## Urs Fischbacher Simeon Schudy

## Reciprocity and Resistance to <br> Comprehensive Reform

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# Reciprocity and resistance to comprehensive reform 

Urs Fischbacher ${ }^{1}$<br>Simeon Schudy ${ }^{2}$

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#### Abstract

Comprehensive reforms often fail, despite being beneficial to society. Politicians may block comprehensive reforms in an attempt to form vote trading coalitions in which they benefit from a piecemeal reform at the expense of others. Because formal commitment devices for vote trading are frequently missing, trust and reciprocity among legislators can play an important role for vote trading and consequently for resistance to comprehensive reform. We show in a laboratory experiment that trust and reciprocity causes resistance to comprehensive reform. Legislators strategically reject the comprehensive reform in environments in which trust and reciprocity facilitate vote trading whereas they accept the comprehensive reform else wise.


Keywords: Vote trading, comprehensive reform, committee voting experiment
JEL-Classification: C92, D71, D72, P16

[^0]
## 1 Introduction

Comprehensive reforms often fail or become piecemeal during the preparatory phase of legislation. Such resistance to comprehensive reforms has been explained by uncertainty about outcomes of reforms (see e.g. Fernandez and Rodrik, 1991 and Cason and Mui, 2003), the existence of veto players (see e.g. Tsebelis, 2002 and Kagel et al., 2010), interest groups or wars of attrition (Alesina and Drazen, 1991 and Saint-Paul, 2002) and psychological constraints such as confirmatory bias (Samuelson and Zeckhauser, 1988 and Rabin and Schrag, 1999; for an excellent survey see also Heinemann, 2004). We provide a new rationale for resistance to reform: trust and reciprocity among legislators, which allow for vote trading without commitment devices.

Facing a comprehensive reform, legislators in favor of a subset of individual bills included in the comprehensive reform will be willing to impede the comprehensive reform if they expect their favorable subset to be implemented by a vote trade after comprehensive reform failure. For selfish legislators, such a vote trade requires formal commitment devices. Instead, if legislators trust and reciprocate, commitment devices for vote trading will not be necessary to trade votes.

A vast amount of theoretical (see e.g. Rabin, 1993; Levine, 1998; Bolton and Ockenfels, 2000; Charness and Rabin, 2002; Dufwenberg and Kirchsteiger, 2004; Falk and Fischbacher, 2006 and Cox et al., 2007) and experimental work (e.g. Fehr et al., 1998; Fehr and Gächter,1998; Charness and Rabin, 2002; Falk et al., 2008; Dohmen et al., 2009) has underlined the importance of reciprocity in human interactions. People reward kind actions and punish unkind actions. Humans not only reciprocate, but also trust in reciprocal behavior by others (see e.g. Berg et al., 1995; McCabe et al., 1998 and Strassmair, 2009).

The aim of this paper is first, to investigate the circumstances that facilitate trust and reciprocity among legislators facilitates vote trading, and second, to study how vote trading based on trust and reciprocity affects the willingness to resist efficient comprehensive reforms. To do so, we conduct a laboratory experiment in which a committee votes on an efficient comprehensive reform including three independent bills. The approval of each individual bill is efficient but only preferred by a minority.

The comprehensive reform requires unanimity. ${ }^{3}$ If the comprehensive reform fails, the committee may still pass all or some of the bills in a sequential bill-by-bill voting procedure. In the sequential voting procedure the committee votes independently on each bill under simple majority rule. Because in the experiment each bill is only preferred by a minority standard economic theory predicts no bill to be passed in the sequential bill-by-bill voting procedure. Consequently, in an subgame perfect equilibrium selfish legislators vote for the comprehensive reform. However, if legislators trust in others' reciprocity, legislators will expect vote trading on individual bills after reform failure to be possible. In turn, resistance to comprehensive reform may occur.

The importance of trust and reciprocity for vote trading on individual bills after reform failure may depend on the transparency of the voting procedure following comprehensive reform failure. If this voting procedure provides information on each legislators' votes (open ballot), legislators may identify their potential vote trading partners. If, instead, information on individual voting behavior is missing (secret ballot), it will be impossible to direct reward to specific trading partners. We study resistance to comprehensive reform with both institutional settings, open and secret ballot with the possibility of voting for a comprehensive reform.

We find that transparency in the sequential voting procedure is crucial for vote trading based on trust and reciprocity. In the open ballot treatments of our experiment we frequently observed vote trades in which two legislators passed their preferred bills at the expense of the third legislator. In the secret ballot treatments, vote trading based on trust and reciprocity turned out to be difficult. Vote trading possibilities in the open ballot treatment were sufficient to cause resistance to the efficient comprehensive reform. Legislators who expected vote trading to be possible (and beneficial to them) strategically impeded comprehensive reforms when the sequential voting procedure was transparent. Thus, an imperfect device for vote trading, namely a transparent sequential bill-by-bill voting procedure, was sufficient to cause resistance to comprehensive reform. Instead, secret voting procedures (i.e. individual voting behavior is not observable) reduced legislators' trust and, in turn, resistance to comprehensive reform.

[^1]There has been an extensive discussion on the welfare effects of vote trading based on the seminal work by Tullock (1959). Buchanan and Tullock (1962) argue that vote trading allows for the representation of degrees of intensities of preferences: Legislators can trade votes on issues where their preferences are relatively weak against votes on issues where their preferences are relatively strong. Thus vote trading is mutually beneficial to those involved in the trade. Brams and Riker (1973) point out that although each vote trade may be beneficial to traders, there is a risk that third parties not involved in the trade bear a substantial part of the cost involved in the respective trade. When the cost for third parties exceeds the benefits from trades, subsequent vote trades may lead to a situation under which vote trades eventually make everyone worse off (the paradox of vote trading). McKelvey and Ordeshook (1980) were the first to test Brams and Riker's paradox of vote trading experimentally. They observe the vote trading patterns predicted by Brams and Riker in a series of experiments with three and five person committees and a face to face communication environment with formal commitment devices. However, in some of their experiments, committee members were allowed to cancel vote trades when all members involved in trading agreed. Consequently, Pareto-dominated outcomes were eventually replaced by canceling all trades under unanimous agreement or by a majority coalition implementing its preferred outcome. In contrast to the study by McKelvey and Ordeshook (1980) our subjects could not communicate face to face, nor in any other form. Further, our subjects were completely aware of the impact of their choices on others' payoffs whereas McKelvey and Ordeshook (1980) assured that their participants were not informed about the exact amounts earned by others in order to exclude non-selfish motivations for vote trading.

