

The Willingness to Pay–Willingness to Accept Gap, the “Endowment Effect”, Subject Misconceptions, and Experimental Procedures for Eliciting Valuations: A Reassessment

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Appendix

This appendix contains the experimental instructions. Section A.1 reports the full instructions for Stage 1, while Section A.2 reports the instructions of the KKT treatment of Stage 2. The instructions for the PZ treatment of Stage 2 are omitted, as they are very close to the Stage 1 instructions, but are available from the authors upon request.

A.1 Instructions for Stage 1

The following instructions for Stage 1 include the ‘general instructions’ that subjects could follow on paper while the experimenter read them aloud, and the text that the experimenter read in the worked example phase, during which subjects looked at their computer screens.

Underlined text denotes parts that have been changed from PZ’s original script. The differences are mainly due to the computerised implementation of the experiment. In PZ’s experiment, the small text in italics was not printed on the instructions, but was read by the experimenter. In our replication, this text was also included in the printed instructions. Blank spaces indicate pieces of information that were determined during the worked example phase (e.g. lottery outcome, round payment).

Figures A.1 and A.2 present two sample screenshots, relative to the worked example phase. Figure A.1 refers to the buying task, while Figure A.2 presents the selling task. In each round, the subject first saw only the box at the top of the display (describing the task in general terms) and the ‘step 1’ box. The boxes for subsequent steps appeared in sequence as the subject worked through the task. The current step was highlighted by using a different foreground colour. In the mug and CG rounds, Step 3 was skipped.

GENERAL INSTRUCTIONS

This is an experiment in individual decision-making. Funds for this research have been provided by the Economic and Social Research Council.

The instructions are simple, and if you follow them carefully and make good decisions, you might earn a considerable amount of money or other things. What you earn will depend on the decisions you make. You will perform a series of buying tasks and a series of selling tasks.

Your decisions in the experiment are private to you. We ask that you do not communicate with other people during the experiment. Please refrain from verbally reacting to events that occur during the experiment. This is very important.

Buying task

The **buying task** works as follows. The experimenter will offer an item for sale. Your task is to make an offer for the item and record it on your computer.

As you will see, your best strategy is to determine the maximum you would be willing to pay for the item and offer that amount. It will not be to your advantage to offer more than this amount, and it will not be to your advantage to offer less. Simply determine the maximum you would be willing to pay and make that amount your offer.

Your offer will be compared to a fixed offer. The fixed offer will be completely unrelated to your offer and to the offers of all other persons in the room.

If your offer is more than or the same as the fixed offer, then you buy the item. You had the high offer, so you are the buyer. But, here's the interesting part. **You do not pay the amount you offered.** Instead, you pay the fixed offer, an amount equal to or less than your offer.

Example: if you offer 1,000 and the fixed offer is 950, you have the high offer. You buy the item and pay only 950.

If your offer is less than the fixed offer then you do not buy the item. Instead, you keep your money.

Example: if you offer 1,000 and the fixed offer is 1,020, you do not have the high offer. Therefore, you do not buy the item. You keep your money.

As a buyer, you should offer exactly the **maximum amount you would be willing to pay** in exchange for the item being sold.

Your best strategy is to determine your personal value for the item and record that value as your offer. There is not necessarily a "correct" value. Personal values can differ from individual to individual.

The following example illustrates how you work out what's the maximum you are willing to pay.

Imagine that I am a buyer and Item A is up for sale. How do I know what amount is the maximum I'd be willing to pay for Item A?

Start with 1 penny. Would I be willing to pay 1 penny for the item? If so, then increase the amount to 2 pence. If I'm willing to pay 2 pence, then increase further. I keep increasing until I come to an amount that makes me indifferent between keeping the money and getting Item A.

