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The efficiency impact of uncertain taxes: an experimental study

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\textbf{ABSTRACT}

Uncertainty is generally assumed to have negative economic effects, but they are difficult to quantify due to measurement and definitional issues in the real world. We use a carefully controlled laboratory experiment to examine policy uncertainty and its impact on economic efficiency. We employ a double-auction design and compare the efficiency of a market with a known tax to that of a risky tax (of known probability) and an uncertain tax (of unknown probability). We find that the uncertain tax generates more deadweight loss than a risky tax of equal expected value.

\textbf{KEYWORDS}

Tax; uncertainty; efficiency; experiment

\textbf{JEL CLASSIFICATION}

H20; C92

\section{I. Introduction}

The link between good public policies and economic growth has been recognized since Smith 1776 [1976]. We know much less about how policy changes and periods of policy uncertainty impact the economy. Take for example the federal income tax rate reductions (passed under President George W. Bush) that were scheduled to sunset at the end 2010. The final bill wasn’t settled until December 17 with a two-year extension. Then again near the end of 2012, the uncertainty of the tax rates applicable for 2013 occurred. The cuts actually expired on 1 January 2013, but were reinstated on January 2 retroactively. During these times, economic decision-makers faced periods in which the future tax rates applicable to their decisions were uncertain. This type of uncertainty also plagued the implementation of the Affordable Care Act under President Obama, and recent tax reforms under President Trump.

As defined by Knight (1921), risk differs from uncertainty (or ambiguity) in that risk is when the probabilities of outcomes are known (and insurance markets can exist).\textsuperscript{1} Uncertainty is when the probabilities (and possible outcomes) are not known. This is typical of recent tax reform that temporarily threw into negotiation state tax exemptions, and home mortgage interest deductions, among many other changes. While the negative consequences of risk may be mitigated through insurance, the same is not true for uncertainty and thus it can be more damaging economically.

A variety of researchers have argued that economic uncertainty is bad for economic activity (Bernanke (1983), Bloom (2009), Christiano, Motto, and Rostagno (2014)), and some have specifically addressed fiscal policy (Fernandez-Villaverde et al. (2015)). While some of the broad impacts on investment and stock markets of general economic and political uncertainty have been discussed by Baker, Bloom, and Davis (2016), it remains difficult to separate out the cause and intensity of the uncertainty, and to disentangle it from other macroeconomic variables and events. This makes this topic an excellent candidate for the methodology of experimental economics.

In the experimental economics literature, policy uncertainty is under-studied. Only two papers look directly at policy uncertainty. Alm, Jackson, and McKee (1992) focus on the impact of uncertain tax and audit rules on tax compliance, while Pfaljar and Zakelj (2016) look at uncertainty with regard to inflation.

Using a double auction framework we find that tax uncertainty generates deadweight loss exceeding the loss associated with the expected value of
the outcome. In other words, uncertainty causes efficiency losses in addition to the policy outcome(s). Thus, prolonged periods of policy debate can cause efficiency losses that exceed the marginal gains from incremental improvements made during the policy process. The marginal efficiency costs associated with prolonged uncertainty should be considered as a factor in making timely policy decisions.

II. Materials and methods

Using a double-auction (DA) market design, all subjects participate in 25 rounds. The first 5 rounds are a simple DA, with no tax, followed by 5 rounds of a DA with a certain tax. These first 10 rounds serve to give the participants experience with the DA, and with the two possible tax outcomes. The remaining 15 rounds differ by having one of three treatments:

1. **Certain Tax** – Participants face additional rounds all with a certain tax.
2. **Risky Tax** – At the beginning of each additional round, subjects told there is a 50% probability that a tax will be imposed retroactively to all trades at the end of the round (after all trades have been made). This treatment is intended to simulate pure, known probability risk, with a clear expected value.
3. **Uncertain Tax** – At the beginning of the round, subjects told there may be a retroactive tax imposed at the end of the round, with unknown probability. Subjects are not told the probability but the actual probability is 50%, so this tax has an equal expected value to the risk situation.

After the participants complete 25 rounds of the DA, they provide some demographic information and the experiment ends. The software program Z-Tree (Fishbacher 2007) is used to conduct the experiments. The instructions for the experiment are in Appendix 1. This study is registered in the AEA RCT Registry and the unique identifying number is: AEARCTR-0002675.

