

Online Appendix for
“Who Stands up to Persuade?”
Voluntary Influencers in Public Support for Pigouvian Taxation”

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Appendix A. Experiment Instructions

Instructions for the first 10 paying periods [same for all treatments]

- ***General***

Thank you for coming! You've earned \$5 for participating, and the instructions explain how you can make decisions and earn more money which will be paid to you in cash.

This is an experiment in the economics of market decision making. In this experiment we are going to simulate a market in which each participant will be a buyer in a sequence of trading periods.

There should be no talking at any time during this experiment. If you have a question, please raise your hand, and an experimenter will assist you.

During the experiment your earnings will be calculated in experimental points. Experimental points will be converted into Dollars at the following exchange rate:

$$200 \text{ experimental points} = \$1$$

At the end of today's experiment you will receive, in cash, the earnings you make today. In addition, you will receive a payment certificate to pick up your \$5 participation bonus and an additional cash payment of \$18 the same day next week.

For example, if today is Monday, you will receive the \$5 participation bonus and the additional \$18 cash payment next Monday. To pick up these amounts, you need to come back to the same lab the same day next week (if you cannot make it at the time indicated on your payment certificate please send an email to lingbo.huang@monash.edu to schedule another time on the same day or you can send someone else to pick up your cash payment on the same day). You do not need to participate in any decision task next week to receive the additional \$18 payment.

However, as we describe below, you may lose some of this \$18 depending on the decisions you and the other three buyers in your market make today. Therefore, the final amount of the additional cash payment you will pick up next week will depend on the decisions you and the other three buyers in your market make in today's experiment.

In today's experiment, you will first participate in two practice trading periods followed by a number of paid trading periods. In the practice trading periods you do not earn money, but you should take these periods seriously since you will gain valuable experience for the paid trading periods.

- ***Specific instructions to buyers***

In this experiment each participant is a buyer. Each buyer is randomly assigned to a group of 4 buyers – a market – and remains in the same market with the same buyers throughout the experiment. What is happening in other markets is irrelevant for your own market and hence for your own earnings. During each trading period each buyer can buy units (up to 3 units) of a hypothetical consumption good from an automated (computerized) seller.

Resale value of a unit. At the beginning of each trading period, you will be given three separate resale values for each of the three units of the good you can purchase. These are your privately known resale values. You can think of the resale value of a unit as the potential earnings you can make out of that unit. Your resale values will remain the same in each period during the experiment.

Bid. As a buyer, you can submit a “bid” to buy a unit from the seller during a trading period. A “bid” is the amount you are willing to pay for that unit of the good. You must submit one “bid” for each of the three units. (If you do not want to purchase a unit, you may simply submit a bid “0”.) Your bids must follow these two rules: 1) “Trade at no loss”: your bid for each unit cannot be above your resale value for that unit; 2) Your bid for the third unit cannot exceed your bid for the second unit, and your bid for the second unit cannot exceed your bid for the first unit.

- ***How the market works***

At the beginning of each trading period each buyer submits bids for each unit offered in the market. At the end of each trading period, all submitted bids are collected and ranked from high to low. If two or more bids are equal, ranks will be randomly assigned by the computer.

1. ***How the Market Price is determined***

The automated seller has a production cost unknown to all buyers. The production cost does not change during the experiment. The seller never trades at a loss, therefore it will not accept bids below its production cost. The seller will accept, among all bids from all buyers in the market, the lowest bid above or equal to the production cost. This will be the per-unit **Market Price**. Bids that are below the production cost will be rejected and buyers who have submitted those bids won’t buy any units (i.e. buyers will neither pay for those units they placed a bid on nor gain any resale value from those units).

The market price can be different in each period because it depends on the bids that are submitted in each period.

2. ***How the Market Quantity is determined***

Buyers will purchase a unit when their bid is greater than or equal to the market price. The **Market Quantity** is the total number of units purchased by the 4 buyers in one market in one period at the market price.

Example: Suppose, in one market and in one trading period, the automated seller's production cost is 70. And suppose the automated seller collects the following bids from the 4 buyers.

	Buyer 1	Buyer 2	Buyer 3	Buyer 4
Bid Unit 1	135	135	140	145
Bid Unit 2	85	90	94	85
Bid Unit 3	80	0	80	40

The bids are ranked from high to low as follows: 145, 140, 135, 135, 94, 90, 85, 85, 80, 80, 40, 0. In this case, the **Market Price is 80** (the lowest bid above the production cost of 70). All 10, and only the 10 units for which the bids were equal or above the market price of 80 will be purchased by the buyers who submitted the corresponding bids. These 10 sold units are bolded in the table. Each of these 10 units will be exchanged at 80. The market quantity in this case is 10. The number of sold units is determined by the number of submitted bids above or equal to the market price. Units for which the submitted bids are below the market price will not be sold.

Please note: The information on values and production costs of a unit is private. Buyers do not know the bids of other buyers, nor do they know the per-unit production cost for the seller.

3. *Additional Costs from Trading*

Each unit traded in the market (i.e. each unit sold) causes an additional cost of 60 points that will be equally split by the 4 buyers in the market. This means that each of the 4 buyers in the market has to pay an additional cost of $60/4=15$ points. **Note** that you will bear a share of the additional costs even if you do not buy any units yourself.

