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PAY AND PERFORMANCE IN A
CUSTOMER SERVICE CENTRE -
PRINCIPAL AND AGENTS OR
PRINCIPALLY ANGELS?



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Pay and performance in a customer service centre

- principal and agents or principally angels?

By

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Abstract:

We have followed a pay for performance reform in the phone based customer service centre of an insurance company, from its introduction in 2001 until the end of 2004. We use hard and soft data from the design and impact of the reform to contrast two theories of work motivation; the traditional self interest hypothesis that the principal-agent model builds on, with the hypothesis that fairness and reciprocity are significant motivational forces at workplaces. The reform was initiated to increase sales of insurance in the customer service centre and it gave the operators both economic incentives and fairness- and reciprocity incentives to increase their sales effort. The reform had a positive effect on sales; the operators answered more calls and sold insurance to a higher fraction of customers after the reform. This observation alone does not help us identify the importance of the motivational hypothesis we compare. However, when we look closer at the evolution of the design and impact of the payment plan, we conclude that our data correspond best with the standard principal-agent model.

Keywords: Team incentives, multitask, fairness, reciprocity.

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I INTRODUCTION

We have followed a pay for performance reform in the phone based customer service centre of an insurance company, from its introduction in 2001 until the end of 2004. It is an important occupation we study. An increasing number of firms use a phone based customer service centre as the main interface point between the company and their customers.² The nature of the services provided in a call centre varies between work places. Some operators respond to simple requests, they inform customers about their bank balances, or register the purchase of a ticket, etc. Others receive calls that require detailed responses to intricate questions. The customer service consultants we study belong to the latter category. In addition to providing services they sell insurance products. Indeed, the main motivation behind the pay reform we study was to raise sales in the customer service centre.

Our aim with presenting this case is two-fold. One is to show how difficult it is to use performance bonuses in a multitask environment. To this end we describe the complexities of the initial reform, and its frequent amendment over time. A second, more ambitious aim is to use the detailed data we have to contrast two different perspectives on work motivation; the standard economic agency model, which builds on rationality and greed, against the hypothesis that fairness and reciprocity are important motivations at workplaces.

Over the last two decades a large body of evidence has been collected by experimental economists, indicating that individuals have motivations that extend their narrow self interests. These experiments do not show that all individuals behave as angels all the time, but indicate that a substantial fraction of the people behave more angel-like than the rational egoists that inhabit principal-agent models. In experiments many individuals seem to be influenced by fairness norms and care about the well being of other individuals, they care about the intentions of others and are inclined to reciprocate the intent and behaviour of those they interact with.

² According to the *Call Center Management Review*, February 2001, there were around 7 million call centre agents in the U.S. in 2001, that is, there was twice as many people working in call centers than in the entire agriculture sector at that time. Not only is the number of call centre operators high, the call centre industry is also growing fast.

In our case, the design of the pay reform has several characteristics that are hard to reconcile with standard economic incentive theory. Seen from the principal-agent perspective it is for example hard to understand why the management were so eager to establish a win–win reform: Why did they not reduce the consultants’ fixed salary when they introduced the performance bonus, and why did they engage in lengthy negotiations with their employees over the design of the bonus in order to create a consensus based scheme? These features indicate that reciprocity and procedural fairness had a bearing on the outline of the initial bonus scheme.

When we turn to the impact of the reform, a simple comparison of performance before and after the reform indicates that the reform had a positive effect on workers’ sales productivity. Sales increased, both because the operators answered more calls and because they sold insurance to a larger fraction of the customers served. This positive effect on productivity endures when we control for other relevant factors that could explain higher sales. Among our controls is sales in other divisions that were unaffected by the reform. Our findings here are in line with many other recent case studies of incentive pay.³

The observation that productivity increases when a firm adds a performance bonus to a fixed salary, is often taken as evidence that support the standard economic incentive model. However, that conclusion can be misleading. It is a fundamental prediction of this perspective that workers respond to monetary incentives; they work harder, exert more effort, if monetary incentives are added to an existing salary. The problem is that the same response is consistent with several other theories of work motivation. Reciprocity motivated workers will for example work harder in response to a generous performance bonus. In that case the workers’ productivity increases not only because the reform explicitly links pay to performance, but because the bonus increases their compensation and this is taken as a kind and fair act that workers want to reciprocate.

Evidence from our case strongly support that the operators found the bonus scheme both fair and generous. Hence, the fact that productivity increased after the introduction of the pay reform does not tell us anything about the strength of other-regarding motivations, such as reciprocity and fairness. To identify the causal mechanism behind the workers response we need to examine the pay reform, and how workers adjusted to it, in greater detail.

³ See Prendergast (1999) for an overview of the literature that tests the impact of performance pay, and Chiappori and Salanie (2000) for a discussion of empirical studies of economic contract theory more generally.

Looking at the details, we conclude that the empirical evidence lends support to the standard economic incentive model. One indication that reciprocity or fairness is not a significant motivational factor in our case is that despite the generosity and fairness of the bonus the customer service consultants exploited the scheme, in various ways that we discuss later, to their own advantage but to the disadvantage of the firm. Another pattern that is in line with the standard agency model, but harder to reconcile with the reciprocity idea, is that the consultants seem to persistently adjust their behaviour to the fine details in the design of the bonus scheme.

A third and important event that we use to identify the underlying motivation of the workers occurred in the second quarter of 2004. The initial contract was based on negotiations that resulted in a signed agreement between the company and the employees in the call centre, and for the next three years all changes in the scheme followed the same procedures. In 2004 the management found some of the agreements reached earlier with respect to compensation of sick leave too costly, and they did not want to renew this clause in the contract. Those representing the employees would not back off. The outcome of the conflict was that the management decided to leave the consensus line. From the second quarter of 2004 they implemented a bonus scheme by dictate. The top-down plan that was implemented did not allow any kind of sickness compensation. It also went against the employees' preferred design along other dimensions as well. Theories that hold procedural fairness and reciprocity to be strong motivations at workplaces predict a subsequent drop in the consultants' motivation. There is nothing in our data that indicate such a response.

Our research relates to two strands of literature. It contributes to the literature that exploits firm-level variation in compensation contracts to measure the effect economic incentives have on worker behaviour. A few important examples are, Paarsch and Shaerer (1999), Lazear (2000), Haley (2003). Our results complement this research by examining the outline of the incentive scheme and by making an attempt to delineate the underlying motivation of the workers.

Our study also supplements the experimental literature on reciprocity and incentives. Several laboratory experiments indicate that "workers" have social preferences, and that these other regarding concerns have important implications for the design and impact of economic incentives.⁴ Although it is obviously important to find out to what extent these results extend the laboratory,

⁴ See Fehr and Falk (2002) for an overview.

there are few studies that use field observations to gauge the importance of altruism, fairness and reciprocity in work relations. In this respect our paper fills a void in the literature.⁵

The paper is organized in the following way. In the next section we briefly present the customer service centre we analyse. Section three provides a theoretical backdrop for our discussion. Section four presents the wage reform, both its initial form and evolution over time. In section five and six we assess, respectively, the design and impact of the pay reform and discuss to what extent the patterns we observe are in line with the theoretical perspectives we compare.

II THE CUSTOMER SERVICE CENTRE

We study a phone based customer service centre in an insurance company. The customer service consultants (operators) use a computerized phone system to receive *inbound* calls.⁶ The system automatically channels calls to available operators. They use the computer system to retrieve the information they need to assist customers, and to register new information in the customer data base.

