Explaining Resistance to Change: Some Experimental Evidence and Implications

Philipp Krügel,[a,*] and Stefan Traub[a]

[a]*Department of Economics & FOR 2104, Helmut-Schmidt-University Hamburg, Germany*

May, 2015

Abstract We experimentally study the conditions under which employees resist organizational changes. We assume that such reforms can only be implemented if the personnel provides a minimum level of effort. Our experimental design combines a threshold contribution game with an element of gift exchange. We find that uncertainty over payoffs does not necessarily lead to a rejection of reforms that increase inequality. This is in particular the case if the employer is able to trigger reciprocal behavior in employees by offering a 'fair' wage. However, many implemented reforms are inefficient as employees fail to coordinate to the threshold equilibrium.

Keywords: Resistance to Change, Reciprocity, Social Preferences, Risk Aversion, Experiment

JEL classification:

*Corresponding author. Helmut-Schmidt-University Hamburg, Holstenhofweg 85, 22043 Hamburg, Germany, kruegel@hsu-hh.de.

1 Introduction

Organizational change in firms is often met with the personnel's resistance. How to overcome this resistance is a major theme in the literature on change management (see Coch and French, 1948; Kotter and Schlesinger, 1979; Dent and Goldberg, 1999, among others). Resistance is an elusive term. It may take a variety of passive and active forms – employees may be less motivated, would openly protest, or expend less effort (Judson, 1991). Such expressions of dissatisfaction may result in lower output, eventually forcing the employer to renounce the organizational reform. In fact, a large number of organizational changes cannot be implemented successfully.[1] The aim of the present paper is to investigate experimentally the conditions under which organizational reforms succeed if the personnel's approval in terms of expending high effort is pivotal.

In our theoretical model, the reform can only be implemented if employees collectively provide a minimum level of effort, implying that employers abandon organizational changes whenever the costs of resistance outweigh the benefits of the proposed change. Under this presupposition, employees are able to 'vote on' reforms by choosing their effort. The game has two Nash equilibria: A symmetric no-reform equilibrium in which the reform is rejected because the complete personnel chooses low effort, and an asymmetric reform-equilibrium, in which a qualified majority of employees chooses high-effort while the remaining personnel chooses low effort. Our working hypothesis is that reform equilibria should not occur if employees act as pay-

[1] Kotter (1995, 2008) estimates that up to 70 % of major change efforts in organizations fail. This is supported by a recent study by McKinsey (Aiken and Keller, 2009). One of the primary reasons for failure is seen in resistance by employees (Maurer, 1996; Lawrence, 1954; Bovey and Hede, 2001; Waldersee and Griffiths, 1997).

off maximizers with self-regarding preferences. However, the employer might be able to trigger reciprocal behavior and also minimize free-riding in her employees by offering a 'fair' wage. Moreover, employees might be guided in their effort choices by social preferences and risk attitudes rather than selfish payoff maximization.

The model is tested by means of a laboratory experiment. We combine a binary-choice threshold contribution game with an element of gift exchange. Each group consists of an employer and five employees (the personnel). First, the employer chooses a wage (low, high). Then, the employees simultaneously decide on their effort levels (low, high). If a qualified majority 'votes' for the more costly high effort option, a reform is put into place. The reform is efficiency enhancing but it also increases inequality among the employees.

We observe a low number of equilibrium outcomes. Uncertainty does not lead to a rejection of reforms per se as many more employees chose high effort than predicted. This is in particular the case if the employer offers a 'fair' wage and triggers reciprocal behavior in employees that crowds out worries about being laid off due to the reform. Note however, that many approved reforms are inefficient in the sense that too many employees choose high effort and therefore fail to coordinate on the efficient reform equilibrium. The reciprocity motive even crowds out efficiency considerations in employees if the reform is made less attractive by decreasing the efficiency of the reform to the possible minimum. Our analysis with respect to free-riding behavior suggests that there are two types of employees, those who reciprocate fair wage offers by high effort and those who free-ride on their fellows' high effort. Social preferences had the expected effect that efficiency loving employees were more likely to choose high effort while inequality averse were less likely. A strong positive impact on high effort choice was also conveyed by the

employees' belief in being pivotal for the group outcome.

The remainder of the paper is organized as follows. Section 2 provides a short literature review. In Section 3 we provide the theoretical framework of our study and derive working hypotheses. Section 4 explains the details of the experimental design. Section 5 presents the results. Concluding remarks are given in the final Section 6.

2 Related Literature

Resistance to change has been widely studied, beginning with pioneering research by Lewin (1947), Coch and French (1948) and Tichy (1983). These authors identify a tendency in people to prefer the familiar rather than to accept changes and the unknown. Many scholars in change management have concentrated on ways to implement changes, introducing several actions to address resistance to change (Kotter and Schlesinger, 1979) and to increase the chance of changes being successful (Kotter, 1996; Luecke, 2003). The causes for resistance are twofold. One the one hand, it is pointed out that procedural reasons – lack of communication, clarity, leadership – may result in resistance by employees (e.g. Mullins, 2007). On the other hand there are psychological reasons, which may include selective perception, habits or feelings of insecurity. Moreover, the departure from the status quo is often accompanied by uncertainty, which may be perceived as threatening (Kotter and Schlesinger, 1979; Oreg, 2003).[2]

[2]Obviously, resistance may also occur when a real threat exists or a negative change is presented. On a similar note, recent studies suggest that resistance should also be seen in a positive light because it could be a helpful response to procedures that may not be in the best interest of the organization (Waddell and Sohal, 1998; Ford et al., 2008; Piderit, 2000). For an overview on the literature see Pardo del Val and Martínez Fuentes (2003).

The impact of uncertainty on resistance is further accentuated by findings on the political economy of reform. Fernandez and Rodrik (1991) analyze why public reform initiatives such as trade reforms frequently fail to be adopted. The authors assume that reforms need the support of the population to be enacted. Therefore, policy makers are bound by a vote of citizens. If the reform increases inequality among the population, the majority of citizens may favor the status quo whenever winners and losers of reform are not clearly identified ('status quo bias'). Importantly, this may be the case even if reforms increase welfare and are efficiency-enhancing.[3] Regarding this paper, the research by Fernandez and Rodrik (1991) implies that employees could resist changes based on uncertainty even if a change is collectively beneficiary.

The resistance effect is enhanced by people's tendency to free ride on the effort of others (Olson, 1965). Labor market models assume that there is an incentive to work less because effort is costly. Thus, there is an inherent motivation to resist changes in our model because supporting a change is costlier than rejecting it. Even if a person would like the change to be adopted, she may still supply low effort because she prefers the necessary costs to be incurred by others. As a consequence, the organizational change is similar to a threshold public good, resulting in a coordination problem for subjects. There is a large body of related literature on coordination and threshold public good games (e.g. Palfrey and Rosenthal, 1984; Offerman et al., 1996) as well as voter participation models (Palfrey and Rosenthal, 1983, 1985). For an overview see Ledyard (1995). As shown by Palfrey and Rosenthal (1991), 'cheap talk' or signaling might solve the coordination

[3]In line with the literature, a reform is called efficiency-enhancing if the Kaldor-Hicks criterion is fulfilled.

problem, especially in settings where the potential gains from coordinated behavior are substantial (see also Van de Kragt et al., 1983). Likewise, sequential decision making, refunds, and continuous contributions are helpful to reach threshold equilibria (Erev and Rapoport, 1990; Isaac et al., 1989; Cadsby and Maynes, 1999). Our experimental design is also closely related to Cason and Mui (2005). Their experimental results indicate that uncertainty reduces the incidence of reform even with costly voter participation.[4]

There is evidence that social preferences have an important influence on resistance to change. The literature suggests that people might be willing to sacrifice some of their own income for changes, for example because they value efficiency (Charness and Rabin, 2002; Engelmann and Strobel, 2004; Kerschbamer, 2013). In contrast, changes that increase inequality could be rejected if subjects are particularly inequality averse.[5] Paetzel et al. (2014) found in an experimental study that these preferences mitigate the status quo bias in voting on reform. Moreover, if the company treats the employees well in the first place, for example by paying high wages, then employees might respond with supporting changes instead of resisting them. This view is supported by research on organizational justice (Folger and Skarlicki, 1999; Cobb et al., 1995)[6] as well as studies on reciprocity. Fehr et al. (1993), Fehr et al. (1997) and Gächter and Falk (2002), among others, provide experimental evidence that employees respond to higher wages with more effort due to reciprocity. These studies confirm the fair wage-effort model by Ak-

[4]As opposed to Cason and Mui (2005), in our design voting costs do not depend on *whether* a subject votes at all but rather on *how* she votes. As a consequence, voting is not per se costly.

