the variation in the pay of computer telephonists among our three organizations. In a nutshell the issue is this. The jobs are ostensibly very similar – **monitoring input and measuring output** is easy (cheap) – yet the composition of pay is very different among the organizations. Nevertheless, NEP can, up to a point, explain differences in the PRP:basic pay ratios. Cost-benefit analysis points to the

relative importance of measuring output (revenue) at AD, whereas it is more important to monitor inputs at EA because agents there perform an intermediary function and do not have final output. What NEP cannot do is explain why the PRP at PK is team-based rather than individual. We also examine the other variables, over and above monitoring and measurement, emphasised by NEP to influence the choice of payment systems (see Tables 1 and 8). These include the characteristics of the labour and product market but they are of secondary importance compared with the primary role accorded to monitoring and measurement.

Each of our three organizations require calls to be answered within a specified number of seconds: 15 at both PK and EA, for example. All calls must be logged. And details of "lost" calls – calls abandoned prior to being answered – are collected. Supervisors are able to listen in to calls to check the courtesy and accuracy of the agent and information is available on time spent on the phone, time in "wrap" mode, i.e. working – perhaps doing related paperwork – but not available to take a call, and "idle" (PK) or "not ready (EA) mode. What NEP must do, in the face of these rather similar monitoring possibilities, is explain why the maximum PRP:basic ratio is 0.53 at AD and 0.07 at EA.

The answer lies in the relative costs and benefits of measuring output versus monitoring input. NEP predicts that the organization will be PRP-intensive when the emphasis is on measuring output but basic (or time)-intensive when monitoring input takes precedence. Therefore because AD is more interested in measuring output it will be PRP-intensive whereas EA, where it is impossible to isolate the agent's contribution to performance, stress input monitoring and will therefore have less PRP.

These predictions are, broadly, confirmed. At AD it is output (revenue) which matters. Incoming calls are not force-fed and there is no time limit on calls – rather the emphasis is on servicing the customer in order to generate revenue to the newspaper. The daily "tally sheet" includes details of revenue. Most important, all targets for both the team and the individual set out in Section 4 are defined in terms of output (revenue). Both management and agents expect individuals and teams to reach the minimum comfortably and from then the incentive structure is high powered. Thus, at AD, even though it is a straightforward matter to monitor calls, agent behaviour and other inputs, it is output measurement which dominates and the PRP structure encourages agents to achieve the requisite targets.

By contrast, the agents at EA are intermediaries: their input influences, but does not actually determine, the time taken for the incident to be resolved, which is the "output". The EA agent should be thought of as part of a team which deals with each incident. The client (say Benefits Agency) reports a problem to the EA incident analyst. S/he contacts the (normally outsourced) service provider, agrees a priority with the client and, in due course, the service provider resolves and closes the incident. EA collects full details of incident resolution times (relative to priority) but it is inappropriate to use these output measures to determine the pay of the EA agent because the resolution of the incident depends mainly on the service provider. Instead, EA monitor the input of the agent very thoroughly, collecting information on telephone responsiveness, calls abandoned, agent availability, short calls (a method by which agents boost call figures by prematurely terminating calls), calls taken, ongoing calls, length of call, time taken to assign incidents, correct assignment of incidents and correct use of case base. NEP predicts that time rates will comprise the bulk of pay when the emphasis is on monitoring inputs (rather than measuring output) and when it is difficult (costly) to isolate the contribution of one individual from the team output. These predictions are confirmed for EA.

The role of teams presents a particular puzzle for NEP. The target at PK is for calls to be answered within 15 seconds, force-fed to agents, logged, and processed within 170

seconds. The agents are not intermediaries: they collect parking fines via credit cards. Thus their task is an output-based rather than an intermediate input. So it is quite in accord with NEP that PRP is non-trivial, comprising a sum equivalent to one-fifth of basic pay. The job is completely individualistic and no employee has any knowledge of the performance of other employees. Yet the PRP is entirely team-based. All 27 employees of PK comprise the team and receive the same (proportionate) PRP amount. This seems inconsistent with NEP. It is straightforward to monitor and measure the performance of each individual; indeed, there is in fact no "team" so it is not peer pressure that solves free riding. Rather it is the supervisory monitoring which forestalls any 1/n problems – yet if the PRP was individual- rather than team-based such matters would not arise.

At AD group norms are important yet this organization has by far the most high powered incentive structure. The "team" consists of competitive individuals who cajole better individual and therefore team performance; the team tasks are largely individual and non-co-operative so, even though group norms are important, the strong incentive system is wholly consistent with NEP. The group norms essentially encourage all team members to, at worse, reach the 91% of target revenue figure required before any bonus is paid. Team members tend to receive the same PRP amounts so, although the system is high powered, it is also equitable. The group norms enhance the efficiency and revenue-earning capacity of the organization and promote equity among employees in the pay achieved.

NEP states that small **workgroup size** implies easier monitoring of input and hence predicts emphasis on basic pay, not PRP. The workgroups here, ranging from individuals at PK, individuals and 4-person teams at EA and 4-12 person teams at AD are small, but all three organizations have PRP, involving substantial sums at PK and AD. For computer telephony the NEP predictions here are refuted.

In all four of our organizations the **job tasks** are quite repetitive. At BM the cashier takes the bet and pays out any winnings. Agents at EA assign a client's problem to a service provider using established routes and a pre-programmed questionnaire to establish the source of the fault. At PK the agent processes the parking fine and, if necessary, arranges for the unclamping of the vehicle. AD agents no longer have a set script but their task is repetitive – advising the client on the wording, duration and layout of the advertisement. NEP predicts repetitive tasks lend themselves to PRP, confirmed for PK and AD but refuted for BM.

