

Pre-Analysis Plan for Fixed-Equity Auctions with Common Values

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1 Introduction

Common value auctions play a central role in allocating large and complex projects, such as natural resources, spectrum licenses, and corporate assets. A large body of theoretical and experimental work shows that, when these auctions are conducted with cash bids, even small informational or strategic asymmetries can have a strong impact on outcomes, bidders are prone to the winner’s curse, and risk sharing affects both efficiency and revenues. Yet, in many real-world settings, participants bid using contingent payments (securities) rather than cash. This distinction is important because the auction security design shapes bidding strategies and influences both surplus extraction and the level of insurance available to bidders.

A notable example of common value auctions with security bids is oil lease auctions, where bidders often use a combination of fixed equity and cash payments. State governments compete to attract major oil firms, yet even geographically close regions selling tracts of comparable quality choose different combinations of fixed equity and cash to structure their auctions. Similarly, in other settings such as timber auctions and infrastructure concessions, bids also often combine cash with contingent claims such as equity or profit-sharing, highlighting that the intersection of common value and securities is prevalent across diverse markets (Athey and Levin, 2001; Bolotnyy and Vasserman, 2023).

The experiment described in this pre-analysis plan will provide experimental evidence on how security-bid instruments shape behavior in common value auctions. We study a first-price setting using a version of the “wallet game” with fixed-equity designs. In this setup, bidders receive independent and identically distributed signals about a project whose value equals the sum of the signals and whose return is stochastic. As in the standard wallet game, bidders submit cash bids conditional on their signals, but the seller can also require the winning bidder to pay a fixed equity share, analogous to the equity component observed in oil lease auctions.

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2 Experimental Design

We develop a controlled environment to examine how security-bid instruments shape behavior in common value auctions. Participants face a first-price auction over a project whose value equals the sum of independent and identically distributed signals. As part of each auction, there is a fixed equity share ranging from 0% to 60%. The winner of the auction must pay their bid plus this equity share of the final value of winning. Some sessions will include a treatment to induce (apparent) risk aversion, described further below. All experimental sessions will be carried out in-person in the CUBES Laboratory at the University of Queensland.

Subjects begin the experiment by reviewing instructions that describe the structure of the auctions they will participate in. They are presented with three examples that demonstrate how the auctions work as well as how payoffs can be computed. After reviewing the examples, subjects complete a quiz and receive feedback about the correct answers for the quiz. They then move on to complete 30 rounds auctions.

In the auctions, all valuations and bids are described in terms of points. Each buyer in an auction receives a signal that is drawn from the uniform-discrete distribution between 0 and 1000 (in 20 point increments). Buyers' signals are drawn independently of each other. They are told that the value of winning is the sum of the three buyers' signals. Buyers make bids in points using a slider (see Figure 1) that is restricted to be between 0 and 3000 and takes values in 20 point increments. Buyers that lose receive their budget of 3000 points. Buyers that win receive (1) their budget, (2) minus their bid, (3) plus the product of the value of winning and one minus the fixed equity rate.

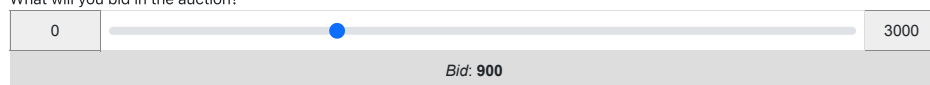
Round 2: Auction

Remember that the value of the prize is the **SUM** of all 3 players' signals. Each signal is drawn independently and has an equal chance of taking each value between 0 points and 1000 points (in 20 point increments).

In this round, your signal is 760 points. That means that the value of the prize is somewhere between 760 points and 2760 points.

The **percentage payment** in this round is **60%**.

What will you bid in the auction?



Next

Figure 1: Slider to make bids

Our design combines between- and within-treatment variation.

Our within subject treatment varies the fixed equity rate which applies to the auction. We randomly select between 0%, 20%, 40%, and 60% for each group within each round. Each rate is drawn with an equal chance.

In our between-subject treatment, we vary the way in which subjects are paid. Specifically, we change the rule by which the point payoff from a single round of the auction is converted into dollars. In our baseline treatment, 100 points are always worth \$1. In our “risk aversion” treatment, each 100 points up to 3000 is worth \$1. Each additional 100 points above 3000 is only worth \$0.40.

We provide subjects with a figure that helps them compute payoffs. The figure includes two graphs, and changes as the subject activates and moves the slider. On the left-hand side, the graph computes the buyers' payoff in points. Before the slider is activated, the graph demonstrates the possible values of winning given their signal, and indicates that the payoffs for losing are constant at 3000 for all possible values of winning. Once the slider has been activated, the figure shows the payoffs that the subject would receive for all possible values of winning *conditional on their current bid*. The right-hand-side graph shows subjects how their payoff in points maps to their payoff in dollars. When the slider has not yet been activated, the single point of their payoffs conditional on losing the auction is marked on the graph. Once the slider has been activated, the range of potential payoffs conditional on winning the auction at the current bid is marked on the graph. An example of this figure as it is applied to the risk aversion treatment can be found in Figure 2.