The actual parameters used in each round of the double auction are

- 5 Identical Buyers, each with declining Maximum Willingness-to-pay for 6 units: [50, 47, 44, 41, 38, 35]
- 5 Identical Sellers, each with increasing Minimum Willingness-to-accept for 6 units: [23, 26, 29, 32, 35, 38]

Tax of 6 per unit bought/sold imposed on both buyer and seller

In uncertainty conditions, probability of tax is 50%

Given these parameters, and the assumption that the DA design will mimic a competitive market, the predicted equilibria for each round with and without a tax are:

- Equilibrium Prediction (no tax): Q* = 25, P* = [35, 38], Total Surplus = 375, Efficiency = 100%
- Equilibrium Prediction (tax): Q* = 15, P* = [35, 38], Total Surplus = 315, Efficiency = 84%

The market supply and demand relationships (with and without a certain tax) are shown in Figure 1:

The equilibrium conditions under no taxes and certain taxes are clear from both economic theory and experimental findings. We are interested in how buyers and sellers respond to an uncertain tax. A useful starting point is to assume all market participants are risk neutral. In that case, each

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2All value numbers are in experimental currency, converted into US$ at the end of the experiment at the rate of $0.025/experimental currency unit.
3Both buyers and sellers values are reset each round, regardless of how many units were bought or sold in the previous round.
4These parameters are the same as those used in Cox, Rider, and Sen (2018).
market agent will act as if facing a tax equal to the expected tax (in our case, there is a 50% chance of a 6/unit tax, so the expected tax will be 3/unit). Our hypothesis for the market equilibrium is then:

- Equilibrium Prediction (50% chance of tax): 
  \[ Q^* \leq 20, \ P^* = [35, 38], \ \text{Total Surplus} \leq 360, \ Efficiency \leq 96\% \]

III. Results

Participants

Participants were recruited from the entire undergraduate population at College of Charleston. Participants were promised a $10 show-up fee for arriving on time, and told they could earn up to $30 for 2 hours of time. In each session only one treatment was given; either 1 or 2 market groups of 10 traders (5 buyers and 5 sellers) participated simultaneously. Table 1 provides descriptive statistics on the participants.

Description of the data

Tables 2 and 3 present summary statistics for the units sold and total surplus for each treatment. (Total surplus is always measured as consumer surplus plus producer surplus plus tax revenue.) Unless noted otherwise, data are presented on the last 15 rounds only (corresponding to the treatment rounds).

Figures 2 and 3 show the average round-by-round units sold and total surplus for each treatment. For completeness, all 25 rounds are shown.

Regression results are shown in Table 4. Regression and ANOVA results indicate that for both units sold and total surplus, the three treatments are statistically different at the 1% significance level. The known tax generates the fewest sales and the lowest total surplus, the risky tax generates the most sales and total surplus, and the uncertain tax falls between. Importantly, the uncertain tax has lower units sold and lower total surplus than the risky tax of equal expected value.

As we noted earlier, the experimental supply, demand and tax parameters are identical to those used in Cox, Rider, and Sen (2018), and our results for the certain tax are not statistically different from the results in that study at normal levels of significance.

To alleviate concerns of different risk preferences among groups, we gave all participants

Table 1. Participant descriptive statistics.

<table>
<thead>
<tr>
<th>Group</th>
<th>Overall</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>N</td>
<td>50</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Date</td>
<td>1/29</td>
<td>2/9</td>
<td>2/9</td>
<td>2/6</td>
<td>2/13</td>
<td></td>
</tr>
<tr>
<td>% Female a, b</td>
<td>74</td>
<td>40</td>
<td>90</td>
<td>70</td>
<td>90</td>
<td>80</td>
</tr>
<tr>
<td>% Caucasian</td>
<td>66</td>
<td>70</td>
<td>50</td>
<td>70</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>% African American</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mean Age</td>
<td>20.2</td>
<td>20.7</td>
<td>20.2</td>
<td>20.1</td>
<td>19.8</td>
<td>20.1</td>
</tr>
<tr>
<td>% Business/Econ Majors a</td>
<td>28</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Average Number of Econ Courses</td>
<td>1.2</td>
<td>0.4</td>
<td>1.6</td>
<td>0.7</td>
<td>2.1</td>
<td>1.2</td>
</tr>
<tr>
<td>Average Payout</td>
<td>$22.16</td>
<td>$21.09</td>
<td>$22.73</td>
<td>$21.66</td>
<td>$22.62</td>
<td>$22.68</td>
</tr>
<tr>
<td>Average Chance of Tax Occurring</td>
<td>57</td>
<td>NA</td>
<td>63</td>
<td>50</td>
<td>67</td>
<td>49</td>
</tr>
<tr>
<td>Average Tipping Point – Risk Aversion</td>
<td>6.8</td>
<td>NA</td>
<td>6.9</td>
<td>7.4</td>
<td>6.3</td>
<td>6.6</td>
</tr>
</tbody>
</table>