In contrast to the literature mentioned above, our contribution focuses on the impact of vote trading without commitment devices on resistance to comprehensive reforms. We demonstrate that legislators can succeed in vote trading even when formal commitment devices and communication possibilities are missing. Legislators trust in their counterparts' reciprocity and vote for bills contrary to their (induced) preferences. Transparency of the decision making procedure provides accountability and thus increases trust in others' reciprocity. In turn, when the alternative voting procedure was transparent, vote trading occurred and resistance to the comprehensive reform was profitable for those involved in trading.

## 2 Experimental design

In the experiment subjects form three-member committees and decide on an efficient comprehensive reform. The comprehensive reform includes three individual bills. Each bill is efficient, but preferred by only one member of the committee. A committee member's preferred bill yields 6 additional points for herself, whereas the other two members of the committee incur a loss of two points each. Thus, if an individual bill is passed, gross payoff will increase by two points. Because only one participant of the group gains from each individual bill, each individual bill is disadvantageous to a majority of the group. Table 1 shows how each bill affects the participants' payoffs. The participants are informed about their own and their counterparts' payoffs.

If the comprehensive reform is approved, all bills will be implemented, i.e. each participant receives two additional points. Passing the comprehensive reform requires unanimity. This allows us to elicit preferences against the comprehensive reform in an unambiguous way (voting the comprehensive reform down will always lead to comprehensive reform failure). We do not display information on who vetoes the comprehensive reform in order to minimize fear of revenge as a reason to accept the comprehensive reform.

If at least one member vetoes the comprehensive reform, the committee will decide sequentially on the three individual bills under simple majority rule. We decided for a sequential procedure because it allows us to study the implications of reciprocal behavior among committee members on vote trading in a controlled environment. In the sequential bill-by-bill procedure, each bill can be passed or failed. First, all committee members simultaneously cast their votes on the first bill. Then, we inform the committee about the outcome of the vote. Second, each member casts her vote for the second bill. The second vote is displayed and the group decides on the third bill. Eventually, the outcome of the third vote and the resulting payoff changes are displayed.

|  | Bill A | Bill B | Bill C |
| :--- | :--- | :--- | :--- |
| Member A | +6 | -2 | -2 |
| Member B | -2 | +6 | -2 |
| Member C | -2 | -2 | +6 |

Table 1: Bills and resulting payoff changes

To test whether trust in others' reciprocity leads to resistance to comprehensive reform, we vary the bill-by-bill voting procedure with respect to the information on individual voting behavior. We suppose transparency provides accountability and therefore increases trust in others' reciprocity. The committee either votes in a transparent bill-by-bill voting procedure (open ballot), in which individual voting behavior is observable, or in a secret ballot, where only the outcome of each vote is displayed (secret ballot).

Before committee members decide on the comprehensive reform, we inform them about the alternative voting procedure and about the (random) order of bills in the alternative procedure. This allows us to infer committee members' reaction to information about potential gainers and losers of each procedure. As further controls, we run additional treatments without the possibility to agree on a comprehensive reform. In these treatments the committee decides on the three bills either in an open (OpenBallotNoCR) or secret (SecretBallotNoCR) bill-by-bill voting procedure with simple majority rule. We can thus investigate the effect of transparency on trust in others' reciprocity in a controlled environment and test whether the failure of a comprehensive reform affects trust and reciprocity among committee members.

We repeat the game for 12 periods to allow for learning and changes of voting behavior over time. In each period, each participant is randomly assigned into a group of three participants (stranger matching). The random matching procedure excludes individual reputation building. In sessions with at least 24 subjects we divided subjects into two separate matching groups. Table 2 summarizes the number of subjects, sessions and treatments in detail. None of the subjects participated in more than one session.

Each subject sat at a randomly assigned and separated PC terminal and was given a copy of instructions. ${ }^{4}$ A set of control questions ensured the understanding of the game. If any participant repeatedly failed to answer correctly, the experimenter provided an oral explanation. No form of communication was allowed during the experiment. We conducted all sessions at the LakeLab (University of Konstanz,

[^2]| Treatment | \# Subjects | \# Sessions | \# Matching <br> Groups |
| :--- | :--- | :--- | :--- |
| Comprehensive reform and open ballot <br> (OpenBallotCR) | 63 | 3 | 5 |
| Comprehensive reform and secret ballot <br> (SecretBallotCR) | 51 | 2 | 4 |
| No Comprehensive reform and open ballot <br> (OpenBallotNoCR) | 51 | 2 | 3 |
| No Comprehensive reform and secret ballot <br> (SecretBallotNoCR) | 54 | 2 | 3 |

## Table 2: Treatments, sessions and matching-groups

Germany). The data was collected over 9 sessions, with 219 participants in total. Participants received a show-up fee of 2 euros ( $\$ 2.40$ at that time).

The experiment took about one hour and 15 minutes, average income (including the show-up fee) was about 14.40 euros ( $\$ 17.30$ ). The experiment was programmed and conducted using z-Tree (Fischbacher, 2007). We recruited participants using the online recruiting system ORSEE (Greiner, 2004). Participants were part of the LakeLab subject pool, including undergraduate and graduate students of all fields of study.

## 3 Behavioral predictions

## The sequential bill-by-bill voting procedure

Committees comprised of selfish members will vote down all bills in the sequential bill-by-bill voting procedure if commitment devices for vote trading are missing. This holds irrespective of whether the voting procedure is transparent or not. Instead, if legislators expect their counterparts to reward support (with a sufficiently high probability ${ }^{5}$ ) they will court for reward by voting for bills preceding their own bill on the sequential voting agenda. Assuming first, that legislators are reciprocal and do not support bills preferred by legislators who voted down their own preferred bill and second, that legislators do not treat counterparts about whom they have the same behavioral information differently, the approval of the first bill is weakly more likely than the approval of second and third bill (Proposition 1). ${ }^{6}$ Assuming additionally that the legislator, who prefers the last bill on the agenda, does not vote more frequently for the first bill than

[^3]the legislator preferring the second bill, it follows that the approval of the second bill is weakly more likely than the approval of the third bill (Proposition 2). ${ }^{7}$

## The comprehensive reform

Standard economic theory predicts that the committee will approve the efficient comprehensive reform because committees comprised of selfish members will vote down all bills in the alternative sequential bill-by-bill procedure. For resistance to reform to be caused by something different than decision errors, at least one legislator needs to expect another legislator to vote for her bill in the sequential bill-by-bill voting procedure. If legislators indeed expect reciprocal behavior by their counterparts with a sufficiently high probability (such that counterparts are willing to vote for bills preceding their own bill on the alternative sequential bill-by-bill agenda), it will be worthwhile to veto the comprehensive reform. As explained above, the approval for the first bill is weakly more likely than the approval of the second and third bill on the alternative agenda. In turn the probability of a veto is (weakly) higher for legislators preferring the first bill than for legislators preferring the second or third bill on the agenda.