[5]For models and tests of inequality aversion see Fehr and Schmidt (1999) and Bolton and Ockenfels (2000).

[6]See also Wanberg and Banas (2000) and Ford et al. (2008).

erlof (1982) and Akerlof and Yellen (1990), emphasizing that labor relations resemble a form of 'gift exchange'.[7]

We add to the literature by incorporating in our analysis these different ideas that are not usually cited when discussing resistance to change. Given our assumption that the personnel has to provide a minimum level of effort in order for changes to be adopted, uncertainty, free riding, social preferences as well as reciprocity are important factors for the employees' decision whether to resist changes. Our main contribution is that we offer a better understanding as to the conditions under which changes can be successfully adopted.

3 Theory

In this section, we introduce the theoretical framework of our study. First, we present a basic model of a firm's personnel that has to 'vote' on an efficiency-enhancing-but-inequality-increasing reform by individually choosing between two levels of effort. In the second subsection, we derive possible equilibria of the game. Finally, we discuss the impact of alternative preference specification on the outcome of the game.

3.1 The Model

We consider a personnel of $j = 1, \ldots, n$ identical employees who receive fixed equal wages w and expend nonnegative effort $e_j \in \{0, E\}$. Preferences are

[7]The fair wage-effort model has to be distinguished from the efficiency wage model by Shapiro and Stiglitz (1984), where employees work harder because the presence of monitoring creates opportunity costs for shirking at wages that are above the equilibrium.

self-regarding and utility is assumed to be additively separable:

$$U_j^0 = w - e_j = \begin{cases} w & \text{if } e_j = 0 \\ w - E & \text{if } e_j = E \end{cases} . \tag{1}$$

Note that, though we do not explicitly consider monitoring in this paper, $e_j = 0$ could be understood as the effort level that just fulfills the minimum-effort required by the rules of the labor contract in order not to be laid off.[8] Obviously, as long as high effort is more costly than low effort ($E > 0$), the optimum effort choice is zero.

While equation (1) refers to the status quo, utility is altered by an organizational reform if it is adopted. We introduce two additional parameters, $0 < s < 1$ and $b > 0$. The first parameter denotes the probability that the employee is laid off in the course of the reform. The second parameter denotes a wage benefit which is only paid if the reform is adopted. We assume that employees first commit themselves to low or high effort according to the reform's expected utility. Afterwards, they learn their employment status. Finally, if they have not been laid off, they expend effort and receive their wage including the benefit. Hence, an employee's after-reform expected utility is given by

$$U_j^R = (1-s)(w + b - e_j) = \begin{cases} (1-s)(w+b) & \text{if } e_j = 0 \\ (1-s)(w+b-E) & \text{if } e_j = E \end{cases} . \tag{2}$$

The reform is put in place only if the personnel collectively supplies at least a certain minimum level of effort θ (threshold):

$$\sum_{j=1}^{n} e_j \geq \theta \, . \tag{3}$$

[8] Recent experimental studies (for example Falk and Fischbacher, 2006) suggest that monitoring might have an impact on effort less strong than predicted by agency theory.

We fix the threshold at a multiple of high effort, $\theta = mE$. A reform is called *efficiency enhancing* if the condition

$$b \geq \frac{s}{1-s} w + E \tag{4}$$

is met. In words, the wage benefit must at least balance the expected wage loss due to possibly being laid off after the reform plus the extra effort to be expended in order to make the reform possible.

3.2 Equilibria

The following theorem results from additionally assuming $1 < m < n$, that is, neither can a single employee expend enough effort to meet the threshold on her own nor is it necessary that the complete personnel expends high effort.

Theorem 1 *In presence of an efficiency enhancing organizational reform, the game* $\Theta = \{n, w, e_j \in \{0, E\}, s, b, \theta, m\}$ *has two types of pure strategy Nash equilibria:*

(a) $e_j = 0 \, \forall$ *employees and*

(b) $e_j = E$ *for* m *and* $e_j = 0$ *for* $n - m$ *employees.*

A proof is given in the Appendix.

Which of the two types of Nash equilibria is more likely to occur? There are at least three reasons for believing that the personnel unanimously chooses *low effort* and blocks the organizational reform. First, the $\binom{n}{m}$ equilibria which are characterized by m out of n employees choosing high effort and $n - m$ employees low effort are asymmetric. The personnel decides simultaneously and cannot communicate. Hence, reaching one of these equilibria

would require an implausible degree of coordination. Each employee can only speculate about the decisions of the others and the probability of being pivotal is relatively small. Second, as opposed to a threshold public goods game, the reform-equilibria are not payoff dominant (Harsanyi and Selten, 1988) in the strict Pareto sense due to the uncertainty involved by the possibility of being laid off in the course of the reform. Third, the asymmetric equilibrium involves a free-rider problem: An employee who chooses low effort can still benefit from an approved reform without having to bear the costs of high effort. Hence, our working hypothesis is that efficiency-enhancing organizational reforms that involve ex-ante uncertainty about who benefits and who is laid off are blocked by the personnel.

Let us assume, in contrast to our previous working hypothesis, that some employees try to coordinate on an asymmetric Nash equilibrium by expending high effort. The efficiency condition (4) depends on the size of the wage benefit b, the probability of being laid off s, the wage w and the cost of effort E. Hence, we hypothesize the likelihood of reform equilibria to increase in the wage benefit and to decrease in the employer's wage offer. It should also decrease in the probability of being laid off due to the reform and the costs of effort, but we will not further investigate these two variables in the experiment and keep them constant.

3.3 Alternative Preference Specifications

Preferences might depart from those specified in the model section:

Beliefs might matter because employees expend high effort only if they play a pivotal role in passing the reform.

Reciprocity towards the employer could induce employees to expend high

effort if her wage offer is perceived as fair. Hence, reciprocity could reverse the negative impact of higher wages on the efficiency of the reform indicated by equation (4) that was expected to decrease the likelihood of reform equilibria.

Social preferences could induce employees to expend high effort because the organizational reform is efficiency enhancing or might prevent them from expending high effort because the organizational reform increases inequality among the employees.

Risk aversion would keep employees from expending high effort because the reform involves the risk of being laid off.

We refrain from formally modelling these alternative preference specifications that call for qualifications of our working hypothesis. Instead, we proceed with introducing the experiment, which was designed in order to test the model and conceivable model variants by appropriate treatment variations and preference measurements.

4 The Experiment

The experiment was implemented with z-Tree (Fischbacher, 2007). It involved three separate parts: (i) an elicitation task for distributional preferences, (ii) a decision on an organizational reform, and (iii) a risk-preference elicitation task. Afterwards participants additionally completed a questionnaire. Subjects also had to answer five control questions after reading the experiment's instructions. We start our description of the experiment with the main task, the organizational reform.

4.1 Organizational Reform Task

First, we describe the BASELINE treatment of the organizational reform task. The task was repeated five times (rounds). At the beginning of each round, subjects were randomly matched to groups of six. Then, they were assigned either the employer role or the employee role. Groups consisted of a single employer and five employees (the personnel). First, the employer had to choose between two wages $w \in \{40, 60\}$ points. 100 points were later on converted into 3 Euros. Second, the personnel was informed about w. Third, each employee anonymously and simultaneously selected her level of effort $e_j \in \{0, 20\}$. Fourth, the reform was decided by a simple majority 'vote', that is, at least $m = 3$ out of $n = 5$ employees had to choose the higher level of effort in order to adopt the reform. Fifth, if the reform was adopted, one employee was laid off ($s = 0.2$) and she did not receive any payoff from this round. The other employees received their wages minus effort plus the wage benefit of $b = 60$. If the reform was not adopted no employee was laid off and all employees received their wages minus effort. Round outcomes were not revealed before after the end of the entire experiment in order to avoid learning effects.

The employer's payoff scheme can be taken from Table 1. The employer benefited from the organizational reform due to increased productivity of the remaining personnel and she also received higher payoffs if she paid lower wages. Note that we are no further interested in employer behavior, except for the impact of her wage offer on employee behavior.

