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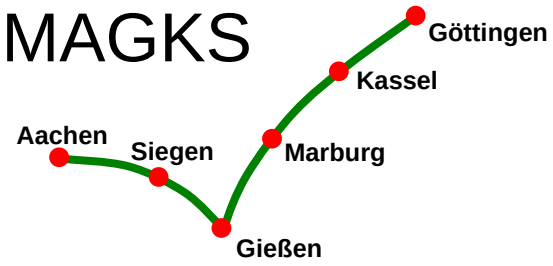

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Social information and bandwagon behaviour in voting: an economic experiment

Ivo Bischoff[*] and Henrik Egbert[#]

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Abstract

We present an economic experiment on the impact of social information on voter behaviour and find strong support for bandwagon behaviour in voting decisions. In total, 418 subjects participated in the experiment. Bandwagon behaviour is found among both male and female subjects.

Key words: bandwagon behaviour, social information, voting motives, economic experiment

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1. Introduction

We present an economic experiment to analyse the impact of social information on voting decisions. Our motivation for this experiment is a gap in the existing empirical literature on voting behaviour. While the public choice literature focuses on expressive voting and largely ignores bandwagon behaviour in voting decisions, the political science literature contains a number of experimental studies that found evidence for bandwagon behaviour. However, these are not compatible with the standards of experimental economics. We help to fill the gap by applying an economic experiment that, firstly, explicitly investigates bandwagon behaviour and that, secondly, meets the methodological standards of experimental economics. Our results provide evidence for bandwagon behaviour.

The paper is organized as follows. After a review of the literature in section 2, we sketch a model to identify the impact of social information on voting in section 3. Section 4 outlines the experimental set-up and specifies the hypothesis. The results are presented in section 5. Section 6 concludes.

2. Review of the Literature

Social information, i.e. information about others' behaviour, influences an individual's decision in different contexts. When an individual follows in her decisions the behavioural patterns of the majority of a reference group, we speak of bandwagon behaviour (Leibenstein, 1950, p. 190; Simon, 1954). Bandwagon behaviour is observed in purchasing decisions of consumer goods (Leibenstein, 1950; Henshel and Johnston, 1987; Banerjee, 1992), decisions over a contribution to a public good, or in charitable giving (Shang and Croson, 2009). Four motives behind bandwagon behaviour are discussed in the literature. First, individuals may be

motivated by a preference for conformity (Aronson et al., 1997). Second, social information may be seen as a signal about the quality of the good or charitable organisation: An individual interprets her observation that many fellow individuals of her reference group purchase or consume a specific good as an indication that the relevant good is of high quality. This understanding is grounded in the individual's assumption that her fellow individuals have private information which *would* convince her to act alike if this information were available to her (Banerjee, 1992). In a political context, the quality-signal immanent in social information and/or the preference for conformity may cause voters to vote along with the expected majority of fellow voters. Social psychology studies provide a third possible motive for bandwagon behaviour in majority voting: Here, voters may prefer to have voted for the winning party, candidate or proposal when votes are counted (Ashworth et al., 2006). Finally, Hong and Konrad (1998) argue that anxiety-averse voters have an incentive to vote along with the expected majority because this reduces the uncertainty of the election outcome.

The political science literature contains a number of empirical studies that test for bandwagon behaviour in voting. A first group of studies analyses data from large-scale opinion polls conducted in times of upcoming elections or on election days. The evidence from these studies is mixed (see the literature reviews in Marsh, 1984; McAllister and Studlar, 1991; Nadeau et al., 1997). One essential shortcoming of these studies is that it is very difficult to disentangle the complex interrelations between voting intentions, poll results and other pieces of information that drive both of the former simultaneously (Marsh, 1984; Morwitz and Pluzinski, 1996; Joslyn, 1997). Avoiding these difficulties, a second group of studies are based on experiments. Mehrabian (1998) presents two studies on bandwagon behaviour in voting. In his first study, he elicits the intended voting behaviour among Republicans in their