## Transparency and reform failure

Standard economic theory predicts that the committee will approve the efficient comprehensive reform irrespective of transparency in the alternative bill by bill voting procedure. Similarly, if voting for another legislator's bill is expected to result from decision errors, it will occur irrespective of transparency and so does resistance to reform. If voting for another legislator's bill instead is expected to result from other legislators courting for a reward and the probability of reward depends on transparency, resistance to reform will depend on transparency as well. We consider it as plausible to assume that transparency provides accountability and thus subjects expect a higher probability of reward in the open ballot treatments. Consequently, we expect legislators to trust more in their counterparts, i.e. we expect votes for bills preceding one's preferred bill on the alternative bill-by-bill agenda to occur more frequently in the open ballot treatments, in which the bill-by-bill voting procedure is transparent. Resistance to the comprehensive reform is thus also more likely to occur in OpenBallotCR.
${ }^{7}$ Proof of Proposition 2 can be found in appendix B. Note also that due to the random matching procedure, there is no incentive for individual reputation building across periods, which might induce any additional motives for supporting monetarily unfavorable reforms.

## 4 Results

To understand why some members may veto the comprehensive reform it is necessary to shed light on the behavioral pattern in the alternative bill-by-bill voting procedures. Therefore, we will first discuss the effects of transparency on voting behavior in the sequential bill-by-bill voting procedure and second present the results with respect to resistance to comprehensive reform.

## Trust and reciprocity in the sequential bill-by-bill voting procedure

Committee members in our experiment frequently vote for monetarily unfavorable bills. Figure 1 illustrates acceptance rates of monetarily unfavorable reforms in the bill-by-bill voting procedure for OpenBallotCR and SecretBallotCR, after the failure of the comprehensive reform, as well as for treatments OpenBallotNoCR and SecretBallotNoCR, in which no comprehensive reform was available. Each column represents the share of members voting for a reform bill which is monetarily disadvantageous to them. In the open ballot treatments (OpenBallotCR and OpenBallotNoCR), the earlier a bill is voted on in the bill-by-bill procedure, the higher the probability of its approval. For the first bill two committee members have an incentive to court for positive reciprocity toward members preferring the bills second and third on the agenda. When voting on the second bill, the member in favor of the first bill has a strong monetary incentive to reject the second bill whereas the member preferring the third bill still has an incentive to vote for the second bill as long as she expects reward by the member preferring the second bill. Consequently, the actual approval rate for the second bill is clearly lower than for the first. The same logic applies for the third bill, which is clearly less frequently accepted than the first or second bill.

We observe 67 percent of members voting for the first bill in OpenBallotNoCR although they incur a loss from the approval of this bill, and 40 percent for the second bill. In SecretBallotNoCR only 35 percent vote for the first bill and 22 percent for the second. The regressions in Table 3 confirm that transparency, i.e. information on individual voting behavior, increases the individual acceptance of the first and second reforms significantly, whereas transparency does not affect the acceptance of the third bill by members preferring earlier bills. We summarize this finding in Result 1.

Result 1- Transparency increases the probability of acceptance of early bills (first and second) in the sequential bill-by-bill voting procedure.

In order to understand whether transparency increases reward, trust in others' reciprocity, or both, the further analysis focuses on reward behavior and trust in others' reciprocity (i.e. expected reward) across treatments. In the open ballot treatments reward refers to a situation in which a committee member rewards her helping counterpart by accepting a subsequent bill favored by the helping counterpart. In the secret ballot treatments, committee members cannot identify supporters. If one's preferred bill is passed, voting for an unfavorable subsequent bill will refer to reward with respect to the group. In order to make reward in the open and closed ballot treatments comparable, we focus on the share of committee members who accept at least one subsequent bill, provided their preferred bill is approved. With respect to trust in others' reciprocity, we draw conclusions from the acceptances of preceding but monetarily unfavorable bills. We understand trust as a behavior based on an optimistic belief, namely based on the belief of reward by one's counterpart. We use the probability


Figure 1: Share of members accepting monetarily unfavorable bills (when CR failed)

| Probit (robust std. errors) | CR Treatments <br> - after failure of CR |  | No CR Treatments |  |
| :--- | :--- | :--- | :--- | :--- |
| Dep.Var.: | ...first bill | ...second bill | ..first bill | ...second bill |
| Acceptance of... | $-0.77^{* * *}$ | $-0.68^{* * *}$ | $-0.39^{* * *}$ | $-0.78^{* * *}$ |
| Constant | $(0.135)$ | $(0.097)$ | $(0.140)$ | $(0.232)$ |
|  | $0.93^{* * *}$ | $0.25^{*}$ | $0.84^{* * *}$ | $0.53^{* *}$ |
| Transparency | $(0.165)$ | $(0.135)$ | $(0.147)$ | $(0.269)$ |
| Pseudo R 2 | 0.09 | 0.01 | 0.08 | 0.03 |
| Number of Observ. | 510 | 510 | 840 | 840 |
| Std.Err. adjusted for \# | 9 | 9 | 6 | 6 |

Table 3: Transparency and the acceptance of monetarily unfavorable reforms *p-val.<.10, ${ }^{* *}$ p-val. $<.05,{ }^{* * *}$ p-val.<. 01
of the acceptance of at least one unfavorable preceding bill as a measure for trust. We are aware that efficiency concerns might also affect this probability because efficiency seekers will always vote for all bills. However, our data suggest efficiency concerns to be low. Only 5 percent of subjects vote for an unfavorable bill although their preferred bill failed. ${ }^{8}$ Further efficiency concerns should not vary significantly across treatments and thus cannot explain treatments differences in the probability of the acceptance of at least one unfavorable preceding bill.

Table 4 summarizes the shares of members rewarding (accepting at least one subsequent unfavorable bill provided the approval of one's own bill) and trusting in others' reciprocity (accepting at least one preceding bill) for the four treatments. The share of members rewarding their counterparts is slightly higher in transparent than in secretive procedures. 25 percent of members reward their counterparts in OpenBallotCR, 18 do so in SecretBallotCR, 30 percent do so in OpenBallotNoCR and 24 percent in SecretBallotNoCR. In open ballot treatments a substantially higher share of members trusts in others' reciprocity. In OpenBallotCR 66 percent of members accept preceding bills detrimental to their induced preferences, in SecretBallotCR only 37 percent do so. In OpenBallotNoCR this share amounts to 75 percent whereas in SecretBallotNoCR it is only 41 percent. Using Probit regressions (Table 5) we find that transparency increases (weakly significantly) reward and (highky significantly) trust. Both, members in favor of the second and third bill accept preceding bills more frequently provided that individual voting behavior is observable. We summarize our finding in Result 2.

