Appendix A

To accompany J. Andreoni, “Satisfaction Guaranteed:
When Moral Hazard Meets Moral Preferences.”
Intended for online publication only.

A Subjects’ Instructions

On the following pages are the instructions for the most general condition, the Non-Binding condition. To recover all other conditions, simply eliminate the Final Stage to produce the Optional Condition, then eliminate the Preliminary Stage to get the Satisfaction Guaranteed, then eliminate the Third Stage to produce the Trust condition. The instructions below were inserted into a computerized presentation of the game. The decision screens seen by subjects are included in the instructions below.

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WELCOME TO THE EXPERIMENT

Thanks for participating! This experiment will take about 90 minutes to complete, and your earnings from the experiment will be paid to you in cash at the end of today's session.

Your identity will never be recorded. Neither the experiment managers nor the other participants will ever be able to connect you to your decisions or your earnings. Your decisions and earnings are private.

The Interaction

In this experiment, you will complete a series of 10 interactions. The procedure for each interaction is the same. We describe one interaction below.

In each interaction, you will be paired with one other person. One person is called RED and the other person is called BLUE. RED starts with 100 cents and BLUE starts with 100 cents. There are five stages in the interaction.

Preliminary Stage

In the preliminary stage, BLUE makes a decision and RED waits. BLUE decides if, in the 3rd stage, RED can choose the Default Payoffs option of 100 cents for RED and 100 cents for BLUE. If BLUE decides that RED can choose the Default Payoffs option, then the interaction continues through the 3rd stage. If BLUE decides that RED cannot choose the Default Payoffs option, then the interaction ends after the 2nd stage.

Please read on. The decision in this stage will become clear when the other stages are explained.

First Stage

In the 1st stage, RED makes a decision and BLUE waits. RED decides how many of RED's 100 cents to pass to BLUE. RED can pass *any amount* between 0 and 100 cents to BLUE. Each cent passed by RED is multiplied by 3 before BLUE receives it. So, if RED passes 50, then BLUE receives 150 cents.

Second Stage

In the 2nd stage, BLUE makes a decision and RED waits. After BLUE sees how much money RED passed to him, he decides how much of the money passed to him by RED he would like to pass back. BLUE can pass *any amount* back to RED between 0 cents and the total amount received from RED. So, in our example above, BLUE decides how much of the 150 cents he received from RED he would like to pass back to RED. RED is then told how much money is passed back by BLUE.

Third Stage

This stage will occur *only if*, in the Preliminary Stage, BLUE chose to give RED the Default Payoffs option. If BLUE chose not to give RED this option, then this stage will be skipped.

In the 3rd stage, RED makes a decision and BLUE waits. After RED sees how much money BLUE sent back, RED now decides to either keep the current payoffs just determined by RED and BLUE, or to *request* the Default Payoffs option. If RED requests the Default Payoffs option, and BLUE approves the payoff option in the final stage, then RED receives 100 cents and BLUE receives 100 cents for that interaction.

Final Stage

The final stage is reached *only if* (a) in the Preliminary Stage BLUE chose to give RED the Default Payoffs Option, and (b) in the 3rd stage, RED requested the Default Payoffs option. In this final stage, BLUE decides whether the request for the payoff options will be approved.

If the RED's Request for the Default Payoffs is approved, then RED receives 100 cents and BLUE receives 100 cents for that interaction. However, if RED's request for the Default Payoffs is declined, then each player gets the payoffs as they were determined after the 2nd stage, as described above.

Notice: Simply because BLUE gave RED the Default Payoffs option in the preliminary stage does not require BLUE to approve all requests by RED for the Default Payoffs in the final stage.

The interaction is now complete, and both RED and BLUE are told how much money they made for that interaction. After RED and BLUE see their earnings for that interaction, each starts a new interaction with a new person.

Your Role

You will be assigned either the role of RED or the role of BLUE. Your role will be revealed to you at the start of the experiment, and you will keep the same role for all 1 interactions. But, in each interaction, you will play with a different person. This means that you will *never* play with the same person twice. Each interaction will be with a new person.

