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Management of the new pay systems in the public sector – some implications of insights gained from experiments

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Abstract

During the last decades new pay systems have been widely introduced in the OECD countries. Experiments draw attention to some aspects which are normally not included in analyses of the new pay systems, namely fairness and reciprocity. Furthermore, the experiments indicate another understanding of what are perceived as gains and losses than what is assumed in conventional economic theory, and an asymmetric evaluation of gains and losses. These insights have important implications for the management of the new pay systems in the public sector.

Keywords: Pay systems, experimental economics

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Indholdsfortegnelse

Introduction

During the last decades, new forms of pay systems known from the private sector have been widely introduced in the public sector in the OECD countries (OECD 2005a, 2005b) as a part of varying forms of New Public Management (Pollitt and Bouckaert 2000). Earlier, nearly all civil servants in the OECD member countries were paid according to salary scales. The pay systems that have been introduced differ from country to country, however, a central feature is pay flexibility, implying the differentiation and individualisation of wages. A superstructure of supplements, and in many countries performance-related pay, is added to basic pay (OECD 2005b). Pay is now a management tool. In Denmark, pay supplements are subject to negotiations between the employer and the employees' union or its local representative, however, the managers have a decisive influence on the allocation of supplements. The public sector employers also stress that managers should actively use pay as a management tool.

Broadly, the changes in the pay systems have the following distinctive features:

The same category of civil servants' wages are differentiated according to managers' discretion. Whilst the earlier system also implied differences in wages for the same type of civil servants, these differences were caused by the pay scale system and were widely related to seniority. In contrast to this, in the new pay systems, differentiations in wages are the result of the deliberate intention of public managers.

Moreover, while the individual employee knew his or her future income as changes were closely related to seniority, the new pay systems imply a considerable uncertainty as regards the future income of the individual employee. An employee can gain either a larger or a lower increase in wages than expected.

These changes raise questions regarding, firstly, how the individual employee will assess and react to wage disparities compared to others, secondly, the significance of the fact that disparities in wages are the consequence of deliberate intention, and, thirdly, how the individual employee will assess and respond to wage supplements which are lower than expected or do not materialize. The answers to these questions have important implications for the management of the pay systems.

Experiments provide insights which have implications for these questions. This paper provides some results from these experiments. It is indicated that the evaluation of a given wage is not only – as it is assumed in conventional economic theory – dependent on the size of the wage. Experiments indicate that perceived fairness and intentions affect how a given wage is evaluated. Furthermore, it is indicated that evaluations of whether changes in wages are considered as gains or losses are not - as it is also assumed in conventional economic theory - dependent on final states. What are considered as gains and losses are dependent on reference points. In relation to the evaluation of changes in wages, expectations concerning these changes become important as they become reference points for evaluation. Moreover, the experiments show reciprocity, which means a tendency to respond kindly towards actions that are perceived to be kind, and hostily towards actions that are perceived to be hostile even if it is costly. Also this contradicts the assumption of rational behaviour and that individuals care only about how much money they get, which is normally the assumption in conventional economic theory. An

implication is that wages and wage disparities perceived as fair, and wage increases in accordance to justified expectations, are not only in the interests of the public sector employees; they are also in the interests of the society at large in order to avoid a negative response from the public sector employees, which could mean lower effort, less engagement and loyalty. Thus, the management of the new pay systems must be undertaken in a way that is viewed as fair by the public sector employees as it is important for a well functioning public sector.

The paper proceeds as follows: First there is a brief presentation of experimental methods together with their advantages and disadvantages. The paper then moves on to examine some important results arising from experiments which cast light on the three questions above. A special group of experiments is designed to investigate the behaviour of experimental employer and employees. The results of the experiments are related to conventional economic theory and field studies. It is concluded that these experiments provide insights which have important implications for the management of the new pay systems. Some implications are discussed and important recommendations to managers are deduced.

Experimental methods

Since the 1980s, there has been a steady increase in the use of experimental methods in economics (Kagel and Roth 1995, Samuelson 2005). A basic problem associated with field studies is that a great number of factors influence the behaviour observed in real life situations. Laboratory experiments provide an opportunity to control the factors, which could influence behaviour, and changes in the conditions can be studied ceteris paribus. An experiment can, for instance, be designed in such a way that the participants only interact once. This means that behaviour cannot be explained by considerations of future interaction.

There are also a number of objections to laboratory experiments (Smith 1994, Binmore 1999, Falk and Fehr 2003). A fundamental objection is that the behaviour in the laboratory can be different from behaviour in real life. As real money is used in the experiments, the number of persons in the experiments is typically small and so are, normally, the amounts at stake. The experimental subjects are self-selected and for practical reasons are often students and this raises questions about representiveness.

An important challenge in relation to experiments is to reveal the aspects that can be of importance for the observed behaviour, which are however not included in the experiment. New experiments can then be carried out to shed light on the importance of these factors by varying the conditions under which the experiments are conducted. For instance, the effect of the stake level can be examined. The rapidly growing research using experimental methods is also characterized by attempts to investigate the effects of varying conditions.