primaries for the presidential election in 1996. He finds that the tendency to prefer Bob Dole over Steve Forbes depends on the polls presented to the voters. Voters are more likely to vote for Dole when he leads in the opinion poll compared to the situation with Forbes leading. The second study involves students from the University of California, Los Angeles. These are asked to express their approval to proposals for different modes of testing their performance: a midterm exam or an extra-credit paper. Mehrabian (1998) uses bogus polls in his studies. Results show that bogus polls do not influence the answers when subjects have clear and strong preferences. However, bogus polls have an impact when preference relations are weak. In this case, bandwagon behaviour in voting is observed. Next to Mehrabian (1998), there are a number of others experimental studies that find evidence for bandwagon behaviour in voting (Laponce 1966; Fleitas 1971; Ansolabehere and Iyengar 1994; Goidel and Shields, 1994; Mehrabian 1998). However, the existing experimental studies suffer from at least one of the following limitations. First, they largely rely on bogus polls to shape subjects' expectations and they do not explicitly elicit subjects' expectations with respect to the voting behaviour of others. Instead, they implicitly assume that the bogus poll results dominate the real-life information that subjects additionally draw on when shaping their expectations (Laponce 1966; Fleitas 1971; Ansolabehere and Iyengar 1994; Mehrabian 1998). Goidel and Shields (1994) are an exception in that they do not rely on bogus polls but elicit the participants' electoral expectations. They find a positive correlations between an individual's voting intentions and her expectations concerning the voting behaviour of fellow voters. While this result is compatible with bandwagon behaviour, it may also result from the so-called false-consensus effect. While bandwagon behaviour assume that expectations drive behaviour, the false consensus effect implies the reverse direction of causality (Fields and Schuman, 1976; Lemert, 1986; Babad, 1995). When subjects form expectations with respect to the behaviour of their fellow-

subjects, they take their own voting intention as a starting point. Given that subjects systematically overestimate the degree to which other individuals share their preferences, they expect a large (small) approval rate whenever they intend to approve (reject). Thus, the study of Goidel and Shields (2004) does not provide conclusive evidence for bandwagon behaviour in voting. Finally, the existing studies do not record actual voting behaviour. Instead they document voting *intentions* (Ansolabehere and Iyengar 1994; Goidel and Shields, 1994; Mehrabian, 1998). This lack of incentive compatibility reduces the external validity of these studies because it lends overdue importance to all motives that are not related to the consequences of the voting outcome, possibly among them bandwagon motives.

Recent studies in experimental economics test for the impact of social behaviour on voting. However, they do not test for bandwagon behaviour but focus on expressive voting (Carter and Guerette, 1992; Fischer, 1996; Tyran, 2004). Tyran's (2004) experiment is of particular importance for our study. In line with principles of experimental economics, Tyran (2004) conducts a laboratory experiment. He observes voting decisions in situations with monetary incentives and does not rely on bogus polls. His experiment implements Tullock's thought experiment on the charity of the uncharitable (Tullock, 1971). Accordingly, subjects receive a monetary endowment and they are asked to vote on a proposal to donate their endowment to charity. In Tyran's experiment, participants can only decide to donate their entire endowment or to keep it. Vote abstention is not possible. Subjects can estimate the number of their fellow voters. They are informed that the proposal is accepted if the overall approval rate a exceeds a publicly announced threshold (t), else it is rejected. All subjects keep their money regardless of their individual decision if $a \leq t$. If $a > t$, the endowment of all subjects is donated, regardless of the individual vote. For a given donation issue, five different values of t

are used and, thus, all subjects have to take five decisions. Subjects are informed that only one of these five decisions is finally chosen at random and executed. Before voting for (approval) or against (disapproval) the proposal, each subject is asked to state her expected overall approval rate for each threshold. In Tyran's experiment, 56.4 % of participants always approve or disapprove independent of the threshold. The remaining participants switch between approval and disapproval for different thresholds. Among these so-called switchers, only a small fraction shows behaviour consistent with expressive voting. The switchers' decision to approve the donation at a particular threshold is strongly and positively correlated with the expected approval rate of others. The same correlation is found for the group of participants as a whole. Though accompanied by a note of caution, Tyran suggests that these results may be caused by bandwagon behaviour. This note of caution is justified by the fact that – just like in Goidel and Shields (1994) – the false-consensus effect provides an alternative explanation for the observed regularity.

In this paper we provide – to the best of our knowledge – the first experiment that explicitly tests for bandwagon behaviour in voting decisions and at the same time we follow methodological standards for economic experiments. We implement incentive-compatible mechanisms and provide participants with social information collected in previous experiments with a similar subject pool instead of relying on bogus polls. We test that the provided social information shapes expectations and we account for the false-consensus effect.