Capital intensive production methods are, according to NEP, not suited to the use of PRP. Greater capital per employee requires greater monitoring of employees' behaviour and, further, the use of PRP may cause employees to boost short run output at the expense of the quality of the capital in the long run. None of our organizations is capital-intensive – labour costs account for around two thirds of total costs (Call Centre Focus 1997): the agents use only desk-top computers and headsets. The predictions of NEP – low capital intensity associated with greater use of PRP – are confirmed at PK and AD but refuted at BM and EA.

The second set of factors that NEP predicts to be associated with choice of payment system concerns various labour and product market characteristics. When the potential **labour supply is heterogeneous** PRP is preferred both to compensate for differences in quality and performance and as a sorting device to attract high quality labour. This prediction is strongly confirmed among the computer telephony occupations. At EA – where there is little PRP – the hiring rules (e.g. a minimum of 5 GCSEs) mean that new recruits are quite homogeneous. By contrast at AD the high powered PRP incentives are deliberately used as a sorting device ("we only hire the best").

The **opportunity wage** – the pay the employee could earn elsewhere – is, according to NEP, positively related to the use of PRP. Again this is, broadly, confirmed. EA is the largest employer in its area and has a tradition of being a "good employer". It pays somewhat above the going rate for its local labour market and hence can use mainly time rates, coupled

with the threat of not renewing a contract, to ensure performance. In recent years a number of new call centres have opened in the north west – the shopping channel QVC for example – and potential competition for computer telephonists is one factor in the move to greater use of PRP than previously. By contrast AD and PK have relatively low basic pay and use PRP as a mechanism to boost employees' pay above their opportunity wage as long as they perform. At BM the cashiers are paid the going rate for the job so the time rates cannot be explained by a low opportunity wage elsewhere.

NEP predicts that organizations with long **tenures**, supervision, promotion with experience and deferred payments will tend to use time rates whereas short tenures – which do not allow such human resource practices – are associated with PRP. This prediction seems to be refuted in our sample. On average shortest tenures are at BM while the longest are at AD; at BM 2-employees-in-4 left during the year prior to our interview whereas at AD the corresponding figure was 1-in-4. Yet it is AD which has PRP while BM operates solely with time rates.

At three of our organizations there is a **limited number of occupations**. AD and PK have agents and team leaders or supervisors and at BM a typical shop has just cashier and manager occupations. At EA the helpline is embedded in a bigger organization which has 48 job titles. NEP predicts greater use of time rates where there are many occupations, but more use of PRP with few occupations because it is cheaper to establish and process PRP under such conditions. These predictions are confirmed for computer telephonists with time rates dominating at EA but more use of PRP at PK and AD. But NEP seems refuted at BM. It may be that the small number of cashiers in any one workplace, even though there are many thousands across the organization, stymies the use of PRP at BM because appraisals of cashiers become more problematic when there is no benchmark at any one workplace.

Product market characteristics can also influence the choice of payment systems. All organizations pay lip service to the importance they attach to **serving the customer**. At BM, for example, cashiers are trained in "moments of truth" – smiling at the customer when he enters the shop, taking the bet in a courteous manner, etc. (this training technique is also used in other retail organizations) and are checked by a "mystery shopper". EA's mission statement includes its aim of "delighting the customer" and both PK and AD told us how they had become much more customer-focussed in recent years. What matters in these service sector jobs is the cost of monitoring the quality of customer care: where such costs are low PRP is appropriate but high costs point to the use of time rates. By and large NEP's predictions are confirmed. It is easier to monitor customer care among computer telephonists than cashiers. For example, supervisors can listen to agents' phone manner and have extensive information on length of call, etc. So the fact that BM uses no PRP whereas the other organizations do is consistent with NEP. However, the variation in the importance of PRP among computer telephony organizations is, perhaps, inconsistent with very similar (low) monitoring costs.

b. Comparing NEP and BIS

It was shown in Section 2 that the predictions from NEP and BIS writers diverge on four items: the skill-bias of technical change, union recognition, product market competition and risk aversion (see Table 2). We now consider the evidence relating to these factors, which is set out in Table 9.

Most previous studies of **technical change** were concerned with piece rates in manufacturing and emphasised that rapid technical change boosts labour productivity thereby requiring costly renegotiation of piece rates, in turn discouraging the use of such PRP. This

role of technical change seems irrelevant in our study. Much more important is the other, previously neglected, role. NEP predicts that where technical change is unskilled-labour biased, the norm will be greater monitoring coupled with time rates. By contrast, skill-biased technical change suggests greater use of PRP because monitoring of input is more difficult. The BIS predictions are the opposite of NEP. Automated bet settling is surely less skilled than doing it via mental arithmetic so NEP is correct to predict time rates at BM. Is computer telephony more or less skilled than, for example, collecting fines or compositing classified adverts via traditional clerical methods? Frankly, we do not know: we are inclined to think that the technology is skilled-labour-biased. For example at AD agents have to compose and set the advert and advise on its size and number of days to run, and at PK they have to liaise with the credit card company as well as with the client. If our speculation is correct, the NEP predictions are also confirmed for AD and PK.