Example: would I pay £1 for A? Yes. Would I pay £2 for A? Yes. Would I pay £5 for A? Yes. Would I pay £6 for A? No, not £6. So I need to decrease. Would I pay £5.50? No, not that much. How about £5.25? I don't care whether I end up with £5.25 or the item. Then that is the maximum I'd be willing to pay for Item A. I'll record that number on the computer.

The key to determining the maximum you'd be willing to pay is remembering that you will not pay the amount you bid. Instead, if you pay anything, you will pay the fixed offer.

Why is my best strategy to bid the maximum I'd be willing to pay? Let's go back to the example:

Say that I decide that the maximum I'd be willing to pay for Item A is £5.25.

What happens if I bid less than £5.25? Say I bid £5.

If the fixed offer is, say, £5.10, then I don't get the item. Had I bid £5.25, I would have received the item and had to pay only £5.10 for an item that I think is worth £5.25. I lose out.

What happens if I bid higher than £5.25? Say I bid £5.50.

If the fixed offer is £5.45, then I have to pay £5.45 for an item that I really think is worth only £5.25. I lose out.

At this point are there any questions?

Selling task

The **selling task** works as follows. The experimenter wishes to buy an item that you own. Your task is to make an offer for the item and record it on your computer.

As you will see, your best strategy is to determine the minimum you would be willing to accept and offer that amount. It will not be to your advantage to offer more than this amount, and it will not be to your advantage to offer less. Simply determine the minimum you would be willing to accept and make that amount your offer.

Your offer will be compared to a fixed offer. The fixed offer will be completely unrelated to your offer and to the offers of all other persons in the room.

If your offer is less than or the same as the fixed offer, then you sell the item. You had the low offer, so you are the seller. But, here's the interesting part. **You do not receive your offer.** Instead, you receive the fixed offer, a price equal to or higher than your offer.

Example: if you offer 1,000 and the fixed offer is 1,020, you have the low offer. You sell the item and you receive the fixed offer of 1,020.

If your offer is more than the fixed offer then you do not sell your item. You keep the item.

Example: if you offer 1,000 and the fixed offer is 950, you do not have the low offer. Therefore, you do not sell the item.

As a seller, you should offer the **minimum amount you would be willing to accept** in exchange for the item you own.

Just as you saw in the case of the buying task, your best strategy is to determine your personal value for the item and record that value as your offer. There is not necessarily a “correct” value. Personal values can differ from individual to individual.

The following example illustrates how you work out what’s the minimum you are willing to accept.

Imagine that I am a seller and I own Item B. How do I know what amount is the minimum I’d be willing to accept to give up Item B?

Start with £100. Would I be willing to give up item B in exchange for £100? If so, then decrease the amount to £95. If I’m willing to accept £95 to give up Item B, then decrease further. I keep decreasing until I come to an amount that makes me indifferent between keeping Item B and getting the money.

Example. Would I accept £10 to give up Item B? Yes. Would I accept £8 for B? Yes. Would I accept £7 for B? Yes. Would I accept £6 for B? No, not £6. So I need to increase. Would I accept £6.50? I don’t care whether I end up with £6.50 or Item B. Then that is the minimum I’d be willing to accept for Item B. I’ll record that number on my computer.

The key to determining the minimum you’d be willing to accept is remembering that you will not receive the amount you ask for. Instead, if you receive anything, you will always get the fixed offer.

Why is my best strategy to bid the minimum I’d be willing to accept? Let’s go back to the example:

Say I decide that the minimum I’d be willing to accept for Item B is £6.50.

What happens if I ask for less than £6.50? Say I ask for only £6.

If the fixed offer is, say, £6.25, then I have to sell my item. I lose out because I have to give up Item B which I think is worth £6.50, but I only get £6.25 in exchange.

What happens if I ask for more than £6.50? Say I ask for £7.

If the fixed offer is £6.75, then I do not sell. But, had I bid £6.50, I would have sold the item and received £6.75 for an item that I think is worth only £6.50. I lose out.

Are there any questions?