The ex-ante payoffs of the employees in the BASELINE treatment are listed in the upper panel of Table 2. After reform approval, each employee j was faced with a lottery $(w + b - e_j, 80\%; 0, 20\%)$. Hence, we list both outcomes as well as their expectation in parentheses below. For example,

Table 1: The Employer's Payoff Scheme in the BASELINE Treatment

Employees' Effort Choices		Organizational Reform Outcome	Payoff by Wage Offer	
$\#(e_j = 20)$	$\#(e_j = 0)$		$w = 40$	$w = 60$
0	5	blocked	25	0
1	4	blocked	40	15
2	3	blocked	55	30
3	2	approved	80	60
4	1	approved	95	75
5	0	approved	110	90

the expected payoff from an approved reform with high effort and low wage was given by 64 and the two possible outcomes were $(100; 0)$. As can be taken from the table, expected payoffs from approved reforms exceeded the certain payoffs from blocked reforms irrespective of the wage offer. Since $60 > \frac{0.2}{0.8} \times 60 + 20 = 35$, the condition for an organizational reform to be efficiency enhancing was fulfilled even if the employer chose the higher wage and thus increased the potential wage loss due to being laid off in the course of the reform. Payoffs were cumulated over the five rounds.

The two types of Nash equilibria described by Theorem 1 can easily be retraced by means of the table. First, assume that the complete personnel has chosen to expend low effort in the symmetric case. Hence, the reform is blocked. The payoff of employee j is 40 points (60 points with the higher wage) as compared to 20 points (40 points) if she switched to high effort. Hence, there is no incentive for deviating from low effort. Second, any combination of three employees expending high effort and two employees expending low effort is an asymmetric Nash equilibrium. High-effort

employees are pivotal. Switching to low effort would cost them $64 - 40 = 24$ points ($80 - 60 = 20$ points). Low-effort employees cannot improve by switching to high effort; they just would lose $80 - 64 = 16$ points ($96 - 80 = 16$ points). Recall that effort has only to be expended if the employee is not laid off. Hence, the loss is $20 \times (1 - 0.2) = 16$ points. Note that Table 2 was not shown to the subjects. During the experiment, they instead saw a table only stating after-reform payoffs. They could calculate the expected payoffs themselves if desired.

The experiment involved several control treatments varying the parameters of the BASELINE treatment. The treatment structure can be taken from Table 3. The BASELINE treatment involved an employer, a wage benefit of $b = 60$ points and majority 'voting' with $m = 3$. Here, the focus is on the employees' ability to coordinate on one of the two Nash equilibria and the impact of the employer's wage offer on effort choice and reform outcome.

In order to control for reciprocity towards the employer, the NO EMPLOYER treatment was conducted. Here, wages were randomly assigned to the employees, everything else remaining unchanged. Half of the groups were endowed with a high wage, the other half with a low wage. The employees knew that their wage was determined by a random device. Hence, if we observe in the BASELINE treatment an increase of approved reforms due to a higher wage offer that is paralleled by the no-employer treatment, reciprocity drops out as an explanation.

The LOW WAGE BENEFIT treatment involved a lower wage benefit ($b = 35$ points) and therefore mitigated incentives for expending high effort: For the higher wage of 60 points, the efficiency condition (4) is barely fulfilled if the employee expends high effort ($35 = 0.8 \times 60 + 20$). Hence, if there has been support for the organizational reform in BASELINE, it is expected to

drop sharply in Low Wage Benefit.

Finally, as noted in the theory section the organizational reform involves a free-rider problem: Employees benefit from choosing low effort if sufficiently many other employees opt for high effort such that the organizational reform is adopted. The Unanimity treatment removed free-riding incentives by raising the quorum to the maximum. This treatment has two Nash-equilibria: Either the complete personnel chooses low effort, or it chooses high effort. On the one hand, removing the incentive to free-ride should make the reform equilibrium more likely. On the other hand, it might be more difficult for five employees instead of three to coordinate on the reform equilibrium. In order to control for that we compare the observed number of reform equilibria with its respective expected value under the assumption of pure chance.

At the end of each round, employees were asked for their expectations regarding the number of other group members choosing high effort. This was done in order to check whether an employee thought that she was pivotal in the voting on the organizational reform. If an employee answered in the Baseline treatment that she expected exactly two other group members to expend high effort, she was recorded to believe that she was pivotal.

4.2 Preference Elicitation Tasks

Subjects might differ with respect to their social preferences and risk attitudes. In part (i) of the experiment, we therefore conducted Kerschbamer's test (Kerschbamer, 2013) in order to elicit the subjects' social preferences. In part (iii) of the experiment, we elicited their risk attitudes using the standard lottery selection design by Holt and Laury (2002, 2005) in the slightly modified version by Balafoutas et al. (2012).

In the social preferences test, subjects were faced with a series of ten

binary choices, split into two blocks. Within each block of five choices, subjects had to allocate points to themselves and a 'passive person'. The choices involved a trade-off between efficiency (number of points in total) and advantageous inequality (first block) or disadvantageous (second block) inequality. In order to save space, we omit details and refer to the original description of the double price-list technique by Kerschbamer (2013). For a recent application to anti-reform bias, see Paetzel et al. (2014). The instructions can be found in Appendix B. At the end of the task, subjects received a combined payoff of one of their ten choices as a decision maker and as a 'passive person'. It was not possible to be matched with the same person twice.

The disadvantageous inequality block provided a measure of efficiency preferences, the willingness-to-pay for disadvantageous inequality, $WTP^d \in [-0.667, 0.667]$. It was calibrated to the allocation where a subject switched from the more-efficient-self-disadvantageous to the more equal allocation. A negative WTP^d means that the subject was willing to sacrifice efficiency for a more equal allocation, while positive values mean a preference for efficiency in spite of getting a lower payoff than the 'passive person'. Analogously, the advantageous inequality block provided a measure of inequality aversion, the willingness-to-pay for advantageous inequality $WTP^a \in [-0.667, 0.667]$. It was calibrated to the allocation where a subject switched from the more-efficient-self-advantageous to the more equal allocation. A negative WTP^a means that the subject was willing to sacrifice equality for a more efficient allocation, while positive values mean a preference for equality in spite of sacrificing own payoff.

In the lottery-selection task, subject were assigned a score $R \in [0, 1]$, where $R = 0.5$ marks risk neutrality. Lower (higher) values indicate risk aversion (risk seeking). At the end of the task, one decision was randomly

chosen for payoff. Instructions are provided in the Appendix. In addition to this, in a post-experimental questionnaire subjects were asked to self-evaluate their risk attitude on a five-point scale. The Q-index was encoded as follows: $Q = -2, -1, 0, 1, 2$, from risk aversion to risk seeking.

5 Results

The experiment was conducted at the experimental laboratory of the University of Bremen in 2014 and involved twelve sessions with 212 subjects, mostly economics students. 54 subjects (9 employers and 45 employees) participated in each of the treatments Baseline, Low Wage Benefit, and Unanimity (three sessions with three groups per treatment). 50 subjects (only employees) participated in the no-employer treatment (two sessions with four groups and one sessions with two groups).[9] The voting task was repeated five times (rounds), which produced 135 wage decisions of the employers, 925 individual effort decisions of employees and 185 organizational reform outcomes. Upon arrival at the laboratory, subjects were randomly placed at the computers. For each part of the experiment separately, they received written instructions, which were read aloud by the experimenter. Sessions lasted for about 50 minutes. On average, subjects earned 12.22 €. Control questions were answered correctly 89.8% of the time. All decisions and payoffs were made in private.

In the first subsection, we focus on the reform outcomes and therefore analyze the data at the group level. We start with a descriptive analysis of the reform outcomes and then turn to testing our working hypotheses.

[9] Note that the social preference task requires an even number of subjects to participate in a session.

Afterwards, in the second subsection, we take into account preference heterogeneity and therefore analyze the employees' individual effort choices.