The main task for the operators that work in the call centre is to provide accurate information in a friendly and courteous way. They must inform existing clients about their insurance coverage, update them on any policy changes that are relevant, and inform them about new products that are available. To provide high-quality customer service the operators must pay careful attention to the customers' requests, and have extensive knowledge about the company's insurance products.

In addition to providing services to the customer they actually assist, they must handle requests for information as fast as possible in order to minimize the time other customers have to wait in order to get assistance. Ideally, most of the work, the provision of information, changes in

⁵ Bandiera, Barankay and Rasul (2005) use a field experiment with performance pay to study work motivation. They find that productivity is higher with a piece rate bonus than with a bonus that depends on relative performance evaluation within the work group. They take this as evidence that there are social preferences among the workers; the fruit pickers they study do not only care about their own income but also about the income of their colleagues.

⁶ Although the bulk of calls are inbound, the customer service consultants make a few outbound calls to gather information etc., and they also call back customers that choose to leave their number instead of waiting for an answer when there is congestion on the lines.

existing insurance contracts, registration of new contracts etc. should be done on-line during the phone call.

Besides carrying out vital service functions, the operators also sell insurance products. An important aspect of the job is to balance the time and effort the operators use on sales of new products, against the energy that is allocated to the service function. To further complicate matters, selling insurance products is in itself not a one-dimensional task, there is, for instance, a quantity quality trade-off. Insurance companies must take account of adverse selection and moral hazard problems; it is not in the company's interest that the operators simply maximize the number of sold insurance products. Before they sell a product the sales personnel ought to collect information about the "type" of the customer and use this information to design an appropriate contract.⁷

The customer service centre we examine was restructured in July 2000. A new customer service division was established in the private lines of the insurance company. As a consequence all call-centres were merged together in a customer service division. At the time of the introduction of the performance pay (2001) there was around 200 individuals working in the customer service centre of the insurance company and around 130 – 140 of these were employed at the call centre we study. A central part of the reform was to divide the operators into different teams, each consisting of 9 – 10 call-centre employees and a team leader. The teams operate in open office landscapes.

Each team have a leader who organizes the team work, motivates and supervises the operators. In particularly strained periods – when the queue of waiting costumers is long – team leaders will pick up the phone and answer inbound calls. Furthermore, a team leader has a role in hiring new members of a team (if someone leaves) and he or she has a say in how the annual pay rise in the fixed salary should be divided among team members. Due to the fact that the team leader has distinctively different tasks than the team members, he/she is not included in the specific bonus system we evaluate here.

Most of the operators are relatively young, the average age is around 30 and the typical employee has 2 or 3 years of college education and has worked for the insurance company for 4 years. There is a slight surplus of women working in the customer service centre.

⁷ The company provides authorisations to each operator about how they ought to handle different risks, but although the instructions are quite detailed there is room for discretion, and relevant information is, or should be, revealed in the communication between the consultant and the customer.

Turnover is relatively high (although it has dropped considerably since the reorganization of the customer service unit). Those who leave the call centre either move to other divisions in the insurance company, or leave for jobs outside the company.

The operators are instructed to log on the phone system when they arrive at work and not log off the system unless meetings – or other arrangements - take them away from the phone system for more than an hour. Shorter breaks should, according to the instruction, be included in time logged on. On average the operators are logged on the system somewhat less than five hours a day. The workload for a full time position is 7 hours and 30 minutes a day. The gap between a full day and actual time logged on the system is due to sickness absence, various meetings, courses and seminars. On average an operator answers around 35 calls per day. This includes call-back calls. In addition the operators make on average 7 or 8 outbound calls a day, normally to gather essential information about customers' insurance policies.

III MOTIVATION AND INCENTIVES

Standard economic incentive theory builds on the joint assumptions of rationality and egoism. At a workplace the employees are portrayed as selfish agents, relentlessly maximizing their own surplus. They calculate their own material payoff of exerting effort on different work tasks, and allocate their energy where their personal gain is largest. The owners of the firm, often represented by their managers, are equally rational and selfish. They infer how self seeking workers react to organizational changes, for example to changes in the magnitude and structure of their compensation, and given the workers' response they implement arrangements that serve their self interests.

This framework has long been criticised by sociologist, psychologists and other commentators outside the economics profession. Economists, being well aware that individual behaviour is not fully described by this simple model, have nevertheless found it useful as an approximation that improves our understanding of social interaction, both at the marketplace and inside firms and other organizations. However, over the last two decades a large body of evidence

has been collected by experimental economists, indicating that many individuals have motivations extending their own narrow self interests. It has been shown that other-regarding concerns are forceful motivators, and that these motivations have important implications for the design and impact of monetary incentives in work relations⁸.

Our aim is to apply the pay reform to assess the importance of other-regarding motivations at the work-place we examine. The pay reform was initiated to increase sales of insurance in the customer service centre. In this section we briefly describe the sales “technology” at the call centre. We then identify the main predictions standard economic incentive theory makes with respect to the design and impact of a pay reform initiated to increase sales. Thereafter we consider how other-regarding motivations influence the expected design and impact of sales incentives.

Sales of insurance products

The reform that was launched in 2001 was initiated to boost the sales of insurance products. Weekly sales of insurance at the customer service centre can be written as

$$s = p\gamma x, \tag{1}$$

where x is the number of incoming calls per week, γ is the fraction of calls that are answered, and p is the fraction of the attended customers that actually buys an insurance product. The number of incoming calls is exogenous to the employees at the centre, but the effort and talent of the operators affect sales via p and γ . The longer operators are logged on the phone system, and the faster they serve each customer, the higher is the fraction of incoming calls that are answered. The fraction of attended customers that actually buys insurance depends on the relative attractiveness of the company’s product, but also on the sales talent and effort exerted by the operators. Some are naturally gifted sellers, others must strive harder to convince a customer that this insurance product is just what she needs. But irrespective of their sales talents the operators can make an effort to improve their sales performance.

It is reasonable to assume that above some level it becomes costly for the operators to increase sales effort. To increase γ the operators have to make fewer calls to friends and family,

⁸ See Falk and Fehr (2002) for a good overview.

make fewer breaks away from the phone system, chat less with their co-workers. That is, they have to do less of activities that give variation in an otherwise quite monotone workday. To increase p the operators must make an effort to learn more about available insurance products, pay more attention to the customers to identify her needs, and be a more assertive seller of the company's products.

Suppose the management perceived a sales potential in the customer service centre and decided to use a pay reform to close the gap between potential and actual sales. What should we expect with respect to the design and impact of such a pay reform? The answer depends critically on the information and motivation of both the managers and the operators that work in the call centre.

The principal-agent model

In the principal-agent framework it is relative "prices" that drives the intensity and allocation of effort. It is, in other words, the magnitude and structure of the performance bonuses that determine the impact of a pay reform. The procedures followed in the outline and implementation of the reform, and the way incentives are framed and communicated, have no separate impact on the workers' response. Likewise, the generosity of the bonus scheme, measured as the rent workers earn, does not in itself affect effort in a principal-agent model.⁹ As a consequence, a wage reform that simply increases the salary of the operators has no motivational effect. To elicit higher sales effort the principal must explicitly and credibly link payment to some measure of sales performance.