While one type of experiment is designed to reveal preferences by observing actual behaviour under laboratory conditions, another type of experiment investigates reported preferences. In these experiments, subjects are presented with various hypothetical choice problems and asked to answer which of the alternatives they prefer. Here, a fundamental problem is the generalizability of the results from hypothetical situations. The advantage of the first type of experiments is that subjects' real choices and not only hypothetical choices are examined. However, the demand that choices should be real, limits the type of choices which can be studied. For instance, the stakes have to be rather small. Obviously, experiments cannot give final answers. They can, however,

contribute insights, which can be combined with the knowledge gained from field studies or motivate new field studies. Moreover, they can cause reflection in relation to policy makers and policy (Roth 1995a), as with the case of the new pay systems in the public sector which are discussed here.

The Ultimatum Game

A classic experiment is the Ultimatum Game, which since the seminal work of Güth, Schmittberger and Schwarze (1982) has been carried out in a lot of studies under varying conditions.[1] Basically, the game is described as follows. A proposer is provisionally assigned an amount of (real) money and asked to propose an offer to a second person, the responder. The responder may then either accept the offer or reject it. If the offer is accepted, the two players receive the proposed amounts. If the responder rejects the offer, the two receive nothing. The offer of the proposer is an ultimatum, as is suggested by the name of the game: Accept the offer or nothing. The game is of the one-shot type, meaning that interaction only takes place once.

Assuming rational behaviour and that individuals care only about how much money they get - a basic assumption in traditional economic theory - the proposal should be accepted if the responder receives any positive amount. Because the responder would then be better off. Therefore, it would also be rational if the proposer offered the responder the least possible amount. However, the amount offered to the responder is typically much larger. The modal offers are in the range of 40-50 per cent, and often a fifty-fifty split is made.[2] It is also remarkable that offers lower than 20 per cent are rejected with a probability of 40-60 per cent. The experiments have been carried out with the same type of results in many industrialized societies[3] (Camerer 2003, Roth 1995b).

It has been discussed whether a rise in the stake level would change the results (Camerer and Thaler 1995, Rabin 1993: 1284). Obviously, it is difficult to test the results with large stakes as real money is involved. However, the basic results have been replicated for stakes of up to three months' wages, and generally high stakes have only a minor impact on the experimental results (Fehr and Schmidt 2003: 215 ff, Camerer 2003, Roth 1995, Carpenter, Verhoogen and Burks 2005). Moreover, experiments have been carried out with players with different degrees of anonymity and with players of different types, different experience and education and gender. For a summary and references, see Samuelson (2005: 66-67) and Camerer and Fehr (2004: 70-71). Some of such variations matter. However, still the same basic results are reported.

There are several possible explanations of the observation that the proposer typically offers an amount much larger than the least possible.[4] An explanation could be that proposers are fair-minded (Camerer and Thaler 1995: 213). The explanation could, however, also be that the proposer has anticipated that low offers would be rejected with a high rate of probability. That the responders' possibility to refuse is decisive, is indicated by another classic game, namely the dictator game. In a dictator game, a person, a dictator, is assigned an amount

[1] For a survey of conventions in economic experimentation, see Camerer and Fehr 2004.
[2] For a review of results, see Falk, Fehr and Fischbacher (2003: 174) and Roth (1995b).
[3] In other cultures the results differ remarkably (Henrich et al. 2004).
[4] A number of possible explanations is discussed in Fehr and Schmidt (2003), Falk, Fehr and Fischbacher (2003) and Binmore (1999).

and asked to propose an offer to a second person, the responder. The responder must accept any proposal. Often something is given to the other person, but the size varies according to the design of the experiments (Camerer and Thaler 1995, Roth 1995b). The offers in the dictator game are, however, much lower than in the ultimatum game. An interpretation of the responder's behaviour in the ultimatum game is that the responder reacts against being treated unfairly and this is anticipated by the proposer. Therefore the proposer offers an amount so large that it is expected the offer will be accepted.

Reciprocity

The behaviour of the responder can be described by the term reciprocity. Reciprocity means a tendency to respond kindly to perceived kindness and unkindly to perceived unkindness even when it is costly to respond and yields neither present nor future material rewards (Fehr and Gächter 2000, Fehr and Fischbacher 2005). A tendency to respond kindly to perceived kindness is termed *positive* reciprocity, and a tendency to respond unkindly to perceived unkindness is termed *negative* reciprocity. The behaviour of the responder in the ultimatum game indicates negative reciprocity. It is important to stress that the behaviour is not strategically motivated. The behaviour of the responder is not motivated by considerations about the proposer's offer in a later run of the ultimatum game, because the game is only played once. Reciprocity is a property of preferences. Sobel (2005) uses the term intrinsic reciprocity[5], while others use the term strong reciprocity (Fehr and Fischbacher 2005). This is quite different from instrumental reciprocity, which is the result of optimizing actions of selfish agents who are responding to kindness with kindness or unkindness with unkindness to influence behaviour in the future. This type of reciprocity could be called strategic reciprocity. While instrumental or strategic reciprocity can lead to deviations from a self-interested behaviour in repeated games, intrinsic or strong reciprocity can cause deviations even in one-shot games as in the ultimatum game.