Using the example above where the market quantity is 10 units, in this case, each buyer incurs an additional cost of $(60/4)*10=150$ points=\$0.75.

These additional costs will not affect your earnings today but will be deducted from the \$18 cash payment you will receive next week.

4. *How your earnings today in each trading period are calculated*

Your Final earnings in one trading period = (Resale value - Market price) of each unit purchased

In the example above Buyer 4 buys two units. Her resale value for Unit 1 is 200, her resale value for Unit 2 is 140 and her resale value for Unit 3 is 100. The market price is 80. Her **Final earnings** in this period = 200 (resale value of Unit 1) + 140 (resale value of Unit 2) – 2×80 (market price) = $340 - 160 = 180$.

As you can see, in this case, even though Buyer 4's resale value for Unit 3 is 100, which is higher than the market price 80, Buyer 4 did not purchase the unit because her bid for Unit 3 (40) is lower than the market price (80).

Your total Final earnings for today are the sum of your Final earnings in each trading period over all the paid trading periods.

5. How your earnings next week are calculated

Each participant will receive \$18 next week. However, the final amount of the cash payment you will pick up next week will depend on the decisions you and the other 3 buyers in your market make today.

In the example above, since the market quantity is 10, the additional costs per person are $(60/4) \times 10 = 150$ points. This additional cost will be deducted from Buyer 4's cash payment for the next week.

So, the **final payment each buyer will receive next week = \$18 - the Sum of the Additional Cost per person in each period today.**

You do not need to participate in any decision task next week to receive the cash payment for the next week. You just need to pick it up in the lab on the same day next week.

At the end of each round, the participants see the following screen displaying their bids for each unit; their final earnings in that round; their profit to be received at the end of the experimental session up to that round; their profit to be received one week after the experiment up to that round.

Period 1		Remaining time [sec]: 26		
History of Results by Period				
Period	Market Price	Market Quantity	Number of Units YOU purchased	Your Final Earnings
Practice	40	12	3	220
Practice	40	12	3	220
1	40	12	3	220
Outcome of this Period				
		Your bid for Unit 1	40	
		Your bid for Unit 2	40	
		Your bid for Unit 3	40	
		Your Final Earnings	220	
Your Balance Today as of now			Your Balance Next Week as of now	
Previous Balance (1)			3600	
Final Earnings of this Period (2)			720	
Balance (1)+(2)			Additional Costs per person (2)	
220			180	
			Balance (1) - (2)	
			3420	
Next				

Instructions for the next 10 periods

[same for all treatments]

You and the other three participants in your market will now vote whether to introduce a tax of 60 points on each purchased unit of the good. If at least two out of four buyers in each market vote “Yes”, the tax is accepted and the following changes are implemented for the following trading periods: 1) a tax of 60 points will be deducted from your final earnings for each unit you purchase; 2) at the end of each period, an equal share (one-fourth) of the total tax revenues collected from all units traded in your market will be returned to each buyer. All the other rules described in the instructions for the first 10 trading periods remain the same. In particular, the seller’s production cost and each buyer’s resale value of each unit remain the same as the previous 10 periods.

Example

Suppose the tax of 60 points per unit is accepted as the outcome of the voting in your market.

To illustrate how this would affect the outcome of the market and your earnings we use the same example from the instructions for the first 10 trading periods. In that example, when a buyer obtains one unit of the good, she will receive her resale value but now she will also have to pay the tax of 60 points. Consider Buyer 4. Buyer 4’s resale value for Unit 1 is 200, her resale value for Unit 2 is 140 and her resale value for Unit 3 is 100. Since buyer 4 will also have to pay the tax of 60 points on each purchased unit, the maximum she could pay to the seller and still make a gain is $(200 - 60) = 140$ for Unit 1, $(140 - 60) = 80$ for Unit 2 and $(100 - 60) = 40$ for Unit 3.

Consider again the example in which the seller collects the following bids from the 4 buyers. Let’s assume each buyer bids 60 less than before for each unit due to the tax she has to pay for each purchased unit.

	Buyer 1	Buyer 2	Buyer 3	Buyer 4
Bid Unit 1	$(135 - 60) = 75$	$(135 - 60) = 75$	$(140 - 60) = 80$	$(145 - 60) = 85$
Bid Unit 2	$(85 - 60) = 25$	$(90 - 60) = 30$	$(94 - 60) = 34$	$(85 - 60) = 25$
Bid Unit 3	$(80 - 60) = 20$	0	$(80 - 60) = 20$	0

The bids are ranked from high to low as follows: 85, 80, 75, 75, 34, 30, 25, 25, 20, 20, 0, 0. Again, suppose the automated seller’s production cost is 70. Thus, the Market price is 75 (that is, the lowest bid above 70). The Market quantity is 4. These 4 sold units are bolded in the table. Following the same rule as in the first 10 trading periods, each of these 4 units will be traded at the Market price 75.

To illustrate how a buyer's earnings today are calculated, again let's use the example of Buyer 4. Since the Market price is 75, Buyer 4 buys 1 unit. Since 4 units are sold, the total tax revenues in this period are $4 \times 60 = 240$. One fourth of the total tax revenues, $240/4 = 60$ points will be returned to buyer 4.

Buyer 4's **Final earnings** in this period are $= 200$ (resale value of unit 1) $- 60$ (tax) $- 75$ (market price) $+ 60$ (returned tax revenues) $= 125$.