Another critical implication of rewarding performance in a principal-agent model is the multitask problem. Selfish employees will neglect responsibilities that are not explicitly rewarded in a bonus scheme. The customer service consultants we study have relatively complex jobs with multiple tasks. Hence, the principal-agent model predicts that the operators might adjust their behaviour in harmful ways if only sales of new insurance products are rewarded. A third implication of this perspective is the ineffectiveness of team incentives. Selfish individuals are inclined to free ride on others work effort, and this will undermine the productivity of team incentives.

If this is how the management of the company anticipate that their employees will respond to economic incentives, we should *not* expect them to involve the employees in the outline of the

⁹ Rents have an effect on workers' effort if cheating (low effort) increases the probability of being fired (Shapiro and Stiglitz (1984)). The rent associated with a performance bonus can also affect the selection of workers that apply for work in the firm. Workers that have a talent for performing along the dimensions rewarded will be attracted to the firm (Lazear (2000)). This effect is of less relevance in our case with team incentives.

scheme. Such negotiations would only increase the administrative costs of implementing incentives and have no effect on the operators' effort. Furthermore, there is no reason for the management to leave any rent with the workers, or in any other ways use resources to design and advertise the reform as a win-win plan. Within this framework the management will simply dictate an incentive contract that links compensation to relevant performance indicators.

Due to the problems of cheap talk and renegeing selfish principals' face they tend to prefer written contracts that explicitly associate bonus payments with objective performance standards.¹⁰ Since the main motivation behind the pay reform we study was to increase sales, we should expect sales to be rewarded. But, as noted above, the operators work in a multi-task environment, we should therefore predict the sales bonus to be balanced against other bonuses. Finally, we expect the company to use individual bonuses since the management have access to individual performance measures.

Reciprocity and fairness

If we extend the motivation of the consultants along the lines indicated by recent experiments in behavioural economics, it is not true that the fairness and generosity of a pay reform is irrelevant. Reciprocity motivated individuals have social preferences which dispose them to respond to like with like¹¹. If workers are offered favourable employment conditions, for example if they are compensated open-handedly relative to some reference situation, this motivates them to exert personally costly effort to enhance the productivity of the firm. And if workers do their jobs diligently, reciprocity and fairness motivated principals want to compensate them generously.

Hence, reciprocity motivated workers are inclined to work harder if the owners of the firm pay a higher fixed salary. They should also be motivated to exert costly effort if the owners implemented a fair and generous bonus scheme, explicitly linking payment to some predefined performance measures. Hence, after the introduction of a fair and generous pay for performance reform workers

¹⁰ The problem of renegeing is exaggerated in two-period principal-agent models. Most agency relationships in organisations extend over many periods and in an environment with repeated interaction it possible to establish credible implicit incentives, see Levine (2003).

¹¹ Consult Rabin (1993) for a formal model of reciprocity. Rotemberg (2006) discusses the importance of reciprocity at workplaces, Fehr and Schmidt (2006) gives an overview of the experimental literature on reciprocity and fairness and Sobel (2005) gives a comprehensive discussion of reciprocity in social exchange.

productivity may increase not because the reform links pay to performance, but because the bonus is considered to be a kind act that workers want to reciprocate.¹²

Likewise, if other-regarding concerns are important motivations one should expect the multi-task problem to depend on the fairness and generosity of the incentives the workers are provided. An incentive scheme considered to be both fair and generous would presumably not be gamed and exploited if workers are strongly motivated by fairness and reciprocity.

Another implication of extending the motivation beyond strict self interest is that the free rider problem traditionally associated with team incentives becomes less pronounced. With a strong sense of fairness and reciprocity among the workers it is possible to induce high effort equilibrium in a team, since workers no longer are so inclined to free ride on co-workers effort.

If the management perceives that reciprocity and fairness are significant motivational factors among the consultants in the customer service centre, they should strive to design a win-win reform. They might want to include the workers in negotiations over the outline of the incentive scheme, even if such negotiations are administratively costly. And they may want to compromise when workers call for solutions that differ from those preferred by the management. Furthermore, the introduction of performance bonuses should not necessarily be accompanied with a reduction in the workers' salary that leave them at their reservation utility, as prescribed by the principal-agent model. To elicit a productive response the management may find it beneficial to offer their employees a fair and generous rent.

Note also that reciprocity and fairness motivated principals are less concerned with designing explicit incentive contracts based on objective, court enforceable performance measures. Reciprocity is in itself a contract enforcement device; reciprocity motivated principals do not want to renege on a promised bonus if workers perform well.¹³ Reciprocity motivated principals can therefore use powerful performance bonuses even in environments where some tasks are hard to measure

¹² Reciprocity has of course a negative side. If reciprocity is a forceful motivator one might observe that the introduction of an explicit bonus scheme lowers the productivity workers. This could happen if the workers perceived the bonus as unfair or unkind. Experimental evidence indicates that explicit incentives can indeed backfire motivation that relies on rule compliance, reciprocity and intrinsic motivation, see Fehr and Falk (2002) for an overview. To our knowledge no field studies of incentives in labor relations find similar effects.

¹³ See Fehr, Gächter and Kirchsteiger (1997)

objectively. The principal can simply announce that a bonus will be provided if the *overall* performance of the workers is agreeable.¹⁴

The discussion above exposes important differences between the principal-agent model and models that extend individuals' motivation beyond material self interest. In the next session we describe the wage reform, thereafter we apply the data to discern the underlying motivations of the management and the operators in the call centre we study.

IV THE WAGE REFORM

In the summer 2000 the management decided to introduce a pay reform to increase sales in the customer service division of the company. It was not the first time sales incentives were used in the customer service unit. Small scale, sporadic "sales campaigns", offering prizes to outstanding sales performance, had been used earlier. The reform that was introduced in 2001 was, however, of a different kind, it was a full scale, negotiated bonus scheme.¹⁵ In the initial treaty the parties also agreed to renegotiate the contract each year.

The initial bonus setup was shaped in numerous meetings between the management and employees at the customer service centre (represented by their union). The parties held different views on several issues related to the design of the pay reform. The management were inclined to reward individual performance, while the worker representatives wanted team based compensation. The management preferred a tournament based bonus scheme, while those representing the workers favoured a system based on score against pre-set standards. The union wanted full sales compensation for sick absence among the consultants. This was a request the management were reluctant to accept.

¹⁴ See Fehr and Schmidt (2005) for an experiment where principals can choose different compensation schemes in a multitask environment.

¹⁵ The information we have about the scheme's design, and the procedures behind the design, is drawn from various sources. We have had access to all written agreements between the parties. In addition one of the authors participated in most managerial meetings where the implementation of the pay reform was discussed. We have also interviewed some of the team leaders and operators at the customer service centre.

The contract between the management and those that represented the consultants was not signed before the last week in February 2001. The main reason why the negotiations dragged was disagreement about sick absence compensation. However, the management and the union had already concurred that if the negotiations turned out successfully, that is, if an incentive contract were signed, it should be given retroactive effect and be in force as of January the 1st.

Since its introduction, the bonus scheme has been changed several times. In this section we describe and assess the initial plan and its evolution over time.

The initial scheme

The pay for performance scheme that was introduced in 2001 was quite complex. It was team based and the bonus depended on three different team performance indicators: sales, efficiency and customer satisfaction.