Your Earnings

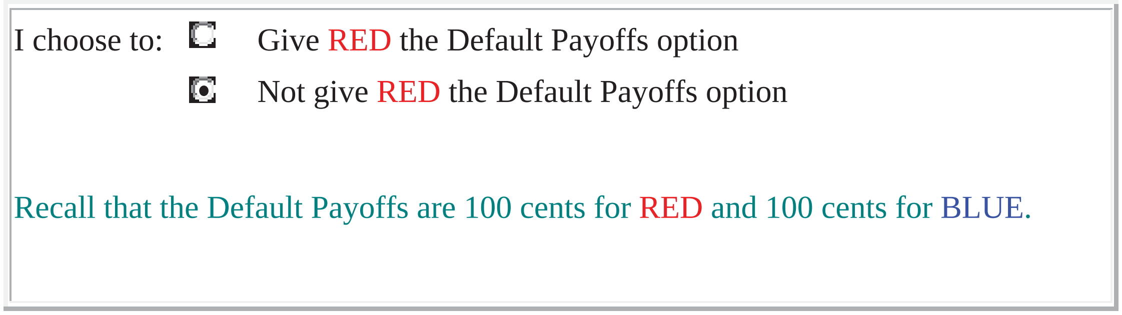
You will be paid the amount of money you earn from all 1 interactions. As you can see, the amount of money you earn from each interaction will depend on your decisions and the decisions of your partner in the interaction. The computer will keep track of your earnings in your Earnings Account.

Examples

We will now go through two examples to make sure you understand the experiment. We will use the screens you will see during the game.

Example

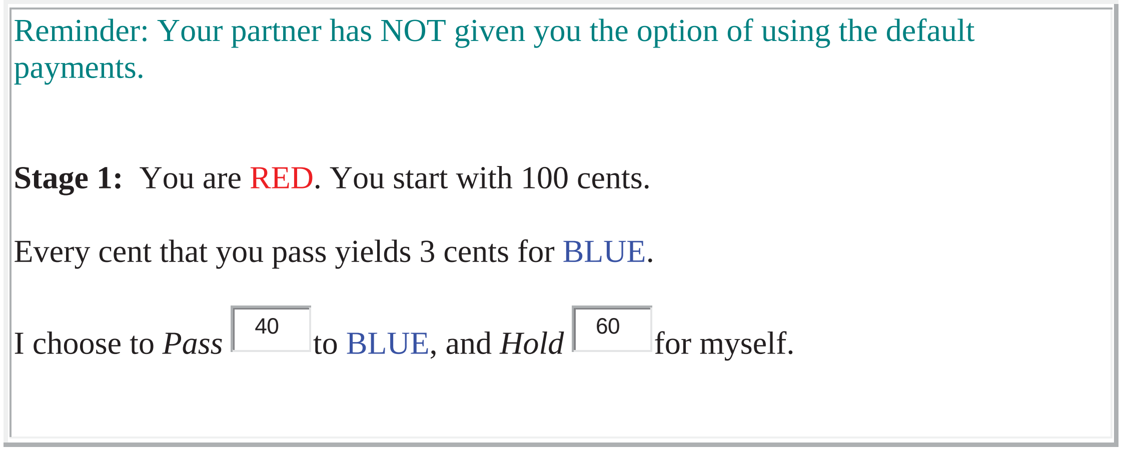
Suppose BLUE chooses this:



I choose to: ○ Give RED the Default Payoffs option
● Not give RED the Default Payoffs option

Recall that the Default Payoffs are 100 cents for RED and 100 cents for BLUE.