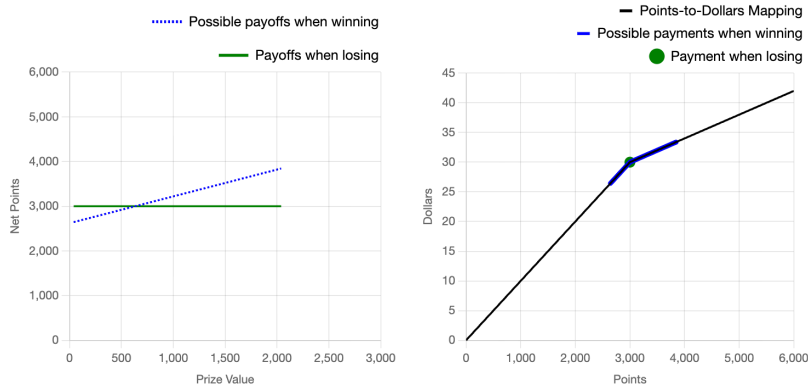


Figure 2: Payoff calculation figure

After each round, all subjects are reminded of their bid and are told both the winning bid and the value of winning. Subjects are told whether they won the auction. They are provided with the payoff calculation both in points and in dollars for both the losers and winner of the auction. They are also, once again, provided with the mapping of points to dollar payoffs, with the specific payoffs received by the winner and loser marked on the graph. Examples of this feedback can be found in Figures 15–18.

2.1 Data Collected

In addition to choice data from the auctions, we will collect the decision time for each choice. We also will collect standard demographic data including gender, age, college major, and whether English is the subject's first language. We will supplement these data with a cognitive reflection test and a short survey about the experiment.

3 Empirical Analysis

The focus of our study will be how subjects’ choices vary with the information they are provided, the equity rates in the study, and the risk aversion treatment. We will focus on 1) bids and 2) auction revenue. Based on pilot data, we expect that decision-making will be noisy as subjects gain experience in the first few rounds. Thus, in our main analysis, we will focus only on rounds 6 to 30. The full dataset will be analyzed as a robustness check.

The primary estimating equation for bids will be

$$\text{Bid}_{it} = (\beta_0 + \beta_1 \text{Eq. Rate}_{it} + \beta_2 \text{RA Treat}_{it} + \beta_3 \text{Eq. Rate}_{it} \times \text{RA Treat}_{it}) \times s_{it} + \varepsilon_{it} \quad (1)$$

while the estimating equation for revenue will be

$$\text{Rev}_{jt} = \beta_0 + \beta_1 \text{Eq. Rate}_{jt} + \beta_2 \text{RA Treat}_j + \beta_3 \text{Eq. Rate}_{jt} \times \text{RA Treat}_j + \sum_{r=1}^3 s_{jtr} + \gamma_t + \varepsilon_{jt}. \quad (2)$$

Index i refers to the subject, index t to the round, and index j to the group. Eq. Rate refers to the equity rates, and ranges from 0 to 0.6. RA Treat is a binary variable. s_{it} is the signal received by bidder i in round t . s_{jtr} refer to the signals for group j in round t , organized by their rank r (so s_{jt1} is the highest signal from group j in round t and s_{jt3} is the lowest signal from group j in round t). The coefficient γ_t refers to round fixed effects. We note that we do not include an intercept in the model for bids because the equilibrium prediction is that bids are linear in signals.

3.1 Power

We ran three pilot sessions. The first pilot did not involve the risk aversion treatment, nor did it have the interactive figure. The second and third pilot had the interactive figure on both, with one of the two sessions using the risk aversion treatment. Both of these pilot sessions involved 12 participants, but the session with the risk aversion treatment involved only 20 rounds.

We calculate power based on the results of estimating Equations (1) and (2) using the pilot data. Our focus is on the effect of the equity rate and its interaction with the risk aversion treatment, which correspond to the coefficients β_1 and β_3 . Specifically, we focus on “expected power” or “assurance” given the posterior distributions of the true effect based on our estimations (O’Hagan et al., 2005). The results can be found in Figure 3.

Given these results, we plan on having a total sample size of 150-170 (with roughly 80 subjects in each treatment). This sample size should be sufficient to reject null hypotheses of zero effects for the equity rate for bidding functions and interaction of equity rate and risk aversion treatment for both bidding functions and revenue.

References

Athey, S. and Levin, J. (2001). Information and competition in us forest service timber auctions. *Journal of Political economy*, 109(2):375–417.