A crucial question is, then, how people evaluate whether an action is kind or unkind. The evaluation could depend on *outcomes*. This means that the interpretation depends on the distributional *consequences*. In the ultimatum game, the responder's evaluation would then be based on the distributional consequences of the proposer's action. The interpretation of the responder's behaviour is therefore that the responder rejects an offer because it is viewed as unkind if the distribution between the responder and proposer is too unequal. A model based on an idea of inequity-aversion, which means that individuals resist inequitable outcomes and are willing to give up some material payoff to move in the direction of more equitable outcomes, was formulated by Fehr and Schmidt (1999).[6] The inequity-aversion was self-centered, meaning that people suffer more from inequity that is to their disadvantage than from inequity that is to their advantage. They are to a larger extent willing to give up some material pay off if it reduces an inequity which is unfavourable for themselves, than if it is favourable (Fehr and Schmidt 1999: 818).

Intentions matter

A number of experiments indicate, however, that the intention is decisive for the evaluation of whether an action is perceived as kind or unkind. If the

[5] For various reciprocity concepts, see Sobel (2005).

[6] A similar early outcome-based model was formulated by Bolton and Ockenfels (2000). The dislike for inequality was, however, not asymmetric as in the model of Fehr and Schmidt.

unequal distribution in the ultimatum game is a matter of chance, as it is the case when the offer to the responder is generated by a random mechanism, responders who are informed about this condition are far more inclined to accept a small share than if the same small offer is the deliberate intention of the proposer (Blount 1995). An interpretation of this experiment could be that the distribution is viewed as procedurally fair, and this is the reason for a higher tendency to accept small offers (Bolton and Ockenfels 2005: 958). This reason could, however, not explain the behaviour in the ultimatum game in another experiment in which the same procedure was used in two different treatment conditions. In this experiment, the the proposer's alternatives are restricted to two, and the responder is informed about that. In the first condition, the proposer must choose between a 80:20 and a 50:50 split. In the second condition, the proposer must choose between a 80:20 and a 20:80 split. So while an equal split was feasible in the first condition, it was not feasible in the other. It turned out that the split 80:20 was rejected significantly less often when an equal split was not feasible (Fehr and Schmidt 2003: 224). With more than two alternatives, the probability of a rejection of a given unequal split is larger the more equal split it is possible to make (Falk, Fehr and Fischbacher 2003).

An interpretation of this is that the same distribution, dependent on the conditions, can give different signals about the proposer's intentions of being fair, and the different signals trigger different behavioural responses. That intentions matter is also in accordance with experiences from daily life. If damage is caused by intention, the reaction will be stronger than if it is caused by accident. In a summary of results of experiments investigating the significance of intentions, it is also concluded that "Intentions matter. Of course this insight can only be surprising to us economists".... (Oechssler 2003: 197).

Furthermore, there is experimental evidence that negative intentions provoke much stronger reciprocal responses than positive ones (Offerman 2002). Abbink et al. (2000) also found that hostile actions are much more consistently punished than friendly actions are rewarded.

That intention alone cannot explain the behaviour of the responder in the ultimatum game is indicated by an experiment in which the proposer did not have any alternative to the 80:20 split and the responder knew that. If only intentions induce the response, the responder should accept the offer of 20 per cent in all cases. This was however not the case (Falk, Fehr and Fischbacher 2003). Neither could intentions alone explain the behaviour of the proposer, as the proposer has nothing to respond to in the ultimatum game and the dictator game[7].

[7] An early model that incorporated intentions was formulated by Rabin (1993). This model has been developed further by Falk and Fischbacher (Falk and Fischbacher 2006) who incorporate both the concern for the outcome per se as well as for the underlying intention. Bolton and Ockenfels (2005) argue for distribution models, however, the assessments of outcomes are dependent on a reference point conditioned of feasible actions. A basic problem related to the development of models is the potential conflicts between more complicated models, providing more precise predictions under rather specific conditions, and more simple models, giving reasonable predictions under a wider range of conditions (Samuelson 2005).