Since the Market quantity is now 4, in this period the **Additional costs per person** are $(60/4) \times 4 = 60$ points. These additional costs will not affect Buyer 4's earnings today but will be deducted from the \$18 cash payment Buyer 4 will receive next week.

So, the final **cash payment each buyer will receive next week** = **\$18 - the sum of the Additional Cost per person in each period.**

Suppose the tax proposal is rejected.

Trading will continue as before the vote and no changes will apply. Thus, in the above example, the seller will only accept bids above or equal to the production cost 70. The Market price is therefore 80. Buyer 4 buys two units. Her final earnings for that period is 180.

Since the Market quantity is 10, in this period the additional costs per person are $(60/4) \times 10 = 150$ points. Again, these additional costs will be deducted from the cash payment Buyer 4 will receive next week. All final earnings in the following periods will be calculated as illustrated above.

[Self-Nomination (Asymmetric Information), *italicized* paragraph]

Additional information about how tax would affect your earnings is available. Some but not all buyers will receive this additional information. Whether one buyer will receive the information or not is randomly determined by the computer and will be shown on your screen before proceeding to the voting (see below for details of the procedure).

Voting procedure

[No First Voter]

In the ballot, all participants simultaneously vote Yes or No for the introduction of the tax. Abstentions or neutral votes are not possible.

[Self-Nomination and Self-Nomination (Asymmetric Information)]

When voting on the tax, one member in your group will vote first and write a message to the other three members explaining why she voted Yes or No to the introduction of the tax. The other three members will see the result of the first vote and the message, and then decide whether to vote Yes or No to the introduction of the tax. Abstentions or neutral votes are not possible.

To decide who will vote first, every member in your group will be asked to state whether he/she wants to be the first voter or not.

- If only one member wants to be the first voter, then this member will be the first voter.
- If more than one member wants to be the first voter, then one of them will be randomly selected to be the first voter.
- If no one wants to be the first voter, then one member in your group will be randomly selected to be the first voter.

[same for all treatments]

You will be informed about the outcome of the vote in your group on the screen before the trading continues. All decisions are anonymous.

Before proceeding to the vote you will be asked to do an exercise to make sure you understand the instructions.

If you now have questions, please, raise your hand and wait until an experimenter comes by to answer your questions individually.

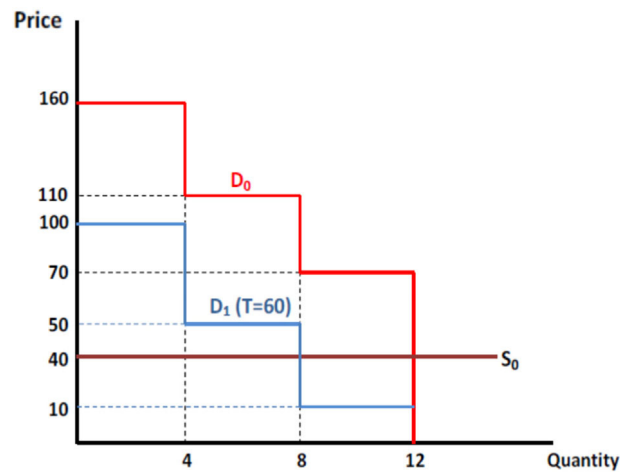
Appendix B. Trading Behavior and Market Equilibrium

When the externality of consumption at time t is delayed to time $t + I$, the external cost of trading is deducted from the \$18 endowment subjects receive one week after the day of trading. Considering only two time periods and assuming for simplicity that the external costs at time t are entirely carried forward to time $t + I$, the stock of external costs affecting subject i at time $t + I$, $s_{i,t+1}$, is $s_{i,t+1} = \delta^t (\sum_i \sum_j d_{ij} \text{MEC}_{it})$, where $d_{ij} = 1$ if unit j was purchased by buyer i at time t and 0 otherwise; $\text{MEC} = 60$ points is the marginal external cost caused by each unit traded, so that the per-unit external cost per person is $\text{MEC}_i = \frac{\text{MEC}}{n} = \frac{60}{4} = 15$, where $n = 4$ is the total number of buyers in each market; $\delta = 1$ is the persistence rate of the external costs generated at time t . Assuming only two time periods, t and $t + I$, each subject i 's pretax payoff in each trading period is

$$\pi_{it} = \sum_j d_{ijt} \pi_{ijt} - \beta \gamma \sum_i \sum_j d_{ij} \text{MEC}_i$$

where the discount factor used to compare payoffs at time t and $t + I$ is $\beta \gamma$. Given the seller's production cost fixed at 40 points and absent any tax, each buyer's i payoff is maximized purchasing 3 units at a unit price of 40 points. This market behavior induces a total per period external cost of 180 points, a total per period market quantity of 12 units, a per period market profit of 520 points and a per period individual payoff of 175 points. If a tax of 60 points is introduced and, at the end of each period, an equal share (one-fourth) of the total tax revenues collected from all units traded in the market are returned to each buyer, each buyer i 's payoff is maximized at 190 points per period purchasing 2 units at a unit price of 40 points. This market behavior induces a total per period market quantity of 8 units, a total per period external cost of 120 points and a per period market profit of 640 points. Figure B.1 shows the demand schedules implied by our market design.