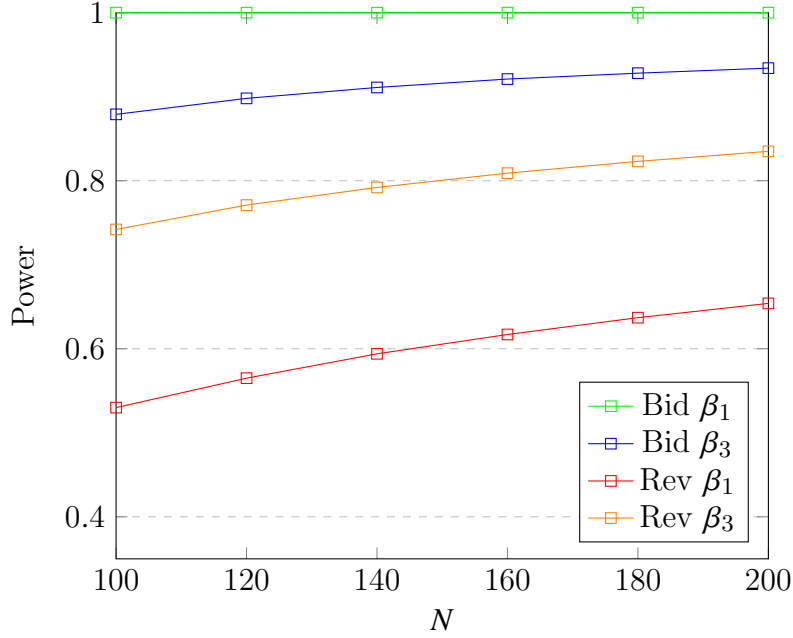


Figure 3: Expected power based on pilot results.

- Bolotnyy, V. and Vasserman, S. (2023). Scaling auctions as insurance: A case study in infrastructure procurement. *Econometrica*, 91(4):1205–1259.
- O’Hagan, A., Stevens, J. W., and Campbell, M. J. (2005). Assurance in clinical trial design. *Pharmaceutical Statistics: The Journal of Applied Statistics in the Pharmaceutical Industry*, 4(3):187–201.

A Screenshots/Instructions

Below, we include screenshots from the experiment.

Introduction

PLEASE READ CAREFULLY AND DO NOT PRESS NEXT UNTIL INSTRUCTED TO DO SO.

Thank you for participating in this study. This study is about decision-making. It should take about 90-120 minutes, and you will be paid based on your earnings from the experiment. The money you earn will be paid either in cash at the end of the study or electronically within a few days of the end of the study.

Please do not use any electronic devices or talk with other participants during this study.

There will be no deception in this study. Every decision you make will be carried out exactly as it is described in the instructions. Anything else would violate the human ethics protocol under which we run the study (UQ Human Research Ethics Approval 2024/HE001521).

In the study you will make decisions that will affect the amount of money you earn. The study will consist of games that you will play with other randomly selected players. The players that you are paired with in a match are selected independently of who you play with in any other match.

Please pay close attention to the instructions on the next page. After you read these instructions, there will be a short quiz on the instructions. You will receive \$1 for each question you answer correctly.

If you have questions at any point, please raise your hand and we will answer your questions privately.

Next

Figure 4: Introduction

Instructions

PLEASE READ CAREFULLY AND DO NOT PRESS NEXT UNTIL INSTRUCTED TO DO SO.

AFTER THESE INSTRUCTIONS THERE WILL BE A SHORT QUIZ ABOUT THE MATERIAL. YOU WILL RECEIVE \$1 FOR EACH QUESTION YOU ANSWER CORRECTLY.

All participants will receive a show-up fee of \$20, regardless of what happens during the study.

In this study, you will participate in 30 rounds of decision-making. Each round begins with the computer randomly pairing you with two other participants. The players you are paired with in one round are selected independently of the players you are paired with in any other round. You will not know who the other players are.

In each round, you will participate in a special type of auction. The value of winning the auction is random and will change from round to round. While no player will know the actual value of winning, each player will receive a private signal about the value. Each signal is drawn independently and has an equal chance of taking any value between 0 and 1000 points (in 20 point increments). The value of winning the auction is the **SUM** of all three players' signals.

All players will be given a budget of 3000 points from which to make bids. If you are the highest bidder (with ties broken randomly), you will win the auction. You will receive your budget and the value of winning the auction, but must **pay your bid and a percentage of the value** of winning the auction. This percentage payment will vary from round to round and will range between 0% and 60%. You will be informed of the percentage before making your bid. If you do not win the auction, you will keep your budget.

In each round, your earnings are determined by how many points you accumulate in that round, converted into dollars at a rate of 100 points per dollar. This means that more points always lead to higher dollar earnings at a consistent rate.

Your final payment from the experiment will be the sum of your show-up fee, your payment for correct quiz answers, and your earnings from one randomly selected auction round.

On the next page, you will find a few examples to help you better understand the rules. Please go through them at your own pace. After you have reviewed the examples, click Next again to begin the quiz.

Next

Figure 5: Instructions - Risk Neutrality Treatment

Instructions

PLEASE READ CAREFULLY AND DO NOT PRESS NEXT UNTIL INSTRUCTED TO DO SO.

AFTER THESE INSTRUCTIONS THERE WILL BE A SHORT QUIZ ABOUT THE MATERIAL. YOU WILL RECEIVE \$1 FOR EACH QUESTION YOU ANSWER CORRECTLY.

All participants will receive a show-up fee of \$20, regardless of what happens during the study.

In this study, you will participate in 30 rounds of decision-making. Each round begins with the computer randomly pairing you with two other participants. The players you are paired with in one round are selected independently of the players you are paired with in any other round. You will not know who the other players are.

In each round, you will participate in a special type of auction. The value of winning the auction is random and will change from round to round. While no player will know the actual value of winning, each player will receive a private signal about the value. Each signal is drawn independently and has an equal chance of taking any value between 0 and 1000 points (in 20 point increments). The value of winning the auction is the **SUM** of all three players' signals.