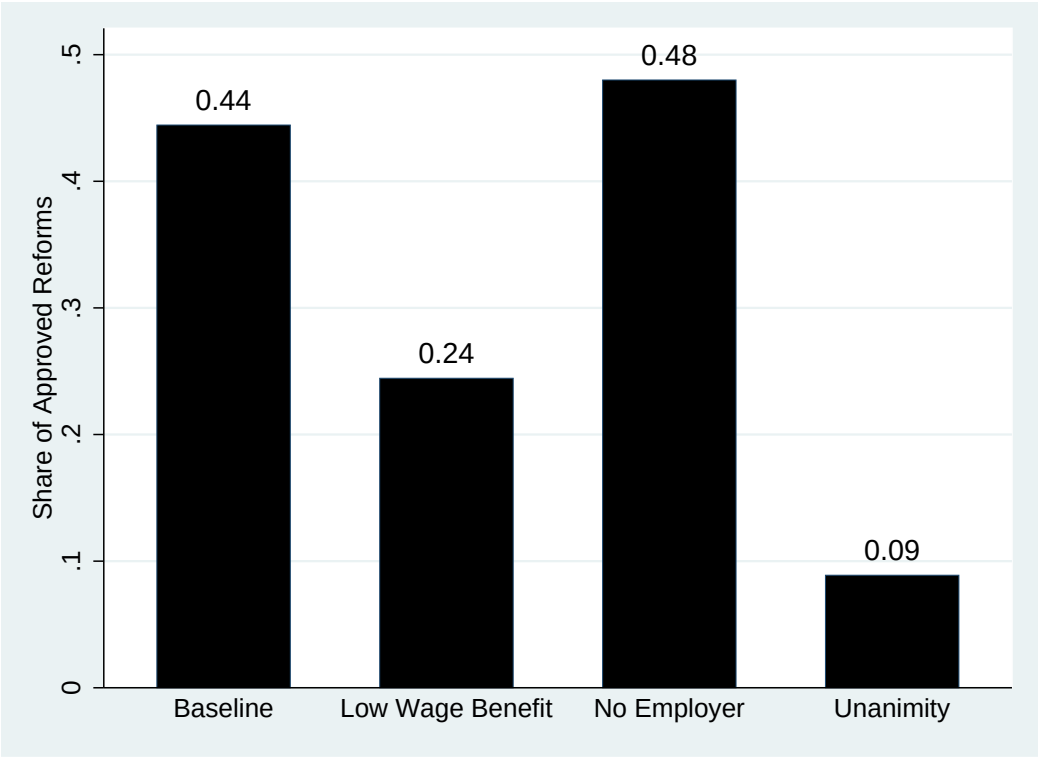
5.1 Group Outcomes

Figure 1 shows the share of approved organizational reforms by treatment. In the Baseline treatment, about 44% of the reform proposals were actually implemented. With Low Wage Benefit the share of approved reforms almost halved. In the No Employer treatment, 48% of the reform proposals succeeded. If Unanimity in terms of high effort was required, the share of approved reforms dropped sharply (9%). Of course, Figure 1 is not really telling as to treatment effects because it aggregates group outcomes over different wages. Figure 2 therefore depicts the share of approved reforms by wage offer. In principle the figure replicates the overall pattern observed in Figure 1, but it additionally reveals that the share of approved reforms is positively related to the size of the wage offer, except for the No Employer treatment.[10]

First, we statistically test whether and how the employer's wage offer influenced the reform outcome. Remember that, on the one hand, a higher wage offer increased the potential payoff loss due to being laid off and therefore could prevent the reform. On the other hand, the personnel could have been willing to reciprocate the employer's generous wage offer and therefore have 'voted' for the reform by choosing high effort. Performing χ^2 tests on the independence between wage offer and reform approval for each treatment does not reject the null hypothesis for Baseline ($\chi^2 = 2.41$, $p = 0.121$) and

[10]The percentage of high wage offers was 42.2 in Baseline, 37.8 in Low Wage Benefit, and 42.2 in Unanimity. In No Employer, the percentage was technically fixed at 50.

Figure 1: Share of Approved Reforms



No Employer ($\chi^2 = 0.32$, $p = 0.571$). It rejects the null hypothesis for Low Wage Benefit ($\chi^2 = 4.14$, $p = 0.042$) and Unanimity ($\chi^2 = 6.01$, $p = 0.014$). Even though the independence test turns out to be insignificant at conventional significance levels for Baseline, it shows a clear tendency towards a positive correlation between wage offer and effort that is confirmed by the the two other treatments involving an employer. Hence, because the correlation completely vanishes if there is no employer and the wage if fixed by a random device, we conclude that employees' reciprocity towards generous employers is an important motive for expending high effort and significantly increases the number of approved reforms. Reciprocal behavior seems also to crowd out employees' worries about the higher expected loss from being laid off.

Figure 2: Share of Approved Reforms by Wage Offer

Second, we check for the impact of the size of the wage benefit, that is, the efficiency of the reform, on the reform outcome. Given the parametrization of the Low Wage Benefit treatment, equation (4) makes the approval of reforms less likely than in the Baseline treatment. Comparing both treatments with respect to the share of approved reforms by χ^2 tests shows that independence is rejected if we pool low and high wage offers ($\chi^2 = 3.99$, $p = 0.046$) and if we consider low wage offers only ($\chi^2 = 3.05$, $p = 0.081$). However, if the employer made a high wage offer, the size of the wage benefit became insignificant ($\chi^2 = 1.00$, $p = 0.317$). Hence, our initial hypothesis is supported with a qualification: The personnel's willingness to reciprocate fair offers by the employer is even stronger than efficiency concerns.

Next we screen the group data for occurrences of the two types of Nash

equilibria postulated by Theorem 1. This is done by means of Table 4. In the upper panel of the table, we report for each treatment relative case numbers for four cases: (i) no-reform equilibrium (all five employees chose low effort); (ii) under-coordination (at least one employee but less employees than required chose high effort: one or two in Baseline, Low Wage Benefit, and No Employer and one, two, three or four in Unanimity); (iii) reform equilibrium (exactly the required number of employees choose high effort: three in Baseline, Low Wage Benefit, and No Employer and five in Unanimity); and (iv) inefficient reform (more employees than required choose high effort: four or five in Baseline, Low Wage Benefit, and No Employer, non-applicable in Unanimity). Relative case numbers are reported for all wage offers as well as separately for low and high wage offers.

Table 2: Employees' Payoffs by Treatment

Reform	Wage & Effort			
	$w = 40$		$w = 60$	
	$e_j = 0$	$e_j = 20$	$e_j = 0$	$e_j = 20$
BASELINE & NO EMPLOYER				
approved	80	64	96	80
	(100;0)	(80;0)	(120;0)	(100;0)
blocked	40	20	60	40
LOW WAGE BENEFIT				
approved	60	44	76	60
	(75;0)	(55;0)	(95;0)	(75;0)
blocked	40	20	60	40
UNANIMITY				
approved	—	64	—	80
		(80;0)		(100;0)
blocked	40	20	60	40

Notes: For approved reforms the table lists the expected payoffs before one out of five employees is laid off (possible outcomes in parentheses below).

Table 3: Treatment Structure of the Experiment

Treatment	Employer	Wage Benefit	Quorum	Control
BASELINE	yes	60	majority	
NO EMPLOYER	no	60	majority	reciprocity
LOW WAGE BENEFIT	yes	35	majority	efficiency
UNANIMITY	yes	60	unanimity	free riding

Table 4: Group Outcomes

Treatment	Wage offer	No-reform equilibrium	Under-coordination	Reform equilibrium	Inefficient reform	Test[a]	
						χ^2	p
			observed				
Baseline	all	2.2	53.3	11.1	33.3	11.46	0.009
	low	3.8	61.5	7.7	26.9	6.78	0.079
	high	0	42.1	15.8	42.1	7.67	0.053
No Employer	all	4.0	48.0	36.0	12.0	1.71	0.634
	low	0	48.0	36.0	16.0	1.07	0.784
	high	8.0	48.0	36.0	8.0	3.63	0.304
Low Wage	all	11.1	64.4	20.0	4.4	18.88	0.000
Benefit	low	17.9	67.9	10.7	3.6	29.30	0.000
	high	0	58.8	35.3	5.9	2.64	0.451
Unanimity	all	4.4	86.7	8.9	n.a.	5.28	0.072
	low	7.7	92.3	0	n.a.	2.55	0.279
	high	0	78.9	21.1	n.a.	20.58	0.000
			expected[b]				
Baseline[c]	n.a.	3.125	46.875	31.25	18.75		
Unanimity	n.a.	3.125	93.75	3.125	n.a.		

Notes: Percentages. n.a.=non-applicable. [a]χ^2Goodness-of-fit test (under the null hypothesis group observations follow a binomial distribution). [b]Assuming pure chance (the effort choice is a Bernoulli trial with $p = (1 - p) = 0.5$). [c]Also applies to Low Wage Benefit and No Employer.

Table 4 shows that the incidence of both no-reform and reform equilibrium outcomes was rather low, ranging between 0% and 17.9% for no-reform equilibria and 0% and 36% for reform equilibria. We observed many groups that failed to coordinate on either equilibrium, where under-coordination was most prevalent (42.1%-92.3%). Inefficient reforms made up 3.6% to 42.1%.