Wages and effort

The assumption that fairness is important in social interaction is well known from sociological theory. That an individual will try to establish a balance between input and outcomes in social interaction is known from 'equity theory' (Adams 1965). In a seminal work 'Labor Contracts as Partial Gift Exchange' Akerlof (1982) argued that wages could be interpreted as part of a gift exchange in which the level of the wage affects the employees' norm for what a fair effort is.[8] Akerlof and Yellen (1990) developed the idea further to a fair wage-effort hypothesis. According to this, employees have a conception of a fair wage; if the wages are less than the fair wage, the effort is also smaller than it would be if the wage was 'fair'.[9]

A special group of experiments have been designed to investigate the behaviour of experimental employers and employees. Several of these experiments show that employees respond to the level of their wages in a way which could be interpreted as reciprocal behaviour (Fehr, Kirchsteiger and Riedl 1993, Hannan et al 2002, Brandts and Charness 2004). In an experiment, experimental employers offered a wage contract that stipulated a wage and a desired level of effort (Fehr, Kirchsteiger and Riedl 1993). Experimental workers decided whether they would accept the offered contract, and if they decided to do so, they afterwards chose the effort level. To spend effort is associated with costs for the workers. The larger the effort spent, the larger is the outcome for the employer, however the larger is also the costs for the employee.[10] The employers could not enforce the level of effort desired. The workers make their choices after wages have been fixed and there is no monitoring or sanctioning of any kind. The contract is then incomplete, as important aspects are not contracted in a way that can be verified by a third party. It was found that for many of the experimental workers, the choice of effort level was dependent on the level of the wages they were offered. The response to generous wages is from many workers a generous effort. The larger the wage is, the larger the effort. However, there are considerable individual variations.

It is indicated that a close relationship between wages and effort is anticipated by the employers under conditions in which the contract is incomplete. If the employer cannot control the level of effort, the wages are not competed down to the level that would bring a balance between supply and demand of labour. Instead, the employers offer a higher wage, as is suggested by the experiment above. In an experiment (Fehr and Falk 1999) experimental firms could offer wages and experimental workers could give wage bids. Every worker and every firm always knew all offers and bids that had been submitted so far. The number of workers exceeded the number of jobs. Just as in the experiment above, the firm could not control the worker's effort. A firm could only employ one worker and a worker could accept only one job. Both firms and workers earned a profit of zero if they did not conclude a contract. To accept a job was for the workers associated with costs, given as 20. The number of workers was larger than the number of jobs. The surplus of workers means that the wage creating equilibrium between demand and supply then was 20. The wage level was, however, not competed down to this level. Massive underbidding by the

[8] The same idea was suggested early by Solow (1980).

[9] In the model of Akerlof and Yellen, the relation between wages and effort is based on psychological considerations, while the classic Shapiro-Stiglitz model (1984) assume that a higher wage level is associated with a higher effort level as the costs of being dismissed in case of shirking is increased. For a review of various types of efficiency wage models, see Yellen (1984).

[10] The game is called a gift exchange game (Fehr, Kirchsteiger and Riedl 1993).

workers was observed, as a consequence of the competition for the scarce jobs. In spite of that, the employers rejected low wage offers and did not hire the employees with the lowest wage offers. The employers' wage offers were on average higher than the level of the workers' bids. It was also observed that the effort level chosen by the workers reflected the wage level. The larger the wages were, the larger was the effort.

For comparison, a similar experiment was carried out, however, it differed as effort was exogenously fixed. This contract was complete. Under these conditions, the employers took advantage of the workers' underbidding. In contrast to the earlier case, the wage level converged at the equilibrium level.

The differences between the two results could be interpreted in the light of reciprocity. With an incomplete contract, a reciprocal worker is able to punish the employer by choosing a low effort level (Fehr and Falk 1999). Firms anticipating this will be induced to pay generous wages. With a complete contract, the workers do not have the opportunity to punish the firm by choosing a low level of effort. The only method for a worker to punish a firm which offers a low wage is to reject the low offer. Although reciprocal workers did that, others who are only interested in their own material outcome, would choose to accept the low wage offer. Thus, reciprocal employees have no possibility to punish firms, and they are therefore induced to accept low wage offers too. Employers who anticipate this are not induced to offer generous wages.

In a large American survey based on interviews, Bewley (1999) examined why only a few firms reduced the level of wages during the recession in the early 1990's. It was found that employers were reluctant to cut pay because they believed that it would adversely affect work morale and cause a decrease in productivity.[11] There is also strong evidence that the quality of Firestone tyres decreased significantly after the management, in 1994, announced that it wanted to reduce the wages of new hires by 30 per cent (Fehr and Falk 2002: 692).

Experiments based on questions in which the responders are asked to answer whether various hypothetical dispositions are viewed as fair or not, indicate that the assessment of whether wage cuts are viewed as fair depends on the situation. If the company is loosing money, a larger fraction of people find it fair to reduce wages than if it is done to exploit unemployment (Kahneman et al.1986: 733).

Considerable downward wage rigidities are an empirical phenomenon confirmed by many studies, see Bewley (1999) and Dufwenberg and Kirchsteiger (2000) for summaries and references.

Repeated games

The experiments above have been one-shot games. It is remarkable that even in the situations in which the actors interact only once, there are a number who behave as reciprocal actors. The fraction of subjects who show a concern for fairness and behave reciprocally in one-shot situations is, based on a number of studies, reported as being between 40 and 66 per cent (Fehr and Gächter 1998a: 847, Fehr and Gächter 2000: 162). Between 20 and 30 percent of the subjects

[11] In conditions of inflation real wages can be reduced without reducing the nominal wages. However, Fehr and Götte (2005) found evidence for wage rigidity also under conditions with low inflation environment.

do not reciprocate and behave completely selfishly being only interested in their own material payoff.[12]

In labour relations, actors interact again and again. Experiments made as repeated games in which actors meet each other again, implying that behaviour in one period can have consequences for the behaviour in the next period, show that under these circumstances a larger fraction act as reciprocal actors (Gächter and Falk 2002, Fehr and Falk 2002).