Suppose RED chooses this:



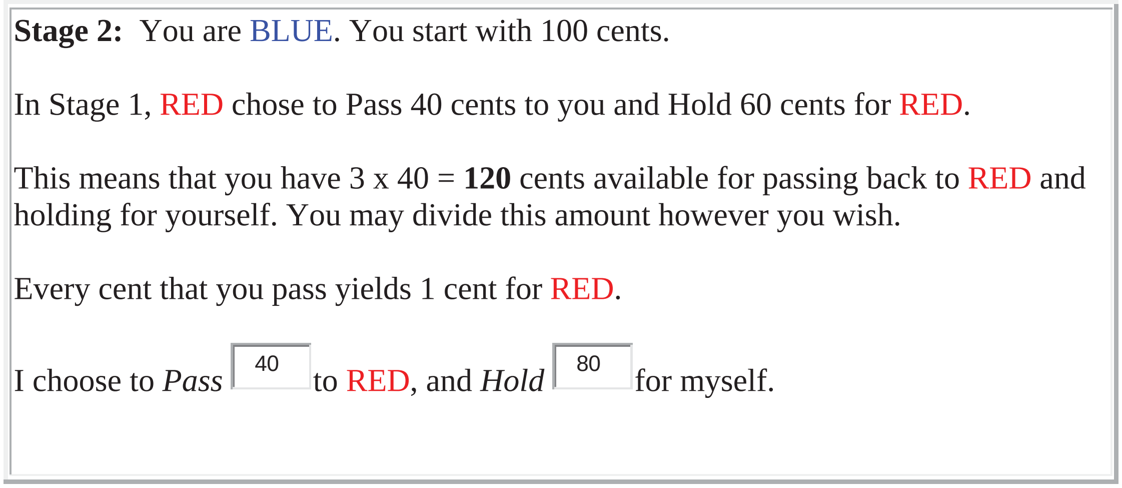
Reminder: Your partner has NOT given you the option of using the default payments.

Stage 1: You are RED. You start with 100 cents.

Every cent that you pass yields 3 cents for BLUE.

I choose to *Pass* 40 to BLUE, and *Hold* 60 for myself.

Suppose BLUE chooses this:



Stage 2: You are BLUE. You start with 100 cents.

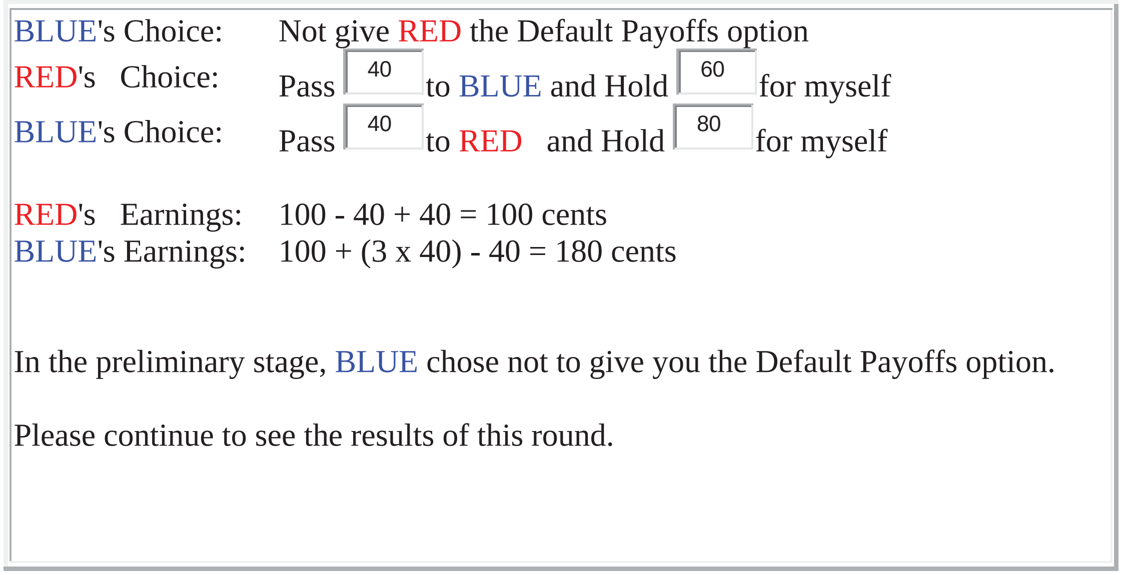
In Stage 1, RED chose to Pass 40 cents to you and Hold 60 cents for RED.