3. Model

In a next step, we present a model to identify the incentives for an individual voter motivated by bandwagon motives. As suggested in Tullock's thought experiment, she has to vote on the

proposal to donate a certain amount of money to charity or to keep it for private use. Let x_i denote the net utility she witnesses if the proposal is rejected (i.e. voted NO). This so-called instrumental utility is negative for altruists ($x_i < 0$) and positive for non-altruists ($x_i > 0$). The probability with which voter i expects to be decisive is given by p_i. In most cases, the approval rate among other voters is either sufficiently high to accept the proposal even if she votes against it or too low to accept the proposal even if she votes in favour of it (Tyran, 2004). In the following, r_i respectively s_i denote the probability with which she expects the first respectively the second case to occur. Let ε_i denote voter i's expressive utility from voting for the proposal. The voter has to estimate p_i, s_i and r_i from her expectations concerning the other voters' behaviour. Let $\widehat{a_i}$ be the ex ante probability that a fellow-voter votes YES as estimated by voter i. The closer $\widehat{a_i}$ to 0.5, the higher p_i (Beck, 1975). Voter i will vote for the proposal if the expected overall utility of approving exceeds the expected overall utility from rejecting (Tyran, 2004).

$$
\begin{aligned}
& \widehat{U_i}(YES) - \widehat{U_i}(NO) > 0 \\
\Leftrightarrow \quad & r_i(\widehat{a_i}) \cdot (x_i + \varepsilon_i) + p_i(\widehat{a_i}) \cdot \varepsilon_i + s_i(\widehat{a_i}) \cdot \varepsilon_i \quad - \quad r_i(\widehat{a_i}) \cdot x_i + p_i(\widehat{a_i}) \cdot x_i \quad > 0 \qquad (1) \\
\Leftrightarrow \quad & \varepsilon_i - p_i(\widehat{a_i}) \cdot x_i > 0
\end{aligned}
$$

For an altruistic voter ($x_i < 0$), inequality (1) is fulfilled regardless of p_i and ε_i. She will vote YES regardless of $\widehat{a_i}$. A non-altruist ($x_i > 0$) who is not motivated by expressive motives will vote NO regardless of $\widehat{a_i}$. However, if expressive motives are present, her voting behaviour varies depending on $\widehat{a_i}$. She will vote NO if $p_i(\widehat{a_i})$ is large. However, if $p_i(\widehat{a_i}) \approx 0$, $\varepsilon_i - p_i(\widehat{a_i}) \cdot x_i > 0$ and thus she will vote YES in both cases.

Now we add bandwagon motives. For reasons of simplicity, we introduce an additive term $\beta_i(\widehat{a_i})$ to the utility function. It is reasonable to assume that $\beta_i(\widehat{a_i} = 0.5) = 0$ and that $\beta_i(\widehat{a_i})$ deviates from zero in those cases where voter i can identify a majority to vote along with (i.e. $\widehat{a_i} \neq 0.5$). The more $\widehat{a_i}$ deviates from 0.5, the larger the absolute value of the bandwagon utility $\left|\beta_i(\widehat{a_i})\right|$. Thus:

$$\frac{\partial \beta_i}{\partial \widehat{a_i}} > 0 \quad \forall\, 0 < \widehat{a_i} < 1 \tag{2}$$

The necessary condition for voter i to approve the proposal demands that the utility differential from voting YES is positive:

$$\widehat{UD_i} = \widehat{U_i}(YES) - \widehat{U_i}(NO) > 0 \quad \Leftrightarrow \quad \varepsilon_i + \beta_i(\widehat{a_i}) - p_i(\widehat{a_i}) \cdot x_i > 0 \tag{3}$$

Compared to the situation without bandwagon motives, the expressive voter is more likely to approve when $\widehat{a_i} > 0.5$ and less likely to approve when $\widehat{a_i} < 0.5$.

Expression (3) also shows that even voters who do not follow an expressive motive as defined by Tyran (2004) may vote against their material interest. Under the simple majority vote, $\left|\beta_i(\widehat{a_i})\right|$ and $\left|p_i(\widehat{a_i}) \cdot x_i\right|$ are negatively correlated, i.e. the more $\widehat{a_i}$ deviates from 0.5, the larger the bandwagon utility $\left|\beta_i(\widehat{a_i})\right|$ becomes and the smaller $p_i(\widehat{a_i})$. For a voter with $x_i > 0$, bandwagon motives can make her vote YES if she expects $\widehat{a_i} > 0.5$. Similarly voters with $x_i < 0$ may vote NO if she expects $\widehat{a_i} < 0.5$. These considerations allow for designing an experiment to tests for bandwagon behaviour. Our design relies on the idea to observe two similar

groups of subjects deciding on an identical issue. By an exogenous intervention, we provide both groups with systematically different social information about decisions in previous experiments. We can test whether different social information leads to different estimates for the expected approval rates among fellow-voters. This is a precondition for our test on bandwagon behaviour in voting. If this precondition holds but the approval rates between groups do not differ, bandwagon behaviour does not show. If, however, the precondition holds and we observe the approval rate to be higher in the group which received social information indicating a high approval rate in previous experiments, we can conclude that bandwagon motives are present and have influenced voting decisions.[1]

