Committee Voting and Moral: Laboratory Experiments

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Abstract: This paper explores how the committee decision-making by voting affects the extent of moral of the subjects and designs laboratory experiments to do so. We hypnotize that if an individual's expected utility is characterized by single peaked, the individual's WTP in collective decision-making under voting rules remains the same as the one in individual decision-making. However, we found from experimental studies that the WTP were lower under the voting rules.

JLEL Classifications:

Keywords: moral, voting rules, collective decision, laboratory experiment

1. Introduction

This paper designs laboratory experiments to explore effects of committee decision-making by voting on the extent of "moral" or "public moral" of subjects. "Moral" has recently been one of topics for economics research, and we have focused particular attention on how to construct institutions that foster people's moral or public moral. The Cabinet's Office (Government of Japan) recently announced to support the "New Public Common", under which private sector provides public services with people. This contributes to lowering the cost for public services. To do so, it is necessary to develop people of high moral character.

Our focus among various institutions in this paper is voting. Voting is one of methods for committee-decision making. Because individuals have to obey the committee decision by voting, regardless of own intention, voting is effective to consolidate heterogeneous individual preferences into one representative decision.

As related literature, Falk and Szech (2013) conducted laboratory experiments to see how people's moral change by introducing the market mechanism (double auction). They measured the extent of moral by a decision on how much to earn in exchange for killing a mouse. They found that the extent of moral declines and erodes under the double auction rule.

2. Experimental Design

We measure the extent of moral by a decision on how much to pay from own pocket to purchase "entitlements to donate 50 shots of polio vaccine" to help children in poor countries. Each subject is given an initial endowment before an experiment starts, and she or he pays money for the

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entitlement from the initial endowment. The rest of it goes into her or his pocket. If the subject decides to purchase the entitlement, 50 shots of polio vaccine are in fact donated to children in poor countries through the Japan Committee, Vaccines for the World's Children (JCV).

We employ the certainty equivalent method (CEV) to identify exactly how much a subject is willing to pay for the entitlement. Each subject is given JPY1,000 as the initial endowment. The subject decides own willing-to-pay (WTP) for the entitlement. Then a point is randomly drawn from a uniform distribution with a lower bound 0 and an upper bound 1,000. If the draw is equal to or less than the subject's WTP, the subject purchases the entitlement by the drawn point and obtains remaining balance after deduction of the drawn point. In contract, if the draw is higher than the subject's WTP, she or he does not need to purchase the entitlement and earns JPY1,000.

In the voting treatment, we focus on committee decision-making by a pair. A pair is made randomly in the laboratory. Each subject in a pair decides own WTP under two different voting rules: one-vote rule under which at least one member agrees to purchase the entitlement, and unanimity rule. It is noted that the subject cannot observe own partner's WTP and that the same point is drawn to the pair. When the purchase is approved by voting, the pair buys two sets of the entitlements (100 shots).

3. Model and Hypotheses

3.1. Individual decision-making

We begin to consider a case in which an individual agent decides on whether or not to purchase the entitlement. Timing of a game is as follows.

[1] An individual i decides own WTP $c_i^* \in [0, 1000]$.

[2] A random draw c is obtained from a point distribution $F(c)$.

[3] If $c \leq c_i^*$, the individual purchases the entitlement by c and received the remaining balance, $1000-c$. Otherwise, the individual does not purchase the entitlement and receive the initial endowment.

3.2. Voting behavior under the one-vote rule

We next consider an individual's voting behavior under the one-vote rule. Suppose that there are two agents to vote, A and B. Timing of the game is as follows.

[1] Each agent decides own WTP $c^*_{i \in \{A, B\}} \in [0, 1000]$.

[2] A random draw c is obtained from a point distribution $F(c)$.

[3] If $c \leq c^* = \max[c^*_A, c^*_B]$, both agents A and B purchase the entitlement by c and received the remaining balance, $1000-c$. Otherwise, neither purchases the entitlement, and both receive the initial endowment.

Without loss of generality, we focus on agent A's voting behavior. Agent A is self-interested, and her/his objective is to maximize own utility defined in the individual decision-making process. Under the one-vote rule, agent A's utility is characterized by:

$$U_A(c_A^*) \quad if \quad c_A^* \geq c_B^*,$$
$$U_A(c_B^*) \quad if \quad c_A^* < c_B^*. \tag{4}$$

We then have a following proposition in terms of agent A's choice.

Proposition 1: Under the one vote rule, agent A's optimal WTP is the same as the one in the individual decision-making stage. That is, $c^*_A = c^{*S}_A$ is the dominant strategy for agent A under the one-vote rule.