This means that you have 3 x 40 = **120** cents available for passing back to RED and holding for yourself. You may divide this amount however you wish.

Every cent that you pass yields 1 cent for RED.

I choose to *Pass* 40 to RED, and *Hold* 80 for myself.

And finally, suppose that RED chooses this:



BLUE's Choice: Not give RED the Default Payoffs option

RED's Choice: Pass 40 to BLUE and Hold 60 for myself

BLUE's Choice: Pass 40 to RED and Hold 80 for myself

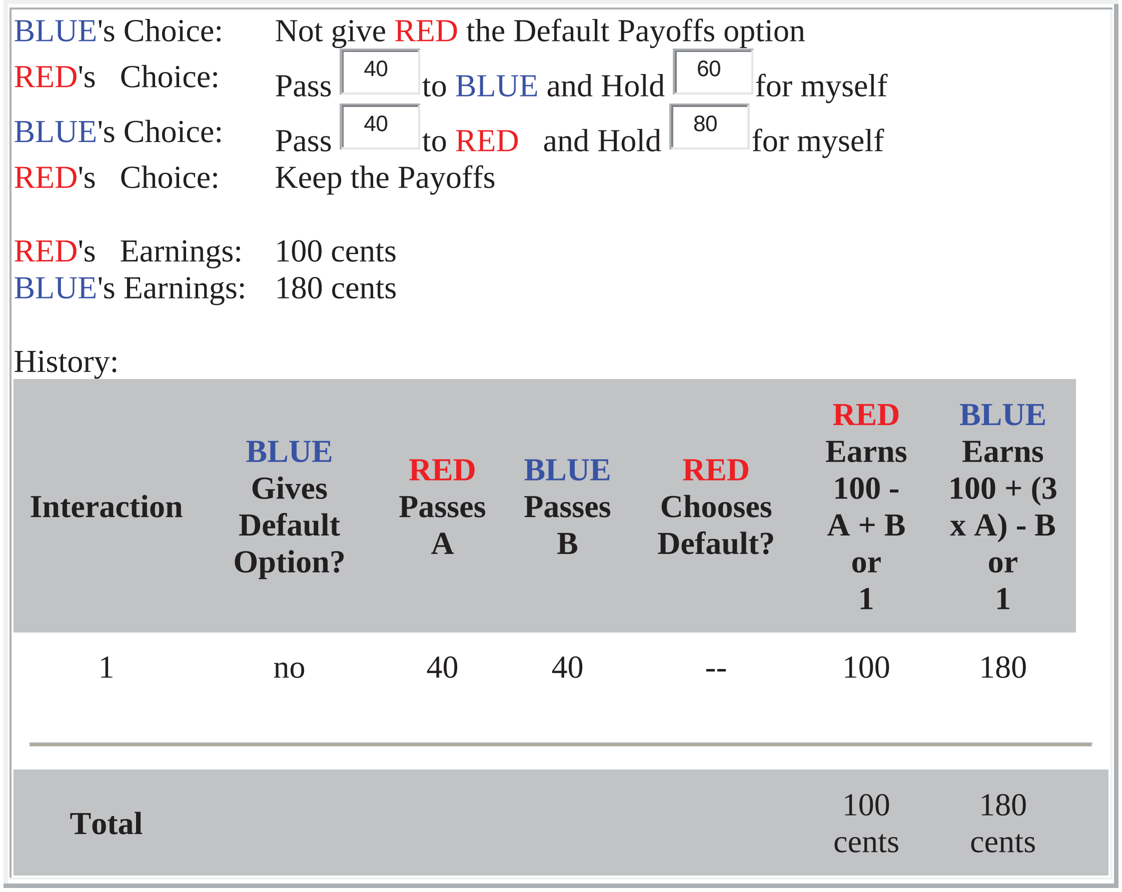
RED's Earnings: 100 - 40 + 40 = 100 cents

BLUE's Earnings: 100 + (3 x 40) - 40 = 180 cents

In the preliminary stage, BLUE chose not to give you the Default Payoffs option.