Unions are, under the NEP approach, traditionally hostile to intense (and sometimes even any) use of PRP because it is held to promote wage inequality and to undermine collective solidarity against management. Thus the financial services union BIFU (1996) pointed out that "Performance related pay is made easier by ACD systems, because all work can be monitored in detail electronically and customer calls can be taped. Employees can be easily subjected to arbitrary quantitative, as well as qualitative, performance criteria." By contrast, BIS writers associate union recognition with greater use of PRP. In the event, the evidence is mixed. Neither of the two private sector firms, BM and AD, recognize unions yet only AD makes much use of PRP (confirming NEP) whereas BM use only time rates (confirming BIS). Both the two public sector organizations recognize unions. Consistent with NEP's predictions EA – which has high union density – makes only modest use of PRP (and, indeed, met fierce hostility from the union side when it tried to make the PRP rate structure more high powered in the 1997-98 pay negotiations). PK does use PRP, but, broadly consistent with NEP, all employees receive identical (proportionate) amounts.

Competition is predicted by both NEP and BIS to influence the choice of payment system. NEP suggests that PRP will be used to ratchet down labour costs relative to productivity in the face of competitive pressures. The predictions of NEP are confirmed at AD which faces intense competition from other newspapers and alternative media, while it is BIS which is confirmed at BM which is in competition with other bookmakers on nearly every high street and now has to meet the challenge posed by the national lottery and the rapidly growing new forms of credit ("spread") betting. Although PK faces no direct competition once the contract to collect the parking fines is awarded, we were told that PRP plays a "vital" role in cutting unit labour costs by boosting agents' performance, which will raise the likelihood of the existing group successfully re-bidding when the current contract expires after 3 years. At EA senior management decided not to outsource the helpdesk. Therefore competition is irrelevant and the modest use of PRP is consistent with the NEP predictions.

Finally, **business risk** involves analysis of both product and labour market characteristics. NEP focusses on links between payment systems and variability in earnings. By contrast BIS is more concerned about revenue sharing as a mechanism to preserve jobs when revenue falls. Consider first the evidence on the variability in pay. NEP predicts that, if firms are risk neutral and workers risk averse, there will be less PRP in risky situations. This prediction is broadly confirmed. BM is quite a risky operation. It faces competition from the national lottery, and individual shop revenue might be influenced by fluctuations in the local economy and hold ups by gangsters. So the use of time rates at BM is consistent with NEP. AD is the best known outlet for recruitment, housing, etc. classified adverts and revenue fluctuations caused by macroeconomic factors are taken into account when revenue targets are set. Further, we were told that AD attracts employees who "have a competitive

spirit". The intense use of PRP is again consistent with NEP. At PK and EA there is no business risk involved. PRP at PK is again consistent with NEP; the main use of basic pay at EA in a risk-free environment – possibly inconsistent with NEP – is probably explained by the fact that the civil service has traditionally recruited risk-averse workers; for example, pay in the public sector has a much lower coefficient of variation than that in the private sector.

BIS is concerned with links between payment systems and employment. Both BM and AD experience fluctuating revenue which might influence employment levels. Therefore the income-sharing arrangements at AD are consistent with the BIS predictions whereas the lack of such a mechanism at BM is inconsistent. The modest use of PRP at EA, which does not generate any revenue directly, is also in line with the predictions of BIS.

c. Summary of Results

We have discussed 15 items where NEP predicts the choice of payment systems. For 11 of these BIS either predicts the same association or does not deal with the item (Table 1). In 4 cases BIS and NEP yield opposing predictions (Table 2).

Consider first the evidence summarised in Table 8. Monitoring inputs and measuring output are the central features of NEP and therefore should be weighted more highly than some of the other variables analysed in the table. While recognizing this, we summarise the accuracy of NEP according to the total number of correct predictions (a maximum of 11). The theory does rather well in accounting for the incidence and strength of PRP in our three computer telephony organizations (22.5 correct predictions out of 33). At first sight NEP does less well in accounting for the use of time rates at BM but it should be emphasised that its core predictions concerning monitoring, measurement, programmability, span of control, team production and workgroup size are all confirmed for BM.

NEP also outperforms BIS on the items where the two approaches yield different predictions. It will be seen for Table 9 that NEP is consistent with the evidence for some three quarters (9 out of 12) of the case study observations. By contrast, except for the links between risk aversion and employment, the predictions of BIS writers are mainly refuted.

NEP also predicts (see Section 2) that PRP-intensive organizations have higher than average pay than basic pay-intensive ones. This reflects the use of PRP as a sorting device to attract workers prepared to boost their pay by extra effort. This prediction is unambiguously confirmed. The approximate 1997 annual pay for a "typical" full time employee in our organizations is perfectly (positively) correlated with the use of PRP:

	Typical total annual pay £	**PRP/basic**
AD	19,000	0.53
PK	16,000	0.20
EA	12,000	0.07
BM	8,000	0

Even allowing for the fact that AD and PK are located in London (which would perhaps raise the pay of a typical worker by £2,000 a year) this is an impressive validation of NEP.

6. Conclusion

Prendergast (1998) concludes his survey of the literature on compensation systems thus: "Few papers have addressed this issue [incidence of different systems] for employees **within firms**. This largely due to data limitations. In order to carry out such an exercise the researcher needs to collect data on both performance measures and on the contracts offered to workers." He thus confirms that only limited progress has been made on understanding the incidence of different payment systems in the twenty-plus years since Stiglitz wrote the quote at the beginning of this article.