4. Experiment

Our experiment involves two times two sessions with four different groups in total. The participants of each group sit in one room and they can see their fellow-players and estimate their number. The instructions are given in written form and communication is prohibited throughout the experiment. We answer arising questions on the instructions in private with the individual. At the end of the session, the participants fill in a post-experimental questionnaire on biographical information and a number of other questions related to the experiment. One

[1] Note that only bandwagon motives but not the false-consensus effect provide a valid explanation for possible differences in approval rates. Given that we find the differences in approval rates suggested by the bandwagon theory of voting, we do not elaborate extensively on the impact of a possible false-consensus effect on voter behaviour. (A text showing that the false-consensus effect does not jeopardize our experimental tests is available with the author upon request.)

session lasts about 35 minutes and the participants have the chance to earn 10 €. The sessions took place within one week in December 2009 at the University of Kassel, Germany and at the Justus-Liebig-University Giessen, Germany. A total of 418 undergraduate students participated (262 in Giessen and 156 in Kassel). They are studying economics or management science in their first year. The four groups are similar with respect to age and sex composition.

Like in Tyran (2004), our experimental set-up is based on Tullock's thought experiment. At the beginning of the session, we endow the subjects with a voucher worth 10 €. Each session involves eight voting rounds. In each round, the group has to vote simultaneously on the proposal to donate the 10 € to a non-government organisation (NGO) serving a certain charitable or common-interest purpose. The individuals' decisions are anonymous to fellow participants and to instructors. The majority rule applies to all rounds but the purpose of the NGO changes from one voting round to the next. The organisations include NGOs fighting adult illiteracy or helping refugees as well as organizations focussing on environmental projects (for details see table 1). After the experiment one of the eight voting rounds is chosen at random and decisions are executed. If the approval rate in the chosen round is lower than 50 percent, all participants can cash in their voucher. Otherwise the 10 € of all subjects are donated to a NGO of the type stated in the ballot. In each round j (j = 1, ... 8), we inform subjects about the approval rate $\overline{a_j}$ observed in earlier sessions of this experiment. This information is provided directly before participants decide. We also inform participants that this in-

formation is usually a good predictor for the behaviour in ballots on the same topic conducted among similar groups of participants.[2]

We implement two treatments with respect to $\overline{a_j}$. Participants in treatment *TEC* receive as information the approval rates of students majoring in economics. Participants in treatment *TMA* receive as information the approval rates of students majoring in management science. It is important to note that this information is not bogus but each group gets true information about the approval rates of students in experimental sessions run by the authors in the two years before the experiment. Furthermore, subjects know that the $\overline{a_j}$ are calculated from these subgroups. In 5 of 8 rounds, $\overline{a_j}$ differs considerably between *TEC* and *TMA* and in 3 rounds they are similar (see table 1).[3] In the post-experimental questionnaire, we ask each subject i to state the approval rate $\widehat{a_{ij}}$ she expects for each voting round j in her group.

[Table 1 about here]

Data from the experiment is used to test for bandwagon behaviour in voting decisions. Our test procedure consists of two steps. Step 1 tests whether different values for $\overline{a_j}$

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2 Instructions are available with the authors upon request.

3 For reasons of convenience, we deviate from the order of voting rounds in the experiment and report on the 5 rounds with treatment-specific differences in $\overline{a_j}$ first, followed by the 3 rounds without notable differences in $\overline{a_j}$. The original ordering was 2, 7, 5, 6, 8, 4, 1, 3.

lead to systematic differences in $\widehat{a_{ij}}$ between treatments. Accordingly, we arrive at the first hypothesis: For all decisions where there is a difference between $\overline{a_j}$ in *TEC* and *TMA*, the average approval rate expected by the subjects $\widehat{a_{ij}}$ is larger under that one treatment for which $\overline{a_j}$ is larger. A supportive result for this hypothesis is a pre-condition for the validity of our test for bandwagon behaviour. We can test for the impact of social information on behaviour only if $\overline{a_j}$ actually shape expectations. Assuming an affirmative result on the first hypothesis, we arrive at our second hypothesis: For all decisions where there is a difference between $\overline{a_j}$ in *TEC* and *TMA*, the actual approval rate is larger under that one treatment for which $\overline{a_j}$ is larger.