Result 2 - Transparency increases trust and (weakly) reciprocity.

| Treatment | Reward <br> Share of members accepting at least <br> one subsequent unfavorable bill <br> when own bill is approved | Trust <br> Share of members <br> accepting at least one pre- <br> ceding unfavorable bills |
| :--- | :--- | :--- |
| OpenBallotCR | .25 | .66 |
| SecretBallotCR | .18 | .37 |
| OpenBallotNoCR | .30 | .75 |
| SecretBallotNoCR | .24 | .41 |

Table 4: Share of members rewarding / trusting

[^4]| Probit (robust std. errors) | Dependent Variable: <br> Reward <br> (Probability of the acceptance of at least one unfavorable subsequent bill when own bill is approved) | Dependent Variable: <br> Trust <br> (Probability of the acceptance of at least one unfavorable preceding bill) |
| :---: | :---: | :---: |
| Comprehensive | -0.182 | -0.182 |
| Reform Treatment |  |  |
|  | (0.121) | (0.112) |
| Transparency | 0.215* | 0.823*** |
|  | (0.119) | (0.125) |
| Constant | $-0.725 * * *$ | -0.199 |
|  | (0.089) | (0.144) |
| Number of Observ. | 814 | 1,350 |
| Pseudo $\mathrm{R}^{2}$ | 0.00734 | 0.0736 |
| Prob>X ${ }^{2}$ | 0.113 | 0.000 |
| Std.Err. adjusted for \# clusters | 15 | 15 |

> Table 5: Transparency, reward and trust in others' reciprocity $$
{ }^{*} \mathrm{p}-\mathrm{val} .<.10,{ }^{* *} \mathrm{p}-\mathrm{val} .<.05,{ }^{* * *} \mathrm{p}-\mathrm{val} .<.01
$$

## Resistance to reform

We are now ready to turn to our main research question, namely whether trust in others' reciprocity is sufficient to induce resistance to comprehensive reform. Result 1 makes clear that vetoing a comprehensive reform is most attractive for members preferring the first bill on the alternative agenda, when the alternative bill-by-bill procedure is an open ballot. We observe committee members preferring the first bill on the alternative agenda vetoing the comprehensive reform in 47 percent of cases in OpenBallotCR and 25 percent in SecretBallotCR. Members in favor of later bills on the alternative agenda do so in about 16 percent of cases in OpenBallotCR and 20 percent in SecretBallotCR, ${ }^{9}$ resulting in comprehensive reform failure in 63.7 percent of cases in OpenBallotCR and 47.5 percent in SecretBallotCR. ${ }^{10}$ The regression results in Table 6 make clear that members preferring the first bill on the alternative agenda expect profitable vote trades to be possible when the sequential alternative procedure is transparent and thus impede the comprehensive reform. Members preferring later bills mainly opt for the comprehensive reform and are not affected by the transparency of the alternative voting procedure. We summarize this finding in Result 3.

[^5]Results 3 - Legislators impede comprehensive reforms when they anticipate profitable vote trading possibilities on the basis of trust and reciprocity.

Using actual probabilities, the expected payoff of blocking the package for a member preferring the first bill amounts to 7.5 points in OpenBallotCR, whereas the acceptance of the package yields only 6 points. Thus, vetoing behavior by members preferring the first bill is profitable in the open ballot procedure (OpenBallotCR). The expected payoff of resistance to comprehensive reform in the secret ballot treatment (SecretBallotCR) is 5.96 , which is slightly lower than the payoff of 6 points when the comprehensive reform is accepted. Thus, impeding the comprehensive reform in the secret ballot treatment does not pay off for members preferring the first bill. The same holds for members preferring later bills on the agenda. The expected payoffs from vetoing the package for members preferring the second bill (third bill) are 5.37 (2.27) in OpenBallotCR and 4.89 (3.11) in SecretBallotCR, i.e. these members have no monetary incentive to impede the comprehensive reform. Why do members preferring the first bill succeed in vote trading after they block the comprehensive reform? First note that in expected terms it is not worthwhile for the second beneficiary to support the first bill. However the expected payoff of voting for the first bill (for the member preferring the second bill) is only 0.08 points lower than the expected payoff from voting against the first bill. By supporting the first bill, a member preferring the second bill loses 2 points with certainty but receives a reward of 6 points by the member preferring the first bill with a probability of 35 percent. Without supporting the first bill she receives not support by the member preferring the first bill. Additionally, voting for the first bill

| Probit <br> (robust standard errors) | Dependent Variable: Probability to vote against <br> Comprehensive Reform | (remer |  |
| :--- | :--- | :--- | :--- |
|  | Member <br> preferring first <br> bill | Member <br> preferring <br> second bill | Member <br> preferring third <br> bill |
| Constant | $-0.75^{* * *}(0.104)$ | $-0.64(0.141)^{* * *}$ | $-1.16^{* * *}(0.310)$ |
| Transparency | $0.68^{* * *}(0.174)$ | $-0.03(0.212)$ | $-0.27(0.377)$ |
| Pseudo R $^{2}$ | 0.05 | 0.0001 | 0.0099 |
| Prob $>\mathrm{X}^{2}$ | 0.00 | 0.87 | 0.49 |
| Number of Observ. | 456 | 456 | 456 |
| Std.Err. adjusted for \# clusters | 9 | 9 | 9 |

Table 6: Transparency and resistance to reform *p-val.<.10, ${ }^{* *}$ p-val. $<.05,{ }^{* * *}$ p-val.<. 01
increases the probability of support for the second bill by the third beneficiary from 36 to 48 percent. ${ }^{11}$ Due to the small differences in expected payoffs, second beneficiaries may have problems to assess whether or not it is worthwhile to vote for the first bill. Also, second beneficiaries may perceive voting for the first bill as a "gamble" in which errors are not very costly.

Figure 2 indicates that members preferring the first bill on the alternative agenda change their behavior over time. In open ballot treatments resistance to reform increases from about 20 percent in early periods to about 70 percent in late periods. The regression in Table 7 confirms that members preferring the first bill on the agenda learn to block the comprehensive reform when facing a transparent voting procedure whereas resistance to reform stays at a constant level in the secret ballot treatment.