Our research is a contribution to help fill this vacuum – as Prendergast puts it: "The ultimate objective of empirical work on incentives should be to find out why firms use the compensation systems they do… huge advances in our understanding could be made by a concerted effort to collect data on contracts." We collected very detailed case study evidence on contracts including: the ratio of PRP:basic pay, the measurement of output and the monitoring of effort as well as the other variables highlighted by NEP. The disadvantage of case studies is obviously the limited number of observations. But, against that, our great advantage is that case studies furnish specific evidence on methods of monitoring and measurement whereas companion econometric studies are forced to use proxies to capture these processes. Indeed, our chosen occupation – agents in call centres – is one where software manufacturers advertise "total control made easy" and where Bentham's 1791 Panopticon was truly the vision of the future.

NEP appears to explain the incidence of different payment systems across our four organizations rather well. In bookmaking the absence of PRP reflects the constant informal monitoring of cashiers by shop managers, the low span of control and the high degree of programmability in that job. Differences in the PRP:basic pay ratio among call centres are, for the most part, well explained by the relative costs and benefits of measuring output and monitoring input. Overall over two-thirds of the predictions of NEP were confirmed in our call centres.

Table 1
Alternative payment systems: summary of NEP and BIS predictions

Pay by PRP	Characteristic	Pay by basic	Study, e.g.	BIS
	MEASURING OUTPUT, MONITORING INPUT AND NATURE OF THE JOB			
Low	Output measurement costs	high	Lazear (1986)	Same
High	Cost of monitoring input/effort	low	Milgrom and Roberts (1992)	Same
Low	Supervision intensity, programmability	high	Eisenhardt (1988)	Same
High	Span of control	low	Eisenhardt (1988)	-
Large	Workgroup size	small	Brown and Medoff (1989)	Same
Repetitive	job task	wide range	Rebitzer *et al* (1996)	Same
Unimportant	team production	important	Beach (1975)	-
High	labour intensity	low	Parsons (1986)	Similar
	role of technical change			Similar
No	i if technical change is rapid	Yes	Stiglitz (1975)	Opposite
Yes	ii whether skill biased	No	Brown (1990)	
	LABOUR MARKET AND PRODUCT MARKET			
High	worker heterogeneity	low	Lazear (1986)	-
High	wage in alternative firm	low	Lazear (1986)	Same
High	Elasticity of effort wrt wage	low	Stiglitz (1975)	Same
Low	risk aversion (worker)	high	Bloom and Milkovitch (1995)	Same (wages)
				Opposite (jobs)
No	union recognition	yes	Brown and Philips (1986)	Opposite
Short	Tenure	long	Goldin (1986)	Same
Few	no. of occupations	many	Carlson (1982)	Similar
Low	cost of monitoring quality of output	high	Lazear (1986)	Same
High	Competition	low	Drago and Heywood (1995)	Opposite

Table 2
Alternative payment systems: summary of NEP and BIS predictions where there is disagreement

Characteristic	NEP	BIS
If technical change is skill-biased	PRP	Time
If union is recognised	Time	PRP
If product market is competitive	PRP	Time
If employee is risk averse		
• Pay	Time	-
• Jobs	-	PRP

Table 3
Characteristics of our sample

Characteristic	BM	EA	PK	AD
Type of organization	Bookmaker with licensed betting offices	Executive Agency	Free-standing, market tested department of local authority	Daily evening newspaper Classified Ads. department
Ownership	UK owned	Publicly owned, DSS	Publicly owned, London Borough	Limited newspaper group
Occupations under scrutiny	Approx. 7,000 cashiers (a further 3,000 managers etc). approx. two thirds of cashiers p/t	Help desk grade 8 65 grade 7 12 grade 6 3	21 f/t agents 6 p/t agents 7 duty officers	120 employees of whom 40 are reception sales
Number of workplaces (where our jobs located)	1,855 shops	1	1	1
Communication, consultation, information	Modest top down	Extensive 2-way	In principle, but hardly any Constrained by manning requirements	Team-based
Board member responsible for personnel	Yes	Yes	Yes	Yes
Any union recognized	No (never)	Yes - CPSA, PTC	Yes – UNISON	No (SOGAT derecognized 1990)
Member of employers' association	BOLA	No	Greater London EA	NPA
ISO 9000	No	Yes	No	No
Investors in People	Yes	Yes	No	No
Customer orientation (mission)	High e.g. "moments of truth"	High e.g. "delighting the customer" in Mission Statement	No	Modest: informal advice on composition and duration

Table 4
Payment systems (1997)

Characteristic	BM	EA	PK	AD
Negotiations	No	Yes: CPSA, PTC	Yes, over basic with UNISON	No
Process	Given % of wage bill to allocate as like	Parameters set by Treasury. Free to allocate within that.	Basic, follow LA scale. PRP unconstrained within fixed price contract	Allocate fixed sum by higher management. Mix between basic and PRP determined by AD
Hierarchy (our occupation*)	Cashier*, 4 grades	Incident analyst*, 3 overlapping pay spans	Agent*, duty officer; pay scales non-overlapping	Reception*, canvassing, field management, non-overlapping
Job evaluation	No	Yes: 48 job titles in whole organization (helpline is 1 only)	Yes, for LA as whole, 2 titles in PK	No
Appraisal method	Informal, by shop manager plus mystery shopper	Formal appraisal twice a year by immediate superior. Personal targets set.	Formal appraisal four times a year by duty officer. Team and personal targets set	Formal appraisal once a year. Team target set monthly. Individual appraisal informal on daily basis.
Basic pay	Grade depends on manager's assessment £3.40 to £3.91 per hour 4 grades	Pay band from £9,411 to £13,011	Incremental scale, 4 points, £12,759 - £13,923. New recruits always start at bottom.	Basic amount £12,400
PRP	None	Individual equity shares £0-£750 paid for 1 year. Use of bonus pool = 0.4% of ITSA paybill	Team based, up to 20% of basic, paid quarterly	Up to £6,600 p.a., monthly amounts based on individual (0.65) and team (0.35) performance
PRP/Basic				
Maximum	0	0.07	0.20	0.53
Mean	0	0.04	0.11 to 0.15	0.45 to 0.53