In order to check whether this pattern of reform outcomes was driven by chance or still by the personnel's (useless) effort to coordinate on an equilibrium, we construct the following test. Under the null hypothesis we assume that employees were acting completely irrational, just randomizing between high and low effort.[11] Consequently, the probability of observing exactly k employees out of a groups of five to expend high effort is given by the binomial distribution $q(k) := \binom{5}{k} 0.5^5$. Using this formula, we can compute the expected number of group observations for each outcome, which is listed in the lower panel of Table 4. For example, we would expect 3.125% of the groups to coordinate by chance on a no-reform equilibrium and we would expect 32.25% to coordinate by chance on a reform equilibrium. For UNANIMITY the expected relative case numbers are different due to the impossibility of inefficient reforms.

Performing χ^2 goodness-of-fit tests between the observed and the expected number of group outcomes gives the following results, that are reported in the last two columns of Table 4. The test rejects the null hypothesis of pure chance (implying a binomial distribution of group outcomes) for the BASELINE treatment. If the employer offered a low wage, reform equilibria were under-represented as compared to the expectation (7.7% vs. 32.25%) and under-coordination was over-represented (61.5% vs. 46.875%). If the employer offered a high wage, inefficient reforms were over-represented (42.1%

[11] This is in line with Becker's (1962) model of random choice.

vs. 18.75). Reform equilibria were still less prevalent then expected (15.8% vs. 32.25%) but their number was doubled. The number of no-reform equilibria dropped to zero. For the No Employer treatment we cannot reject the null hypothesis and there is hardly any difference between low and high wage offers. These observations reinforce our conclusions regarding employees reciprocal behaviour. Due to their willingness-to-reciprocate fair wage offers, too many employees chose high-effort and therefore the personnel failed to coordinate on the efficient asymmetric reform equilibrium.

The picture is again different for the Low Wage Benefit treatment. Here, no-reform equilibria a more frequent than expected (17.9% vs. 3.125%) if the employer offered a low wage. With a high wage offer, the distribution of group outcomes cannot be distinguished from a distribution generated by pure chance.

Finally, the we turn to the Unanimity treatment and the role of free-riding in the reform outcome. As can be taken from the last row of the lower panel of Table 4, reform equilibria are ten times less likely to occur by chance in the Unanimity treatment as compared to the other treatments (3.125% vs. 31.25%) because the complete personnel has to expend high effort. With a low wage offer, the distribution of group outcomes followed a binomial distribution (though the share of no-reform equilibria was twice the expected share). With a high wage offer, the goodness-of-fit test turned out to be highly significant. In fact, we observed a share of reform equilibria of 21.1% – this is almost seven times the expected share and we observed zero no-reform equilibria. In order to test whether eliminating free-riding by means of the unanimity requirement had an impact on group effort, we compared the means of group effort between Baseline and Unanimity with a t-test. The test did not reject the null hypothesis of equal group effort for the pooled

data (Welch test: 2.55 vs. 2.71 of 5 employees choosing high effort, $t = -0.55$, $p = 0.586$) and low wage offers alone (2.19 vs. 1.96, $t = -0.68$, $p = 0.500$). In contrast to this, it rejected the null hypothesis for high wage offers alone (3.05 vs. 3.74, $t = 1.94$, $p = 0.061$). Hence, we conclude that free riding did not play a significant role with low wage offers. High wage offers triggered reciprocal behavior in employees that was exploited by free-riders among the personnel in BASELINE. Since the unanimity requirement eliminated the possibility to free-ride on their fellows' efforts for these employees, we observed higher average group effort, and, if adequately corrected for chance, a more frequent approval of organizational reforms.

5.2 Individual Outcomes

In this subsection, we turn our attention to the individual behavior of the employees. The preceding analysis has highlighted the importance of preference heterogeneity for group outcomes. As it seems, some employees reciprocated high wage offers by high effort while others began to free-ride on their fellow's efforts. Table 5 displays the results of a logit regression of several variables on employees' effort choices, where ($high\ effort = 1/low\ effort = 0$). The first regression pools the data of all treatments. BASELINE is the benchmark treatment. We also report separate regression for each treatment.

The pooled sample shows a strong negative impact of lowering the wage benefit on effort choice, confirming the group-outcome analysis. There are no treatment effects regarding the way how wages were fixed or the quorum as compared to BASELINE. The regression also reveals a positive impact of high wage offers on effort choice. Taking a glance at the treatment-wise regressions shows that this effect is absent in the NO EMPLOYER treatment. This result reinforces our conclusion that employees' decision to expend high effort

was mainly driven by reciprocity concerns. In the UNANIMITY treatment, high wage offers exhibited the strongest impact, supporting our conclusions regarding the role of free riding in group coordination.

Turning to the individual variables, we see a significant positive effect of believing to be pivotal, which is, however, significant only in the NO EMPLOYER and UNANIMITY treatments. While it remains unclear why the NO EMPLOYER treatment gave rise to this effect and BASELINE and LOW WAGE BENEFIT not, the strong positive coefficient for UNANIMITY is clearly driven by the employees desire not to be the one who blocks the reform if everyone else approves it. The risk attitude of the employees (remember that higher values reflect less risk aversion) was significant only in NO EMPLOYER, where more risk averse employees were less likely to expend high effort. As it seems, in the other treatments reciprocity concerns crowded out such risk considerations and employers focused on their employer's wage offer rather than the expected behavior of the other personnel members.

When investigating the pooled sample, social preferences did not matter for effort choice. In the BASELINE treatment, we found a weak negative impact of WTP^a on the likelihood of expending high effort. As expected, more inequality averse employees 'voted' against the efficiency-enhancing-but-inequality-increasing organizational reform by expending low effort. Analogously, the significant positive sign of WTP^d indicates that a preferences for efficiency (in spite of the risk of possibly becoming the worst off due to being laid off), induced employees to approve the reform by choosing high-effort. We do not have a proper explanation why inequality aversion lead employees to choose high effort in the NO EMPLOYER treatment.

6 Conclusion

In this paper, we assumed that organizational changes need the support of the employees to be enacted. We conducted a laboratory experiment where the employees of a group could vote on changes ('reforms') by choosing their effort. The reform was implemented if a minimum level of effort was reached, which resulted in a binary-choice threshold contribution game combined with an element of gift exchange. We hypothesized that employees would reject the reform because of the difficulty to coordinate and due to uncertainty over payoffs ('status quo bias'). However, if the employees received a higher wage from their employers ('fair wage'), they would respond by choosing high effort and passing the reform.

We observed a low number of equilibrium outcomes for both the symmetric no-reform-equilibrium as well as the asymmetric reform-equilibrium. Choosing the high wage triggered reciprocity in employees and thus induced the selection of high effort. However, the personnel failed to coordinate to the asymmetric reform-equilibrium as more employees chose high effort than predicted. Reciprocity not only crowded out worries in employees about being laid off after the reform but also overshadowed efficiency concerns that may have accompanied the high wage offer. Our analysis concerning free riding behavior suggests that there are two types of employees: those who reciprocate high wage with high effort and those who free ride on the high effort of others. A threshold that requires a unanimous contribution decision of subjects lead to less adopted reforms but to more reform approval if corrected for chance. The belief of being pivotal for the group outcome was very important for the decision of employees in this treatment. Social preferences generally mattered as predicted.

The results of this experiment are particularly insightful for managers

who want to successfully implement structural reforms in their company. As it often the case, such changes may involve uncertainty over future earnings of employees. We have shown that uncertainty does not lead the employees to oppose changes per se. Instead, the circumstances surrounding the change matter. Most notably, higher wages result in an increasing approval rate of changes due to positive reciprocity.

Table 5: Individual Outcomes

Variable	Pooled Sample	Baseline	No Employer	Low Wage Benefit	Unanimity
No Employer	-0.352	—	—	—	—
	(0.283)				
Low Wage	-0.865***	—	—	—	—
Benefit	(0.295)				
Unanimity	0.143	—	—	—	—
	(0.261)				
High wage offer	0.565***	0.866***	-0.407	0.715**	1.359***
	(0.174)	(0.305)	(0.337)	(0.352)	(0.471)
Pivotal	1.152***	0.259	1.650***	0.516	4.615***
	(0.199)	(0.376)	(0.404)	(0.343)	(1.161)
R	1.156	2.475	2.887**	0.456	-3.042
	(1.034)	(1.543)	(1.335)	(2.614)	(1.894)
WTP^a	0.401	-0.899*	1.963**	-0.030	-0.099
	(0.405)	(0.541)	(0.779)	(0.927)	(0.775)
WTP^d	0.211	1.592***	0.354	-0.140	-0.648
	(0.392)	(0.546)	(0.582)	(0.818)	(0.847)
Constant	-1.151*	-1.441	-2.561***	-1.400	0.552
	(0.589)	(0.907)	(0.820)	(1.415)	(1.063)
Wald-χ^2	49.52	17.29	28.14	5.40	24.74
$p(\chi^2)$	<0.001	0.004	<0.001	0.367	<0.001
Pseudo R^2	0.087	0.070	0.151	0.031	0.318
n	925	225	250	225	225

*N*otes: Dependent variable: effort (*high effort* = 1/*low effort* = 0).