Please continue to see the results of this round.

Then the results of their decisions would look like this:



BLUE's Choice: Not give RED the Default Payoffs option
RED's Choice: Pass 40 to BLUE and Hold 60 for myself
BLUE's Choice: Pass 40 to RED and Hold 80 for myself
RED's Choice: Keep the Payoffs

RED's Earnings: 100 cents
BLUE's Earnings: 180 cents

History:

Interaction	BLUE Gives Default Option?	RED Passes A	BLUE Passes B	RED Chooses Default?	RED Earns 100 - A + B or 1	BLUE Earns 100 + (3 x A) - B or 1
1	no	40	40	--	100	180
Total					100 cents	180 cents

Things to Remember

- You will complete a series of 1 interactions. In each interaction, you will play with a completely new person.
- You will be assigned the role of RED or BLUE. You will keep the same role for all 1 interactions.
- RED starts with 100 cents, and BLUE starts with 100 cents.
- In the Preliminary Stage, BLUE decides whether to give RED the Default Payoffs option in the 3rd stage.
- In the 1st stage, RED can pass up to 100 cents to BLUE and keep the rest.
- Whatever amount RED passes to BLUE is multiplied by 3 when BLUE receives it.
- In the 2nd stage, BLUE can pass back to RED any amount of what was received from RED.
- If BLUE chose to give RED the Default Payoffs option in the Preliminary Stage, then the interaction proceeds to the 3rd stage.
- In the 3rd stage, RED can choose to request the Default Payoffs (100 cents for RED and 100 cents for BLUE) rather than the results from the 2nd stage.
- In the final stage, BLUE chooses whether to approve or decline RED's request for the Default Payments. If BLUE approves the request then both RED and BLUE get 100 cents, but if BLUE declines the request then the players get the results from the 2nd stage.
- Your identity is private throughout the experiment.
- Your earnings will be paid to you in cash at the end of the experiment.

Quiz

Before beginning the experiment, please complete the following quiz to make sure you understand how the payoffs are calculated.

Quiz Me!

Quiz

Question 1

Suppose that BLUE has made this decision:

I choose to: ● Give RED the Default Payoffs option
○ Not give RED the Default Payoffs option

Recall that the Default Payoffs are 100 cents for RED and 100 cents for BLUE.

Suppose that RED has made this decision:

Reminder: Your partner has given you the option of using the Default Payoffs (100 cents for RED, 100 cents for BLUE).

Stage 1: You are RED. You start with 100 cents.

Every cent that you pass yields 3 cents for BLUE.

I choose to *Pass* [60] to BLUE, and *Hold* [40] for myself.

Suppose that BLUE has made this decision:

Stage 2: You are BLUE. You start with 100 cents.

In Stage 1, RED chose to Pass 60 cents to you and Hold 40 cents for RED.

This means that you have 3 x 60 = **180** cents available for passing back to RED and holding for yourself. You may divide this amount however you wish.

Every cent that you pass yields 1 cent for RED.

I choose to *Pass* [50] to RED, and *Hold* [130] for myself.

Next, suppose that RED has decided to request the Default Payoffs:

I choose to: ● Request Default Payoffs
○ Not request the Default Payoffs

Recall that the Default Payoffs are 100 cents for RED and 100 cents for BLUE.

And finally, suppose that BLUE has decided to approve the request for the Default Payoffs:

RED has requested the Default Payffs. Will you approve this request?

I choose to: ● Approve the request for Default Payoffs
○ Decline the request for Default Payoffs

Recall that the Default Payoffs are 100 cents for RED and 100 cents for BLUE.

In this case, RED would earn ______ and BLUE would earn ______.