Sales played a key role in the initial plan since the teams had to beat a prefixed sales target in order to qualify for a bonus. No matter how well they performed on other indicators, they would not receive a bonus unless they passed the sales hurdle. For sales above the target the bonus increased in a stepwise manner over some range (specified below). Note that in the aggregation of sales, insurance products were not weighed according to for example the size of the premium. Each product counted as a sold unit in the bonus scheme.

As noted above a critical question with respect to sales was to what extent teams should be compensated if consultants were away due to sick absence. The initial contract allowed compensation only for long term sick leave; teams got compensation for team members that were away from work due to sickness for more than 10 days. In cases of long term sickness a team would be ascribed the average team productivity (measured as sold products per consultant) to the person that was missing.

The sales target was fixed at 102% of a team specific sales budget. A top-down process was used to determine each team's sales budget. First the top management of the company specified an overall sales target for the whole company. This sales target was then divided on different sales

channels; the customer service unit was one of them. The leader of the customer service centre allocated the sales targets to different teams based on their manpower.¹⁶

Each team that sold more than 102 % of their budget could multiply its sales bonus with a factor that depended on how efficient and customer friendly it was relative to the other teams. Efficiency was measured as the number of incoming calls answered per hour logged on the phone system. To assess customer approval the company contacted a random selection of the customers and asked them to grade the support they got from the service centre on a scale from 1 to 7, with 7 as the highest score. The teams were then ranked along these two dimensions, and those among the third with the lowest rank sum were considered as winners of the efficiency/customer approval tournament and could multiply their sales bonus with a factor of *four*. The next one third could multiply their sales bonuses with a factor of *three*, while the one third with the highest rank score simply received their sales bonus. Teams that did well in the tournament but did not pass the sales hurdle did not receive any bonus payments.

Passing the sales target of 102% of a team's allocated sales budget yielded 1250 kroner in sales bonus per team member (average monthly pre tax wage is approximately 22000 kroner). The sales bonus increased thereafter in a stepwise manner - with 8 steps - until a maximum reached at 130% of the sales budget, which yielded each team member 2500 kroner in sales bonus. The maximum bonus a team could earn, the bonus it would get if it sold 130% of the budget (or more) and was ranked in the best one third of the teams in the tournament, was $2500 \cdot 4 = 10000$ kroner - which was approximately 15% of their salary.

Changes in the plan

The bonus plan was altered many times in the period from 2001 until 2005. In 2002 the management, after prolonged negotiations with the consultants, agreed to extend the sickness absence compensation also to include short term absence, given that those that were absent could display a medical certificate confirming their illness.¹⁷

¹⁶ In principle the only relevant factor for a team's budget was the number of agents it had available. But in reality there was some discretion, teams with a relative inexperienced workforce got a lower sales budget than teams with veteran agents.

¹⁷ We have data on short term sickness absence from 2002 and onwards. For 2002 the short-term sickness absence – verified by a medical certificate- was 10,2 %in the customer service unit, Comparable short-term sickness absence in other divisions was 3,3 %. It is difficult to understand this substantial gap without considering the explicit incentive contract that required a medical certificate in order to render compensation for the team.

In the second quarter of 2003 two new performance measures were included in the bonus. One variable was premium discount, measured as the difference between the tariff premium and actual premium of the insurance products that were sold. The other performance measure was the claims ratio on a team's insurance portfolio, gauged over the last year. Premium discount and claims ratio were lumped together as a measure of the profitability of sales; teams that gave a low premium discount and had a low claims ratio would score high on profitability. In the rank order tournament "profitability" accounted for 50% of the rank score; a team that was ranked as number 3 in efficiency, 4 in profitability and 7 in customer service would get a total rank sum of $3 \times 0,25 + 4 \times 0,5 + 7 \times 0,25 = 4,5$).

In the second quarter of 2004 there was a radical change in the procedure behind the outline of the scheme. The management decided to leave the consensus line. The negotiations broke down because the management did not want to renew the clause allowing teams compensation if operators were away due to sickness leave. The management then decided to implement a bonus scheme by dictum. The new scheme was based on the initial, negotiated plan, but apart from renegeing on the sick leave compensation the management also individualised the bonus scheme. Only half of the sales bonus was now based on team sales, the other half was based on individual sales (relative to an individual budget).

In addition to these changes the management eliminated both efficiency and "profitability" from the scheme and added two new performance measures. One was a "quality of work measure" that was based on the number of omissions and mistakes in the contracts that was sent to the customers. The other was related to changes in the renewal rate of existing insurance contracts. The tournament between teams was also abolished; the bonus associated with the "quality of work" and renewal of policies depended on absolute, not relative performance. This change reduced the importance of reaching the sales hurdle since a team could get a "quality of work bonus" or a "renewal bonus" even though they did not qualify for a sales bonus.

In the next quarter there were new changes in the bonus plan. Sales were still rewarded, and there was no change in the magnitude of the sales bonus, but the importance of individual sales was scaled up. In the preceding quarter the sales bonus had been divided evenly between individual sales performance and team performance. From the third quarter of 2004 75% of the sales bonus was based on individual sales and 25% on team sales. In this quarter efficiency was reintroduced as a

performance measure, but not in the same way as it was before 2004. Team level efficiency mattered only if the service level of the call centre was below 60%. In that case each agent in a team with a weekly average efficiency above 5,2 (teams that answered more than 5,2 calls per hour logged on) would earn a bonus of 250 kroner that week. The quality measure (mistakes made in the contract) was abolished. The renewal measure was kept as before and a new element that depended on the service level was introduced. The development of the bonus scheme is summarized in Figure 1.

V ASSESSING THE DESIGN OF THE BONUS SCHEME

The initial scheme

The aim of the pay reform was to increase sales. It is therefore fully in line with the principal-agent model that the management designed and signed an explicit incentive contract with sales as a key performance indicator. The fact that the initial bonus depended on two additional performance measures also squares well with standard incentive theory. When we inquired, the management underlined that the main reason for not only rewarding sales was the multi-task problem, although they did not use this concept. It was sales they primarily wanted to stimulate, but they were concerned that pure sales incentives would tempt the operators to neglect the importance of answering calls, and to apply insufficient time and energy on existing customers that called to get information about their existing policy. Hence, to balance the sales incentive the management included an efficiency measure to reward answered phones, and a customer approval measure to reward the provision of polite and well informed services to customers who are not calling to buy insurance.

However, the economic incentive model cannot account for the generosity of the bonus scheme. The standard model predicts a reduction in the fixed wage when a performance bonus was introduced. That did not happen in our case; the bonus increased the workers' average compensation with approximately 7%. Neither can the principal-agent model make sense of the endeavour the management made to negotiate a bonus scheme with the workers, nor the many

concessions they made in order to implement a reform that was endorsed by the workers. A management behaving like standard economic principals, facing standard economic agents, ought to concentrate on getting the prices (bonuses) right. They should not be concerned with procedural fairness, or how the workers interpreted the intentions behind the bonus scheme.

On the other hand, if they were driven solely by reciprocity and considered their workers' motivation to be likewise, they could simply announce that a balanced increase in the sales effort of the operators would be rewarded with a bonus. This would save much of the recourses that were used on setting up an intricate and explicit bonus contract.