Subject clustered standard errors.

A Proof of Theorem 1

In order to prove Theorem 1 we focus, without loss of generality, on a single employee $j = 1$, who assumes that everyone including herself acts rationally according to their utility functions (1) and (2). Consider the situation in which j knows the individual effort of each other employee, $\{e_2, \ldots, e_n\}$. Three cases can be distinguished:

i. If $\sum_{j=2}^{n} e_j \geq \theta$, then the reform is adopted anyway. The employee will choose $e_1 = 0$ due to $(1 - s)(w + b - E) < (1 - s)(w + b)$.

ii. If $E + \sum_{j=2}^{n} e_j < \theta$, then the reform is not adopted anyway. The employee will choose $e_1 = 0$ due to $w - E < w$.

iii. If neither (i) nor (ii) holds, the employee is pivotal. She chooses as follows:

$$e_1 = \begin{cases} 0 & \text{if } (1 - s)(w + b - E) < w \\ E & \text{otherwise} \end{cases} .$$

Case (i) implies that there cannot exist a symmetric Nash equilibrium characterized by the complete personnel choosing high effort, which is due to our assumption that $m < n$. In words, if the reform has already been adopted, the best response of employee 1 is choosing low effort. Case (ii) analogously implies that there exists a symmetric Nash equilibrium characterized by the complete personnel choosing low effort, which is due to our assumption that $1 < m$. In words, if the reform cannot be adopted anyway, choosing low effort is her best response. According to case (iii) the situation where exactly m employees chose high effort and $n - m$ employees choose low effort is an (asymmetric) Nash equilibrium only if $w \leq (1 - s)(w + b - E)$. This

expression can be rewritten as follows:

$$b \geq \frac{s}{1-s} w + E \,, \tag{5}$$

which parallels our definition of efficiency enhancing reforms, see equation (4). Hence, choosing high effort is the best response of the pivotal employee and (iii) is a Nash equilibrium.

B Instructions

B.1 Preliminaries

Welcome to the experiment. In this experiment, you will earn money provided that you read these instructions carefully and follow the rules. The money will be paid out to you in cash immediately after the experiment. During the experiment, we will use the term 'points' instead of Euros. Points will be converted into Euros as follows: 100 points = 3 Euros. During the experiment, you must not talk to other participants. If you have a question, please ask us. We will answer your questions individually. Compliance with these rules is important; otherwise, the results of the experiment will be of no scientific use. The experiment consists of three parts. Each part will be explained separately. In each part, you can earn money. All together, the experiment will last for approximately 60 min.[12]

B.2 Part 1

In the 1st part, we will ask you to make 10 decisions. In each decision, you are assigned to a group with another participant, who is called 'passive

[12]The original instructions were in German. This is an example for the Baseline Treatment. The instructions for the other treatments are available on request.

agent'. Your decision as an 'active decision maker' and the decision of the passive agent are made anonymously. In each of the 10 decisions, the passive agent is a different randomly chosen participant. In all decisions, you always have to choose between a left and a right option. The options are payoff distributions, meaning that both options are associated with a payoff for you and for the passive agent.

We ask you to decide for each of the 10 decisions between the left and right options. The 10 decisions will be presented in two blocks of 5 decisions each. Please compare row by row the left and right options and decide on your preferred distribution for each row. You can make your decision by clicking on the left or right button.

Calculation of your payoff from Part 1: Your payoff from Part 1 results from two partial payoffs. The 1st partial payoff results from the situation in which you were the active decision maker. At the end of the 1st Part, the program will randomly select 1 of the 10 decisions. For this decision situation, your decision between left and right will determine the payoff for yourself and the passive agent.

The 2nd partial payoff results from the situation in which you were the passive agent. Following the same procedure as mentioned above, another participant is randomly selected and determines with her chosen left-right-decision your payoff in the role of being the passive agent. We make sure that no two participants are in a reciprocal relation of being an active decision maker and a passive agent for the same person.

Your total payoff from the 1st part of the experiment is calculated by adding the payoffs from the situations in which you were the active decision maker and the passive agent.

If you have any questions, please raise your hand. One of the supervisors

will come to you and answer your questions.

If you do not have further questions, please start and make your decisions between the left and right options.

Table 6: Choices in the Distributional-preferences Elicitation Task: Disadvantageous Inequality Block

LEFT		Your choice		RIGHT	
You get	Passive person gets			You get	Passive person gets
32 points	52 points	∘ LEFT	RIGHT ∘	40 points	40 points
36 points	52 points	∘ LEFT	RIGHT ∘	40 points	40 points
40 points	52 points	∘ LEFT	RIGHT ∘	40 points	40 points
44 points	52 points	∘ LEFT	RIGHT ∘	40 points	40 points
48 points	52 points	∘ LEFT	RIGHT ∘	40 points	40 points

Table 7: Choices in the Distributional-preferences Elicitation task: Advantageous Inequality Block

LEFT		Your choice		RIGHT	
You get	Passive person gets			You get	Passive person gets
32 points	28 points	○ LEFT	RIGHT ○	40 points	40 points
36 points	28 points	○ LEFT	RIGHT ○	40 points	40 points
40 points	28 points	○ LEFT	RIGHT ○	40 points	40 points
44 points	28 points	○ LEFT	RIGHT ○	40 points	40 points
48 points	28 points	○ LEFT	RIGHT ○	40 points	40 points

B.3 Part 2

Now we start with the 2nd part of the experiment. The choices in the 2nd part have no consequences on the payoffs of part 1 and 3 of the experiment. This part is played for five rounds, i.e., the same game is repeated 5 times in a row.

At the beginning of each round, you will be randomly assigned to one out of three groups and given a role, which can be 'employer' or 'employee'. A group consists of 1 employer and 5 employees.

First, we ask the employer to decide between two wages (40 or 60), which will be received by the employees in his or her group. After the employer has chosen the wage, the employees learn about the employers' decision and then have to decide on their effort, which can be 'high effort' or 'low effort'.

If the majority of the employees of a group - that is 3, 4 or 5 employees (at least 3) - choose high effort, a 'reform' will be put into place in the group. Consequently, there are to cases:

- reform: 3, 4 or 5 employees chose high effort.
- no reform: 0, 1 or 2 employees chose high effort.

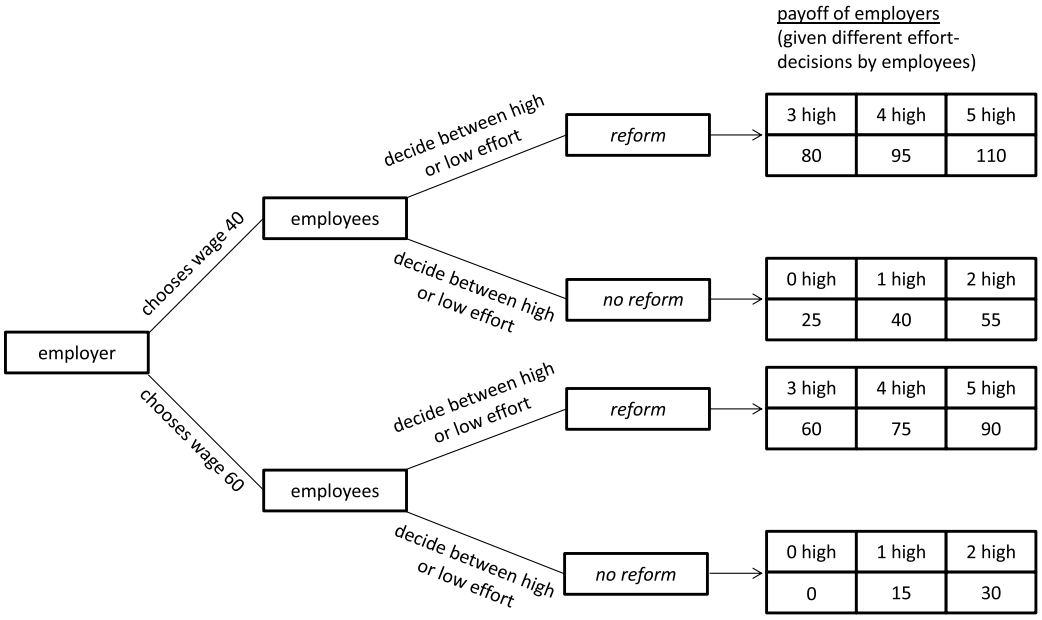
In the following, it will be explained how the payoffs of the 2nd part of the experiment are calculated and how they are linked to the two cases.