Check My Answers

Quiz

Question 2

Suppose that BLUE has made this decision:

I choose to: ● Give RED the Default Payoffs option

○ Not give RED the Default Payoffs option

Recall that the Default Payoffs are 100 cents for RED and 100 cents for BLUE.

Suppose that RED has made this decision:

Reminder: Your partner has given you the option of using the Default Payoffs (100 cents for RED, 100 cents for BLUE).

Stage 1: You are RED. You start with 100 cents.

Every cent that you pass yields 3 cents for BLUE.

I choose to *Pass* 70 to BLUE, and *Hold* 30 for myself.

Suppose that BLUE has made this decision:

Stage 2: You are BLUE. You start with 100 cents.

In Stage 1, RED chose to Pass 70 cents to you and Hold 30 cents for RED.

This means that you have 3 x 70 = **210** cents available for passing back to RED and holding for yourself. You may divide this amount however you wish.

Every cent that you pass yields 1 cent for RED.

I choose to *Pass* 0 to RED, and *Hold* 210 for myself.

And finally, suppose that RED has decided to keep the payoffs from the above interactions.

I choose to: ○ Request Default Payoffs
● Not request the Default Payoffs

Recall that the Default Payoffs are 100 cents for RED and 100 cents for BLUE.

In this case, RED would earn ______ and BLUE would earn ______.

Check My Answers

Quiz

Question 3

Suppose that BLUE has made this decision:

I choose to: ● Give RED the Default Payoffs option

○ Not give RED the Default Payoffs option

Recall that the Default Payoffs are 100 cents for RED and 100 cents for BLUE.

Suppose that RED has made this decision:

Reminder: Your partner has given you the option of using the Default Payoffs (100 cents for RED, 100 cents for BLUE).

Stage 1: You are RED. You start with 100 cents.

Every cent that you pass yields 3 cents for BLUE.

I choose to *Pass* 100 to BLUE, and *Hold* 0 for myself.

Suppose that BLUE has made this decision:

Stage 2: You are BLUE. You start with 100 cents.

In Stage 1, RED chose to Pass 100 cents to you and Hold 0 cents for RED.

This means that you have 3 x 100 = **300** cents available for passing back to RED and holding for yourself. You may divide this amount however you wish.

Every cent that you pass yields 1 cent for RED.

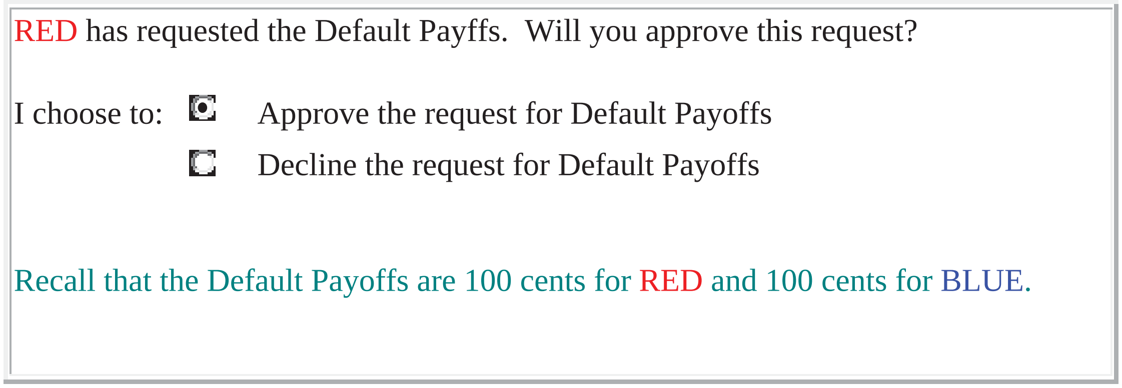
I choose to *Pass* 100 to RED, and *Hold* 200 for myself.

Next, suppose that RED has decided to request the Default Payoffs:

I choose to: ● Request Default Payoffs
○ Not request the Default Payoffs

Recall that the Default Payoffs are 100 cents for RED and 100 cents for BLUE.