Result 4 - Legislators whose favorable bill is first on the alternative bill-by-bill agenda learn that resistance to comprehensive reforms pays off

Although we did not display individual voting decisions for the comprehensive reform, one may expect negative reciprocity (or a loss in trust) towards those legislators who had the strongest incentive to block the comprehensive reform. Indeed, participants seemed to be aware that in the open ballot treatment (OpenBallotCR) beneficiaries of


Figure 2: Resistance to reform by members preferring the first bill, over time ( $\mathrm{N}=114$ )

[^6]| Probit Regression <br> (robust standard errors) | Vote against <br> comprehensive Reform |
| :--- | :--- |
| Constant | $-0.81^{* * *}(0.137)$ |
| Transparency | $-0.09(0.388)$ |
| Period | $0.01 \quad(0.008)$ |
| Transparency*Period | $0.12^{* * *}(0.034)$ |
| Pseudo R |  |
| Number of Observ. | 0.10 |
| Robust Std.Err. adjusted for \# clusters | 456 |

> Table 7: Resistance to comprehensive reform by members preferring the first bill
> ${ }^{*}$ p-val.<. $10,{ }^{* *}$ p-val.<. $05,{ }^{* * *} \mathrm{p}$-val.<. 01
the first bill on the agenda were most likely to impede the comprehensive reform. As Figure 1 already indicates, the support for the first bill by members preferring the second or third bill is significantly stronger in the NoCR treatments compared to the CR treatments after failure of the comprehensive reform. ${ }^{12}$ When the comprehensive reform failed, members in favor of the comprehensive reform voted less frequently for the first bill whereas they voted more frequently for the second and third bills (see Table 8). Negative reciprocity (or a loss in trust) towards against the member preferring the first bill did not increase over time and its quantitative effect on actual approval rates was small. Thus, beneficiaries of the first bill on the agenda still had an incentive to impede the comprehensive reform.

Finally, we turn to the question of whether the failure of the comprehensive reform causes a general loss in trust and reciprocity among committee members. To do so, we compare the share of members trusting/reciprocating in the treatments with the possibility of voting on a comprehensive reform with treatments in which no

| Probit (robust standard. <br> errors) | Vote for first Bill | Vote for second <br> Bill | Vote for third <br> Bill |
| :--- | :--- | :--- | :--- |
| Constant | $0.55^{* * *}(0.170)$ | $-0.83^{* * *}(0.184)$ | $-1.60^{* * *}(0.105)$ |
| Vote for CR | $-0.51^{* *}(0.237)$ | $0.66^{* * *}(0.197)$ | $0.53^{* * *}(0.202)$ |
| Pseudo R2 | 0.02 | 0.05 | 0.04 |
| Number of Observ. <br> Robust Std.Err. adjusted <br> for \# clusters | 5 | 316 | 316 |

## Table 8: Discrimination after comprehensive reform failure (OpenBallotCR)

Dep. Variables: Acceptance of monetarily unfavorable bills (first, second or third bill) ${ }^{*}$ p-val. $<10$, ** $p$-val. $<05,{ }^{* * *}$ p-val. $<.01$

[^7]| Probit (robust <br> standard errors) | Dependent Variable: Reward | Dependent Variable: Trust |
| :--- | :--- | :--- |


|  | Open Ballot | Secret Ballot | Open Ballot | Secret Ballot |
| :--- | :--- | :--- | :--- | :--- |
| Constant | $-0.51^{* * *}$ | -0.72 | $0.64^{* * *}$ | -0.22 |
|  | $(0.126)$ | $(0.103)$ | $(0.050)$ | $(0.180)$ |
| Reform Failure | -0.17 | -0.196 | $-0.23^{*}$ | -0.12 |
|  | $(0.164)$ | $(0.145)$ | $(0.129)$ | $(0.205)$ |
| Pseudo R |  |  |  |  |
| Prob $>$ X $^{2}$ | 0.004 | 0.004 | 0.006 | 0.002 |
| Number of Observ. | 0.28 | 532 | 0.19 | 0.076 |
| Std.Err. adjusted for | 8 | 282 | 724 | 6.55 |
| \# clusters |  | 7 | 8 | 7 |

Table 9: The Impact of Failure of Comprehensive Reform on Trust and Reciprocity *p-val.<.10, ${ }^{* *}$ p-val. $<.05,{ }^{* * *}$ p-val.<. 01
comprehensive reform is available. Table 4 illustrates that after the failure of comprehensive reform 25 percent of members rewarded others' support in OpenBallotCR and 18 percent did so in SecretBallotCR, whereas these shares amount to 31 percent in OpenBallotNoCR and 24 percent in SecretBallotNoCR. With respect to trust in others' reciprocity we observe 66 percent of members voting for at least one preceding bill in OpenBallotCR and 37 percent in SecretBallotCR after the comprehensive reform failed, whereas these shares amount to 75 percent in OpenBallotNoCR and 41 percent in SecretBallotNoCR when no comprehensive reform was available. Thus, the impact of comprehensive reform failure on reciprocity is weak and reduces trust in open ballot treatments only slightly (Table 9).

## 6 Conclusion

We showed in a laboratory experiment that the expectation of profitable vote trades leads to resistance to comprehensive reform. According to standard economic theory, vote trading in our experiment is impossible because commitment devices for vote trading are missing. Consequently, resistance to comprehensive reform should not occur. Nevertheless we observe resistance to the comprehensive reform. Comprehensive reform failure results, because legislators expect profitable vote trades even with an imperfect device for vote trading, namely a transparent sequential bill-bybill voting procedure. The transparent voting procedure provides accountability, which allows legislators to court for positive reciprocity. Because legislators expect others to trust in their reciprocity, they impede efficient comprehensive reforms and trade votes
after comprehensive reform failure. Eventually majority coalitions emerge who trade votes at the cost of third parties.

Trust in others' reciprocity abates substantially when individual voting behavior is not observable. In turn, vote trading becomes difficult and resistance to comprehensive reform subsides. We do not claim that secretive procedures can solve the reform deadlock in real world policy making. Instead, we take our results as a warning that resistance to comprehensive reform can stem from any source which facilitates vote trades or secret agreements.

The importance of trust and reciprocity for resistance to reform might be smaller with asymmetric payoffs, private knowledge about preferences over bills and a larger number of decision makers. However, the importance of trust and reciprocity might also be larger, because in contrast to real world voting decisions, legislators in the experiment could not directly communicate to agree on a vote trade. Also, the small size of the voting body does not have to be interpreted as a small number of legislators in general. In representative democracies, usually only a small number of political parties exist. If party members are strictly adherent to the party line, decisions will eventually be made by a small number of groups. Resistance to reform may then result from parties (instead of individual legislators) strategically vetoing comprehensive reforms.