Now look at the screen in front of you.

WORKED EXAMPLES

You record your valuations using the computer. Note that you will switch between the roles of buyer and seller. The computer will indicate the role you will play in each particular round at the top of the screen.

The following illustrations will help you understand how to use the computer programme. Please look at your screen as I go through the illustration.

The screen relating to each buying task is similar to the one in front of you. The screen indicates the round number. The item for which you will be making your offer appears next. In most cases, the items are displayed as lotteries, even though in some cases no real lottery is involved. The item on your screen is a lottery with a 70% chance of receiving 500 and a 30% chance of receiving 1,000.

All lotteries are displayed in a similar way. The prizes you can win are shown inside green boxes. The width of the boxes roughly reflects the probability of winning. Actual probabilities are reported above the boxes. The numbers along the bottom of the boxes (here 1, 70, 71 and 100) refer to the numbers on a set of plastic discs inside a bag. There are 100 discs in the bag, one with each of the numbers from 1 to 100. Lotteries are played out by drawing a disc from the bag. For the lottery on your screen, if the number is between 1 and 70 inclusive, the lottery will pay 500. If it is between 71 and 100 inclusive, it will pay 1,000.

In each round, you should decide on an offer. This offer will be compared to the fixed offer. You may offer any amount you wish.

How do I decide the maximum I would pay to receive this lottery ticket? I start low. Would I pay 100 for it? Sure. Would I pay 200 for it? Sure. How about 400? Yes. I would definitely pay 500 for it because I will receive 500 at a minimum and have a chance of winning 1,000. Would I pay 1,000 for it? No. I would not give up 1,000 because the ticket may be worth much less than 1,000, but no more than 1,000. So I should choose an amount between 500 and 1,000. The amount I choose may differ from the most someone else would pay to receive the ticket.

Suppose the buyer decides to offer X for the lottery. He would type 'X' in the box in Step 1.

After everyone has recorded the offer, the previously generated fixed offer will be revealed. This will be done by opening a randomly selected coloured envelope. Each envelope contains a potentially different fixed offer. Different sets of envelopes will be used at different stages of the experiment. In this example, the computer says that the offer will be picked from amongst the red envelopes, and this is denoted by the small picture at the top-left corner of the screen.

In order to assure you that the fixed offers are completely unrelated to your offers or your personal value of the item, they were generated before the start of the experiment.

The experimenter opens an envelope and announces the fixed offer. Suppose the fixed offer is 501. This value has to be recorded in Step 2.

Then, the lottery result will be determined. The experimenter will draw a disc from the bag and read the number printed on it. The outcome corresponding to the disc number can be read from the diagram at the top of the screen. This is the value to be recorded in Step 3.

The disc number is _____. Therefore, the lottery result is _____. This value is entered in Step 3.

In Step 4, each buyer will calculate his round payment. In this example, assume the offer of X is more than the fixed offer of 501. He needs to complete only the left hand box of Step 4. He buys the lottery ticket. His round payment is equal to the lottery result from Step 3 minus the fixed offer, 501. Therefore, his round payment is _____.

In Step 5, the round payment is added (or subtracted, if negative) to the earnings of the previous rounds. In the experiment proper, these will also include your show-up fee of £3.

Are there any questions?

The screens that follow illustrate how to record valuations in selling tasks.

Suppose the seller owns the lottery ticket displayed on the screen. The lottery ticket provides a 70% chance of receiving 1,000 and a 30% chance of receiving 1,000. She must decide the minimum she is willing to receive in exchange for the ticket.

She starts high. Would she be willing to accept 1,500? Yes, she would. Would she be willing to accept 1,200? Yes, she would. Would she stop at 1,100? No, because if the fixed offer was, say, 1,050 she would not sell, and she would get only 1,000. Had she sold, she would have got 1,050 for a lottery which pays at most 1,000. Thus, she will be willing to accept anything equal to or greater than 1,000.