Table 2. Summary statistics by treatment – units sold.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Min</th>
<th>Max</th>
<th># Obs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Certain Tax</td>
<td>15.67</td>
<td>0.82</td>
<td>15</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>2: Risky Tax</td>
<td>19.93</td>
<td>1.44</td>
<td>18</td>
<td>24</td>
<td>30</td>
</tr>
<tr>
<td>Session B</td>
<td>20.07</td>
<td>1.67</td>
<td>18</td>
<td>24</td>
<td>15</td>
</tr>
<tr>
<td>Session C</td>
<td>19.80</td>
<td>1.21</td>
<td>18</td>
<td>22</td>
<td>15</td>
</tr>
<tr>
<td>3: Uncertain Tax</td>
<td>18.90</td>
<td>1.56</td>
<td>15</td>
<td>24</td>
<td>30</td>
</tr>
<tr>
<td>Session D</td>
<td>17.80</td>
<td>1.01</td>
<td>16</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Session E</td>
<td>20.00</td>
<td>1.20</td>
<td>15</td>
<td>24</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 3. Summary statistics by treatment – total surplus.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Min</th>
<th>Max</th>
<th># Obs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Certain Tax</td>
<td>320.20</td>
<td>7.65</td>
<td>312</td>
<td>333</td>
<td>15</td>
</tr>
<tr>
<td>2: Risky Tax</td>
<td>343.60</td>
<td>10.65</td>
<td>324</td>
<td>363</td>
<td>30</td>
</tr>
<tr>
<td>Session B</td>
<td>345.00</td>
<td>11.05</td>
<td>324</td>
<td>363</td>
<td>15</td>
</tr>
<tr>
<td>Session C</td>
<td>342.2</td>
<td>10.42</td>
<td>327</td>
<td>360</td>
<td>15</td>
</tr>
<tr>
<td>3: Uncertain Tax</td>
<td>337.87</td>
<td>14.43</td>
<td>303</td>
<td>363</td>
<td>30</td>
</tr>
<tr>
<td>Session D</td>
<td>329.13</td>
<td>12.89</td>
<td>303</td>
<td>345</td>
<td>15</td>
</tr>
<tr>
<td>Session E</td>
<td>346.60</td>
<td>8.99</td>
<td>303</td>
<td>363</td>
<td>15</td>
</tr>
</tbody>
</table>
a multiple-price list risk preference elicitation task similar to Holt and Laury (2002) and identical to Bruner, D’Attoma, and Steinmo (2017). The actual task is available in Table B1. As is reported in Table 1, there is no statistically significant difference in risk attitudes across groups or treatments.

IV. Discussion

We present novel results on how uncertainty impacts markets. We show that although an uncertain tax does not have as negative an impact on the quantity transacted in the market or the economic surplus as a certain tax, it has a significant damaging impact. This impact is

![Figure 2. Average units sold by treatment.](image)

![Figure 3. Average total surplus by treatment.](image)

Table 4. Regression results for units sold and total surplus.

<table>
<thead>
<tr>
<th>Estimated Coefficients:</th>
<th>Units Sold</th>
<th>Total Surplus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>15.67***</td>
<td>320.2***</td>
</tr>
<tr>
<td></td>
<td>(0.36)</td>
<td>(3.02)</td>
</tr>
<tr>
<td>Risky Tax</td>
<td>4.23***</td>
<td>23.4***</td>
</tr>
<tr>
<td></td>
<td>(0.44)</td>
<td>(3.70)</td>
</tr>
<tr>
<td>Uncertain Tax</td>
<td>3.23***</td>
<td>17.67***</td>
</tr>
<tr>
<td></td>
<td>(0.44)</td>
<td>(3.70)</td>
</tr>
<tr>
<td>F</td>
<td>47.55***</td>
<td>20.29***</td>
</tr>
<tr>
<td>R²</td>
<td>0.57</td>
<td>0.36</td>
</tr>
<tr>
<td>N</td>
<td>75</td>
<td>75</td>
</tr>
</tbody>
</table>

*indicates statistical significance at the 10% level, **at the 5% level and ***at the 1% level.
larger than the impact of the expected value of the uncertain tax.