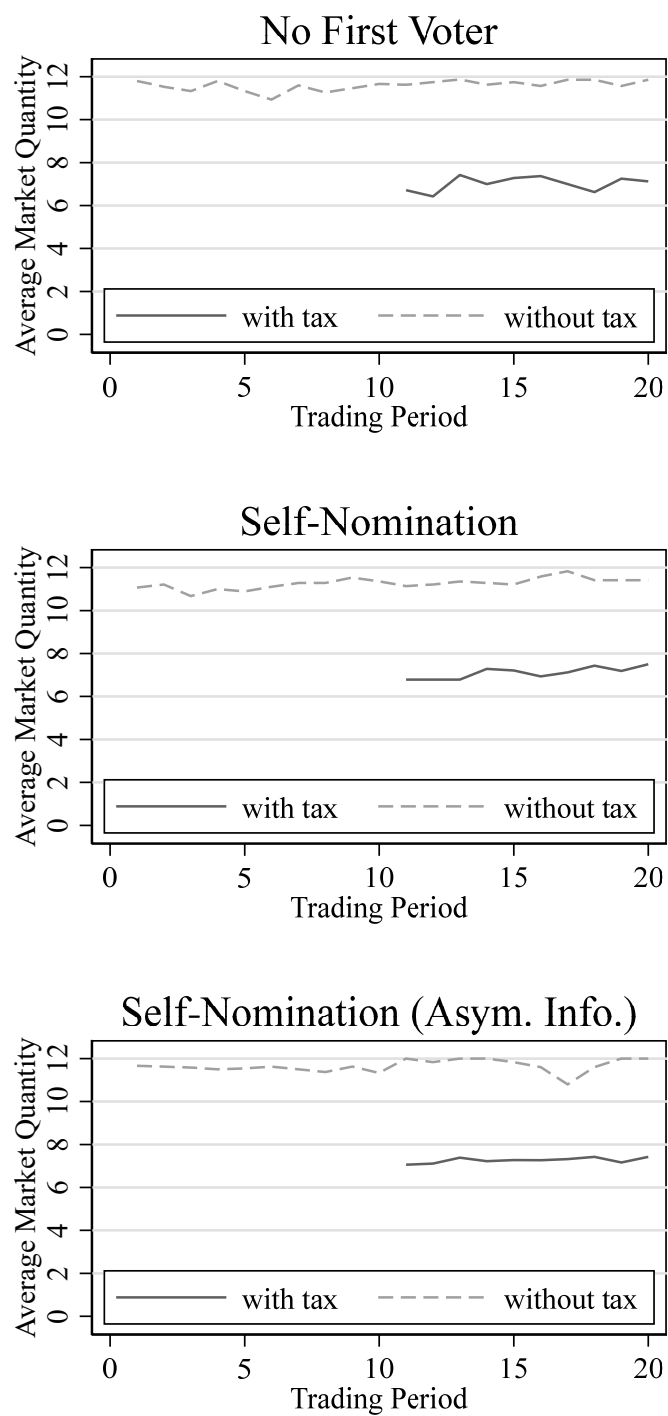
Fig. B1: Induced Market Demand and Supply



Source: Tiezzi & Xiao (2016), page 121

Fig. B.2 plots the average market quantity over the 20 trading periods for all treatments, separating groups that adopted the tax from those that did not. We find a similar pattern across all treatments. For groups that adopted the tax (from period 11 onward), there was a fast convergence to the socially optimal quantity of 8 units. In contrast, for groups that did not adopt the tax, there was a fast convergence to the market equilibrium quantity of 12 units. All comparisons in market quantity between groups adopting the tax and groups rejecting the tax are significant at the 1% level. This indicates the adoption of the tax is crucial for reaching socially efficient outcomes.

Fig. B2: Average market quantity by tax regime



Appendix C. Additional Tables and Figures

Table C1: Initial attitudes and actual votes in the first ballot
Self-Nomination treatment

Initial attitude	First Voters voted yes	Followers	First Voters voted no	Followers
Strong No	0/0	2/6	0/8	0/5
Moderate No	2/2	2/3	0/1	0/8
Slight No	0/0	4/5	0/1	1/6
Indifferent	0/0	3/6	0/2	3/12
Slight Yes	4/4	5/5	0/1	2/9
Moderate Yes	2/2	4/4	0/2	3/6
Strong Yes	2/2	1/1	0/1	1/2
No (Strong, Moderate and Slight No)	2/2	8/14	0/10	1/19
Indifferent	0/0	3/6	0/2	3/12
Yes (Strong, Moderate and Slight Yes)	8/8	10/10	0/4	6/17
Total	10/10=100%	21/30=70%	0/16=0%	10/48=21%

Note: Each cell contains [the number of “yes” votes]/[the total number of buyers] in the corresponding category. Markets with no voluntary leader are not included in the table.