And finally, suppose that BLUE has decided to approve the request for the Default Payoffs:



RED has requested the Default Payffs. Will you approve this request?

I choose to: ● Approve the request for Default Payoffs
○ Decline the request for Default Payoffs

Recall that the Default Payoffs are 100 cents for RED and 100 cents for BLUE.

In this case, RED would earn ☐ and BLUE would earn ☐.

Check My Answers

[End of Subjects' Instructions]

B Return Ratios and Experience

Another useful way to evaluate the activities of buyers is to take into account how their past experiences affect their decision making. With a broader view, we might expect that consumers will trust sellers more if they live in countries or communities which have well established norms of sellers providing high value. On the other hand, we might expect these norms to matter less when there are explicit legal protections for buyers. In our setting, we can proxy for these "norms" with buyers' past experiences with sellers. For the reasons described above, we'd expect that the return ratios that buyers have received in the past would affect how much they pass in the Trust, Nonbinding, and Optional (without guarantee) conditions, while these return ratios should matter less in Satisfaction and when the guarantee is offered in the Optional condition.

Table 7 analyzes the amount passed by player 1, similar to table 2, but also controls for the Average Return Ratio[41] that the buyer has experienced in their past interactions. The results interacting the Average Return Ratio with each of the conditions in columns (1) and (3) seem to confirm some of our expectations, but not others. Perhaps surprisingly, the Average Return Ratio is statistically significant in all conditions for rounds 1-10. This is confirmed for all conditions except Optional when focusing on only rounds 6-10. In this case, the coefficient on the Average Return Ratio is negative, but not significantly so. Allowing for these effects to be different when the guarantee is offered leads to a somewhat different story. When the guarantee is not offered in the Optional and Nonbinding conditions, none of the coefficients on Average Return Ratio are significant. When the guarantee if offered, on the other hand, the coefficient on Average Return Ratio is significantly positive for both conditions in rounds 1-10, and for Nonbinding in rounds 6-10. One explanation for this is that without a guarantee, buyers are unwilling to pass anything to the seller, even if they've had good experiences in the past. Once the guarantee is offered, buyers then consider their past experiences when trying to decide how much to pass.

There is an important caveat to the above analysis. As already noted in Table 4, sellers' return ratios tend to be increasing in the amount passed. Thus, the assumptions of the random effects model are unlikely to be fulfilled, and endogeneity is likely to be a significant issue.

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[41] Average Return Ratio is calculated by averaging the return ratios in all previous rounds for which they passed a positive amount. Obviously this precludes use of the first round, since at that point buyers have neither made a pass or received a return. Two buyers chose not to pass anything in the first round, and thus their average return ratio is not defined until the third round.

Table 7: Amount Passed by Player 1: Two-limit Tobit Regressions with Random Effects

	Rounds 1-10		Rounds 6-10	
Independent Variable	(1)	(2)	(3)	(4)
Trust	-2.173	3.402	-57.883	-37.921
	(15.620)	(13.087)	(31.800)	(24.651)
Average Return Ratio × Trust	64.709^{Z}	57.110^{Z}	135.297^{Z}	109.161^{Z}
	(13.877)	(10.309)	(37.487)	(28.418)
Satisfaction	33.304	32.683	-17.296	9.629
	(27.100)	(21.138)	(111.275)	(85.705)
Average Return Ratio × Satisfaction	47.511^{Z}	43.425^{Z}	91.401	67.543
	(17.377)	(13.006)	(75.114)	(57.658)
Optional	$54.603^{Z,t}$		$151.449^{Z,T}$	
	(16.749)		(46.708)	
Average Return Ratio × Optional	28.484^{z}		-35.647^{T}	
	(12.521)		(38.743)	
No Guarantee		-1.783^{T}		73.508
		(20.472)		(94.915)
Average Return Ratio × No Guarantee		-26.764^{S}		-84.583^{T}
		(18.712)		(83.299)
Guarantee Offered		$76.731^{Z,T}$		$79.858^{z,T}$
		(15.582)		(39.637)
Average Return Ratio × Guarantee Offered		40.991^{Z}		45.127
		(11.609)		(34.267)
Nonbinding	12.896		-55.118	
	(19.190)		(32.918)	
Average Return Ratio × Nonbinding	30.294^{z}		93.351^{Z}	
	(13.941)		(26.719)	
No Guarantee		12.901		-44.961
		(22.039)		(40.094)
Average Return Ratio × No Guarantee		$-1.692^{T,s}$		37.485
		(16.010)		(32.555)
Guarantee Offered		16.005		-58.205^{z}
		(16.514)		(28.362)
Average Return Ratio × Guarantee Offered		34.271^{Z}		103.837^{Z}
		(11.538)		(22.875)
Log Likelihood	-2186.518	-2028.111	-1058.442	-975.336
N	718	718	400	400