All players will be given a budget of 3000 points from which to make bids. If you are the highest bidder (with ties broken randomly), you will win the auction. You will receive your budget and the value of winning the auction, but must **pay your bid and a percentage of the value** of winning the auction. This percentage payment will vary from round to round and will range between 0% and 60%. You will be informed of the percentage before making your bid. If you do not win the auction, you will keep your budget.

In each round, your earnings are determined by how many points you accumulate in that round and how these points are converted into dollars. The conversion follows a two-part structure with a threshold at 3000 points. For the first 3000 points, your earnings are converted at a rate of 100 points per dollar. Any points you earn beyond 3000 are converted at a rate of 250 points per dollar. This means that while earning more points always increases your total payment, additional points beyond the threshold contribute less to your earnings.

Your final payment from the experiment will be the sum of your show-up fee, your payment for correct quiz answers, and your earnings from one randomly selected auction round.

On the next page, you will find a few examples to help you better understand the rules. Please go through them at your own pace. After you have reviewed the examples, click Next again to begin the quiz.

Next

Figure 6: Instructions - Risk Aversion Treatment

Examples

PLEASE READ THE EXAMPLES CAREFULLY AND CLICK NEXT WHEN YOU ARE READY TO BEGIN THE QUIZ.

Example 1: The **percentage payment** in this round is **20%**.

Player	Signal	Bid	Point Earnings	Dollar Earnings
A	840	900	3000	\$30.00
B	380	440	3000	\$30.00
C	700	1100	3436	\$34.36

In this example, the value of winning the auction is: $840 + 380 + 700 = 1920$ points.

Because Player C has the highest bid, they win the auction. Their earnings from the round are their budget (3000), plus the value of winning the auction (1920), minus their bid (1100), minus the percentage payment ($0.2 \times 1920 = 384$), for a total of 3436 points. This corresponds to \$34.36.

Players A and B did not win the auction, so their earnings for the round are 3000 points each. This corresponds to \$30.00.

Example 2: The **percentage payment** in this round is **60%**.

Player	Signal	Bid	Point Earnings	Dollar Earnings
A	480	620	3000	\$30.00
B	120	900	2548	\$25.48
C	520	900	3000	\$30.00

In this example, the value of winning the auction is: $480 + 120 + 520 = 1120$ points.

Players B and C are tied for the highest bid, and Player B is randomly chosen as the winner. Player B's earnings from the round are their budget (3000), plus the value of winning the auction (1120), minus their bid (900), minus the percentage payment ($0.6 \times 1120 = 672$), for a total of 2548 points. This corresponds to \$25.48.

Players A and C did not win the auction, so their earnings for the round are 3000 points each. This corresponds to \$30.00.

Example 3: The **percentage payment** in this round is **0%**.

Player	Signal	Bid	Point Earnings	Dollar Earnings
A	740	1440	3820	\$38.20
B	600	800	3000	\$30.00
C	920	1100	3000	\$30.00

In this example, the value of winning the auction is: $740 + 600 + 920 = 2260$ points.

Because Player A has the highest bid, they win the auction. Their earnings from the round are their budget (3000), plus the value of winning the auction (2260), minus their bid (1440), minus the percentage payment ($0 \times 2260 = 0$), for a total of 3820 points. This corresponds to \$38.20.

Players B and C did not win the auction, so their earnings for the round are 3000 points each. This corresponds to \$30.00.

When you are ready, click Next again to begin the quiz.

Next

Figure 7: Examples - Risk Neutrality Treatment

Examples

PLEASE READ THE EXAMPLES CAREFULLY AND CLICK NEXT WHEN YOU ARE READY TO BEGIN THE QUIZ.

Example 1: The **percentage payment** in this round is **20%**.

Player	Signal	Bid	Point Earnings	Dollar Earnings
A	840	900	3000	\$30.00
B	380	440	3000	\$30.00
C	700	1100	3436	\$31.74

In this example, the value of winning the auction is: $840 + 380 + 700 = 1920$ points.

Because Player C has the highest bid, they win the auction. Their earnings from the round are their budget (3000), plus the value of winning the auction (1920), minus their bid (1100), minus the percentage payment ($0.2 \times 1920 = 384$), for a total of 3436 points. This corresponds to \$31.74.

Players A and B did not win the auction, so their earnings for the round are 3000 points each. This corresponds to \$30.00.

Example 2: The **percentage payment** in this round is **60%**.

Player	Signal	Bid	Point Earnings	Dollar Earnings
A	480	620	3000	\$30.00
B	120	900	2548	\$25.48
C	520	900	3000	\$30.00

In this example, the value of winning the auction is: $480 + 120 + 520 = 1120$ points.

Players B and C are tied for the highest bid, and Player B is randomly chosen as the winner. Player B's earnings from the round are their budget (3000), plus the value of winning the auction (1120), minus their bid (900), minus the percentage payment ($0.6 \times 1120 = 672$), for a total of 2548 points. This corresponds to \$25.48.

Players A and C did not win the auction, so their earnings for the round are 3000 points each. This corresponds to \$30.00.