Table 5
PRP scheme at PK

Key Objective (KO)		How much?	By When?	To what standard?
Performance Indicator (PI)		Service Level: Calls answered within 15 seconds	Handling Time Seconds	Calls Logged
Description	Score	%		%
Exceptional	6	93.5-100	<170	90-100
Excellent	5	90-93.4	170-174	80-89
Good	4	86-89	175-179	70-79
Satisfactory	3	80-85	180-189	50-69
Disappointing	2	70-79	190-199	40-49
Unacceptable	1	<70	200+	<40

Say KO/PI score for team for given quarter = 4
Say competence score = 5
Say basic pay for quarter = £13,000/4 = £3,250

PRP score = (4x0.8) + (5x0.2) = 4.2, which is rounded down to 4

Overall PRP scheme provides for following payments:

Score	6	5	4	3	2	1
% of basic pay	20	15	11	0	0	0

PRP payment for this quarter therefore:

£3,250 x 0.11 = £358

Sources: Interviews and details of PK scheme in Parkwise Special PRP Scheme, Operating Guidelines

Table 6
PRP Schedule at AD Reception Sales
May 1997, weeks 32-35

Revenue target £	% of peak target	Bonus £
- revenue target (12 people) = £131,040 per week - allowing for bank holidays = £29,120 per day - per person (based on 12) = £2,427 per day		
TEAM		
<479,739	<91.5	0
479,739	91.5	80
488,625	93.2	100
497,510	94.9	120
506,390	96.6	140
515,274	98.3	160
524,158+	100	200
INDIVIDUAL		
<39,978	<91.5	0
39,978	91.5	160
40,720	93.2	200
41,460	94.9	250
42,200	96.6	275
49,940	98.3	300
43,680+	100	350

Source: Interviews and documents on nett revenue targets at AD for reception sales employees

Table 7
PRP: amounts, profiles and distributions

	EA		PK		AD	
Amount						
Maximum (£)	750		2,000		6,600	
Maximum/basic	0.07		0.20		0.53	
Mean/basic	0.04		0.15		0.49	
Rank	Profile	%	Profile	%	Profile	%
6 (=max PRP)	100	1	100	25	100	63
5	80	17	75	50	84	24
4	60	80	55	25	75	10
3	0	2	0	0	67	3
2	0	0	0	0	55	0
1	na	-	0	0	44	0
0	na	-	na	-	0	0

Source: Interviews and documents on performance-related pay at PK

Table 8
Alternative payment systems: case study evidence on NEP predictions

Characteristic	BM	EA	PK	AD
max PRP/basic pay	0	0.07	0.20	0.53
MEASURING OUTPUT, MONITORING INPUT AND NATURE OF THE JOB				
Relative costs and benefits of monitoring input and measuring output	√	√	x	√
Programmability and span of control	√	√	x	x
Team production	√	√	x	√
Workgroup size	√	?	x	x
Job tasks	x	?	√	√
Capital intensity	x	x	√	√
LABOUR MARKET AND PRODUCT MARKET				
Worker heterogeneity	?	√	√	√
Opportunity wage	?	√	√	√
Tenure	x	?	?	x
Number of occupations	x	√	√	√
Customer care	√	?	√	√
TOTAL (maximum = 11)	6	8	6.5	8

Note: √ means prediction in table 1 confirmed, x refuted, ? unsure. For the purposes of calculating the number of correct predictions:

√ = 1, ? = 0.5, x = 0

Table 9
Alternative payment systems: predictions from NEP and BIS

Characteristics	Prediction		BM	EA	PK	AD
	NEP	BIS				
Max PRP/basic pay			0	.07	.20	.53
1 Technical change is skill-biased	PRP	Time	Unskilled-biased NEP √	?	Skilled-biased NEP √	
2 Union is recognized	Time	PRP	Non-U NEP X	U strongly opposed to more PRP NEP √	U – all have same proportionate PRP NEP √	Non-U, much PRP NEP √
3 Product market is competitive	PRP	Time	Intense comp. Time NEP X	No comp. Modest PRP NEP √	PRP crucial to cut unit labour costs NEP √	Intense PRP NEP √
4 Risk aversion by employee						
a. Pay (NEP)	Time	-	Revenue varies NEP √	Little risk ?	Little risk NEP √	Risk-loving employees NEP √
b. Jobs (BIS)	-	PRP	Revenue varies BIS X	BIS √	BIS √	Revenue sharing BIS √

Note: see table 8 note. For items 1-3, NEP √ implies BIS X.

Figure 1,2

Figure 3a, 3b

Appendix

British Institutional School (BIS)

Writers from the British institutional school (BIS) anticipated much of NEP concerning the choice of payment system. Their focus was more on links between product and labour market characteristics and payment systems but they also made many insightful statements concerning measurement and monitoring issues.