Notes: Estimates are from two-limit Tobit regressions with random effects and Amount Passed by Player 1 as the LHS variable. Standard errors are reported in parentheses.

z & Z - Significantly different from 0 at less than 5% or 1%, respectively

t & T - Significantly different from Trust (or Avg. Ret. Ratio × Trust) at less than 5% or 1%, respectively

s & S - Significantly different from Satisfaction (or Avg. Ret. Ratio × Satisfaction) at less than 5% or 1%, respectively

C Optimal Return Ratios

It's clear from the analysis of payoffs that when sellers have the option of whether or not to offer a guarantee, both buyers and sellers end up better off with the guarantee. The question arises, then, of what the optimal amount is for a seller to return if she is attempting to maximize her payoffs. Clearly, in the Nonbinding condition (and neglecting the reputation effects that would arise in the field) the optimal return ratio is 0. In the Satisfaction and Optional (with a guarantee) conditions, buyers are acting as a constraint on sellers, and there are likely non-monotonic returns to raising the return ratio.

Table 8 applies regression analysis to confirm the visual analysis from Figure 5. The sample considers only observations in which a strictly positive amount was passed in either the Satisfaction condition or the Optional condition when the guarantee was offered, and the dependent variable is the ratio of the amount the seller retained (set to 0 if the guarantee was requested) over the amount which was passed. This is again bounded between 0 and 3, so we use a two limit Tobit with buyer random effects. We include quadratic Return Ratio terms to capture the non-monotonicity of payoffs with respect to the return ratio.

In combination with the estimates in Table 8, some simple calculus confirms the estimates of optimal return ratios observed from Figure 5. Namely, in rounds 1-10, the optimal return ratios are estimated as 1.636 and 1.596, respectively while in rounds 6-10 they are estimated as 1.614 and 1.572.

Table 8: Ratio of Player 2 Payoffs to Player 1's Pass when Guarantee is Offered : Two-limit Tobit Regressions with Random Effects

Independent Variable	Rounds 1-10 (1)	Rounds 6-10 (2)
Satisfaction	-6.323^{Z}	-4.686^{Z}
	(1.263)	(1.754)
Return Ratio × Satisfaction	9.369^{Z}	7.384^{Z}
	(1.645)	(2.254)
Return Ratio^2 × Satisfaction	-2.863^{Z}	-2.287^{Z}
	(0.520)	(0.705)
Optional	-4.396^{Z}	-4.973^{z}
	(1.126)	(2.059)
Return Ratio × Optional	7.181^{Z}	8.010^{Z}
	(1.467)	(2.675)
Return Ratio^2 × Optional	-2.249^{Z}	-2.547^{Z}
	(0.467)	(0.849)
Log Likelihood	-348.060	-179.685
N	347	185

Notes: Estimates are from two-limit Tobit regressions with random effects and the Ratio of Player 2's Payoffs to Player 1's Pass as the LHS variable. Standard errors are reported in parentheses.

z & Z - Significantly different from 0 at less than 5% or 1%, respectively

s & S - Significantly different from Satisfaction, Return Ratio × Satisfaction, or Return Ratio^2 × Satisfaction at less than 5% or 1%, respectively