The use of a team bonus is also hard to reconcile with a strict interpretation of the principal-agent model. It is easy to measure individual performance in the call centre, since data on individual performance is recorded. Furthermore, work tasks are to a large extent individualistic and there are few complementarities between the tasks of individual workers. Hence, technology cannot explain why the bonus was team based. One could argue that in an open office landscape both peer pressure and monitoring by team leaders would reduce, or even eliminate, the free-rider problem. But although there are mechanisms that can curb extensive free riding in our case, the standard model nevertheless has difficulties explaining why the company did not use individual incentives, given that they have individual performance data.

When we asked the management why the initial bonus was based solely on team performance, they came up with two arguments. First, the operators' representatives preferred team incentives. Second, the management thought that using work groups would enhance work gratification and create team spirits that could improve individual productivity.¹⁸ Although they did not use these concepts, they referred to reciprocity motivation among the operators. They argued along the lines of Akerlof (1982) that those working in teams would acquire sentiments that could nurture pro-social motivation and underpin norms of high effort (no cheating).

From a theoretical point of view, whether one looks through lenses that extend the motivation beyond narrow self interest or not, it is not easy to rationalize the non-linearity of the sales bonus (recall that sales above 130% of the budget did not trigger any extra bonus). One could argue that putting a cap on the sales bonus was done to limit the "too-much-focus-on-sales"

¹⁸ Hamilton et al (2003) compared workers' productivity in a firm that switched from individual to team bonuses. They found that productivity was higher under team production and mention greater work gratification as a possible explanation, and utilization of collaborative skills as another.

problem. But the multi-task problem had already been handled by letting the bonus depend on two additional performance measures. When we inquired, the management alluded to a fairness argument; if a team sold more than 130% of its budget this clearly indicated that the target was set too low, and it would not be fair to reward the teams for this misspecification

Another key feature of the plan is that the overall bonus depended on the outcome of a tournament among the teams. The traditional argument in favour of relative performance evaluation is that it reduces the workers' income risk by eliminating common noise in the performance measures. In the principal-agent model this advantage must be weighed against the possibility that the agents engage in sabotage. If we extend their motivation and include inequity aversion among the operators this would reduce the power of a bonus based on relative performance evaluation, since beating other teams would in itself generate disutility

We asked the management why efficiency and customer service was based on relative performance evaluation. They pointed out that they had been given a fixed amount of money to establish a pay reform and one way to make sure that total bonus payment did not exceed the "bonus budget" was to use a tournament based incentive system. However, the operators did not accept a bonus system that was solely based on competition among the workers. They preferred competing against prefixed standards established in negotiations between the union and the management. The first scheme was a compromise between the system preferred by the management and the system preferred by the employees.

The evolution of the scheme

One can interpret the frequent changes in the incentive scheme as the outcome of a learning process. The management implemented a scheme they thought would increase sales without degrading other services provided by the call centre consultants. When they learned the actual effect of the bonus they adjusted it to make it more effective.

What did the management learn? Apparently, the main lesson was that the multi-task problem was more sweeping than anticipated. Perhaps they did not think through all the ways in which the operators could bend their behaviour to take advantage of the bonus scheme. Or perhaps they hoped that strong reciprocity incentives would limit the problem, i.e. they hoped that the generosity of the reform would prevent the operators from exploiting it. When the management

learned that the operators behaved more like selfish agents than social reciprocators, they took measures to hold their employees in check. They introduced profitability as a performance indicator to prevent operators from selling insurance at a discount, and to motivate them to focus on the claims ratio and discriminate against bad risks. They introduced a bonus associated with “quality of work” in order to avoid that the operators, being in a hurry to wrap up paperwork, made omissions and mistakes in the contracts that was sent to the customers. We can, in other words, understand the evolution of the bonus scheme as a rational Bayesian learning process; the management observed the operators behaviour and updated their beliefs about the operators’ type, and adjusted the scheme according to their new beliefs.

We believe this interpretation captures an essential element of the process, but it is not the whole story. First, many of the changes were grounded on insufficient information. The management did not collect enough hard information about the development of the profitability of sales, or mistakes made by the consultants, before they included these indicators in the scheme although the data were available. Hence, several changes in the scheme seem to be based on a vague notion, a hunch, that the initial contract generated certain dysfunctions that needed to be corrected. One reason why they did make use of all the data that was stored in the database is that it is costly to gather, analyze and report this information.

Second, some of the performance indicators that were introduced at later stages do not square well with the decisions made by a rational, learning and self interested principal. The claims ratio, for example, was based on insurance products sold the previous year. This performance measure was operative in one year, that is, it was abolished just at the time when it should start to bite.¹⁹ Likewise, linking team bonuses to the service level of the whole customer service centre seems futile, since each team only had a small impact on this measure, and there are other performance indicators at the team level that is highly correlated with the service level.

Hence, some of the changes that were made, and also the mere frequency of changes, indicate that in addition to rational learning there was an element of more or less blind groping for a functional scheme. Another factor that can explain the frequent changes in the design of the bonus scheme is that in a hierarchy of managers there are many individuals that need to take initiatives in order to signal strength and decision power.

¹⁹ The claims ratio could of course still have an effect on behaviour if the operators believed that this measure would be in force for more than a year.

VI ASSESSING THE IMPACT OF THE REFORM

In this section we estimate the impact of the pay reform and try to identify the underlying motivation that explains how the customer service consultants' responded to the reform. We start with a description of the data.

Data

Our data covers the period from week 38 in 2000 to week 52 in 2004. Data on phone calls are automatically stored in a telephone base. Each incoming (and outgoing) call is automatically registered in this database. It contains information about the duration of call, the waiting time and several other statistics. We have consistent data for 9 teams, and at the team level we have weekly data on

- Hours logged on
- Number of sold units
- Duration of a call (in seconds)
- Number of answered calls

In addition we have the following aggregate data for the service centre;

- Total number of incoming calls
- Total number of answered calls
- The service level (which is an index that signifies how fast a customer that calls get in contact with an operator – the higher the service level the lower is the customer's waiting time)

The impact of the reform

To get a first impression of the impact of the reform, we compare averages of some key performance variables before and after the reform in Table 1. In order to adjust for seasonal variations in the data we have listed the same weeks (38 – 52) before (2000) and after the reform (2001 – 2004). There are three variables in Table 1 that need explanation. CPS is an acronym for calls per sale, it is the number of calls needed to sell one insurance product. CPS is the inverse of p in the sales equation (1). The service level measures the average waiting time of the customers that call the centre. A service level at 80 means that the average waiting time before one gets assistance is 20 seconds. A lower service level means a longer queue. Efficiency is the number of answered calls divided on the number of hours the operators are logged on the phone system. Recall that efficiency is one of the performance measures in the tournament between the teams. Customer service was the other, but we have no data on this variable in the period before the reform.

The numbers in Table 1 indicate that the pay reform had a positive effect on sales. If we compare the whole after reform period with the period before the reform the sales figures are up approximately 15 %. Sales were especially high in 2002. During this period sales increased for two reasons, teams answered more calls and, on average, needed fewer calls to sell an insurance product (CPS dropped).

The number of answered calls, and therefore total sales, depends critically on the number of incoming calls and on the number of individuals each team has at disposal. The customer service centre expanded somewhat over the time period we examine. There was an intense recruitment period in the summer 2001. The majority of those that were hired formed new teams. They do not affect our data. However, some of the newcomers were hired in the teams that constitute our sample. Hence, one of the reasons why “our” teams answered more phones, and sold more insurance, had nothing to do with the introduction of the sales bonus. We do not have weekly personnel data for each team for the whole time period we study. In our econometric analysis we therefore focus on how the reform changed the number of calls per sale (CPS). This is a productivity measure that is not directly affected by the number of incoming calls, nor by the number of consultants that are at work in each team.