Just as Stiglitz (1975) bemoaned a lack of interest among economists concerning payment systems – see the quote at the head of the paper – so BIS writers were concerned to grapple with the same issue: "We have neither the data, nor the analytical apparatus, fully to answer these questions [concerning choice of payment systems]. Yet, now they have been asked, it must be only a short time before the whole subject will get, finally, onto a plane of scientific discourse, leaving behind moralising and home-spun psychological and sociological prejudices which hitherto have influenced too much design of pay and salary systems" (Lupton 1972).

BIS writers in the late 1960s and early 1970s were motivated by links between payment systems and, first, microeconomic efficiency and, second, wage inflation – this was a period of incomes policy with direct state intervention in pay setting. Fortunately, much of this early wisdom was distilled into an official report (NBPI 1968) on incentive systems and most of the quotes that follow are taken from that source.

We set out below, following the same sequence as in table 1, BIS predictions concerning the choice of payment system. These writers anticipate NEP on some matters and were congruent with NEP on most items. There are four issues where the two approaches disagree (see text) involving links between payment systems and biases in technical change, union recognition, product market competition and risk aversion.

Measuring output, monitoring input and the nature of the job

Measurement and monitoring costs

The BIS recognized the importance of measurement and monitoring costs in the choice of payment system though this was less central to the argument than is the case with NEP. For example, the NBPI (para 82) states: "a problem which has been common to almost all our case studies is that of measurement (whether of performance, productivity or savings in unit labour costs). Sometimes the problem results from technical difficulties in the measurement process, as in comparing output before and after a payment system change which also involved changes in product quality. On the other hand, very often the companies concerned simply did not have even the most elementary data available. It would seem that any firm which did not have meaningful data on (for example) unit labour costs would by implication be denying the relevance of its payment system to its overall financial state". Other writers went further. For example, Webb (1975) states that payment by results systems are appropriate when "a significant number of operations [output] can be accurately measured".

Supervision and the span of control

BIS writers were greatly exercised by matters of supervision. For example, the choice of payment system "leads management to question whether they have supervisory staff of adequate quality to change from 'control by incentives' to 'control by foremen'" (NBPI para 87). And, from the employee's standpoint, PRP "enables him to work largely at his own pace and with some freedom from supervision" (para 92). In a similar vein Shaw and Pirie (1975) state that time-based pay systems are appropriate where "the rate of output is controlled by the machine or the process, not by the operator" and where "management wish to control the production flow".

Workplace and enterprise size

The NBPI (para 84) stated when discussing the "problem of work supervision" that "this is one possible explanation of the greater use of PBR in larger enterprises: in small establishments the supervision system is often more direct, and therefore more effective". But the NBPI went on to warn that any cost savings accruing from cutting down on supervisory personnel "may be largely offset by the higher cost of administering the incentive scheme itself".

Job tasks

The BIS, like NEP, emphasised the nature of the job task – essentially whether or not it is repetitive – in the choice of payment system. For example, the NBPI states (para 108) that a PBR system is likely to be appropriate when "the work must be measurable and directly attributable to an individual or a group. In practice this means that the work should be almost entirely repetitive and consist in fairly short cycle operations…Tasks involved should remain fairly constant through time – they should not be subject to very frequent changes in methods, materials or equipment." Webb (1975) concurs: when there are "simple repetitive operations of short time cycle a PRB system offers a satisfactory prescription."

Teams

The BIS had little to say on the association between team organization and payment systems, perhaps because teams were less common thirty years ago than they are now. In the spirit of NEP the NBPI stated that there is "a clear advantage to using a collective bonus where performance depends to a high degree on co-operation within a team" (para 75).

Labour intensity

Webb (1975) states that PBR is appropriate when "the proportion of indirect to direct operations is relatively low". This is not exactly the same as labour intensity but is rather similar in that "direct operations" comprise the production workforce, so the prediction is similar to that of Parsons in table 1.

Role of technical change

NEP states that rapid technical change makes PRP inappropriate because of the need for frequent renegotiation of the rate. The BIS writers agree: for example, NBPI states that "where every new price or time may be challenged by the workers, a significant amount of valuable time can be spent in bargaining" (para 81).

There is disagreement (see text) between NEP and BIS concerning the consequences of skill-biased technical change. NEP hypothesises that skill-biased technical change makes PRP more appropriate. By contrast, the NBPI (para 107) suggests that "the area appropriate to PBR will eventually decline in the face of technological advance, as new equipment reduces the amount of purely manual work, and as the pace of such manual work as remains is increasingly dictated by machines rather than men".

Labour market and product market characteristics

BIS emphasised this group of factors, possibly as more important than the previous group. For example, the choice of "payment systems are affected by a number of environmental factors…the economic environment includes the nature of particular product markets and the general state of the labour market" (NBPI para 56).

Wage in alternative firm

BIS concurs with NEP. For example "Buoyant demand and high employment [i.e. high alternative wage] have been specially favourable for both their [PBR systems] introduction and continuation…labour shortage favours the introduction of PBR" (para 57). Further, "when the need to recruit and retain workers overrides other objectives management tends to become more concerned that the system should produce earnings which are attractive" (para 58).

Elasticity of effort with respect to wage

Probably the strongest affinity between BIS and NEP concerns the elasticity of effort with respect to the wage. The NBPI report has numerous quotes confirming a positive link between effort and pay, and other writers such as Shaw (1962) and Webb (1975) confirm this. The NBPI states, for example: "PBR systems may be more effective than simple time rates of pay in inducing higher effort on the workers' part" (para 106)…"PBR systems may be adopted for a number of reasons, of which the most general is that they are thought to provide an incentive to greater effort" (para 236)…"the managements of firms in our case studies have often been able to point to general improvements in productivity when incentive schemes were introduced, or declined when they were removed" (para 70; see also, for example, paras 8, 65, 66).