When the chance of having the tax imposed is 50%, we find more than 50% loss in quantity traded – approximately 51% lost in the risk treatment, and 61% lost in the uncertain treatment. For economic surplus, we find similar results – a certain tax equal to 50% of the uncertain tax should generate only a 4% loss in total surplus. We find that under the risk treatment, there is a 9% loss in economic surplus, while in the uncertain treatment, there is a 10% loss in economic surplus.

As with any experiment, it is possible that our results may not be robust to our choice of experimental parameters. For example, if we used a probability other than 50%, experimental participants might act more or less similarly to participants in the uncertain treatment. In this experiment the tax burden was born equally by both sides of the market; if the burden were not shared equally, an uncertain tax could have different effects that we observe in our experiment.

We hope that this paper will spur further research in this area. Political uncertainty regarding fiscal policy is a given in the democratic collective-decision making process, and a better understanding of the costs of this uncertainty is helpful. But the costs of uncertainty are large, and the costs of the additional uncertainty associated with lengthier decision reform processes must be balanced against the marginal policy improvements that unfold. These costs argue for shortened periods of policy uncertainty in decisions.

Acknowledgments

The authors would like to thank Reagan Sobel for her help running the experiments.

Disclosure statement

No potential conflict of interest was reported by the authors.

Data availability statement

The data that support the findings of this study are available from the corresponding author, CB, upon reasonable request.

References


Appendix 1. Experiment Instructions

Today's experiment:
This is an experiment in the economics of decision making in markets. Your earnings will be determined by your own decisions and the decisions of others as described in the following instructions. SO IT IS IMPORTANT THAT YOU READ THESE INSTRUCTIONS CAREFULLY. This experiment is structured so that only you know your earnings. All of the money that you earn will be paid to you privately IN CASH immediately following the end of today's experiment.

Scenario
You will be randomly assigned to the role of a Buyer or a Seller. As such, you will decide the number of units of a fictitious commodity that you would like to buy or sell. You will keep the same role for the entire experiment.

Anonymity
Your role and the role of others will be kept private. You will not know anyone's role other than your own.

Trading screens
Sellers make offers and Buyers make purchases through a set of trading screens. We explain below how Sellers and Buyers interact with the trading screens to make offers and purchases in the market.

Sellers' instructions:
You are a Seller. Sellers in the market have two options. You can sell units of a fictitious commodity by accepting Bid prices submitted by Buyers, and you can also post Offer prices and wait for Buyers to buy units, by accepting your Offer prices.

There will be five Sellers and five Buyers in the market.

How does a Seller like yourself make money in this experiment?
Sellers make money in today's experiment by selling units at prices greater than their costs. The Seller's cost per unit is provided on a trading screen, as described below. A Seller's unit cost information is private and will be revealed only to the Seller. A Seller's profit from trading a unit is computed by subtracting the Seller's cost for the unit from the purchase price.

How does a Buyer make money in this experiment?
Buyers make money in today's experiment by buying units at prices lower than the Buyer's values. A Buyer's profit from buying a unit is computed by subtracting the purchase price from the Buyer's value for the unit. Note about losses. On any given trade it is possible to lose money. Losses on trades will be subtracted from gains on other trades, or if necessary, your show-up fee.

How does a Seller like yourself trade in the market?
Below we explain how a Seller interacts with the trading screen to submit an Offer price to the market or accept a Bid price from the market. Each trading period lasts two and one-half minutes. There will be many trading periods. The numbers used in the example below are for instructional purposes only and may not be the same numbers you will see during the experiment.

Time Remaining in a Trading Period and Summary Information:
Sellers (and Buyers) are given two and one-half minutes to complete their transactions in each round of today's experiment. The highlighted area of the trading screen in Figure A1 above displays the current trading period and the time (in seconds) remaining in the trading period.