Our results shed new light on role of trust and reciprocity when designing optimal political decision making procedures. Typically trust and reciprocity are associated with positive welfare effects, for instance in trust games or public goods games. However, it is not completely uncommon that social preferences can lower social welfare, in particular, because they foster coordination also when coordination results in cooperation against others. Social preferences may for instance facilitate collusion in oligopolies or within group cooperation in rent seeking contests between groups (in which within group cooperation increases the amount of wasted money). ${ }^{13}$ In a similar way, trust and reciprocity foster coordination and in turn cooperation against others in our voting experiment. Trust and reciprocity increased total payoffs as long as the possibility for a comprehensive reform was missing. If instead a comprehensive reform were available, trust and reciprocity would lead to resistance to the comprehensive reform and in turn to lower total payoffs.

[^8]
## Appendix A: Proof of Proposition 1

With the following two assumptions, we derive Proposition 1:
(i) Legislators are reciprocal and do not support bills of legislators who turned down their own bill
(ii) Legislators do not discriminate against particular counterparts, i.e., they treat agents differently only when they have different information about their behavior

Proposition 1 - The approval of the second bill and the approval of the third bill is not more likely than the approval of the first bill

Proof. If the first bill is not accepted then both the second and the third beneficiary have turned down the first bill. According to (i) the first beneficiary will not vote for any subsequent bill. Further, because of (ii), the third beneficiary will also vote against the second bill. Finally, also the third bill will be turned down because the third beneficiary did not support any preceding bill. Thus, it is not possible that the second or the third bill is approved more frequently than the first bill.

## Appendix B: Proof of Proposition 2

Assuming (i), (ii) and
(iii) Subjects in the role of the third beneficiary do not vote more frequently for the first bill than subjects in the role of the second beneficiary.
we derive proposition 2.

Proposition 2 - The approval of the third bill is not more likely than the approval of the second bill.

Proof. We first prove the proposition for voting with partial information. Let us start with the case in which the first bill fails. As we have seen in the proof for proposition 2.1, both the second and the third bills will be turned down in this case. We now turn to the case in which the first bill is approved. Due to (ii) the first beneficiary either votes for both or none of the subsequent bills. If she accepts both bills, both the second and third bills are approved. If she votes against the second and third bills, the second bill can only fail if the third beneficiary votes against it. However, in this case the third bill will also receive no support by the second beneficiary (due to (i)) and will also fail.

Let us now turn to the full information case. So far, we have shown that when a bill fails, the subsequent bills fail as well. This is not necessarily true in the full information condition. Here it is possible that the third beneficiary supports only the first beneficiary and receives reward by the first beneficiary whereas the second beneficiary does not support the first bill and receives support neither from the first beneficiary (due to (i)) nor from the third beneficiary because the third beneficiary knows that the second beneficiary turned down the first bill. Hence it is in general possible to observe the committee passing only the first and the third bills. We will now show that it is nevertheless not possible that the third bill is on average approved more frequently than the second due to (iii). Consider two different matching protocols: In matching 1 , participant A is the first beneficiary, participant B is the second and participant C is the third beneficiary. Thus participant A received support from participant C and therefore also voted for participant C's bill. In matching 2 instead the participants are matched differently so that participant A is still the first beneficiary, but participant C is now second beneficiary and participant $B$ is now the third beneficiary. This means that participant A received support by participant $C$, who is now second beneficiary and participant B who is now third beneficiary does not vote for the first bill, and due to (i) and (ii) does not receive any support. Thus with random matching we can conclude that on average the third bill cannot be approved more frequently than the second bill.

## Appendix C: Instructions (translated from German)

We present a full translation of the instructions for the OpenBallotCR. Instructions for OpenBallotNoCR are identical, except for the decision on the package, which is missing there. In the treatments with a secret ballot we modified the instructions at the relevant parts. We indicate these modifications after the translated instructions for OpenBallotCR. The general information is identical in all treatments.

## General information (Participant A)

Today you take part in an economic decision making experiment. If you read the following instructions carefully, you will be able to earn money additionally to your show-up fee of 2 Euro. Therefore it is important that you read the instructions completely.

For the entire duration of the experiment, it is not allowed to communicate with other participants. We therefore ask you not to talk to each other. If you have problems understanding the experiment, please have a second look at the instructions. If you still have questions, please give us a hand signal. We will come to your cubicle and answer your questions personally. During the experiment, we do not talk about Euro, we talk about points. The numbers of points you earn in the experiment are converted into Euro with the following exchange rate.

$$
\mathbf{1} \text { Point }=€ \mathbf{0 , 2 0}
$$

At the end of the experiment, you will receive the 2 Euros show-up fee plus the equivalent of all points received in the experiment in cash. The following pages will explain the experiment in detail. At the end of the instructions we added some control questions helping you to understand the sequence of events. The experiment does not start until all participants solved the control questions and are completely familiar with the course of the experiment.

## Summary

This experiment has 12 periods. In each period you will form a group with two randomly determined participants. At the beginning of a period each participant receives 4 Points. Then you and the other two members of the group decide on three different bills. The bills affect the points of each group member. A period ends when the group made a decision on all three bills. Then, a new period starts. You form a new group with two randomly chosen participants. All over you decide on three bills in 12 Periods. After the final period you will see a summary table on screen showing your points earned in each period.

At the end of the experiment you receive the $\mathbf{2}$ Euro show-up plus the euro equivalent of points earned in cash.

## The Experiment

In this experiment we speak of three different participants, Participant A, B and C. You are a Participant A. In each period you form a group of three members with a randomly chosen participant B and a randomly chosen participant C . At the beginning of each period each participant receives 4 points. There are three bills to be voted on in each Period. We label them Bill A, B and C, respectively. First the group chooses if all three bills shall be accepted simultaneously or not.

If all members of the group decide to vote on the acceptance of all three bills, the vote on this package of bills takes place. Each member votes (simultaneously) for or against the acceptance of all three bills. If a majority of the group (at least two members) votes for the acceptance of all three bills, the bills are accepted.

If the group does not unanimously agree on voting on all three bills at once, the group decides sequentially on the three bills. If a majority (at least two members of the group) accepts a bill, it is passed.

The bills in detail: Each of the three bills yields 6 additional points for one group member but subtracts two points from each of the other two members.

Bill A: Participant A receives 6 additional Points, 2 points are subtracted from Participant B and C (each).