Risk aversion

The BIS dealt with this very fully (see text). It concludes that where the firm is risk averse the employer will tend to prefer PRP because its "wage bill varies automatically as demand and output fluctuate" (para 8)… "incentive schemes give management a desirable flexibility in costs" (para 57). Risk averse workers are ambivalent. On the one hand, concerning pay:

"we found widespread dissatisfaction with the fluctuations and uncertainties that arise from many PRB systems" (para 249). This echoes NEP. On the other hand, concerning jobs: "PBR systems provide more security of employment in industries where demand fluctuates: in times of recession workers on PBR can slacken off performance or have the available work and earnings shared out and are thus less likely to face redundancy than timeworkers in the same situation" (para 92).

Union recognition

NEP and BIS disagree concerning links between union recognition and the incidence of PRP schemes (see text). NEP posits that unions are normally against incentive schemes. By contrast, BIS states: "unions generally support such systems. They appear to regard PBR primarily as one means among others of securing higher pay for their members" (para 60) and "a union may prefer such a system to ensure that workers share in any gains resulting from higher productivity, whatever the source of that high productivity" (para 8).

Tenure and percent female

NEP suggests that short tenures, perhaps proxied by the proportion of the workforce that is female, go hand-in-hand with the use of incentive systems. BIS writers arrive at a similar conclusion, but by a very different route: essentially it is asserted that female employees are more malleable and accept incentive systems more readily than men: "…women have not subjected such systems to the same degree of pressure as have men. On the whole women appear to have accepted the result of work measurement as "correct" and tend not to bargain over times or prices. In one firm the case study worker noted "when workers are being timed, far from their attempting to mislead by a carefully concealed slowing down of work pace, many of the women are obviously too nervous for successful deceptions or, indeed, work faster than their normal pace as a matter of pride". It has not been our evidence that this is a common response amongst men" (para 61).

Number of occupations

NEP suggests that incentive systems are more likely where there are relatively few occupations in the workplace. BIS does not deal with this issue directly but comes to a similar conclusion. Webb (1975) states that a PRB system is more likely to be used when the "proportion of indirect to direct operations is relatively low". It is plausible that there will be fewer occupations in the workplace when the indirect proportion is low.

Cost of monitoring quality of output

NEP and BIS concur that when the costs of such monitoring are high, time rates are more likely. Thus NBPI states: "A danger common to all PBR systems is that other management objectives may suffer from the primacy which such systems usually give to higher output; quality of product and careful use of materials and machines are the most likely victims in this respect". Further, "the most satisfactory answer to this problem may be simply to strengthen supervision over the achievement of objectives other than output" (para 91). Likewise Shaw and Pirie (1975) confirm that time rates are appropriate "when it is important to maintain standards of quality".

Product market competition

There is straightforward disagreement between NEP and BIS concerning this indicator. NEP hypothesises that competitive product markets are associated with a greater incidence of incentive schemes whereas BIS states baldly: "easy [i.e. monopolistic] product markets favour the introduction of PRB (para 58). Unfortunately, there is too little in BIS writing which spells out the reasoning underpinning the association. It may be that the causal relationship runs from easy markets to monopoly profits and incentive schemes being used as a vehicle to distribute some of the rents to employees.

References

Apostol, S. (1996), 'Sweatshops of the 20th Century', Call Centre Focus, 2(5), January.

Arkin, A. (1997), 'Call centre stress', People Management, 3(3), 6 February, 22-27.

Armstrong, M. and Lorentzon, J. (1982), Handbook of Personnel Management Practice, Englewood Cliffs, NJ: Prentice Hall.

Baker, G. and Holmstrom, B. (1996), 'Internal labour markets: too many theories, too few facts', American Economic Review, 86(3), May.

Banking, Insurance and Finance Union (1996), At the Other End of the Telephone: New Technology in Retail Banking and General Insurance, Wimbledon.

Bentham, J. (1843), *Works*, volume IV, edited by Bowring.

Beach, D. (1975), Personnel: The Management of People at Work, 3rd edition, New York: Macmillan.

Bloom, M. and Milkovich, G. (1995), 'The relationship between risk, performance-bsed pay and organizational performance', Working Paper 95-01, Ithaca, NY: Center for Advanced Human Resource Studies.

Booth, A. and Frank J. (1997), 'Performance related pay', CEPR Discussion Paper 1593, March.

Brown, C. (1990), 'Firms' choice of method of pay', Industrial and Labor Relations Review, 43, Special Issue, February, 165-182.

Brown, C. and Medoff, J. (1989), 'The employer size-wage effect', Journal of Political Economy, 97, 1027-59.

Brown, M. and Philips, P. (1986), 'The decline of piece rates in California canneries: 1980-1960', Industrial Relations, 25, 81-90.

Burke, A. (1994), Odds On, October.

Call Centre Focus (1997), Editorial, 3(5), January/February.

Carlson, N. (1982), 'Time rates tighten their grip on manufacturing', Monthly Labor Review, 105, 16-22.

Datamonitor (1996), Call Centres in Europe 1996-2001, London.

Davies, D. (1997), 'Remuneration and risk', Financial Stability Review, Bank of England.

Donovan Commission (1968), 'Royal Commission on Trade Unions and Employers Associations', Report, Cmnd. 3623, London: HMSO.