Loss and loss aversion

It is indicated by experiments that what are considered as gains and losses is based on reference points rather than on final assets as is the assumption in conventional economic theory (Kahneman and Tversky 1979). The choice of reference point is then decisive for what is considered as a loss or gain. The reference point can be formed by expectations. For example, an unexpected tax withdrawal from a monthly pay check is experienced as a loss and not as a reduced gain. Similarly a smaller loss than expected can be interpreted as a gain (Kahneman and Tversky 1979: 286).

Furthermore, experiments indicate an asymmetry in the evaluation of gains and losses, termed loss aversion: Losses loom larger than corresponding gains. The positive value of gaining a given amount is less than the negative value of loosing the same amount (Kahneman and Tversky 1979: 279 ff.). More generally, the impact of a difference on a dimension is generally greater when the difference is evaluated as a loss, than when the same difference is evaluated as a gain (Tversky and Kahneman 1991).

Experiments: Some implications in relation to the new pay systems

The experiments provide insights with important implications for the management of pay systems. The ultimatum game indicates a widespread tendency to respond negatively reciprocally on offers which are seen as unfair. An implication of negative reciprocal behaviour is that employees who perceive their wage to be unfair will respond in a negative way. Perceived unfairness, then, is not only a problem for the individual employee, but also for the employer to the extent that the employees respond negatively. The response may depend on the type of job and the degrees of freedom in the job. Most employees in the public sector have discretion over the work effort, at least in relation to the qualitative dimensions. The reaction could be less effort, less loyalty, less engagement, initiative and service in relation to users, clients and citizens which all in all reduce the quality of welfare services.

The indications that intention is of importance for the evaluation of a situation has also important implications for pay systems. A wage system based on seniority imply differences in wages which could be considered unfair. These differences are, however, inherent in the pay system. Under the new pay system, individual pay differences are widely caused by differences in pay supplements, which are provided according to the managers' discretion. This means that wage differences are the consequence of the managers' intentions. Wage differences, which are viewed as unfair, could then to a larger extent induce a negative response than wage differences which are the consequence of a seniority based pay system and not the intention of the managers.

[12] Not all can be classified to fall into the two categories.

Considerations about effectiveness in the public sector point to the importance of avoiding wages being perceived as unfair. This means that the managers should devote effort to ensuring that there is a broad acceptance of criteria for supplements and bonuses and that supplements and bonuses are allocated loyally in accordance with the criteria. Negative responses to differentiations in wages, which are considered to be unfair, are an argument for being cautious with differentiations when the basis for the differentiation is uncertain or when it due to other reasons could not be expected that differentiations will be accepted as fair.

Evaluation of fairness: The reference actors

When fairness judgments are made by comparison to another or others, who are reference actors for the comparison, a question arises as to who the reference actors are. For an employee, relevant reference actors are colleagues in the same organisation (Fehr and Fischbacher 2002, Akerlof and Yellen 1990).

Right of access to documents in the public sector, as in Denmark, means that employees have possibilities to compare their wages with colleagues in their own organisation (Bregn 2003). These possibilities do not exist for employees in the private sector. Taking colleagues in the same organisation as the relevant reference group implies that an employee could view his wage as unfairly low although it is higher than the wage which could be otherwise obtained. Employees could then perceive that they are treated hostilely, even if their wage is higher than the wage for similar jobs in other organisations. Again the effect could be a negative response on the account of the quality of public services depending on the specific conditions of the job. With the employees in the same organisation as the reference group for comparisons of wages, wage differences viewed as unfair can lead to demotivated employees who are remaining in the same organisation. If the wage is larger than what alternatively could be obtained, it is impossible to find another job without realizing a wage decrease. Such a decrease would be a loss, which is sought to be avoided. It is then, not only important to be aware that the general level of wages is reasonable, but also to draw attention to the importance of perceived fairness in the internal wage relations.

That people care about their relative incomes and not only the absolute income is found in a number of studies (Clark and Oswald 1996, Loewenstein et al 1989, Solnick and Hemenway 1998). Shafir, Diamond and Tversky (1997: 350) asked subjects to consider two individuals who graduated from the same college and upon graduation took similar jobs in two similar firms. The first started with a salary of $36,000 in a firm where the average starting salary was $ 40,000 while the other started with a salary of $ 34,000 in a firm where the average starting salary was $ 30,000. While the first then had a higher absolute salary, the other had a higher income relative to her co-workers. When 180 subjects were asked whom of the two was happier with her job situation 80 per cent chose the person with the lower absolute salary, but better relative position. When another group of respondents were asked who they thought was more likely to leave her position for another firm, 66 per cent chose the person with the higher absolute salary but the lower relative position.