5. Results

At both universities one session with treatment *TEC* and one with *TMA* was run.[4] Table 2 shows the approval rates, average $\widehat{a_{ij}}$ and descriptive statistics for the subjects under *TEC* and *TMA* for all eight issues pooled across universities. The groups are largely identical with respect to age, semester of study and sex composition.

[Table 2 about here]

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[4] All four groups consisted of first-year undergraduate students studying economics or management science. At both universities, economics and management science students belong to the same faculty and take the same classes and exams. The specialization to economics and/or management science only starts in the third year of their studies.

For the first five issues, the $\overline{a_j}$ differ considerably by treatment while only negligible differences exist for the last three issues. The $\widehat{a_{ij}}$ are found to differ significantly by treatment for the first five issues while no differences are found for issues 6 to 8 (Bernoulli-Test, $\alpha = 0.05$ or 0.01). This result fully confirms our first hypothesis. Turning to our second hypothesis, we find the approval rates to be different for issues 1 to 5 and 7 (t-test resp. Mann-Whitney-U-test, $\alpha = 0.05$). The differences for issues 1 to 5 are in line with our second hypothesis, as are the insignificant results for issues 6 and 8. Only the significant result for issue 7 contradicts our hypothesis.

There is broad evidence suggesting that female subjects react much more sensitively to changes in the environment both in the field and in experiments (Johnson and Eagly, 1989; Croson and Gneezy, 2009). We are interested to see whether the differences in approval rates observed across treatments in issues 1 to 5 are driven by the behaviour of female subjects only. For this purpose, we separate the samples by gender (see table 3). We find significant differences in the $\widehat{a_{ij}}$ among male participants for issues 1 to 5 and for female participants for issues 1 to 6 (t-test resp. Mann-Whitney-U-test, $\alpha = 0.05$). There are no inter-gender differences in expectations (t-test resp. Mann-Whitney-U-test, $\alpha = 0.05$). In line with the literature (e.g., Schlesinger and Heldman, 2001; Corneo and Gruener, 2002; Delaney and O'Toole, 2008; Piper and Schnepf, 2008) female subjects show higher approval rates for all issues but one (issue 6). The majority of these inter-gender-differences are significant (Bernoulli-test, $\alpha = 0.05$). A significant difference in approval rates by treatment is found for issue 1 to 5 and 7 among female subjects and for issue 1 to 3 and 5 among male subjects (Bernoulli-test, $\alpha = 0.05$).

[Table 3 about here]

6. Conclusions

Experimental studies in the political science literature find support for bandwagon behaviour in voting. However, from an economic point of view, these studies suffer from methodological problems. They primarily analyse voting intentions rather than actual bandwagon behaviour in voting decisions. Most studies rely on bogus polls to frame subjects' social information and expectations and do not explicitly elicit their expectations with respect to the voting behaviour of others. Instead, they implicitly assume that bogus poll results presented in the experiments dominate the real-life information that subjects draw on when shaping expectations in experiments. Two experimental studies test for bandwagon motives based on the actual expectations of participants concerning the behaviour of their fellow voters. However, they cannot rule out the false-consensus effect as an alternative explanation for the observed correlation between expectations and voting intentions resp. behaviour.

To our knowledge, we have presented the first experiment that avoids these methodological problems. In our experiments, we observe subjects' decisions in an incentive-compatible voting environment. We explicitly elicit the subjects' expectations with respect to the behaviour of their fellow-subjects and we do not use bogus polls to shape these expectations but inform subjects about the actual voting decisions observed in previous sessions of the same experiment. We also test for treatment-specific differences in expectations to make sure that the social information we provide shapes the subjects' expectations in the predicted way. Our results show that the treatment-specific social information provided to the subjects shapes their expectations. Expectations differ significantly for voting rounds where we pre-

sented different social information in our treatments and they do not differ for those voting rounds where similar social information is provided. We test for bandwagon behaviour in voting decisions by comparing the approval rates between the two treatments. As predicted by the theory of bandwagon voting, we observe significant differences in approval rates between treatments in those voting rounds where expectations differ due to different social information across treatments. Here, the approval rate was higher among those subjects whose social information made them expect a higher approval rate among fellow-subjects. Again in line with the theory, we do not observe significant differences in approval rates for those voting rounds where social information and expectations did not differ across treatments. These results hold for female as well as for male subjects.