Example 3: The **percentage payment** in this round is **0%**.

Player	Signal	Bid	Point Earnings	Dollar Earnings
A	740	1440	3820	\$33.28
B	600	800	3000	\$30.00
C	920	1100	3000	\$30.00

In this example, the value of winning the auction is: $740 + 600 + 920 = 2260$ points.

Because Player A has the highest bid, they win the auction. Their earnings from the round are their budget (3000), plus the value of winning the auction (2260), minus their bid (1440), minus the percentage payment ($0 \times 2260 = 0$), for a total of 3820 points. This corresponds to \$33.28.

Players B and C did not win the auction, so their earnings for the round are 3000 points each. This corresponds to \$30.00.

When you are ready, click Next again to begin the quiz.

Next

Figure 8: Examples - Risk Aversion Treatment

Quiz

You will now be given a series of questions to check your understanding of the instructions and examples. You will be paid \$1 for each answer you get correct.

Suppose that your signal is 320 and the other two signals are 180 and 200. What is the value of winning the auction?

- ☐ 320
- ☐ 500
- ☐ 700
- ☐ 920

What is true about a bidder who submits a bid of 3000 when the percentage payment is 20%?

- ☐ He/She will always lose the auction.
- ☐ He/She will always win the auction.
- ☐ His/Her payoff from winning will be lower than that of losing.
- ☐ All losers in the auction will receive lower payoffs than the winner.

Suppose that you bid 1420 and the other bids are 1360 and 420. Which one of the following statements are true.

- ☐ The bidder that bids 1360 wins.
- ☐ You win the auction.
- ☐ The winner is chosen randomly from all bidders.
- ☐ All bidders win the auction.

Suppose the value of winning the auction is 2000, the winning bid is 600, and the percentage payment is 40%. What is the payoff of the winning bidder after paying her bid and the percentage payment?

- ☐ $0.6 \times (3000 + 2000 - 600) = 2640$.
- ☐ 3000
- ☐ $3000 + 2000 - 600 - (0.6 \times 2000) = 3200$
- ☐ $3000 + 2000 - 600 - (0.4 \times 2000) = 3600$

Suppose the value of winning is 1000 and the winning bid is 520 when the percentage payment is 60%. What of the following statements is true?

- ☐ The winning bidder receives their budget of 3000 and the value of the prize of 1000 but must pay their bid of 520 and the percentage payment of $(0.6 \times 1000) = 600$. The losing bidders receive their budgets of 3000 points.
- ☐ All bidders receive 3000 points.
- ☐ The winning bidder receives the value of the prize of 1000, but must pay their bid of 520 and the percentage payment of $(0.6 \times 1000) = 600$. The losing bidders receive 3000, but must pay the percentage payment of $(0.6 \times 1000) = 600$.
- ☐ The winning bidder receives their budget of 3000 and the value of the prize of 1000, but must pay the percentage payment of $(0.6 \times 1000) = 600$. The losing bidders receive their budgets of 3000, but must pay the highest bid of 520.

Suppose you earned 3400 points in one round. Considering only payments from the auction, what would be your total payment in dollars?

- ☐ \$28
- ☐ \$30
- ☐ \$34
- ☐ \$35

When you believe you have answered all questions correctly, press Next to check your answers.

Next

Figure 9: Quiz - Risk Neutrality Treatment

Quiz

You will now be given a series of questions to check your understanding of the instructions and examples. You will be paid \$1 for each answer you get correct.

Suppose that your signal is 320 and the other two signals are 180 and 200. What is the value of winning the auction?

- ☐ 320
- ☐ 500
- ☐ 700
- ☐ 920

What is true about a bidder who submits a bid of 3000 when the percentage payment is 20%?

- ☐ He/She will always lose the auction.
- ☐ He/She will always win the auction.
- ☐ His/Her payoff from winning will be lower than that of losing.
- ☐ All losers in the auction will receive lower payoffs than the winner.

Suppose that you bid 1420 and the other bids are 1360 and 420. Which one of the following statements are true.

- ☐ The bidder that bids 1360 wins.
- ☐ You win the auction.
- ☐ The winner is chosen randomly from all bidders.
- ☐ All bidders win the auction.

Suppose the value of winning the auction is 2000, the winning bid is 600, and the percentage payment is 40%. What is the payoff of the winning bidder after paying her bid and the percentage payment?

- ☐ $0.6 \times (3000 + 2000 - 600) = 2640$.
- ☐ 3000
- ☐ $3000 + 2000 - 600 - (0.6 \times 2000) = 3200$
- ☐ $3000 + 2000 - 600 - (0.4 \times 2000) = 3600$

Suppose the value of winning is 1000 and the winning bid is 520 when the percentage payment is 60%. What of the following statements is true?

- ☐ The winning bidder receives their budget of 3000 and the value of the prize of 1000 but must pay their bid of 520 and the percentage payment of $(0.6 \times 1000) = 600$. The losing bidders receive their budgets of 3000 points.
- ☐ All bidders receive 3000 points.
- ☐ The winning bidder receives the value of the prize of 1000, but must pay their bid of 520 and the percentage payment of $(0.6 \times 1000) = 600$. The losing bidders receive 3000, but must pay the percentage payment of $(0.6 \times 1000) = 600$.
- ☐ The winning bidder receives their budget of 3000 and the value of the prize of 1000, but must pay the percentage payment of $(0.6 \times 1000) = 600$. The losing bidders receive their budgets of 3000, but must pay the highest bid of 520.