Calculation of employer's payoff: The payoff of the employer is calculated as follows:

- reform: Employer's payoff:$= 30 \times h + 15 \times l - 4 \times w \times 1/4$.
- no reform: Employer's payoff:$= 30 \times h + 15 \times l - 5 \times w \times 1/4$.

h is the number of employees who choose high effort; l is the number of employees who choose low effort; w is the wage the employer chose.

Figure 3: Employer's Payoff



Thus, there is a certain payoff for employers resulting from the decisions of the employees. One of the advantages of a 'reform' for an employer is that he or she has to pay out one wage less ($4 \times w$ instead of $5 \times w$). The exact payoffs for employers will be shown to you now. You do not have to make any calculations on your own.

Please, take a look now at Figure 3, which the employer will also see on his or her screen when making his or her decision during the experiment.

Explanation of Figure 3: First, the employer chooses between a wage of 40 or 60. Then, the 5 employees in the group individually choose between low and high effort. This leads either to the 'reform' or the 'no reform' case. The reform is approved if 3, 4 or 5 employees choose high effort (in Figure 3: '3 high', '4 high', '5 high'). The payoff for an employer who chooses a wage

of 40 then amounts to 80, 95 or 110 points; for a wage choice of 60 it is 60, 75 or 90 points, respectively. The reform is declined if 0, 1 or 2 employees choose high effort (in Figure 3: '0 high', '1 high', '2 high'). The payoff for an employer who chooses a wage of 40 then amounts to 25, 40 or 55 points; for a wage choice of 60 it is 0, 15 or 30 points, respectively.

Please, be aware of the possibility that your wage choice as an employer may influence the effort-choice of the employees.

Calculation of employees' payoff: As an employee, you will receive the wage that has been chosen by the employer (40 or 60 points). If you choose high effort, there are costs of 20 points that will be subtracted from your payoff. Choosing low effort does not cost anything.

If the reform is approved one randomly chosen group member who has been assigned the employee role *will not* receive a payoff. The other 4 employees, however, receive their wage as well as a bonus of 60 points. Thus, the probability of not receiving a payoff due the reform is 20% (1 out of 5). If the reform is declined, all employees will receive their payoff for certain, but there is no bonus. Hence, the following rules apply for the employees' payoffs:

- Costs for choosing high effort: 20.
- Costs for choosing low effort: 0.
- Reform is adopted: 4 employees receive $wage + bonus - costs$; 1 randomly chosen employee will not receive a payoff.
- Reform is declined: all employees receive $wage - costs$.

Please take a look at Tables 8 and 9, which employees will also see on their screen when making their decisions during the experiment.

Table 8: Employees' Payoff (Wage=40)

	Payoff for low effort	Payoff for high effort	Probability to receive no payoff
Reform	100	80	20 %
No reform	40	20	0 %

Table 9: Employees' Payoff (Wage=60)

	Payoff for low effort	Payoff for high effort	Probability to receive no payoff
Reform	120	100	20 %
No reform	60	40	0 %

Please be aware that your choice of effort in the employee role may influence whether the reform is adopted or not. Moreover, your effort choice has consequences for the employer's payoff.

The total payoff from Part 2 is calculated as the sum of the payoffs of the five rounds. As in the other parts of the experiment, the points are converted into Euros according to the following exchange rate: 1 point=0.03 Euros (100 points=3 Euros).

B.3.1 Part 3

Now we start with the 3rd part of the experiment. In this part, you can again earn some money. This part has no consequences for the payoff you obtained from the other parts of the experiment. In this part of the experiment, you choose between two options A and B for 10 different situations, which means you choose 10 times between options A and B. Option A always involves a safe payoff of a certain amount of points. Option B always determines your

payoff by exactly the same lottery.

The table below shows the 10 situations and the 2 options among which you will have to choose. Either you see the table shown in Figure 4 or you see it in just the reverse order. The presentation of the table to you is randomized.

Example: Option A in the 9th line is 112.5 for sure. Option B in the 9th line is 5/10: 125 and 5/10: 0. If you select option A in the 9th line, you get a payoff of 112.5. If you select option B in the 9th line, you will get, in 5 out of 10 cases (50%), a payoff of 125, and in 5 out of 10 cases (50%), a payoff of 0 points.

We ask you to decide for each of these following 10 situations between options A and B. Please compare line by line options A and B and decide for each line by clicking A or B.

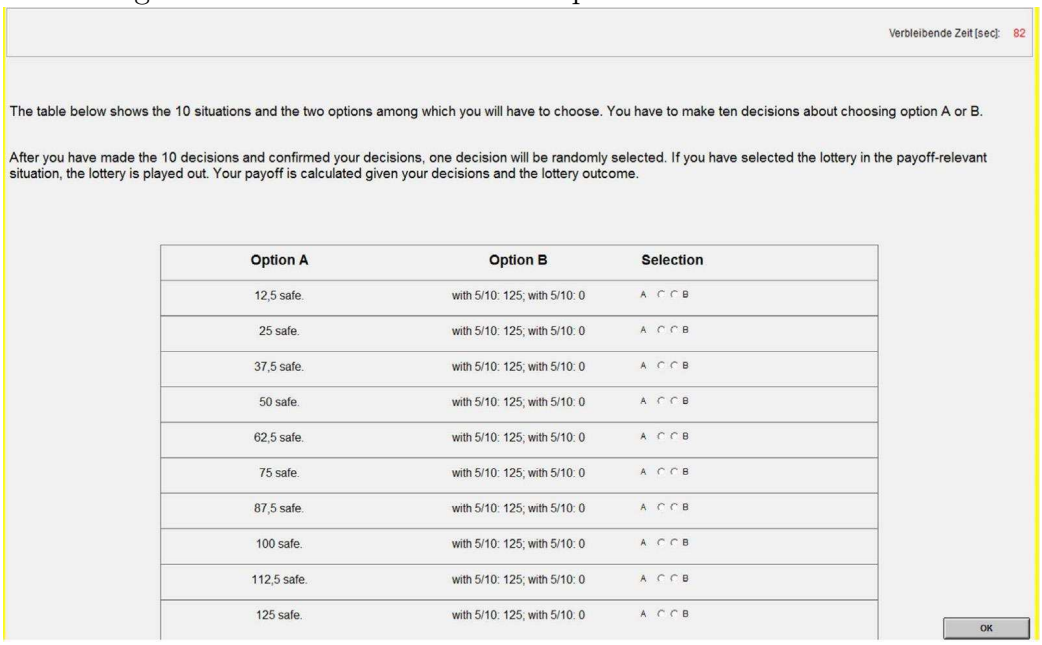
Calculation of payoff from Part 3: Your payoff from this part of the experiment is determined as follows: The computer randomly selects 1 of the 10 situations. Your decision in this situation is relevant for your payoff. For example you have decided for option B in the 2nd line and the computer randomly selects the situation in line 2 as relevant for the payoff. With a probability of 5 out of 10 cases (50%), you will get 125 points as payment, and in 5 of 10 cases (50%), you will get 0 points. You can imagine an urn filled with 5 white and 5 black balls for playing out the lottery. When a blindfolded person grabs into the box and draws a white ball, you will receive a payout of 125. If the drawn ball is black, you will get 0 points. The drawing of the balls is automated in the experiment and is performed by the computer.

As in the previous parts of the experiment, the points are converted into Euros according to the following exchange rate: 1 point=0.03 Euros (100 points=3 Euros).

If you have any questions, please raise your hand and wait quietly until someone comes to you. If you have no further questions, then you can make the selection of options A and B on the screen. After all participants have completed the 3rd part of the experiment, all participants see their individual payoffs of all three parts of the experiment, the total number of points, and thus, the total payment resulting from the addition of the three payments from the different parts of the experiment. This screen is followed by a short questionnaire. Finally, you will receive your payoff in cash and the experiment is finished.