Evidence from some experiments indicate that many subjects compare themselves with other people in the group and not just to the group average or the group as a whole, however the evidence is mixed (Fehr and Schmidt 2003, Bohnet and Zeckhauser 2004).

Loss and loss aversion: some implications

The experimental results according to which reference points determine whether changes are seen as gains and losses, suggest that expectations to supplements are important. If an employee expects a supplement, the award of a supplement could be the reference point for the evaluation of what is a gain or a loss. It is then perceived as a loss if a supplement is not obtained. Even a wage increase could be considered as a loss if a larger increase was expected. The perception of being inflicted a loss could then trigger a negative response. To avoid this, justified expectations should be fulfilled and expectations be realistic. A tendency to optimistic expectations or a self-serving bias in evaluations (Kahneman and Tversky 1979, Camerer 1995, Babcock and Loewenstein 1997, Gilovich et al. 2002) implies the importance of managers contributing actively to a realistic formation of expectations. It is an essential task for the management to inform employees about criteria and the expected possibilities for wage increments. Furthermore, the allocation of supplements should be provided in accordance with the criteria.

A consequence of loss aversion and evidence indicating that negative intentions are more likely to cause response than are positive intentions, could be that the negative reactions from employees who are not receiving supplements or are receiving supplements smaller than what is expected and viewed as fair, could exceed the gain of providing supplements. This too is an argument for careful consideration concerning differentiations, in particular if there is not a formation of expectations, which implies that differentiations will be viewed as fair.

In particular the cessation of supplements can because of loss aversion be considered as a hostile action with negative implications for motivation and efficiency. Non-permanent supplements could then have negative implications for motivation and efficiency. When supplements that are not permanent are provided, it is decisive that the management supports a realistic formation of expectations concerning wages in the future, such that it is well known for the employee whether and under which conditions supplements could be withdrawn.

Conclusion

The new pay systems introduced in the public sector, not only in Denmark but also widely in the OECD countries, mean the wages for the employees in the public sector are individualised and differentiated, and that the future situation with respect to income is no longer known. Experiments suggest that analyses of the new pay systems should include considerations concerning fairness, which are not included in conventional economic analyses. Furthermore, they should consider the implications of a behavioural assumption of reciprocity, which is different from the assumption of pure self-interest in conventional economic theory. Moreover, it should be taken into consideration that what is perceived as gains and losses is dependent on reference points. This means that what is perceived as gains and losses in relation to wages are not necessarily equal to wage changes as it is the assumption in conventional economic theory.

In particular, attention is drawn to the importance of wages which the employees perceive as fair. Lack of perceived fairness in wages based on performance is found in many studies (Marsden and French 1998, Marsden 2004, OECD 1997, 2005b, Milkovich og Wigdor 1991). To avoid this is important not only to take care of the employees and the working environment, however, to a considerable extent for efficiency reasons because of negatively

reciprocal responses to differences in pay that are seen as unfair. The fact that differences in pay within the new pay systems – in contradiction to the differences with pay systems based on seniority - are the consequence of deliberate choice, increases the potential negative responses to those differences, which are viewed as unfair. This raises considerable challenges concerning the management of the pay system.

That evaluations of whether wage changes are considered as gains or losses are based on reference points means that even a wage increase can be perceived as representing a loss if a larger increase was expected. This together with loss aversion implies that attention should be drawn to the managers' responsibility for realistic formation of expectations and provision of supplements and bonuses implying that reasonable expectations are met.

Considerations about avoiding wage differences viewed as unfair, as well as considerations about avoiding negative responses to losses and loss aversion, suggest a considerable cautiousness in relation to wage differences if the basis for the differentiations is uncertain, if the managers are not trusted, or if it because of other reasons, could not – as least for the moment – be expected to be viewed as fair by the employees in general.

References

Abbink, Klaus, Bernd Irlenbusch and Elke Renne (2000), 'The Moonlighting Game. An Experimental Study on Reciprocity and Retribution', *Journal of Economic Behavior and Organization*, 42(2): 265-77.

Adams, J. Stacy (1965), 'Inequity in Social Exchange', in Leonard Berkowitz (ed.), *Advances in Experimental Social Psychology*, vol. 2, pp. 267-99. New York: Academic Press.

Akerlof, George A (1982), 'Labor Contracts as Partial Gift Exchange', *Quarterly Journal of Economics*, 97(4): 543-569.

Akerlof, George A. and Janet L. Yellen (1990), 'The Fair Wage-effort Hypothesis and Unemployment', *Quarterly Journal of Economics*, 105:(2): 255-83.

Babcock, Linda and George Loewenstein (1997), 'Explaining Bargaining Impasse: The Role of Self-serving Biases', *Journal of Economic Perspectives*, 11(1): 109-26.

Bewley, Truman F. (1999). *Why wages don't fall during a recession*. Camb., Mass.: Harvard University Press.

Binmore, Ken (1999), 'Why Experiment in Economics', *Economic Journal*, 109(453):F16-24.