Suppose you earned 3400 points in one round. Considering only payments from the auction, what would be your total payment in dollars?

- ☐ \$28
- ☐ \$30
- ☐ \$31.60
- ☐ \$35

When you believe you have answered all questions correctly, press Next to check your answers.

Next

Figure 10: Quiz - Risk Aversion Treatment

Quiz Answers

The answers for the quiz are given below. Please review the answers and note any mistakes you have made.

Question 1: Suppose that your signal is 320 and the other two signals are 180 and 200. What is the value of winning the auction?

Correct Answer: 700

Your Answer: 700

Question 2: What is true about a bidder who submits a bid of 3000 when the percentage payment is 20%?

Correct Answer: His/Her payoff from winning will be lower than that of losing.

Your Answer: His/Her payoff from winning will be lower than that of losing.

Question 3: Suppose that you bid 1420 and the other bids are 1360 and 420. Which one of the following statements are true.

Correct Answer: You win the auction.

Your Answer: The winner is chosen randomly from all bidders.

Question 4: Suppose the value of winning the auction is 2000, the winning bid is 600, and the percentage payment is 40%. What is the payoff of the winning bidder after paying her bid and the percentage payment?

Correct Answer: $3000 + 2000 - 600 - (0.4 \times 2000) = 3600$

Your Answer: $3000 + 2000 - 600 - (0.4 \times 2000) = 3600$

Question 5: Suppose the value of winning is 1000 and the winning bid is 520 when the percentage payment is 60%. What of the following statements is true?

Correct Answer: The winning bidder receives their budget of 3000 and the value of the prize of 1000 but must pay their bid of 520 and the percentage payment of $(0.6 \times 1000) = 600$. The losing bidders receive their budgets of 3000 points.

Your Answer: The winning bidder receives their budget of 3000 and the value of the prize of 1000, but must pay the percentage payment of $(0.6 \times 1000) = 600$. The losing bidders receive their budgets of 3000, but must pay the highest bid of 520.

Question 6: Suppose you earned 3400 points in one round. Considering only payments from the auction, what would be your total payment in dollars?

Correct Answer: \$34

Your Answer: \$34

You earned \$4.0 from your correct answers. Please review any questions you answered incorrectly. When you are ready to begin the first round, click the next button.

Next

Figure 11: Quiz Answers - Risk Neutrality Treatment

Quiz Answers

The answers for the quiz are given below. Please review the answers and note any mistakes you have made.

Question 1: Suppose that your signal is 320 and the other two signals are 180 and 200. What is the value of winning the auction?

Correct Answer: 700

Your Answer: 920

Question 2: What is true about a bidder who submits a bid of 3000 when the percentage payment is 20%?

Correct Answer: His/Her payoff from winning will be lower than that of losing.

Your Answer: His/Her payoff from winning will be lower than that of losing.

Question 3: Suppose that you bid 1420 and the other bids are 1360 and 420. Which one of the following statements are true.

Correct Answer: You win the auction.

Your Answer: The winner is chosen randomly from all bidders.

Question 4: Suppose the value of winning the auction is 2000, the winning bid is 600, and the percentage payment is 40%. What is the payoff of the winning bidder after paying her bid and the percentage payment?

Correct Answer: $3000 + 2000 - 600 - (0.4 \times 2000) = 3600$

Your Answer: $3000 + 2000 - 600 - (0.4 \times 2000) = 3600$

Question 5: Suppose the value of winning is 1000 and the winning bid is 520 when the percentage payment is 60%. What of the following statements is true?

Correct Answer: The winning bidder receives their budget of 3000 and the value of the prize of 1000 but must pay their bid of 520 and the percentage payment of $(0.6 \times 1000) = 600$. The losing bidders receive their budgets of 3000 points.

Your Answer: The winning bidder receives their budget of 3000 and the value of the prize of 1000, but must pay the percentage payment of $(0.6 \times 1000) = 600$. The losing bidders receive their budgets of 3000, but must pay the highest bid of 520.

Question 6: Suppose you earned 3400 points in one round. Considering only payments from the auction, what would be your total payment in dollars?

Correct Answer: \$31.60

Your Answer: \$31.60

You earned \$3.0 from your correct answers. Please review any questions you answered incorrectly. When you are ready to begin the first round, click the next button.

Next

Figure 12: Quiz Answers - Risk Aversion Treatment

Round 2: Auction

Remember that the value of the prize is the **SUM** of all 3 players' signals. Each signal is drawn independently and has an equal chance of taking each value between 0 points and 1000 points (in 20 point increments).

In this round, your signal is 760 points. That means that the value of the prize is somewhere between 760 points and 2760 points.

The **percentage payment** in this round is **60%**.

What will you bid in the auction?