Selling in the market BY ACCEPTING A BID:
The highlighted area of the screen in Figure A2 above is the Seller's action screen. Sellers can accept Bids in the market by clicking the red 'Sell at this price!' button. You will sell 1 unit each time you click the Sell button, if the Buyer's Bids have not already been accepted.
How do you know what price you will receive if you click on the Sell button? The price you would receive is noted as the highest bid, to the left of the ‘Sell at this price!’ button. In this example, the price is 38 dollars. If you are the first Seller to click on the Sell button, then 38 dollars would be your price. Be aware that this number can change quickly when other Sellers and Buyers are trading in the market.
Making money in this experiment

The highlighted area of the trading screen in Figure A3 above provides information on the Seller’s costs per unit. A Seller should consider this information before submitting an Offer price or accepting a Bid price in the market. Suppose you accepted a bid of 77 dollars. Since it was your first unit, your cost was 23 dollars, and you made a profit of 54 (77–23) dollars. Your total earnings in the round are shown just below the highlighted area. In deciding whether to submit an Offer price or accept a Bid price, you should always check the cost to you of trading the next unit. The cost to you is given by the number in the Cost column in the first row that is NOT labeled ‘SOLD’. In Figure A3, your next unit’s cost is 26 dollars.

Selling in the market BY SUBMITTING AN OFFER:

The highlighted area of the screen in Figure A4 above is the Seller’s action screen. Sellers can make offers in the market by clicking the gray ‘Make a lower offer’ button. Before clicking the ‘Make a lower offer’ button, you need to enter your offer price in the blue box to the right of the ‘Make a lower offer’ button. The price must be entered only in dollars; for example, 77 denotes a price of 77 dollars. Smaller increments are not allowed. For example, an offer of 76.78 dollars would not be accepted. A Seller can post any Offer price greater than $0 but less than $100. After you have entered an Offer price, you can always replace it with a lower Offer price. To do so, just type in the new price and then click on the ‘Make a lower offer’ button. You cannot enter a higher price until the current unit is sold, at which time the highest bid and lowest offers are reset. You cannot remove an offer once it has been entered.

Market Information: Knowing where you stand in the market

The highlighted area of the screen in Figure A5 above shows the best Offers and Bids in the market. In Figure A5, the highest bid is $38, while the lowest offer is $77. Remember that you can always replace your Offer price with a lower one, as explained on the preceding page.

Questionnaire and payment

After you have finished all of your decisions in today’s experiment, you will complete a brief on-line questionnaire. We will convert your total earnings in experimental dollars into U.S. dollars at the exchange rate of $1 experimental = $0.025. For
example, if you earn 1000 experimental dollars, you will earn 25 U.S. dollars. The more experimental dollars you earn, the more U.S. dollars you will be paid at the end of today’s experiment. Once you have received your payment, the experiment is over and you may leave.
Today's experiment:
This is an experiment in the economics of decision making in markets. Your earnings will be determined by your own decisions and the decisions of others as described in the following instructions. SO IT IS IMPORTANT THAT YOU READ THESE INSTRUCTIONS CAREFULLY. This experiment is structured so that only you know your earnings. All of the money that you earn will be paid to you privately IN CASH immediately following the end of today’s experiment.

Scenario
You will be randomly assigned to the role of a Buyer or a Seller. As such, you will decide the number of units of a fictitious commodity that you would like to buy or sell. You will keep the same role for the entire experiment.

Anonymity
Your role and the role of others will be kept private. You will not know anyone's role other than your own.

Trading screens
Sellers make offers and Buyers make purchases through a set of trading screens. We explain below how Sellers and Buyers interact with the trading screens to make offers and purchases in the market.

Buyer's instructions:
You are a Buyer. Buyers in the market have two options. You can buy units of a fictitious commodity by accepting Offer prices submitted by Sellers, and you can also post Bid prices and wait for Sellers to sell units, by accepting your Bid prices.
There will be five Buyers and five Sellers in the market.

How does a Buyer like you make money in this experiment?
Buyers make money in today’s experiment by buying units at prices lower than the Buyer’s values. The Buyer’s value per unit is provided on a trading screen, as described below. A Buyer’s unit value information is private and will be revealed only to the Buyer. A Buyer’s profit from buying a unit is computed by subtracting the purchase price from the Buyer’s value for the unit.

How does a Seller make money in this experiment?
Sellers make money in today’s experiment by selling units at prices greater than their costs. A Seller’s profit from selling a unit is computed by subtracting the Seller’s cost for the unit from the purchase price.

Note about losses. On any given trade it is possible to lose money. Losses on trades will be subtracted from gains on other trades, or if necessary, your show-up fee.

How does a Buyer like yourself trade in the market?
Below we explain how a Buyer interacts with the trading screen to submit a Bid price to the market or accept an Offer price from the market. Each trading period lasts for two and one-half minutes. There will be many trading periods. The numbers used in the example below are for instructional purposes only and may not be the same numbers you will see during the experiment.