Blount, Sally (1995), 'When Social Outcomes Aren't fair: The Effect of Causal Attributions on Preferences', *Organisational Behavior and Human Decision Processes*, 63(2): 131-44.

Bohnet, Iris and Richard Zeckhauser (2004), 'Social Comparisons in Ultimatum Bargaining', *Scandinavian Journal of Economics*, 106(3): 495-510.

Bolton, Gary E. and Axel Ockenfels (2000), 'ERC: A theory of Equity, Reciprocity, and Competition', *American Economic Review*, 90(1): 166-193.

Bolton, Gary E. and Axel Ockenfels (2005), 'A Stress Test of Fairness Measures Of Social Utility', *Economic Theory,* 25(4): 957–982.

Brandts, Jordi and Gary Charness (2004), 'Do Labour Market Conditions Affect Gift Exchange? Some Experimental Evidence, *Economic Journal*, 114(497): 684–708.

Bregn, Kirsten (2003), 'Økonomiske incitamenter på det offentlige arbejdsmarked gennem nye lønformer' in Kirsten Bregn (red.) (2003): *Økonomiske incitamenter og markeder - i offentlig organisation og regulering*, pp. 47-66. København: Jurist og Økonomforbundets forlag.

Camerer, Colin (1995), 'Individual Decision Making', in John H. Kagel and Alvin E. Roth, (eds.), *Handbook of Experimental Economics,* pp. 587-703. Princeton: Princeton University Press.

Camerer, Colin F. (2003), *Behavioral Game Theory*. Princeton: Princeton University Press.

Camerer, Colin F. and Ernst Fehr (2004), 'Measuring Social Norms and Preferences Using Experimental Games', in Joseph Henrich et al., *Foundations of Human Sociality,* pp. 55-95.Oxford: Oxford University Press.

Camerer, Colin and Richard H. Thaler (1995), 'Anomalies, Dictators and Manners', *Journal of Economic Perspectives*, 9 (2): 209-219.

Carpenter, Jeffrey, Eric Verhoogen, and Stephen Burks (2005), 'The Effect of Stakes in Distribution Experiments', *Economics Letters*, 86(3): 393-398.

Charness, Gary, Guillaume R. Frechette and John H. Kagel (2004), 'How Robust is Laboratory Gift Exchange?'*Experimental Economics*, 7(2): 189–205.

Clark, A.E. and A.J. Oswald (1996), 'Satisfaction and Comparison of Income', *Journal of Public Economics*, 61(3): 359-8.

Dufwenberg, Martin and Georg Kirchsteiger (2000), 'Reciprocity and Wage Undercutting', *European Economic Review*, 44(4-6): 1069-1078.

Falk, Armin and Ernst Fehr (2003), 'Why Labour Market Experiments?' *Labour Economics*, 10(4): 399-406.

Falk, Armin, Ernst Fehr and Urs Fischbacher (2003), 'Reasons for Conflict: Lessons from Bargaining Experiments', *Journal of Institutional and Theoretical Economics*, 159(1): 171-87.
Falk, Armin and Urs Fischbacher (2006), 'A theory of Reciprocity', *Games and Economic Behavior*, 54(2): 293–315.
Fehr, Ernst and Armin Falk (1999), 'Wage Rigidity in a Competitive Incomplete Contract Market', *Journal of Political Economy*, 107(1): 106-34.
Fehr, Ernst and Armin Falk (2002), 'Psychological Foundations of Incentives', *European Economic Review*, 46(4-5): 687-724.
Fehr, Ernst and Simon Gächter (1998), 'Reciprocity and Economics: The Economic Implications of Homo Reciprocanans', *European Economic Review,* 42(3-5): 845-59.
Fehr, Ernst and Simon Gächter (2000), 'Fairness and Retaliation: The Economics of Reciprocity', *Journal of Economic Perspectives*, 14(3): 159-81.
Fehr, Ernst and Lorenz Götte (2005), 'Robustness and Real Consequences of Nominal Wage Rigidity', *Journal of Monetary Economics*, vol. 52(4): 779-804
Fehr, Ernst and Urs Fischbacher (2002), 'Why Social Preferences Matter - The Impact of Non-Selfish Motives on Competition', Cooperation and Incentives, *Economic Journal*, vol.112(478): C1-C33.
Fehr, Ernst and Urs Fischbacher (2005), 'The Economics of Strong Reciprocity', in Herbert Gintis et al., *Moral Sentiments and Material Interests: The Foundations of Cooperation in Economic Life*, pp. 151-91. Mass.:MIT books.
Fehr, Ernst, Georg Kirchsteiger and Arno Reidl (1993): 'Does Fairness Prevent Market Clearing? An Experimental Investigation', *Quarterly Journal of Economics*, 108(2): 437-60.
Fehr, Ernst and K.M. Schmidt (1999), 'A Theory of Fairness, Competition and Cooperation', *Quarterly Journal of Economics*, 114(3): 817-68.
Fehr, Ernst and K.M. Schmidt (2003), 'Theories of Fairness and Reciprocity - Evidence and Economic Applications' in Dewatripoint, M. et al. (eds.), *Advances in Economics and Econometrics*, vol. 1: 208-57. New York: Cambridge University Press.
Gilovich, Thomas, Dale Griffin and Daniel Kahneman (eds.) (2002), *Heuristics and Biases*. Cambridge: Cambridge University Press..
Gächter, Simon and Armin Falk (2002), 'Reputation and Reciprocity: Consequences for the Labour Relation', *Scandinavian Journal of Economics*, 104 (1): 1-27.
Hannan, R. Lynn, John H. Kagel and Donald V. Moser (2002), 'Partial Gift Exchange in an Experimental Labor Market: Impact of Subject Population Differences, Productivity Differences, and Effort Requests on Behavior', *Journal of Labor Economics*, 20(4): 923-51.
Henrich et al. (2001), 'In Search of Homo Economicus: Behavioral Experiments in 15 Small-scale Societies', *American Economic Review*, 91(2): 73-78.
Kagel, John H. and Alvin E. Roth (eds.),(1995), *Handbook of Experimental Economics*, Princeton: Princeton University Press.
Kahneman, Daniel and Amos Tversky (1979), 'Prospect Theory: An Analysis of Decision under Risk', *Econometrica*, 47, (2): 263-91.
Kahneman, Daniel et al. (1986), 'Fairness as a Constraint on Profit Seeking', *American Economic Review*, 76, (4): 728-41.
Loewenstein, George F., Leigh Thompson and Max H. Bazerman (1989), 'Social Utility and Decision Making in Interpersonal Contexts', *Journal of Personality and Social Psychology*, 57(3): 426-41.
Marsden, David and Stephen French (1998): *What a performance. Performance related pay in the Public Services*, Centre for Economic Performance, London School of Economics and Political Science.