0

3000

Bid: 900

Next

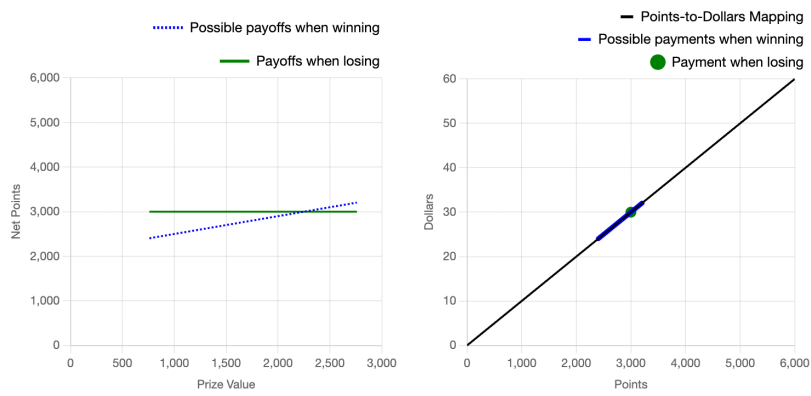


Figure 13: Bidding Page - Risk Neutrality Treatment

Round 1: Auction

Remember that the value of the prize is the **SUM** of all 3 players' signals. Each signal is drawn independently and has an equal chance of taking each value between 0 points and 1000 points (in 20 point increments).

In this round, your signal is 40 points. That means that the value of the prize is somewhere between 40 points and 2040 points.

The **percentage payment** in this round is **40%**.

What will you bid in the auction?

0

3000

Bid: 380

Next

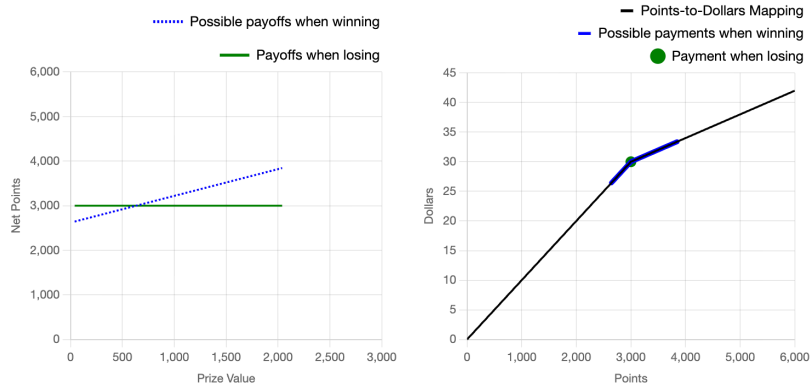


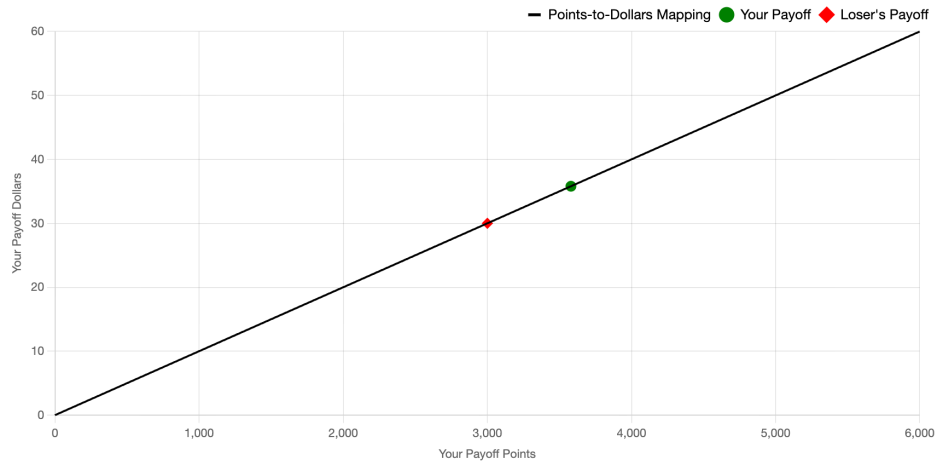
Figure 14: Bidding Page - Risk Aversion Treatment

Round 1: Results

We can now inform you that the value of the prize was 2100. You were the winner. Your bid of 1100 was the highest.

The percentage payment in this round is 20%, so your payoff from the auction is $3000 + 2100 - 1100 - (0.20 \times 2100) = 3580$. This corresponds to \$35.8. Those that did not win the auction will receive \$30.

Overall, if this round is chosen to be the one that counts, you will receive \$35.8.