Drago, R. and Heywood, J. (1992), 'Is worker behaviour consistent with efficiency wages?', Scottish Journal of Political Economy, 39, 141-53.

Drago, R. and Heywood, J. (1995), 'The choice of payment schemes: Australian establishment data', Industrial Relations, 34(4), October, 507-531.

Eisenhardt, K. (1988), 'Agency- and institutional-theory explanations: the case of retail sales compensation', Academy of Management Journal, 31(3), 488-511.

Foucault, M. (1977), Discipline and Punish: the Birth of the Prison, London: Allen Lane.

Furnham, A. (1997), The Psychology of Behaviour at Work, Hove: Psychology Press, Taylor and Francis.

Garrod, E. (1996), 'Call centre sweatshops?', Call Centre Focus, 3(3), September.

George, J. (1995), 'Asymmetrical effects of rewards and punishments: the case of social loafing', Journal of Occupational and Organizational Psychology, 68(1), December.

Goldin, C. (1986), 'Monitoring costs and segregation by sex: a historical analysis', Journal of Labor Economics, 4, 1-27.

Gregg, P. and Wadsworth, J. (1995), 'A short history of labour turnover, job tenure and job security 1975-1993', Oxford Review of Economic Policy, 11(1).

Heywood, J., Siebert, W. and Wei, X. (1997), 'Payment by results systems: British evidence', British Journal of Industrial Relations, 35(1), March, 1-22.

Information Technology Service Agency (1996), Annual Report and Accounts 1995-96, London: HMSO.

Kochan, T., Katz, H. and McKersie, R. (1986), The Transformation of American Industrial Relations, New York: Basic Books.

Lazear, E. (1986), 'Salaries and piece rates', Journal of Business, 9(3), 405-431.

Lazear, E. (1995), Personnel Economics, Cambridge, Mass: MIT Press.

Lazear, E. (1998), Personnel Economics for Managers, New York: John Wiley.

Levine, D. and Tyson, L. (1990), 'Participation, productivity and the firm's external environment' in Blinder, A. (ed) Paying for Productivity, Washington DC: Brookings Institution.

Lupton, T. (ed) (1972), Payment Systems, Penguin Books: Harmondsworth.

Lupton, T. and Gowler, D. (1969), Selecting a Wage Payment System, Engineering Employers Federation, Research Series, No. 3.

Marx, K. (1954), Capital, volume II, Moscow: Foreign Language Publishing House.

McKersie, R., Miller, C. and Quarterman, W. (1964), 'Some indicators of incentive plan prevalence', Monthly Labor Review, 87, March, 271-276.

Meyer, J. and Rowan, B. (1977), 'Institutionalized organizations: formal structure as myth and ceremony', American Journal of Sociology, 83, 340-363.

Mitchell, D., Lewin, D. and Lawler III, E. (1990), 'Alternative pay systems, firm performance, and productivity', in Blinder, A. (ed), Paying for Productivity, Washington DC: Brookings Institution.

National Board for Prices and Incomes (1968), Payment by Results Systems, Report 65, Cmnd. 3627, May, London: HMSO.

Parsons, D. (1986), 'The employment relationship: job attachment, work effort and the nature of contracts', in O. Ashenfelter and R. Layard (eds) Handbook of Labor Economics, Volume 2, Amsterdam: Elsevier.

Pearce, J. (1987), 'Why merit pay does not work: implications from organizational theory', in D. Balkin and L. Gomez-Mejia (eds), New Perspectives on Compensation, Englewood Cliffs, NJ: Prentice Hall.

Pencavel, J. (1977), 'Work effort, on the job screening, and alternative methods of remuneration', in Ehrenberg, R. (ed) Research in Labor Economics, Volume 1, Greenwich, Conn.: JAI Press, 225-258.

Prendergast, C. (1998), 'What happens within firms? A survey of empirical evidence on compensation policies', Journal of Economic Literature, forthcoming.

Rebitzer, J., Encinosa III, W., and Gaynor, M. (1996), 'The sociology of groups and the economics of incentives: theory and evidence on compensation systems', NBER Conference Paper on The Role of Firms in International External Labour Markets, December.

Reynolds, P. (1994), 'Real time adherence monitoring in the call centre', Voice Processing, May.

Roncoroni, S. (1997), Call centres could become tomorrow's dark satanic mills, Institute of Personnel and Development, June.

Schwab, D., Olian-Gottlieb, J. and Heneman, H. (1979), 'Between-subjects expectancy theory research: a statistical review of studies predicting effort and performance', Psychological Bulletin, 86, 139-147.

Seiler, E. (1984), 'Piece rate vs. time rate: the effect of incentives on earnings', Review of Economics and Statistics, 66(3), August, 363-376.

Shaw, A. and Pirie, D. (1975)., 'Payment by time systems', in A. Bowey (ed), Handbook of Wage and Salary Systems, Epping: Gower Press.

Steiner, R. (1997), 'Incentive plans revive boardroom pay row', Sunday Times, 25 May.

Stiglitz, J. (1975), 'Incentives, risk and information: notes towards a theory of hierarchy', Bell Journal of Economics and Management Science, 6, Autumn, 552-579.

Webb, G. (1975), 'Payment by results systems', in A. Bowey (ed), Handbook of Wage and Salary Systems, Epping: Gower Press.

Zucker, L. (1987), Institutional theories of organizations', in Scott, W. (ed), Annual Review of Sociology, 443-464. Palo Alto, Calif.: Annual Reviews, Inc.