Bill B: Participant B receives 6 additional Points, 2 points are subtracted from Participant A and C (each).

Bill C: Participant C receives 6 additional Points, 2 points are subtracted from Participant A and B (each).

Each bill can be accepted or rejected by the group. Thus it is possible that more than one bill is accepted or rejected. The order in which the bills are voted on is determined randomly. The six possible sequences are:

| Sequence | 1st Bill | 2nd Bill | 3rd Bill |
| :---: | :---: | :---: | :---: |
| 1 | Bill A | Bill B | Bill C |
| 2 | Bill A | Bill C | Bill B |
| 3 | Bill B | Bill A | Bill C |
| 4 | Bill B | Bill C | Bill A |
| 5 | Bill C | Bill A | Bill B |
| 6 | Bill C | Bill B | Bill A |

At the beginning of each Period, namely before the decision on the first bill, the sequence of bills is displayed on your computer screen.

Procedures are the following

## Step 1 - Decision on the voting procedure

Participants of each group see the three bills and the possible sequence, given the group decides for the sequential procedure.

Each participant states in Step 1 if she is for or against voting on all bills at once. If all participants of a group decide to vote on all bills at once Step 2a comes next, otherwise it follows Step 2b.

Step 2a - Simultaneous Procedure (only if all members of the group agreed on voting on the three bills at once)

Each participant of the group states if she is for or against accepting all bills at once. It follows Step 3.

Step 2b - Sequential Procedure (only if at least one member of the group disagreed on voting on the three bills at once in Step 1)

In this Step, you see the bill put to vote. You state whether you are for or against this bill. Step 2c follows.

Step 2c - Outcome of the vote on a single bill (only if at least one member of the group disagreed on voting on the three bills at once in Step 1)

After all participants of a group made their choice, the result of the current vote will be displayed on the computer screen. A bill is accepted if a majority of the group voted for the bill, i.e. if two or three group members voted for the bill.

In this Step you can also see which participant of your group decided for/against the current bill.

It follows the decision on the next bill. This means you see the next bill put for vote and decide on this bill (see Step 2b). Then, you see the outcome of this vote (see Step 2c).

Then you decide on the third bill and see the result of the group decision.

## Step 3 - Result

After voting on the three bills, a summary table is presented on your computer screen. It shows which bills passed or failed in this period. Also, it displays the number of points earned.

After Step 3 you are again randomly matched with two participants and form a new group.
When the new period starts, no participant receives any information on your voting behavior from previous periods. Also, you do not receive any information on the voting behavior from previous periods of the new group's participants. Neither before nor after the experiment, will you receive any information about your counterparts' identity. The randomly selected participants who interact with you do also not receive any information on your identity.

## Payment

At the end of the experiment you receive the 2 Euro show-up plus the euro equivalent of points reached in cash.

We now present an example which helps you to understand the course of the experiment on screen in more detail. At the end of this example you will find some control questions. Please write down your answers to these questions. Your answers to these questions will not affect the amount of money you will receive at the end of the experiment.

## Course of the experiment on the computer screen- an example

## Step 1 - Decision on the voting procedure

All Participant of the group see the three bills and the randomly selected order in which they will be voted on in case of a sequential voting procedure.

Each participant decides in this Step, whether she is for or against voting on the three bills at once.

If all participants of a group decide for voting on the three bills at once Step 2a will follow, otherwise continue with Step 2b.

A screenshot of Step1 (in this example):


The first line in the table shows the randomly selected order of bills (in this example: 1st Bill B, 2nd Bill C and 3rd Bill A).

Below we present how each bill will change the amount of points of each participant, if a majority accepts this bill.

In this example:
$\mathbf{1}^{\text {st }}$ Bill B: Participant B receives 6 additional Points, 2 points are subtracted from Participant A and C .
$\mathbf{2}^{\text {nd }}$ Bill C: Participant C receives 6 additional Points, 2 points are subtracted from Participant A and B .
$\mathbf{3}^{\text {rd }}$ Bill A: Participant A receives 6 additional Points, 2 points are subtracted from Participant $B$ and $C$.

If a bill is not accepted by a majority, it does not affect the points of any participant.

## Step 2a - Simultaneous voting Procedure

We now look at the case in which all participants of a group decided to vote on the three bills at once. Then the participants see the following screen:


Each Participant of the group now chooses to accept /or reject all bills at once.
If a majority, at least 2 participants of the group, decides to accept all bills at once, all three bills are accepted. If a majority votes against all three bills, the bills are rejected. It follows

## Step 3.

## Step 2b-Sequential procedure

Now we look at the case in which at least one participant of a group decided not to agree on voting on the three bills at once. This means, bills are now voted on sequentially, in the previously displayed order. In our example, first Bill B, then Bill C and finally Bill A:


The first bill to be voted on is: Bill $B$

Please vote now on the first bill: $\subset$ accept
$\checkmark$ reject

You decide whether to accept/reject the current bill and click the „OK"-Button. After all participants of the group made their decision, the voting result is displayed.

Let us assume that, in our example, Participant B accepted the $1^{\text {st }}$ bill, You (Participant A) and Participant C, however, rejected the $1^{\text {st }}$ bill. The intermediate result (Step 2c) is displayed on your computer screen:

Step 2c-Outcome of the vote on a single bill

| Periode |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 von 1 |  |  |  |  |  |
| Result for 1st bill (Bill B) |  |  |  |  |  |
|  | 1st bill B | 2nd bill C |  | 3rd bill A |  |
| Change in payoff for Participant A | -2 |  | -2 |  |  |
| Change in payoff for Participant B | 6 |  | -2 | - |  |
| Change in payoff for Participant C | -2 |  | 6 | - |  |
| Decision by participant A | no |  |  |  |  |
| Decision by participant B | yes |  |  |  |  |
| Decision by participant C | no |  |  |  |  |
| Outcome of the vote | rejected |  |  |  |  |
|  |  |  |  |  |  |

The table again shows the order in which the bills are voted on. And who voted for or against a bill. In the last line you see whether a bill was accepted or rejected by the majority of the group. In our example a majority (You and participant C) voted against the first bill. Thus in this example the table shows that the $1^{\text {st }}$ bill was rejected by a majority. Consequently, the points of all participants in your group are not affected. By clicking on the "continue" button you will come to the next decision.

Now voting on the second bill begins. Then you see the result of the group's decision on screen. Let's assume a majority of the group accepted the second bill.

Then voting on the third bill starts. You see the third bill and decide for or against it. Let's assume for our example that again a majority accepted the third bill.

We continue with Step 3.