The major identification issue with respect to estimating the reform’s impact on CPS is to control for changes in the demand for the company’s products. If the insurance company used more

resources on marketing, reduced its' product prices, or something else happened that increased the demand for company's products, this would also reduce CPS since those calling the centre would on average be more inclined to buy insurance. Hence a drop in CPS can either be caused by increased sales effort within the customer service centre, or by an increase in the demand of the products sold by the company.

To control for possible demand side effects, and for other factors that may have an impact on CPS, we specify a panel data regression with CPS as the dependent variable. In the regression we use weekly data that runs from week 38 in 2000 (before the reform) to the end of 2004. We use a dummy variable approach to estimate the effect of the pay reform. As control variables we include the service level (*SLEV*), sales in other distribution channels not affected by the reform (*SOTHER*) and incoming calls (*INCALL*).

Most of the company's insurance products are sold by private agents and franchise offices. Sales through these channels were not affected by the pay reform, and are included to pick up possible demand side effects in CPS. We also expect the service level to have a separate effect on the CPS. When the service level is low there is congestion on the lines and the team leaders are instructed to give priority to answering calls. Incoming calls can also have a direct impact on CPS. Recall that the teams had to surpass a sales target in order to get a bonus. With heavy traffic on the lines the operators serve many customers. They can reduce their sales effort towards each customer and still reach the sales target.

Sales in other distribution channels and the number of incoming calls are exogenous variables in this equation. The service level on the other hand is affected by the behaviour of the customer service consultants: if the consultants increase their sales effort and sell more insurance they probably need more time to finish each call and this will reduce the service level. To avoid this simultaneously bias we construct an instrument for the service level. We exploit the fact that the service level is strongly auto correlated and regress the service level on lagged service level and on incoming calls (in the same period).²⁰ Equation (2) gives the exact formulation of the instrument.

²⁰ Note that we have utilised the whole panel from 2000-2004 to estimate the service level. We loose one observation for each team by using this instrument.

$$SLEV_t^* = const + slevel_{t-1} + INCALL_t + \varepsilon_t \quad (2)$$

We then use the predicted service level as a regressor in the sales effort equation we estimate, which includes a dummy for each quarter in the post reform period (starting in 2001)

$$CPS_{it} = const + \sum_{j=1}^{16} \beta_j Q_j + \beta_9 SLEV_t^* + \beta_{10} SOTHER_t + \beta_{11} INCALL_t + u_i + \varepsilon_{it} \quad (3)$$

All continuous variables are specified as log values. We have tested different specifications of the equation; fixed effects, random effects with one period autocorrelation (Parks method) and a combined method with both heteroscedasity and autocorrelation (Da Silva method). The choice of method does not alter the results, but the standard errors are smaller in the fixed effects model. It is the results from this model that are reported in Table 2, and illustrated in Figure 2.

The weeks from 38 to 52 in 2000 – the pre-reform period - is a reference for the quarterly dummies. As we can see, except for the first quarter in 2001, CPS is lower in every quarter after the reform was implemented.

The first result that stands out in Table 2 is the drop in CPS in the second quarter of 2001. Compared to the pre-reform quarter the estimated reduction in CPS in Q2-2001 is sharp and large. Comparing with the pre reform period, approximately 11 percent fewer phones are needed in order to sell an insurance product in the second quarter of 2001. In the quarters that followed, until the last two quarters in 2002, there is a slight drop in CPS.

In the second and third quarter of 2003 there is an even larger drop in CPS. This apparent increase in productivity came because the insurance company we study purchased the portfolio of Scandinavian insurance customers from another company. Each contract in this portfolio had to be converted into the customer base of “our” insurance company. The consultants at the service centre were assigned the job, but were reluctant to carry out the work. They claimed it would impede their chances of reaching the sales target in the bonus scheme. To get the job done, the management agreed to let each converted insurance policy count as a sold insurance product. The conversion job started in March 2003 and lasted for approximately half a year. This then explains the large drop in CPS in the 2. and 3. quarter of 2003.

The third pattern that needs an explanation is the reduction in CPS that came during the second and third quarter of 2004 and that levelled off in the last quarter of 2004. We believe this increase in productivity came from the fact that the management individualized the sales bonus. However, we postpone further discussions of this change until we address what the data can tell us about the underlying motivation of the operators.

At this stage we are simply interested in identifying the impact the performance pay had on sales productivity. To this end it is sufficient to focus on the first quarters after the introduction of the reform. The key question then is: Can the drop in CPS that came in the second quarter be attributed to the pay reform that was introduced in the first quarter of 2001. We think so.

Recall that the contract between the management and the workers was not signed before the end of February, and prior to that time the customer service consultants did not know that there would be an agreement and a sales bonus. We believe this is the main reason why we do not observe a drop in CPS in the first quarter of 2001. Another relevant point is that it takes time to fine-tune behaviour to a complicated incentive scheme. We should therefore expect a gradual modification of behaviour. This learning effect cannot explain the sharp drop in CPS in the second quarter, but it can explain some of it, and it can explain why the coefficients in front of every quarter until the last two quarters in 2002 show a decreasing trend.

Based on the results reported in Table 2 we conclude that the pay reform lead to a significant increase in sales effort of the consultants in the customer service centre.

The underlying motivation of the consultants

The fact that the reform increased sales effort does not help us delineate the underlying motivation of the operators. Selfish consultants are inclined to work harder to sell insurance after the introduction of a sales bonus, but so are reciprocity and fairness motivated consultants if they found the pay reform agreeable. There are several reasons to believe that the operators found the reform generous and fair: (i) The management pursued a consensus line and included representatives of the employees in the design process: (ii) The management added the bonus to the existing salary, which implied a substantial wage increase for the employees: (iii) The turn-over rate fell from around 20% before the reform to well below 10% after the reform: (iv) In a survey that was conducted among

the customer service consultants a year after the pay reform almost all (around 80%) of the respondents reported that the bonus scheme had improved their work gratification.

In order to gauge the importance of reciprocity and fairness we must take a closer look at how the customer service consultants responded to the pay reform. One identification strategy is to consider to what extent the operators gamed and exploited the bonus scheme to their own advantage (and to the disadvantage of the firm). As noted in the theoretical section the principal-agent model predicts consultants to exploit the system to their own advantage irrespective of how fair and generous the scheme is. Standard economic agents disregard tasks that are not explicitly rewarded, and they try to find easy ways to improve indicators that are rewarded. If, on the other hand, reciprocity and fairness are strong motivational factors we would expect the consultants to improve their performance in more balanced ways, in order not to harm the company.

In our discussion of the evolution of the bonus scheme we observed that the management altered the bonus plan to cope with multi-task problems. Another pattern indicated in Table 1 is the decline in the “hours logged on” in 2002 and 2003, which again lead to a decline in the service level at the centre. One plausible explanation is that the agents after an initial period where they both logged more on the phone system and answered more phones learned that they could increase their efficiency by being less logged on the phone system. Recall that efficiency was one of the performance indicators in the rank order tournament between the teams and that it was defined as the number of answered calls *divided* on the number of hours that the consultants were logged on the phone system. In Table 1 we can see that in weeks 38 – 52 in 2002 and 2003 the consultants answered fewer phones, but their efficiency nevertheless increased because they were logged less on the phone system.