Would she be willing to accept less than 1,000, say, 800? No, because if the fixed offer turns out to be, say, 900, she sells and gets 900. Had she not sold, she would have got 1,000.

Therefore, in this case she should offer 1,000. This value is entered in Step 1.

Now suppose the experimenter picks an envelope with a fixed offer of 950. This value is entered in Step 2.

Note that, regardless of which disc number is drawn, the lottery outcome will be 1,000. This should be entered in Step 3.

After filling in the appropriate information for Steps 2 and 3, she needs to calculate her round payment. In this example, her offer is more than the fixed offer; therefore, she does not sell. She only needs to fill in the right hand box in Step 4. She receives the lottery result.

Alternatively, suppose the fixed offer was 1,020. Her offer would now be less than the fixed offer; therefore, she would sell. She would only need to fill out the left hand box in Step 4. Her round payment would be equal to the fixed offer.

This round payment is also reported in Step 5, where earnings are accumulated.

At this point, are there any questions?

Before the experiment starts, the computer will ask you to enter the numeric identification code contained in the sealed envelope you have picked when you arrived. Please check that you've entered it correctly and keep it safe. You will need it in order to be paid.

There will be 16 rounds in the experiment. Your earnings, which are yours to keep, will be all accumulated earnings from rounds 1 through 16. These will be paid to you in cash after the experiment. To receive your earnings, please take your identification card to the **experimental cashier** in Room 3.57 of the ARTS building. The location, as well as the cashier's opening hours, is reported on your identification card. Your earnings will be ready for collection starting from one hour after the end of this session.

Note that, since the cashier is not allowed to disclose any information concerning the participants' identity, the experimenter will not be able to link any specific subject to a subject identification number. Therefore the experimenter will not know subject payoffs by individual.

Obtaining your earnings will end your participation in the experiment.

Any last questions before we start?

Before the beginning of the experiment proper, there will be two training rounds. These rounds will not be taken into account in determining your earnings.

Figure A.1 – Screenshot of first worked example



Round 1 of 2
This is a **BUYING** task

This Round you have the opportunity to **buy** the lottery ticket displayed on the screen
The lottery offers a 70% chance of winning 500, and a 30% chance of winning 1000
This round the fixed offer will be picked from the **RED** envelopes

70%	30%
Win 500	Win 1,000
1	70 71 100

STEP 1: YOUR OFFER

YOUR OFFER is the maximum amount you are willing to pay to buy the object displayed on the screen

YOUR OFFER: X

STEP 4: YOUR EARNINGS THIS ROUND

If your offer is **LESS** than the fixed offer, then you **DO NOT BUY**.
If your offer is **GREATER** than or **EQUAL** to the fixed offer, then **YOU BUY**.
Determine whether you bought or not and fill in one of the two boxes below.

<p>IF YOU BUY:</p> <p>A. You get the lottery outcome: 500 B. You pay the fixed offer: 501</p>	<p>IF YOU DO NOT BUY:</p> <p>A. You get nothing B. You pay nothing</p>
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So, YOUR MONETARY EARNINGS for this round are: -1

STEP 2: FIXED OFFER

The **FIXED OFFER** is randomly determined and is unrelated to the offers of the people in this room.

Enter **FIXED OFFER**: 501

STEP 5: YOUR ACCOUNT

Your earnings in previous rounds: 0
+/- the earnings from this round: -1
= TOTAL: -1

STEP 3: LOTTERY PAYOUT

Lotteries are played out by drawing one of 100 numbered discs from a bag. The outcome associated with the drawn number can be read from the figure at the top of the screen.