Time Remaining in a Trading Period and Summary Information:
Buyers (and Sellers) are given two and one-half minutes to complete their transactions in each round of today’s experiment. The highlighted area of the trading screen in Figure A6 above displays the current trading period and the time remaining (in seconds) in the trading period.

Buying in the market BY ACCEPTING AN OFFER:
The highlighted area of the screen in Figure A7 above is the Buyer’s action screen. Buyers can accept Offers in the market by clicking the red ‘Buy at this price!’. You will buy 1 unit each time you click the 'Buy at this price!' button, if the Sellers have made Offers that have not already been accepted.
How do you know what price you will receive if you click on the 'Buy at this price!' button? The price you would receive appears to the right of the phrase ‘The lowest offer to sell.’. In this example, the price is 38 dollars. If you are the first Buyer to click on the Buy button, then 38 dollars would be your price. Be aware that this number can change quickly when other Buyers and Sellers are trading in the market.
Making money in this experiment
The highlighted area of the trading screen in Figure A8 above provides information on the Buyer’s values. A Buyer should consider this information before submitting a Bid price or accepting an Offer price in the market.
Suppose you accepted an offer of 38 dollars. Since it was your first unit, your value was 50 dollars, and you made a profit of 12 (50–38) dollars. Your total earnings in the round are shown just below the highlighted area.
In deciding whether to submit a Bid price or accept an Offer price, you should always check the value to you of trading the next unit. The value to you is given by the number in the value column in the first row that is NOT labeled ‘SOLD’. In Figure A8, your next unit’s value is 47 dollars.

Buying in the market BY SUBMITTING A BID:
The highlighted area of the screen in Figure A9 above is the Buyer’s action screen. Buyers can make bids in the market by clicking the gray ‘Make a higher bid’ button. Before clicking the ‘Make a higher bid’ button, you need to enter your bid price in the ‘Price’ box. The price must be entered only in dollars; for example, 38 denotes a price of 38 dollars. Smaller increments are not allowed. For example, an offer of 37.78 dollars would not be accepted.

A Buyer can post any Bid price greater than $0 but less than $100.
After you have entered a Bid price, you can always replace it with a higher Bid price. To do so, just type in the new price and then click on the gray ‘Make a higher bid’ button. You cannot enter a lower price until the current unit is sold, at which time the highest bid and lowest offers are reset. You cannot remove an offer once it has been entered.

Market Information: Knowing where you stand in the market
The highlighted area of the screen in Figure A10 above shows the best Offers and Bids in the market. In Figure A10, the highest bid is $38, while the lowest offer is $77.
Remember that you can always replace your Bid price with a higher one, as explained on the preceding page.

Questionnaire and payment
After you have finished all of your decisions in today’s experiment, you will complete a brief on-line questionnaire. We will convert your total earnings in experimental dollars into U.S. dollars at the exchange rate of $1 experimental = $0.025. For example, if you earn 1000 experimental dollars, you will earn 25 U.S. dollars. The more experimental dollars you earn, the more
U.S. dollars you will be paid at the end of today’s experiment. Once you have received your payment, the experiment is over and you may leave.
Table B1. Risk aversion preference elicitation task.

<table>
<thead>
<tr>
<th>Decision</th>
<th>Option A</th>
<th>Option B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15% chance of $100; 85% chance of $40</td>
<td>$70 for certain</td>
</tr>
<tr>
<td>2</td>
<td>25% chance of $100; 75% chance of $40</td>
<td>$70 for certain</td>
</tr>
<tr>
<td>3</td>
<td>35% chance of $100; 65% chance of $40</td>
<td>$70 for certain</td>
</tr>
<tr>
<td>4</td>
<td>45% chance of $100; 55% chance of $40</td>
<td>$70 for certain</td>
</tr>
<tr>
<td>5</td>
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<td>$70 for certain</td>
</tr>
<tr>
<td>6</td>
<td>65% chance of $100; 35% chance of $40</td>
<td>$70 for certain</td>
</tr>
<tr>
<td>7</td>
<td>75% chance of $100; 25% chance of $40</td>
<td>$70 for certain</td>
</tr>
<tr>
<td>8</td>
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<td>$70 for certain</td>
</tr>
<tr>
<td>9</td>
<td>95% chance of $100; 5% chance of $40</td>
<td>$70 for certain</td>
</tr>
<tr>
<td>10</td>
<td>100% chance of $100; 0% chance of $40</td>
<td>$70 for certain</td>
</tr>
</tbody>
</table>