Table C2: Initial attitudes and actual votes in the first ballot
Self-Nomination (Asymmetric Information) treatment

Initial attitude	First Voters voted yes	Followers Info	Followers no Info	First Voters voted no	Followers Info	Followers no Info
Strong No	0/0	0/3	1/3	0/5	0/0	0/1
Moderate No	0/0	1/3	1/1	0/0	0/1	0/1
Slight No	0/0	3/3	2/2	0/1	0/1	0/0
Indifferent	1/1	1/3	1/1	0/0	0/1	0/0
Slight Yes	2/2	7/8	3/3	0/1	3/5	0/1
Moderate Yes	8/8	11/11	2/2	0/1	5/5	0/1
Strong Yes	5/5	4/4	1/1	0/0	1/1	0/0
No (Strong, Moderate and Slight No)	0/0	4/9	4/6	0/6	0/2	0/2
Indifferent	1/1	1/3	1/1	0/0	0/1	0/0
Yes (Strong, Moderate and Slight Yes)	15/15	22/23	6/6	0/2	9/11	0/2
Total	16/16= 100%	27/35= 77%	11/13= 85%	0/8= 0%	9/14= 64%	0/4= 0%

Note: Each cell contains [the number of “yes” votes]/[the total number of buyers] in the corresponding category. Markets with no voluntary leader are not included in the table.

Table C3. Linear probability regression of the decision to self-nominate

	Self-Nomination	Self-Nomination Asymmetric Information
Strong No	0.286* (0.152)	0.375** (0.158)
Moderate No	0.214 (0.192)	0.541** (0.233)
Indifferent	0.086 (0.177)	0.208 (0.199)
Slight Yes	0.149 (0.158)	0.125 (0.149)
Moderate Yes	0.252 (0.182)	0.375** (0.140)
Strong Yes	0.357 (0.223)	0.625*** (0.142)
Constant	0.214* (0.113)	0.125 (0.109)
# of obs	112	96

*Standard error is clustered at the market level. The model uses Slight No as the omitted category. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$*

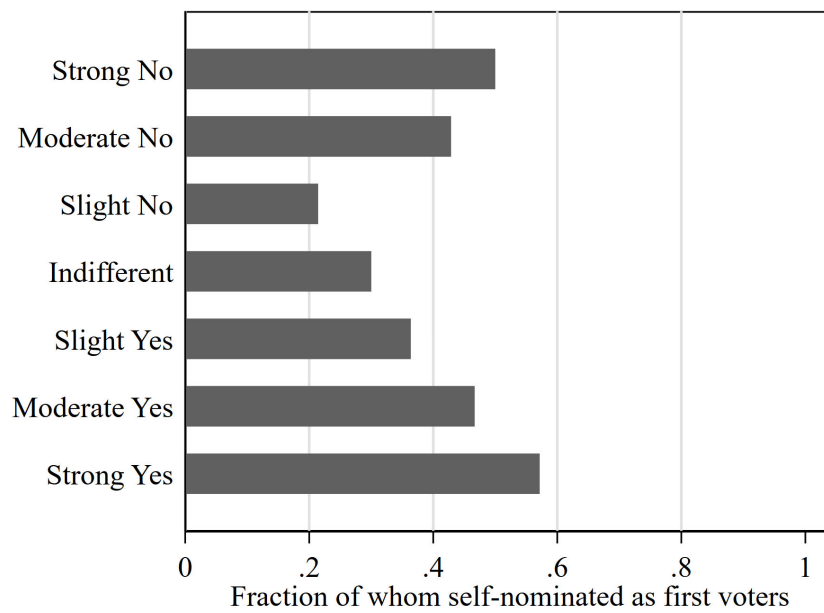
Table C4. Linear probability regression of the decision to self-nominate using different initial attitude as the omitted variable

	Strong No	Moderate No	Slight No	Indifferent	Slight Yes	Moderate Yes	Strong Yes
Strong No		-0.000 (0.160)	0.318*** (0.108)	0.192 (0.136)	0.190 (0.114)	0.011 (0.112)	-0.184 (0.140)
Moderate No	-0.000 (0.160)		0.318** (0.154)	0.192 (0.150)	0.190 (0.132)	0.011 (0.133)	-0.184 (0.163)
Slight No	-0.318*** (0.108)	-0.318** (0.154)		-0.126 (0.134)	-0.128 (0.110)	-0.307*** (0.110)	-0.502*** (0.126)
Indifferent	-0.192 (0.136)	-0.192 (0.150)	0.126 (0.134)		-0.002 (0.124)	-0.181 (0.117)	-0.377*** (0.139)
Slight Yes	-0.190 (0.114)	-0.190 (0.132)	0.128 (0.110)	0.002 (0.124)		-0.179 (0.108)	-0.375*** (0.113)
Moderate Yes	-0.011 (0.112)	-0.011 (0.133)	0.307*** (0.110)	0.181 (0.117)	0.179 (0.108)		-0.195 (0.125)
Strong Yes	0.184 (0.140)	0.184 (0.163)	0.502*** (0.126)	0.377*** (0.139)	0.375*** (0.113)	0.195 (0.125)	
Constant	0.500*** (0.085)	0.500*** (0.120)	0.182** (0.080)	0.308*** (0.097)	0.310*** (0.071)	0.489*** (0.075)	0.684*** (0.106)