Enter **LOTTERY OUTCOME**: 500

Figure A.2 – Screenshot of second worked example



Round 2 of 2
This is a **SELLING** task

This Round you own the lottery ticket displayed on the screen and have the opportunity to **sell** it
The lottery offers a 70% chance of winning 1000, and a 30% chance of winning 1000
This round the fixed offer will be picked from the **GREEN** envelopes

70%	30%
Win 1,000	Win 1,000
1	70 71 100

STEP 1: YOUR OFFER

YOUR OFFER is the minimum amount you would be willing to accept in exchange for the object you own

YOUR OFFER: 1,000

STEP 4: YOUR EARNINGS THIS ROUND

If your offer is **GREATER** than the fixed offer, then you **DO NOT SELL**.
If your offer is **LESS** than or **EQUAL** to the fixed offer, then **YOU SELL**.

Determine whether you sold or not and fill in one of the following boxes.

If YOU SELL:

A. You give up your item
B. You get the fixed offer:

If YOU DO NOT SELL:

A. You keep your lottery
B. You get the lottery outcome: 1000

So, YOUR MONETARY EARNINGS for this round are: 1000

STEP 2: FIXED OFFER

The **FIXED OFFER** is randomly determined and is unrelated to the offers of the people in this room.

Enter **FIXED OFFER**: 950

STEP 5: YOUR ACCOUNT

Your earnings in previous rounds: -1

+/- the earnings from this round: 1000

= **TOTAL: 999**

STEP 3: LOTTERY PAYOUT

Lotteries are played out by drawing one of 100 numbered discs from a bag. The outcome associated with the drawn number can be read from the figure at the top of the screen.

Enter **LOTTERY OUTCOME**: 1000

A.2 Instructions for KKT treatment

The instructions for the KKT treatment are reproduced below. Text in italics denotes the parts that were read aloud by the experimenter but not printed for subjects to read. There were two parts in the experiment, the KKT replication being the first one, and the only one for which participants were paid. The second part involved some coordination tasks totally unrelated to the KKT tasks.

Good (MORNING/AFTERNOON), and thank you for coming at our experiment. My name is _____. *Helping me today are _____.*

Before we start with the experiment, I will read the instructions, which you can find on your desk. Please follow as I read through.

This is an experiment in individual decision-making. Funds for this research have been provided by the Economic and Social Research Council.

The instructions are simple, and if you follow them carefully and make good decisions, you might earn a considerable amount of money or other things. There are two parts in this experiment. What you earn will only depend on the decisions you make in the first part of the experiment, but you will only be paid after completing the second part.

Your decisions in the experiment are private to you. We ask that you do not communicate with other people during the experiment. Please refrain from verbally reacting to events that occur during the experiment. This is very important.

We are now ready to describe the nature of the tasks within the experiment.

For the duration of the first part of the experiment, you will be assigned either the role of buyer, or the role of seller. Whether you are a buyer or a seller is determined by chance.

Buying task

If you are a buyer, you have the opportunity to buy an item from the experimenter. You will be shown a list of possible prices. For each of these prices, you'll be asked to say whether you would be willing to buy at that price or not.

After everyone in the room has made their decisions, one of the prices on the list will be picked at random to be the actual price. If you said that you would buy at that price, you will receive the item and pay the actual price. If you said that you would not buy, you would pay nothing and get nothing.

Selling task

If you are a seller, you will be given an item and you will have the opportunity to sell it back to the experimenter. You will be shown a list of possible prices. For each of these prices, you'll be asked to say whether you would be willing to sell at that price or not.

After everyone in the room has made their decisions, one of the prices on the list will be picked at random to be the actual price. If you said that you would sell at that price, you will have to give up your item and will receive the actual price. If you said that you would not sell, you would keep your item.

At this point are there any questions?

There will be 3 rounds in this first part of the experiment. The first two rounds are hypothetical, that is, you won't be paid for the decisions you make, but please, treat them as if they were for real. Your earnings, which are yours to keep, will be determined by the third round. These will include a participation fee of £8, and will be paid to you in cash after you complete the second part of the experiment.

Obtaining your earnings will end your participation in the experiment.

Any last questions before we start?