Thank you for your participation.

Figure 4: Decision Screen of Risk-preference Elicitation Task



References

Aiken, C. and S. Keller (2009). The irrational side of change management. *McKinsey Quarterly 2*(10), 100–109.

Akerlof, G. A. (1982). Labor contracts as partial gift exchange. *The Quarterly Journal of Economics 97*(4), 543–569.

Akerlof, G. A. and J. L. Yellen (1990). The fair wage-effort hypothesis and unemployment. *The Quarterly Journal of Economics 105*(2), 255–283.

Balafoutas, L., R. Kerschbamer, and M. Sutter (2012). Distributional preferences and competitive behavior. *Journal of Economic Behavior & Organization 83*(1), 125–135.

Becker, G. S. (1962). Irrational behavior and economic theory. *The Journal of Political Economy*, 1–13.

Bolton, G. E. and A. Ockenfels (2000). Erc: A theory of equity, reciprocity, and competition. *American Economic Review*, 166–193.

Bovey, W. H. and A. Hede (2001). Resistance to organizational change: The role of cognitive and affective processes. *Leadership & Organization Development Journal 22*(8), 372–382.

Cadsby, C. B. and E. Maynes (1999). Voluntary provision of threshold public goods with continuous contributions: Experimental evidence. *Journal of Public Economics 71*(1), 53–73.

Cason, T. N. and V.-L. Mui (2005). Uncertainty and resistance to reform in laboratory participation games. *European Journal of Political Economy 21*(3), 708–737.

Charness, G. and M. Rabin (2002). Understanding social preferences with simple tests. *Quarterly Journal of Economics*, 817–869.

Cobb, A. T., K. C. Wooten, and R. Folger (1995). Justice in the making: Toward understanding the theory and practice of justice in organizational change and development. *Research in Organizational change and Development 8*(1), 243–295.

Coch, L. and J. R. French (1948). Overcoming resistance to change. *Human Relations 1*(4), 512–532.

Dent, E. B. and S. G. Goldberg (1999). Challenging "resistance to change". *The Journal of Applied Behavioral Science 35*(1), 25–41.

Engelmann, D. and M. Strobel (2004). Inequality aversion, efficiency, and maximin preferences in simple distribution experiments. *American Economic Review*, 857–869.

Erev, I. and A. Rapoport (1990). Provision of step-level public goods: The sequential contribution mechanism. *Journal of Conflict Resolution 34*(3), 401–425.

Falk, A. and U. Fischbacher (2006). A theory of reciprocity. *Games and Economic Behavior 54*(2), 293–315.

Fehr, E., S. Gächter, and G. Kirchsteiger (1997). Reciprocity as a contract enforcement device: Experimental evidence. *Econometrica 65*(4), 833–860.

Fehr, E., G. Kirchsteiger, and A. Riedl (1993). Does fairness prevent market clearing? An experimental investigation. *The Quarterly Journal of Economics 108*(2), 437–459.

Fehr, E. and K. M. Schmidt (1999). A theory of fairness, competition, and cooperation. *The Quarterly Journal of Economics 114*(3), 817–868.

Fernandez, R. and D. Rodrik (1991). Resistance to reform: Status quo bias in the presence of individual-specific uncertainty. *The American Economic Review 81*(5), 1146–1155.

Fischbacher, U. (2007). z-tree: Zurich toolbox for ready-made economic experiments. *Experimental Economics 10*(2), 171–178.

Folger, R. and D. P. Skarlicki (1999). Unfairness and resistance to change: Hardship as mistreatment. *Journal of Organizational Change Management 12*(1), 35–50.

Ford, J. D., L. W. Ford, and A. D'Amelio (2008). Resistance to change: The rest of the story. *Academy of Management Review 33*(2), 362–377.

Gächter, S. and A. Falk (2002). Reputation and reciprocity: Consequences for the labour relation. *The Scandinavian Journal of Economics 104*(1), 1–26.

Harsanyi, J. C. and R. Selten (1988). A general theory of equilibrium selection in games. *MIT Press Books 1*.

Holt, C. A. and S. K. Laury (2002). Risk aversion and incentive effects. *American Economic Review 92*(5), 1644–1655.

Holt, C. A. and S. K. Laury (2005). Risk aversion and incentive effects: New data without order effects. *American Economic Review 95*(3), 902–912.

Isaac, R. M., D. Schmidtz, and J. M. Walker (1989). The assurance problem in a laboratory market. *Public Choice 62*(3), 217–236.

Judson, A. S. (1991). *Changing Behavior in Organizations: Minimizing Resistance to Change*. Blackwell Cambridge, MA.

Kerschbamer, R. (2013). The geometry of distributional preferences and a non-parametric identification approach. Working Papers in Economics and Statistics 2013-25, University of Innsbruck.

Kotter, J. P. (1995). Leading change: Why transformation efforts fail. *Harvard Business Review 73*(2), 59–67.

Kotter, J. P. (1996). *Leading Change*. Harvard Business Press.

Kotter, J. P. (2008). *A Sense of Urgency*. Harvard Business Press.

Kotter, J. P. and L. Schlesinger (1979). Choosing strategies for change. *Harvard Business Review 57*(2), 106.

Lawrence, P. R. (1954). How to deal with resistance to change. *Harvard Business Review 32*(3), 49–57.

Ledyard, J. (1995). Public goods: A survey of experimental research. In J. Kagel and A. Roth (Eds.), *The Handbook of Experimental Economics*, pp. 111–193. Princeton: Princeton University Press.

Lewin, K. (1947). Frontiers in group dynamics ii. channels of group life; social planning and action research. *Human Relations 1*(2), 143–153.

Luecke, R. (2003). *Managing Change and Transition*, Volume 3. Harvard Business Press.

Maurer, R. (1996). Using resistance to build support for change. *Journal for Quality and Participation*, 56–63.

Mullins, L. J. (2007). *Management and Organisational Behaviour*. Pearson Education.

Offerman, T., J. Sonnemans, and A. Schram (1996). Value orientations, expectations and voluntary contributions in public goods. *The Economic Journal*, 817–845.

Olson, M. (1965). *The Logic of Collective Action: Public Goods and the Theory of Groups*, Volume 124. Harvard University Press.

Oreg, S. (2003). Resistance to change: Developing an individual differences measure. *Journal of Applied Psychology 88*(4), 680.

Paetzel, F., R. Sausgruber, and S. Traub (2014). Social preferences and voting on reform: An experimental study. *European Economic Review 70*, 36–55.

Palfrey, T. R. and H. Rosenthal (1983). A strategic calculus of voting. *Public Choice 41*(1), 7–53.

Palfrey, T. R. and H. Rosenthal (1984). Participation and the provision of discrete public goods: A strategic analysis. *Journal of Public Economics 24*(2), 171–193.

Palfrey, T. R. and H. Rosenthal (1985). Voter participation and strategic uncertainty. *The American Political Science Review*, 62–78.

Palfrey, T. R. and H. Rosenthal (1991). Testing for effects of cheap talk in a public goods game with private information. *Games and Economic Behavior 3*(2), 183–220.

Pardo del Val, M. and C. Martínez Fuentes (2003). Resistance to change: A literature review and empirical study. *Management Decision 41*(2), 148–155.

Piderit, S. K. (2000). Rethinking resistance and recognizing ambivalence: A multidimensional view of attitudes toward an organizational change. *Academy of Management Review 25*(4), 783–794.

Shapiro, C. and J. E. Stiglitz (1984). Equilibrium unemployment as a worker discipline device. *The American Economic Review 74*(3), 433–444.

Tichy, N. M. (1983). *Managing Strategic Change: Technical, Political, and Cultural Dynamics*, Volume 3. John Wiley & Sons.

Van de Kragt, A. J., J. M. Orbell, and R. M. Dawes (1983). The minimal contributing set as a solution to public goods problems. *The American Political Science Review*, 112–122.

Waddell, D. and A. S. Sohal (1998). Resistance: A constructive tool for change management. *Management Decision 36*(8), 543–548.

Waldersee, R. and A. Griffiths (1997). The changing face of organizational change. CCC Paper No. 065, Centre for Corporate Change, Australian Graduate School of Management, The University of New South Wales, Sydney.

Wanberg, C. R. and J. T. Banas (2000). Predictors and outcomes of openness to changes in a reorganizing workplace. *Journal of Applied Psychology 85*(1), 132.