3.3. **Voting behavior under the unanimity rule**

Our concern moves to an individual's voting behavior under the unanimity rule. Suppose again that there are two agents to vote, A and B. Timing of the game is as follows.

[1] Each agent decides own WTP $c^*_{i \in \{A, B\}} \in [0, 1000]$.

[2] A random draw c is obtained from a point distribution $F(c)$.

[3] If $c \leq c^* = \min[c^*_A, c^*_B]$, both agents A and B purchase the entitlement by c and received the remaining balance, $1000 - c$. Otherwise, neither purchases the entitlement, and both receive the initial endowment.

Under the unanimity rule, agent A's utility is characterized by:

$$U_A(c_B^*) \quad if \quad c_A^* > c_B^*,$$
$$U_A(c_A^*) \quad if \quad c_A^* \leq c_B^*. \tag{5}$$

We then have a following proposition in terms of agent A's choice.

Proposition 2: Under the unanimity rule, agent A's optimal WTP is the same as the one in the individual decision-making stage. That is, $c^*_A = c^{*S}_A$ is the dominant strategy for agent A under the unanimity rule.

4. Procedures

The experiment was conducted on November 11-13, 2015 in ISER (Osaka University) lab. The number of subject was 126, and all of them were students of Osaka University. We paid them JPY1,000 for the show-up fee. An additional pay was given to them on the base of one result chosen randomly from 12 trials. We prepared for two types of sessions, each of which was composed of 12 trials.

(A) Individual treatment (1) + one-vote (10) + individual treatment (1)

(B) Individual treatment (1) + unanimity (10) + individual treatment (1)

5. Results

Figures 1 and 2 show that the majority of subjects chose 0 as own WTP. Under voting rules, the proportion of subjects who chose 0 as own WTP increased.

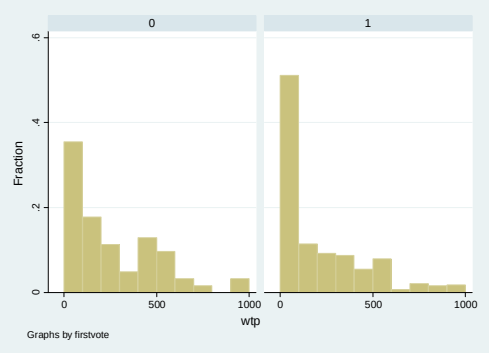


Fig.1 individual (1) vs. one vote

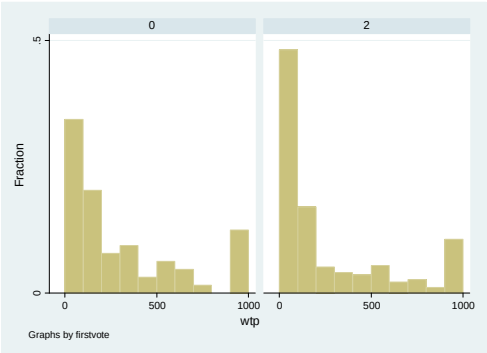
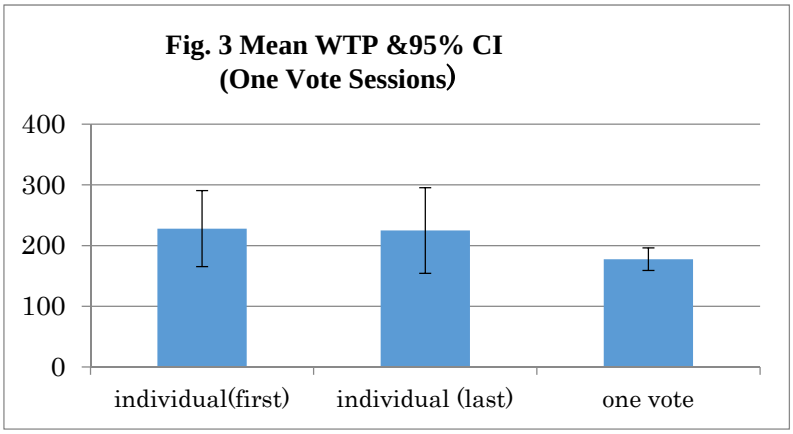
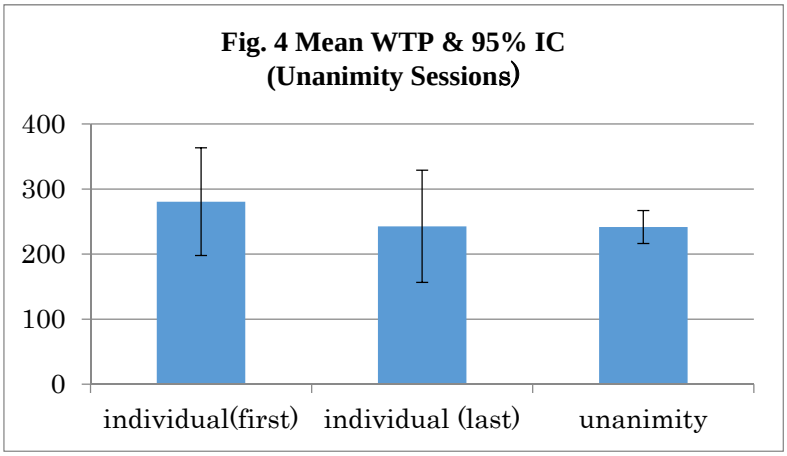