Next

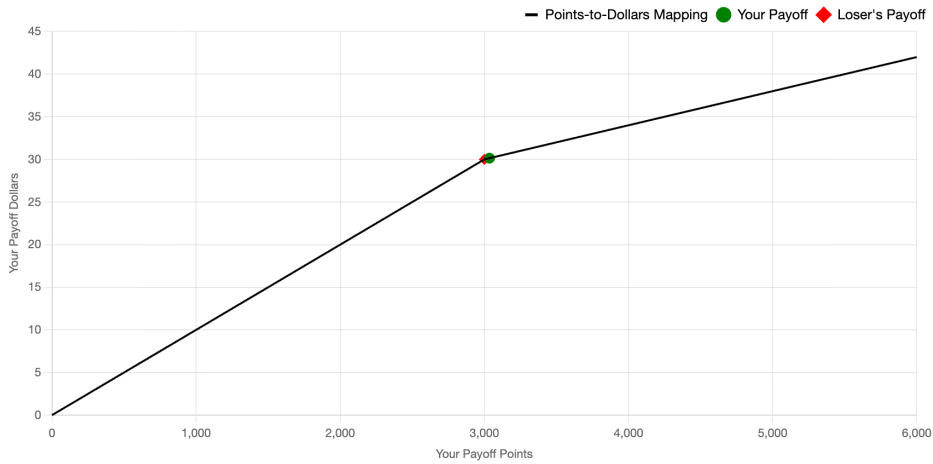
Figure 15: Winner's Results - Risk Neutrality Treatment

Round 1: Results

We can now inform you that the value of the prize was 1060. You were the winner. Your bid of 600 was the highest.

The percentage payment in this round is 40%, so your payoff from the auction is $3000 + 1060 - 600 - (0.40 \times 1060) = 3036$. This corresponds to \$30.14. Those that did not win the auction will receive \$30.

Overall, if this round is chosen to be the one that counts, you will receive \$30.14.



Next

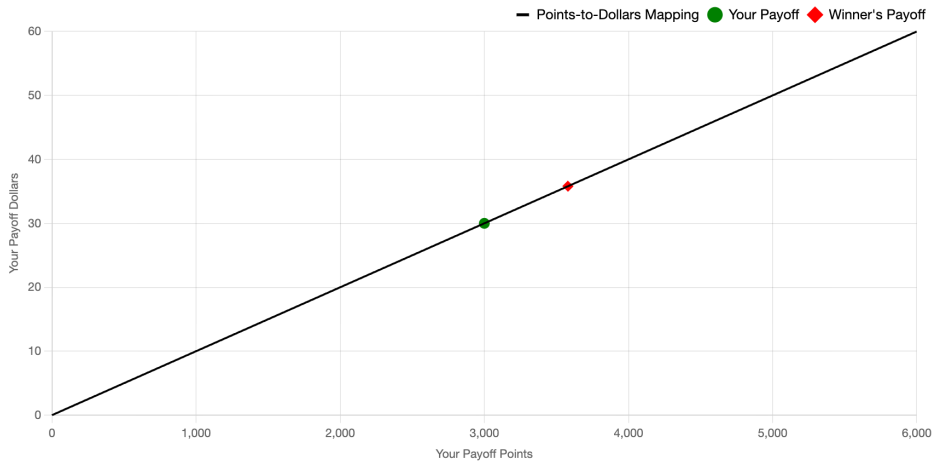
Figure 16: Winner's Results - Risk Aversion Treatment

Round 1: Results

We can now inform you that the value of the prize was 2100. You were not the winner. Your bid was 780 and the highest bid was 1100.

Your payoff from the auction is 3000. This corresponds to \$30. The percentage payment in this round was 20%, so the winner of the auction will receive $3000 + 2100 - 1100 - (0.20 \times 2100) = 3580$. This corresponds to \$35.8.

Overall, if this round is chosen to be the one that counts, you will receive \$30.



Next

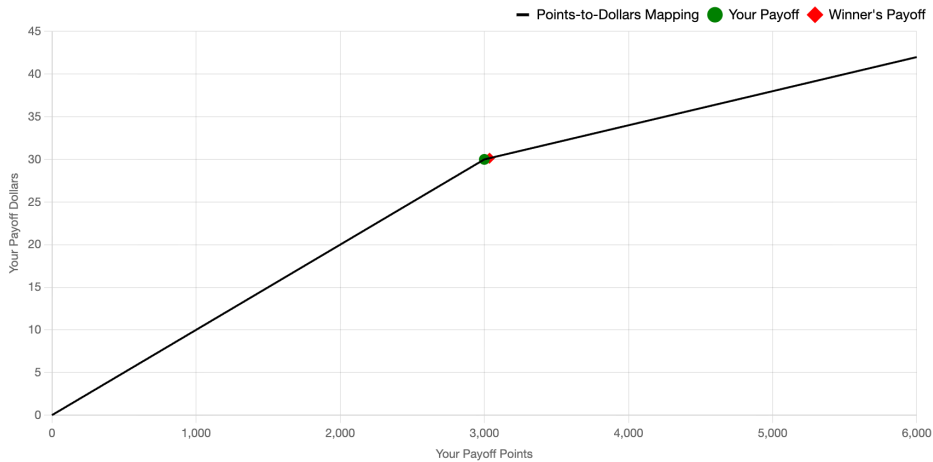
Figure 17: Loser’s Results - Risk Neutrality Treatment

Round 1: Results

We can now inform you that the value of the prize was 1060. You were not the winner. Your bid was 340 and the highest bid was 600.

Your payoff from the auction is 3000. This corresponds to \$30. The percentage payment in this round was 40%, so the winner of the auction will receive $3000 + 1060 - 600 - (0.40 \times 1060) = 3036$. This corresponds to \$30.14.

Overall, if this round is chosen to be the one that counts, you will receive \$30.



Next

Figure 18: Loser’s Results - Risk Aversion Treatment