In order to examine this conjecture we run a regression with (the log of) hours logged on the phone system as the dependent variable, and with a dummy for the three last quarters in 2004. This dummy captures a period when the importance of efficiency as a performance indicator was reduced. In the second quarter of 2004 efficiency was totally eliminated from the scheme, it was reintroduced in the 3. and 4. quarter but in a much weaker form than it had before the 2. quarter of 2004. We have also included a time trend and a dummy for the period when the customer service unit was converting insurance contracts from the acquired company (2. and 3. quarter of 2003). The results from the regression (a fixed effect specification) are reported in Table 3.

As we can see, the time trend in hours logged on the phone system is negative. There is a sharp negative deviation from this trend during the months when the consultants renewed the portfolio of insurance contracts that were acquired from another company. During that period many operators were logged of the system as they converted the acquired portfolio into their own customer base. However, the most interesting result in Table 3 is the positive coefficient in front of the dummy that captures the impact of the last three quarters of 2004. During this period the importance of efficiency in the bonus scheme was drastically reduced. If the negative trend in the time operators spent on the phone system was caused by a strategic adjustment to the bonus scheme, that is, the operators logged off the system to increase their efficiency, we should expect this dummy to be positive. The reason is that when the bonus associated with high efficiency lost its power, the operators had fewer incentives to log off the phone system. This is exactly the result depicted in Table 3, the numbers there indicate that the operators increased their time logged on the phone system with approximately 15% in this period.

This then is yet another indication that the operators exploited the bonus scheme to their own advantage and to the disadvantage of the company. If the operators were strongly motivated by reciprocity and fairness concerns they would not take advantage of the scheme in this way.

Another way we can use our data to assess the importance of fairness and reciprocity motivation, is to consider the workers' response when the management left the consensus line and implemented a new bonus scheme by dictate. It is reasonable to evaluate this change as an unfriendly act by the management. Not only did they violate the procedural fairness of including the workers in the amendment of the scheme, they also put an end to practice of compensating teams if members were missing due to sickness absence. In addition the management individualized the sales bonus. This move towards individual bonuses was against the will of those that represented the workers, they preferred a team based scheme. Hence, if fairness and reciprocity are important motivations we should expect a subsequent drop in the workers productivity.

The new regime was introduced in the second quarter of 2004. If we look at Table 2 there is a distinct *reduction* in CPS in the second quarter of 2004. CPS is also very low in the 3. quarter of 2004, but increases in the 4. quarter of 2004. But even in the last quarter of 2004 the productivity is high compared the last quarter in previous years. Our data then strongly indicate that the new regime *increased the sales effort* of the consultants. Hence, the customer service consultants reacted exactly

opposite of what we should expect if their behavior were heavily influenced fairness and reciprocity considerations.

On the other hand we do not have to stretch the principal-agent model much to explain why the sales effort was higher under the new performance pay regime introduced in the second quarter of 2004. One of the key changes compared to the initial bonus scheme was the introduction of an individual performance bonus. In the second quarter of 2004 half of the sales bonus was based on individual sales, and half of it depended on team sales. In the third quarter the individual part was increased to three quarters of the total sales bonus. The principal-agent model would explain the increase in productivity as an alleviation of the free rider problem associated with a bonus that depended on team performance.

VI CONCLUSION

We have followed the evolution of a pay for performance reform over several years. We have collected detailed data, both on the design and impact of the reform. A first aim of presenting our case was to depict how difficult it is to use explicit performance bonuses in a multifaceted work environment. We think that both the complexity of the initial bonus scheme and its frequent amendment over time, underscores this message.

Our more ambitious goal was to use our data to assess the importance of other-regarding motivations, like fairness and reciprocity, at a workplace. The traditional economic framework used to study the design and impact of economic incentives presumes individuals that are completely self-regarding, individuals that only care about their own material welfare. This assumption does not square well with the results from recent laboratory experiments resembling work relations, which show that principals and agents have social preferences that have important implications for the design and impact of economic incentives.

Our findings are mixed. We argue that the pay reform implemented in 2001 appealed to a broader set of motivations than the selfishness of the operators. There is, however, nothing in the operators' response that indicates a strong fairness and reciprocity motivation. On the contrary, we argue that their adjustment was totally in line with how rational self-seeking agents would respond to

a pay reform. Our data also show that the management adjusted the initial pay reform as they learned more about the motivation and behaviour of the operators.

Compared with recent experimental studies, which find that reciprocity and fairness are strong motivators in work relations, our results are surprising. However, we do not want to overstate this disparity. We are not claiming that other-regarding motivations, such as fairness concerns and reciprocity are non-existent or unimportant at authentic workplaces. A problem with case studies is generalizability: it is difficult to assess to what extent the patterns detected in one case generalize to other cases. There are certain idiosyncrasies associated with the workplace and pay reform we study that need to be taken into account before we apply our findings in a general discussion of reciprocity and fairness motivations at workplaces. For example, we study a workplace where the workforce is young and the turnover is high, which means that most of the employees consider their job as temporary. Furthermore, the degree of surveillance was very high also before the pay for performance reform was introduced. It is possible that this particular work environment does not foster other-regarding motivations, or that it systematically selects individuals that are not reciprocity and fairness motivated.

Another relevant point is that we study a reform where reciprocity and fairness incentives are paired with explicit performance bonuses. It is possible that the presence of explicit monetary incentives totally overshadows other-regarding motivations. If fairness and reciprocity incentives only work well in the absence of explicit performance bonuses, this is in itself an important observation that should be explored further. This finding constitutes one piece in a broader program that examines how different institutions promote or prevent various kinds of motivations, and how these motivations interact with each other.