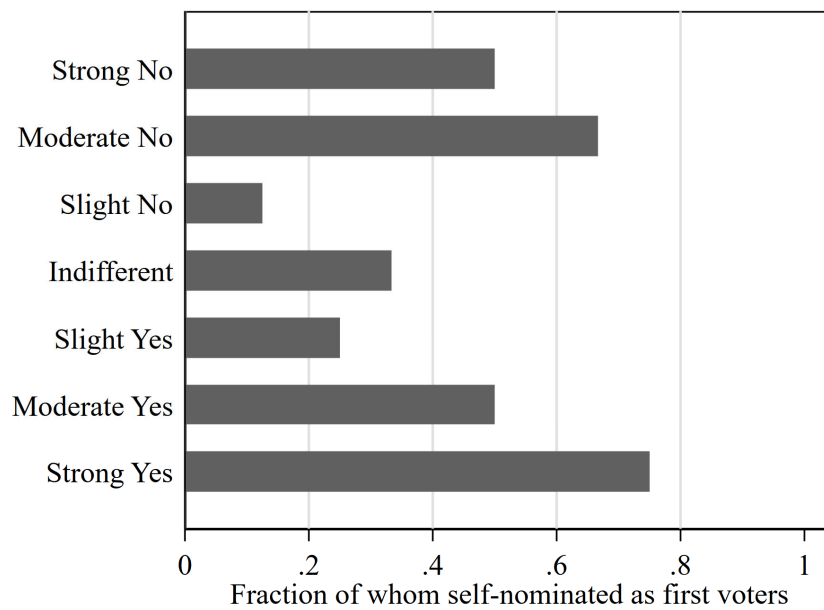
*Standard error is clustered at the market level. Each column reports a regression using different initial attitude as the omitted category. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$*

Figure C1: Fraction of buyers who self-nominated as first voters by initial attitude

(a) Self-Nomination treatment



(b) Self-Nomination Asymmetric Information treatment



Appendix D. Message Coding Instructions

Your Task:

You will be given a list of messages. The messages were written by participants in a market experiment on whether to introduce a tax on market transactions. The experiment consists of two parts.

In the first part, a group of four buyers traded with an automated seller who would sell up to three units to each buyer as long as a buyer's bid for a unit was higher than the production cost. Participants remained in the same group for 10 trading periods.

At the beginning of the second part, each group needed to decide whether to introduce a tax to the market. One of the buyers would be the first voter who could vote first and send a free-form message to the other three buyers, who would then vote themselves after seeing the first voter's vote and message. As long as two out of four voted Yes to the tax, the tax would be effective from periods 11 to 15. In period 16, buyers were asked to vote again. This second ballot followed the same procedure as the first one. In particular, the same first voter could again vote first and send a message to the other three buyers. The tax, if passed, would be effective from periods 16 to 20. Buyers were not informed about the second ballot in period 16 when they voted in the first ballot in period 11.

[Instructions for coders evaluating the messages of first voters who voted “yes”]

Your task today is to evaluate the messages written by first voters **who voted Yes** to the tax. You are asked to classify each message according to i) whether the message provided any reason for the first voter's vote; and ii) whether the message revealed the first voter's confidence in his/her vote.

i) To classify whether the message provided any reason for the first voter's vote, please use the following categories:

1. **Explained why:** The first voter explained *why* introducing taxes is to everyone's best interest (i.e. increases payoffs).
2. **Statement only:** The first voter **only made a statement that introducing taxes is to everyone's best interest** (i.e. increases payoffs) but did not explain why.
3. **Other reasons:** The first voter provided some reasons why he/she voted yes **but they are NOT related to profit maximization**. Please explain briefly the reasons provided by the first voter.
4. **No reasons:** The first voter's message **did not provide any reason** why he/she voted yes.

[Instructions for coders evaluating the messages of first voters who voted “no”]

Your task today is to evaluate the messages written by first voters **who voted No** to the tax. You are asked to classify each message according to i) whether the message provided any reason for the first voter's vote; and ii) whether the message revealed the first voter's confidence in his/her vote.

i) To classify whether the message provided any reason for the first voter's vote, please use the following categories:

1. **Explained why:** The first voter explained *why* NOT introducing taxes is to everyone's best interest (i.e. increases payoffs).
2. **Statement only:** The first voter **only made a statement that NOT introducing taxes is to everyone's best interest** (i.e. increases payoffs) but did not explain why.
3. **Other reasons:** The first voter provided some reasons why he/she voted no **but they are NOT related to profit maximization**. Please explain briefly the reasons provided by the first voter.
4. **No reasons:** The first voter's message **did not provide any reason** why he/she voted no.

ii) To classify whether the message revealed the first voter's confidence in his/her vote, please use the following categories:

1. **Confident:** The message reveals that the first voter is confident in his/her vote.
2. **Not confident:** The message reveals that the first voter is NOT confident in his/her vote.
3. **No information:** The message does not reveal any information about whether the first voter is confident in his/her choice.

While coding the messages, please pay attention to the following:

- 1) You should code all messages independently. Please do not discuss with anyone else how to code the messages.
- 2) Your job is to evaluate the content of the messages.
- 3) When you complete the coding, please go through the entire list of messages for a second time to (i) review all your codes and revise them if needed for accuracy; (ii) make sure that you have coded every message.

NOTE: You will be first given the messages written in the first ballot. After you finish the coding all these messages, please raise your hand and the experimenter will collect your sheets and also give you the messages written in the second ballot. For your record, the second set of message sheets you receive will include the messages in the first ballot, however, you only need to evaluate the message in the second ballot.

Your compensation

You will receive \$15 for completing coding all the messages. In addition, two messages will be randomly chosen at the end of today's session after all the participants have finished the coding task. For each of the chosen messages, if your coding outcome is the same as the most popular coding outcome, you will receive another \$5.