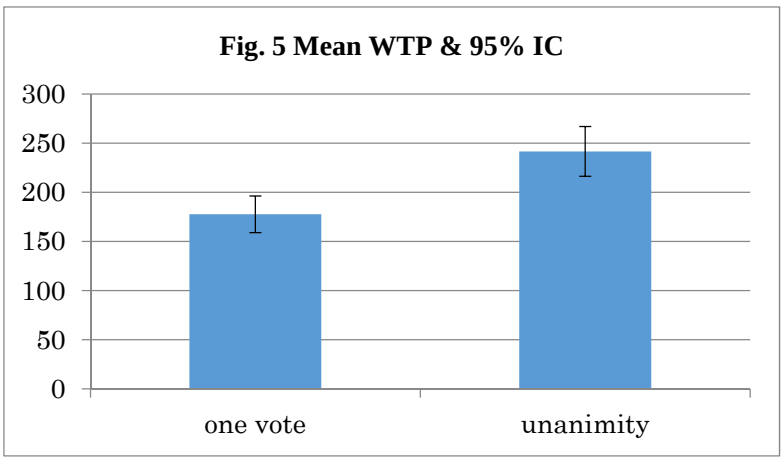
Fig. 2 individual (1) vs. unanimity



WTP is lower under the one-vote rule, but the difference from WTP in the individual treatments is not significant.



WTP is lower under the voting rule with unanimity, but the difference from WTP in the individual treatments is not significant.



WTP is significantly lower under the one-vote rule than under the unanimity rule.

Table 1:

Fixed Effect Estimations(First Individual= Reference Group)

	(1) xt_1	(2) xt_2	(3) xt_3
one vote	-50.3823**	-50.3823**	-33.8387
	(23.5648)	(23.5648)	(23.5111)
last indv	-3.0484	-3.0484	-3.0484
	(26.0125)	(26.0125)	(26.1719)
N	744	744	744
ll	-4.29e+03	-4.29e+03	-4.29e+03

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01
(2) sessions are controlled, and(3) sessions and trials are controlled.

We estimate the effect of the one-vote rule on an individual's WTP, using data from one-vote sessions. The dependent variable is WTP, and "one-vote" and "last indv" are the dummy variables

with reference to the individual treatment in the first trial. We found that “one-vote” was negative with the 5% level of significance, thereby implying that an individual was less likely to purchase the entitlement under the one-vote rule. It seems that the individual’s moral was eroded in this committee decision making. However, the significance of “one-vote” disappeared by adding the session dummies.

Table 2:

Fixed Effect Estimations(First Individual= Reference Group)

	(1) xt_1	(2) xt_2	(3) xt_3
unanimity	-39.0203**	-39.0203**	-40.2813**
	(17.1545)	(17.1545)	(18.9517)
last indv	-37.9375	-37.9375	-37.9375
	(22.9640)	(22.9640)	(23.1003)
N	768	768	768
ll	-4.59e+03	-4.59e+03	-4.59e+03

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01
(2) sessions are controlled, Eand(3) sessions and trials are controlled.

This estimated result used data from unanimity sessions. According to the result, “unanimity” was negative with the 5% level of significance even though session dummies were added shown in column (3). It implies that an individual was less likely to purchase the entitlement under the unanimity rule. The subjects deteriorated their moral under the unanimity rule, which is different from our hypothesis.

It might be true that the objective whom a subject cared about was not children in poor countries who need a shot of polio vaccines, but another member in a pair who might be eager to earn money in this experiment. Even though a subject wants to purchase the entitlement under the voting rules, she or he has a second thought that another member does not want to buy the entitlement to earn more money. She or he is then attuned to the “not buy” option, which lowers her or his WTP.

6. (tentative) Concluding Remarks

We explore how the committee decision-making by voting affects the extent of moral of the subjects. If the expected utility is single peaked, the individual’s WTP remains the same. However, the WTP declines under the voting rules.

References

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