Our results clearly show that social information and bandwagon motives shape individuals' decisions to approve or reject policy proposals. Thus, it seems reasonable to suggest that the public choice literature places a greater emphasis on bandwagon motives in voting and its implications.

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Table 1: Social Information

Issue	*TEC* $\overline{a_j}$ [%]	*TMA* $\overline{a_j}$ [%]	*Difference TEC - TMA* $\overline{a_j}$ [%]
(1) help politically prosecuted (internat.)	56	31	25
(2) fight adult illiteracy (nat.)	67	29	38
(3) climate change (internat)	100	31	69
(4) schools in poor countries (internat.)	50	88	-38
(5) help civil war refugees (internat.)	33	75	-42
(6) fight corruption (internat.)	25	23	2
(7) help disabled children (nat.)	83	85	-2
(8) environmental preservation (nat.)	56	59	-3

Table 2: Average $\widehat{a_{ij}}$, approval rate and descriptive statistics by treatment (*TEC* vs. *TMA*)

Issue	*TEC*			*TMA*		
	$\overline{a_j}$ [%]	approval rate [%]	average $\widehat{a_{ij}}$ [%]	$\overline{a_j}$ [%]	approval rate [%]	average $\widehat{a_{ij}}$ [%]
(1) help politically prosecuted (internat.)	56	45.8***	48.7#	31	30.2	30.9
(2) fight adult illiteracy (nat.)	67	54.7***	57.8#	29	35.7	29.9
(3) climate change (internat)	100	61.9***	83.9#	31	35.7	40.2
(4) schools in poor countries (internat.)	50	74.6**	58.0#	88	81.9	84.6
(5) help civil war refugees (internat.)	33	36.0***	34.0#	75	59.9	67.4
(6) fight corruption (internat.)	25	20.3	23.7	23	20.9	22.2
(7) help disabled children (nat.)	83	79.7**	78.5	85	72.0	77.8
(8) environmental preservation (nat.)	56	43.2	57.4	59	48.4	58.5
Descriptive statistics						
average age	21.2 years			21.5 years		
share of female subjects	51.2 %			51.6 %		
n	236			182		

** significant difference to the other treatment (Bernoulli-Test, $\alpha = 0.05$)

*** significant difference to the other treatment (Bernoulli-Test, $\alpha = 0.01$)

significant difference to the other treatment (t-test resp. Mann-Whitney-U-test , $\alpha = 0.05$)

Table 3: Average $\widehat{a_{ij}}$, approval rate by treatment (TEC vs TMA) and gender

Issue	TEC					TMA				
	$\overline{a_j}$ [%]	approval rate [%]		average $\widehat{a_{ij}}$ [%]		$\overline{a_j}$ [%]	approval rate [%]		average $\widehat{a_{ij}}$ [%]	
		Female	male	female	male		female	male	Female	male
(1)	56	47.9***	44.6***	49.5$^{\#}$	48.0$^{\#}$	31	27.7	33.0	30.9	30.8
(2)	67	60.3*** §§	48.2***	57.8$^{\#}$	57.8$^{\#}$	29	39.4	31.8	30.1	29.7
(3)	100	69.4*** §§§	53.6***	86.4$^{\#}$	81.3$^{\#}$	31	40.4	30.7	40.2	40.2
(4)	50	86.0** §§§	61.6	58.6$^{\#}$	56.7$^{\#}$	88	93.6§§§	69.3	85,9	83.3
(5)	33	41.3***§§	30.4***	33.0$^{\#}$	35.2$^{\#}$	75	70.2§§§	48.9	68.8	65.9
(6)	25	15.7§§	25.9	22.9$^{\#}$	24.6	23	16.0§§	26.1	21,3	23.1
(7)	83	86.0**§§§	72.3	80.2	76.9	85	73.4	70.5	77.3	78.3
(8)	56	51.2§§§	34.8	57.3	57.2	59	52.1	44.3	58.3	58.7
n	female: 121		male: 112			female: 94		male: 88		

** significant difference to the other treatment (Bernoulli-Test, $\alpha = 0.05$)

*** significant difference to the other treatment (Bernoulli-Test, $\alpha = 0.01$)

$^{\#}$ significant difference to the other treatment (t-test resp. Mann-Whitney-U-test , $\alpha = 0.05$)

§§ significant difference to the other gender (Bernoulli-Test, $\alpha = 0.05$)

§§§ significant difference to the other gender (Bernoulli-Test, $\alpha = 0.01$)