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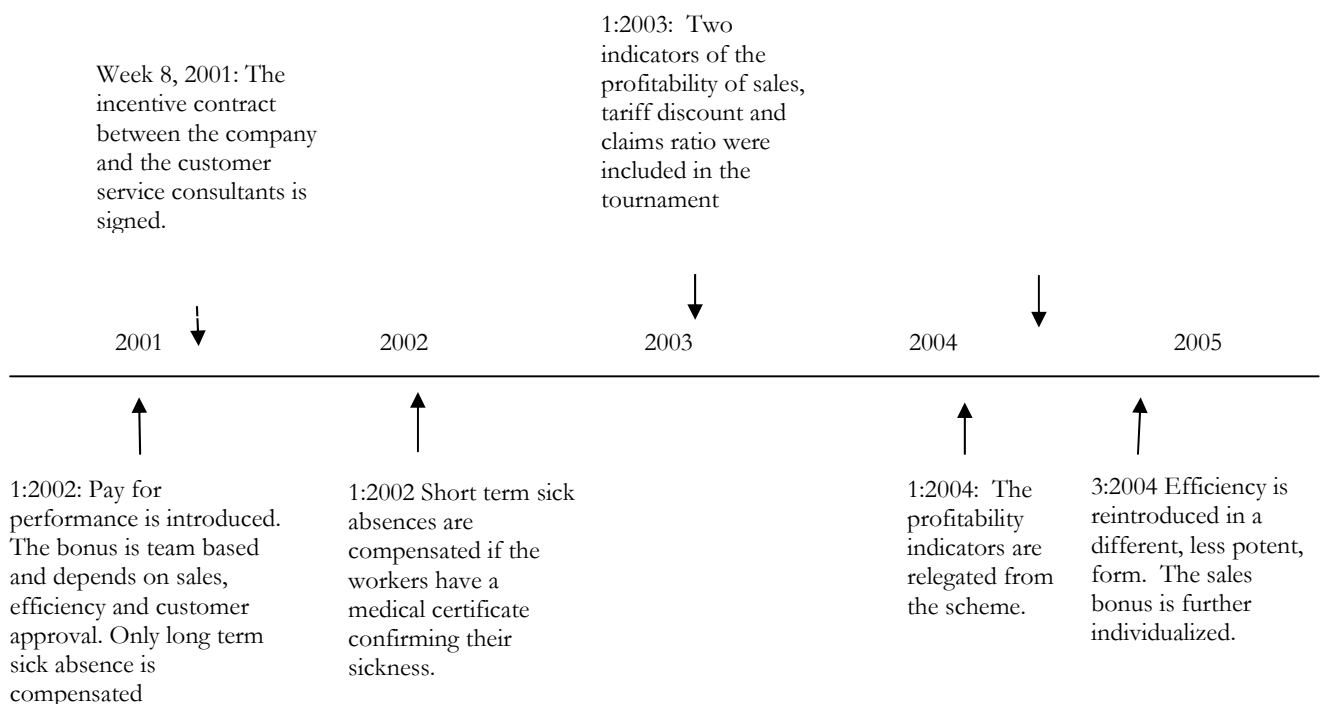
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IX FIGURES AND TABLES

Figure 1: The development of the bonus scheme

2:2004:

The company leaves the consensus line. No compensation for sick absence. Sales bonus partly individualized. Efficiency is abolished and “Quality of work” and customer renewal are introduced as performance indicators. No link between the tournament and the sales bonus.



Note: The number before each year indicates the quarter when the change came.

Table 1:

Summary statistics. Mean and standard deviation for key performance variables and other important variables.

Week 38 - 52	CPS	Efficiency	Hours logged on	Answered calls	Sold products	Service level	Incoming calls. Mean per week
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	Mean (Standard deviation)	Mean (Standard deviation)	Mean (Standard deviation)	Mean (Standard deviation)	Mean (Standard deviation)	Mean (Standard deviation)	Mean (Standard deviation)
2000	8.15 (3.31)	4.10 (0.52)	217.72 (52.10)	893.99 (240.54)	122.31 (47.69)	0.76 (0.05)	12907.00 (2194.15)
2001	7.06 (3.36)	4.49 (0.61)	228.25 (65.20)	998.57 (266.85)	159.55 (61.22)	0.75 (0.13)	14592.20 (2548.59)
2002	7.78 (3.20)	4.69 (0.62)	204.72 (52.00)	959.94 (276.84)	137.64 (55.72)	0.45 (0.29)	16176.50 (2931.85)
2003	7.00 (1.72)	4.96 (0.84)	170.50 (50.40)	853.27 (279.40)	126.05 (44.44)	0.54 (0.17)	16884.70 (3002.56)
2004	6.64 (1.54)	4.27 (0.64)	206.17 (44.30)	879.73 (231.21)	140.60 (52.20)	0.72 (0.10)	14685.50 (1413.17)

Table 2:

Dependent variable is log of CPS. All continuous variables in logs. The period is 2000-2005; Number of observations 1989 (9 teams 221 week) Cross section fixed effects are not shown.

Variable	Estimate (Standard error)
Intercept	1,0718*** (0.4378)
Q ₁ (1. quarter 2001)	0,0260 (0,0337)

Q ₂ (2. quarter 2001)	-0,1083*** (0,0379)
Q ₃ (3. quarter 2001)	-0,1171*** (0,0380)
Q ₄ (4. quarter 2001)	-0,1286*** (0,0374)
Q ₅ (1. quarter 2002)	-0,1461*** (0,0403)
Q ₆ (2. quarter 2002)	-0,1669*** (0,0432)
Q ₇ (3. quarter 2002)	-0,0919** (0,0394)
Q ₈ (4. quarter 2002)	-0,0277 (0,0389)
Q ₉ (1. quarter 2003)	-0,0923** (0,0389)
Q ₁₀ (2. quarter 2003)	-0,2879*** (0,0403)
Q ₁₁ (3. quarter 2003)	-0,2753*** (0,0437)
Q ₁₂ (4. quarter 2003)	-0,1236*** (0,0382)
Q ₁₃ (1. quarter 2004)	-0,1454*** (0,0393)
Q ₁₄ (2. quarter 2004)	-0,2942*** (0,0411)
Q ₁₅ (3. quarter 2004)	-0,2933*** (0,0389)
Q ₁₆ (4. quarter 2004)	-0,1375*** (0,0381)
Sales other channels	-0,0673** (0,0265)
Service level	0,0012 (0,0200)
Incoming calls	0,1585*** (0,0457)
R-squared	0.2267

***Significant at the 1 percent level, **significant at the 5 percent level. Standard errors in parenthesis

Figure 2:

Fixed effects estimates of change in CPS with reference to pre-reform period (year 2000). A two sided 95 percent confidence interval shown as the length of bars.

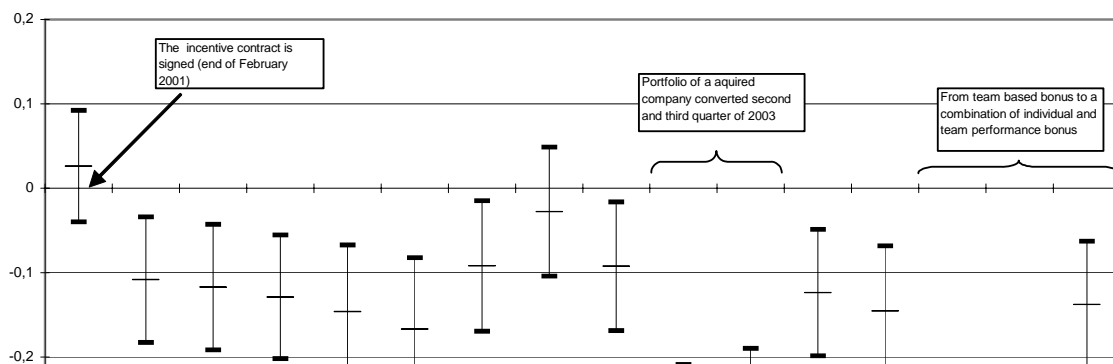


Table 3:

*Dependent variable is log of “hours logged on”. All continuous variables in logs.
The period is 2001-2005; Number of observations 1863 (9 teams, 207 weeks)*

Variable	Estimate (Standard error)
Intercept	-3.9898*** (0.2827)
Linear time trend	-0.0017*** (0.0001)
Dummy for introduction of individual performance measures (from Q2 2004)	0.1204*** (0.0218)
Q ₁₀ (2. quarter 2003)	-0.1271*** (0.0246)
Q ₁₁ (3. quarter 2003)	-0.1987*** (0.0265)
Sales other channels	0.1181*** (0.0207)
Service level	0.2241*** (0.0137)
Incoming calls	0.8899*** (0,0361)
R-squared	0.4624

***Significant at the 1 percent level. Standard errors in parenthesis

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