To evaluate the messages, you need to first understand the market experiment. The first instructions attached below explain to the participants how to trade in the market. The second instructions explain how to vote and how the tax works for the voting part. Please read both of them carefully.

After you finish reading the instructions, please complete the comprehension questions for both sets of instructions to make sure you understand the instructions. When you finish, please raise

your hand and show the experimenter your answers to those questions. The experimenter will hand out the messages to you after checking your answers.

Appendix E. Additional Results from the Content Analysis of Messages

We recruited 24 evaluators from the MonLEE student subject pool to analyze the messages, separately for cases where first voters voted ‘yes’ and cases where they voted ‘no. We used Houser and Xiao's (2011) classification coordination game to incentivize coding. Evaluators were seated separately and worked independently. They first read the coding instructions that explained their task. They were also provided with a copy of the instructions and asked to complete a quiz to ensure their understanding. They were not given any information about the purpose of the study. Evaluators then received all first voters’ messages in the first ballot. After they completed coding all messages in the first ballot, they received messages in the second ballot and were similarly instructed to classify each message. Each evaluator received \$15 for coding all messages. In addition, two messages were randomly selected at the end of the session. For each, if an evaluator’s classification matched the most popular classification, they received an additional \$5.

Table E1: Ratio of “yes” votes among followers in the first ballot by message content

Initial attitude	Self-Nomination			Self-Nomination (Asymmetric Information)		
	Explained why	Statement only	Other or no reasons	Explained why	Statement only	Other or no reasons
<i>a) First Voter Voted Yes</i>						
No (Strong, Moderate and Slight No)	3/5	5/8	0/1	4/7	3/7	1/1
Indifferent	2/3	1/2	0/1	1/3	0/0	1/1
Yes (Strong, Moderate and Slight Yes)	4/4	5/5	1/1	11/11	13/14	4/4
<i>b) First Voter Voted No</i>						
No (Strong, Moderate and Slight No)	1/12	0/0	0/7	0/3	0/1	0/0
Indifferent	2/7	0/2	1/3	0/0	0/1	0/0
Yes (Strong, Moderate and Slight Yes)	4/11	0/1	2/5	2/3	6/7	1/3

Note: Each cell contains [the number of “yes” votes]/[the total number of buyers] in the corresponding category. Markets with no voluntary leader are not included in the table.

Table E2: Ratio of “yes” votes among followers in the first ballot by confidence

Initial attitude	Self-Nomination			Self-Nomination (Asymmetric Information)		
	Confident	Not confident	No Information	Confident	Not confident	No Information
<i>a) First Voter Voted Yes</i>						
No (Strong, Moderate and Slight No)	3/6	3/6	2/2	5/8	3/7	0/0
Indifferent	2/4	1/1	0/1	1/2	0/1	1/1
Yes (Strong, Moderate and Slight Yes)	8/8	2/2	0/0	14/14	12/13	2/2
<i>b) First Voter Voted No</i>						
No (Strong, Moderate and Slight No)	1/12	0/1	0/6	0/4	0/0	0/0
Indifferent	2/9	0/1	1/2	0/0	0/1	0/0
Yes (Strong, Moderate and Slight Yes)	4/12	0/1	2/4	4/5	5/8	0/0

Note: Each cell contains [the number of “yes” votes]/[the total number of buyers] in the corresponding category. Markets with no voluntary leader are not included in the table.

Appendix F. The Role of Information Provision and Experience

When observing the first voter's voting behavior, a buyer with more information might put less weight on the first voter's voting behavior, relative to their information on the issue at stake. The literature provides evidence that information provision mitigates peer influence (Bursztyn et al. 2014; Robbett et al. 2023). We thus expect the first voter's voting to be more important for less informed followers (i.e., those in the Self-Nomination treatment).

We ran linear probability regressions to study the impact of the first voter's vote on the followers' voting decision separately for the first and the second ballot.¹ The dependent variable is an indicator of the vote of each follower. The explanatory variables are an indicator of the first voter's vote (yes = 1); an indicator for having experienced the tax in the previous period, and indicators of the experimental condition to which each follower was assigned. Table F1 presents the results.

Columns (1) and (2) show the influence of the first voter's vote for the Self-Nomination treatment and the Self-Nomination Asymmetric Information treatment separately. In the Self-Nomination treatment (column (1)), voting yes becomes 51% more likely when the first voter votes "yes", compared to when they vote "no" (72% vs. 21%). In the Self-Nomination Asymmetric Information treatment (column (2)), voting yes increases by 37% when the first voter votes yes (79% vs. 42%).

To test whether the gap in the first voter's influence between the pro-tax-information and no-information conditions is significant, we combined both treatments and regressed the voting variable on treatment indicators, the first voter's vote, and their interaction (column (3)). The result was a negative coefficient, as expected, but not statistically significant, likely due to low power.

¹ Identifying the causal effect of peers' behavior on one's own behavior is notoriously challenging (Manski, 1993). Our purpose here is not to offer causal evidence of peer effects but to provide some experimental evidence of how peer influence interacts with information acquisition and other learning factors.

Table F1: Linear probability regressions of the followers' voting decision, both ballots.