## Step 3 - Result

At the end of a period and independent from the voting procedure chosen by your group, you will see a summary table showing points received by you and your group members.

In the following we explain how the points received in the period of our example are calculated.

In case of voting on the three bills at once, (continued from Step 2a) there are two possible outcomes:

The majority accepts all bills at once.
This yields for each participant of the group:
4 points (endowment)
+6 points (by the one bill in favor of the participant)
-4 points (by the two bills in favor of the other two group members)
$=6$ points
All bills were rejected at once.
This yields 4 points for each participant (the endowment)
Given the group decided for the sequential procedure, (continued from Step 2c) points received at the end of a period are calculated as follows:


The table displays again the order in which bills where voted on. Additionally you see in the second line whether a bill was accepted or rejected by the majority of the group. In our example the first bill was rejected, whereas the other two bills were accepted. Endowment is 4 points.

The first bill did not affect the points received by participants in this group, because it was rejected. The second bill was accepted and yields participant C six additional points, whereas 2 points are subtracted from participant A and B each. The third bill was accepted too in our example. It yields six additional points for participant A , and subtracts two points from each of the other two participants.

Points received at the end of the period by each participant are calculated as follows:
Points Participant A $=4+0-2+6=8$
Points Participant $B=4+0-2-2=0$
Points Participant $\mathrm{C}=4+0+6-2=8$
After clicking the „OK"- Button, you are randomly matched into a new group.

## Control questions

Please read the new example on this page and answer the control questions.

Your answers to these questions will not affect the amount of money you will receive at the end of the experiment.

## Example:

| Periode |  |  |  |
| :---: | :---: | :---: | :---: |
| 1 von 1 |  |  |  |
|  | 1st bill B | 2nd bill C | 3rd bill A |
| Change in payorf for Participant $A$ | -2 | -2 | 6 |
| Change in payoff for Participant B | 6 | -2 | -2 |
| Change in payoff for Participant C | -2 | 6 | -2 |
| Decision by participant A |  |  |  |
| Decision by participant B |  |  |  |
| Decision by participant C |  |  |  |
| Outcome or the vote |  |  |  |
| The agenda for this period is |  |  |  |
|  |  | B |  |
|  |  | 11 |  |
|  |  | A |  |
| Before voting on the three bills each participant receives 4 points. |  |  |  |
|  |  |  | OK |

Assume that at least one participant of the group decided against voting at once on the three bills.
Assume further...
You accept the 1st and 3rd bill.
Participant B accepts the $1^{\text {st }}$ and $3^{\text {rd }}$ bill.
Participant C accepts the 1st and 2nd bill
Which bills are accepted by a majority of the group?
How many points do you receive in this period?
How many points does participant B receive in this period?
How many points does participant C receive in this period?
acorrect or awrong: „If two of three group members decide for voting on the three bills at once, the group will decide on the three bills at once.

## [Change of instructions for Treatments SecretBallotCR OpenBallotNoCR and Secret NoCR]

## The Experiment

In this experiment we speak of three different participants. Participant $A, B$ and $C$. You are a Participant A. In each period you form a group of three members with a randomly chosen participant B and a randomly chosen participant C .

At the beginning of each period each participant receives 4 points.

There are three bills to be voted on in each period and group. We label them Bill A, Bill B and C respectively. Each group chooses weather to pass or fail each bill sequentially. If a majority (at least two members of the group) accepts a bill, it is passed. The order of bills is random.

The bills in detail: ... [See instructions for OpenBallotCR]

Procedures are the following...

## Step 1 - Determination of the agenda

A random process determines the order of the bills.

## Step 2 Agenda display

Participants can see the current order of bills on their computer screens. It follows step $3 \ldots$

## Step 3 - Sequential Procedure

In this step you see which bill is currently voted on. You decide if you accept or reject the bill.

## Step 4 - Result

After all participants of a group made their choice, the result of the current vote will be displayed on the computer screen. A bill is accepted if a majority of the group voted for the bill, i.e. if two or three group members voted for the bill.
[Only the open ballot treatments OpenBallotCR and OpenBallotNoCR:] In this step you can also see which participant of your group decided for/against the current bill

After voting on the three bills, a summary table is presented on your computer screen. It shows which bills passed or failed in this period. Also, it displays the number of points earned. After Step 4 you are again randomly matched with two participants and form a new group.

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THURGAU INSTITUTE OF ECONOMICS
at the University of Konstanz

Hauptstr. 90
CH-8280 Kreuzlingen 2
Telefon: +41 (0)71 6770510
Telefax: +41 (0)71 6770511
info@twi-kreuzlingen.ch www.twi-kreuzlingen.ch


[^0]:    ${ }^{1}$ University of Konstanz and Thurgau Institute of Economics, Post Box 131, 78457 Konstanz, Germany; Urs.Fischbacher@uni-konstanz.de.
    ${ }^{2}$ University of Konstanz and Thurgau Institute of Economics, Post Box 131, 78457 Konstanz, Germany;
    Simeon.Schudy@uni-konstanz.de; Phone +497531884677; Fax +41 (0) 71/677-0511(Corresponding Author).

[^1]:    ${ }^{3}$ Many international organizations such as the North Atlantic Treaty Organization (NATO), World Trade Organization (WTO) and MERCOSUR make use of unanimity rule and other supermajority rules. Also the European Union applies qualified majority rule for particularly sensitive issues (Maggi and Morelli, 2006).

[^2]:    ${ }^{4} \mathrm{~A}$ copy of translated instructions can be found in the appendix.

[^3]:    ${ }^{5}$ For a risk neutral subject, the probability of reward $p_{r}$ is sufficiently high if $p_{r}>1 / 3$ because voting for another's bill costs 2 points whereas reward yields 6 additional points.
    ${ }^{6}$ The proof of this proposition can be found in appendix A.

[^4]:    ${ }^{8}$ This share has to be considered as a lower bound for efficiency concerns, because not accepting subsequent bills after one's own bill failed can be caused by negative reciprocity too.

[^5]:    ${ }^{9}$ The latter difference is not statistically significant (Probit with robust std. errors, p -val.>.10).
    ${ }^{10}$ The latter difference is statistically significant (Probit with robust std. errors, p-val.<.10).

[^6]:    11 We cannot infer whether the latter increase is due to positive signaling or because members preferring the third bill expect the second bill to be passed anyway and therefore have nothing to lose by voting for the second bill.

[^7]:    12 Probit regressions with robust std. errors, p-values<0.06.

[^8]:    ${ }^{13}$ See e.g. Leibbrandt and Sääksvuori (2010).