Marsden, Richard (2004), 'The Role of Performance-Related Pay in Renegotiating the "Effort Bargain": The Case of the British Public Service', *Industrial and Labor Relations Review*, 57, (3): 350-70.
Milkovich, George T. and Alexandra K. Wigdor with Renae F.Broderick and Anne S. Mavor (eds.) (1991): *Pay for performance: Evaluating performance appraisal and merit pay*. Committee on Performance Appraisal for Merit Pay, Commission on Behavioral and Social Sciences and Education, National Research Council Washington, D.C.
OECD (1997). *Performance Pay Schemes for Public Sector Managers. An Evaluation of the Impacts*. Public Mangament Occasional Papers No. 15.
OECD(2005a), *Modernising Government: The Way Forward.*
OECD (2005b), *Performance-related Pay Policies for Government Employees.*
Oechssler, Jörg (2003), 'Intentions Matter: Lessons from Bargaining Experiments', *Journal of Institutional and Theoretical Economics,* 159(1): 195-98.
Offerman, Theo (2002), 'Hurting Hurts More than Helping Helps', *European Economic Review*, 46(8): 1423-37.
Pollitt, C. and G. Bouckaert (2000). *Public Management Reform: A Comparative Analysis*. Oxford: Oxford University Press.
Rabin, Matthew (1993), 'Incorporating Fairness into Game Theory and Economics', *American Economic Review*, 83(5): 1281-1302.
Roth, Alvin (1995a), 'Introduction to Experimental Economics' in John H. Kagel and Alvin E. Roth, (eds.), *Handbook of Experimental Economics,* Princeton: Princeton University Press.
Roth, Alvin (1995b), 'Bargaining Experiments' in John H. Kagel and Alvin E. Roth (eds.). *Handbook of Experimental Economics*, Princeton: Princeton University Press.
Samuelson, Larry (2005), 'Economic Theory and Experimental Economics', *Journal of Economic Literature*, 43(1), 65-107.
Shafir, Eldar, Peter Diamond and Amos Tversky (1997), 'Money Illusion', *Quarterly Journal of Economics*, 112 (2): 341-74.
Shapiro, C. and J. Stiglitz (1984), 'Equilibrium Unemployment as a Worker Discipline Device', *American Economic Review*, 74 (3): 433-44.
Smith, V. L. (1994), 'Economics in the Laboratory', *Journal of Economic Perspectives*, 8(1): 113–131.
Sobel, Joel (2005), 'Interdependent Preferences and Reciprocity', *Journal of Economic Literature*, vol. 43(2): 392-436.
Solnick, Sara J. and David Hemenway (1998), 'Is More Always Better? A Survey on Positional Concerns', *Journal of Economic Behavior & Organization*, 37(3): 373-383.
Solow, Robert M. (1980), 'On Theories of Unemployment', *American Economic Review*, 70(1): 1-11.
Tversky, Amos and Daniel Kahneman (1991), 'Loss Aversion in Riskless Choice', *Quarterly Journal of Economics*, 106 (4): 1039-61.
Yellen, J. (1984), 'Efficiency Wage Models of Unemployment', *American Economic Review*, 74, (2): 200-205.