Dependent variable: $\text{Vote}_i = 1$ if follower i voted Yes							
	First Ballot			Second Ballot			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
First Voter's vote yes	0.514*** (0.10)	0.375*** (0.121)	0.514*** (0.099)	0.240*** (0.068)	0.207 (0.145)	0.254*** (0.068)	0.319*** (0.095)
Self Nomination + Info			0.208* (0.123)			0.146 (0.113)	
First Voter's vote yes # Self Nomination + Info			-0.139 (0.155)			-0.116 (0.140)	
Tax Experience				0.282*** (0.068)	0.077 (0.163)	0.216*** (0.068)	0.352*** (0.091)
First Voter's vote yes # Tax Experience							-0.152 (0.133)
Constant	0.208*** (0.073)	0.417*** (0.101)	0.208*** (0.072)	0.176*** (0.052)	0.410*** (0.118)	0.202*** (0.054)	0.148** (0.057)
# obs.	84	72	156	84	72	156	84
R ²	0.264	0.141	0.255	0.169	0.062	0.138	0.175

Standard errors clustered at the group level in parentheses below coefficients. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

One potential factor that could reduce peer influence is direct experience with the tax policy. To test this, we reran the linear regressions for the second ballot, adding an indicator for whether the buyer had traded under the tax in previous rounds. Columns 4 to 7 in Table F1 present the findings. As expected, the influence of the first voter's vote on the second ballot diminishes with tax experience. In column (4), the probability of voting yes rises by 21% when the first voter votes "yes", compared to when they vote "no", after accounting for tax experience—showing that peer influence was more than halved compared to the first ballot. Experiencing the tax increased the probability of voting yes by 26% compared to those without such experience.

As shown in column (5), when pro-tax information is provided, neither tax experience nor the first voter voting "yes" significantly increases the likelihood of voting yes compared to no experience or the first voter voting "no". In column (6), we combined both treatments and included the interaction between the first voter's vote indicator and the Self-Nomination (Asymmetric Information) treatment indicator. The probability of voting yes rises by 23% when the first voter votes "yes", and tax experience boosts this probability by about 20% compared to no experience. However, as before, the interaction coefficient has a negative sign but is not statistically significant, likely due to a limited number of observations. In column (7), we focused on the Self-Nomination treatment and introduced an interaction between the first voter's vote and the tax experience indicator. The coefficient estimate of this interaction is negative, suggesting that tax experience tends to diminish peer influence in the second ballot, although this effect is not statistically significant.

Appendix G. Robustness Checks

At the end of the experiment, we administered a questionnaire to collect socio-demographic information and to elicit the one-week discount rate of each subject. For the latter, we used a simplified version of the basic experimental design by Coller and Williams (1999) where subjects are given a set of nine decisions. Each decision consists of choosing between \$20 today and a larger amount to be received in one week. We adopted a simple elicitation procedure because the main part of the experiment was already complex and long. In Table G1 we replicate the regression in Table 2 in the main text by adding age (a categorical variable in four classes: 18-20 years; 21-23 years; 24-26 years; 27 years and above), gender (a binary variable = 1 for females), political orientation (a categorical variable in five classes: Conservative; Liberal; Moderate; Very Conservative; Very Liberal) and the individual weekly discount rate of the subjects. The additional regressions in Table G1 confirm the results in Table 2, i.e. the initial views (both initial self-identified supporters and objectors) of the subjects are the most important determinants of the decision to self-nominate. In particular, those who held stronger views (i.e. stated Strong Yes/No or Moderate Yes/No) are more likely to self-nominate as first voters than those with weaker views (i.e. Slight Yes/No).

Table G1. Linear probability regressions of the decision to self-nominate

	(1)	(2)	(3)
Strong No	0.263** (0.113)	0.277** (0.114)	0.287** (0.119)
Moderate No	0.313* (0.156)	0.317* (0.159)	0.327* (0.179)
Indifferent	0.098 (0.131)	0.107 (0.134)	0.143 (0.144)
Slight Yes	0.128 (0.110)	0.131 (0.112)	0.180 (0.130)
Moderate Yes	0.292** (0.110)	0.305** (0.115)	0.278** (0.126)
Strong Yes	0.473*** (0.131)	0.482*** (0.131)	0.470*** (0.140)
Gender (female=1)	-0.158** (0.070)	-0.162** (0.070)	-0.144* (0.077)
Political orientation	0.039 (0.045)	0.037 (0.045)	0.053 (0.047)
Age		-0.045 (0.042)	-0.024 (0.047)
Discount rate			-0.183 (0.569)
Constant	0.169 (0.144)	0.249 (0.169)	0.171 (0.186)
# of obs.	208	208	179

*Standard error is clustered standard error at the group level. The models use Slight No (obs.=22) as the omitted category. In column (3), we dropped participants for whom we cannot assign a certain discount rate due to their multiple-switching or other irregular answers. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$*

References

- Bursztyn, Leonardo, Florian Ederer, Bruno Ferman, and Noam Yuchtman. 2014. Understanding Mechanisms Underlying Peer Effects: Evidence From a Field Experiment on Financial Decisions. *Econometrica*, 82 (4): 1273–1301.
- Coller, M., Williams, M., 1999. Eliciting individual discount rates. *Experimental Economics*, 2, 107–127.
- Robbett, Andrea, Colón, Lily, and Peter Hans Matthews. 2023. Partisan political beliefs and social learning. *Journal of Public Economics*, 220: 104834.