Appendix A. Instructions

The text in italics indicates the script that was read aloud but not written. The rest of the instructions were provided in the written form to the participants on their computer screens and read aloud by the experimenter.

Instructions for Order 1 (Observed then Private)

Arrival instructions

Please form a single line and have your student card out so I can mark your names off. Take a piece of paper at random from the table, on the back will be your seat number. There is a seating map on the front of the room if you have trouble finding your seat. Make sure you take a seat at one of the cubicles with an information sheet on the desk. Do not touch the computers until I give further instructions. Mobile phones and other devices must be switched off when you take your seat. Also, please no talking to each other once you enter the room.

Please read and sign the consent form so that I can come and collect it as you go through the session. Take down names, subjects to their seats, collect signed consent forms.

Opening instructions

Thank you for participating in today's study with the School of Economics. This session will last around 60 minutes. Please let the supervisor know if you do not understand something along the way by raising your hand.

The choices you are making during the study are important because some of your payment will be based on them. There are no wrong choices in this experiment. We will ask you what you prefer and by responding truthfully you make sure that you receive your preferred payment.

Payment

You start the experiment with $35.

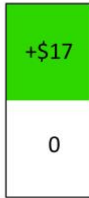*There is an envelope on your desk. Inside it, you will find $35.*

Your final compensation will depend on one randomly selected decision that you made in the experiment. Based on this decision, you may make more money or lose some of the $35 you now have. Each of your decisions has equal chance to be selected for payment. In addition, you can earn up to $3 in a test that we explain later. You will receive the total of your earnings in cash at the conclusion of the experiment. Only you and the experimenter will know how much you earned.

Task instructions

In this task, you will be repeatedly choosing between different monetary options. In every trial, you will be offered a choice between a sure and uncertain payoff. Some trials will involve only positive amounts. Here is an example:

The green rectangle on the left represents a sure payment of $10. The green and white rectangle on the right represents an uncertain option with equal chance of getting $17 or nothing. Your task is to indicate which option you prefer by ticking a box under it.
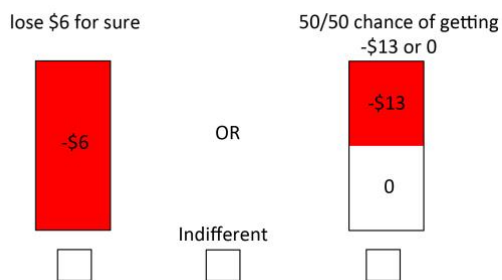
Suppose this trial was selected for payment.
- If you picked the option on the left, you will receive an additional $10 for sure.
- If you picked the option on the right, you will roll a six-sided die. If the number that comes up on the die is 1, 2, or 3, then you will receive an additional $17. If the number on the die is 4, 5, or 6, you will not receive any additional money. In other words, you are equally likely to get $17 or nothing.
- If you chose indifferent, the computer will make the decision for you. The sure and uncertain options are equally likely to be picked.

Green colour and a plus sign will always represent a positive amount of money (gain).
If you gain additional money in the experiment, the experimenter will give it to you at the end of the session.

Some questions will include negative amounts (losses). Here is an example:

The red rectangle on the left is a sure loss of $6. The red and white rectangle on the right is an uncertain option with equal chance of losing $13 or losing nothing. Your task is to indicate which option you prefer by ticking a box under it.
Suppose this trial was selected for payment.
- If you picked the option on the left, you will lose $6 for sure.
- If you picked the option on the right, you will roll a six-sided die. If the number that comes up on the die is 1, 2, or 3, you will lose $13. If you roll 4, 5, or 6 you do not lose anything. In other words, you are equally likely to lose $13 or nothing.
- If you chose indifferent, the computer will make the decision for you. The sure and uncertain options are equally likely to be picked.

Red colour and a minus sign will always represent a negative amount of money (loss).
If you lose money in the experiment, you will have to give it to the experimenter at the end of the session.

Some questions will involve gambles with positive and negative amounts. Here is an example:

The white rectangle on the left is a sure payment of $0.
The green and red rectangle on the right is an uncertain option with equal chance of getting additional $12 or losing $3. Your task is to indicate which option you prefer by ticking a box under it.
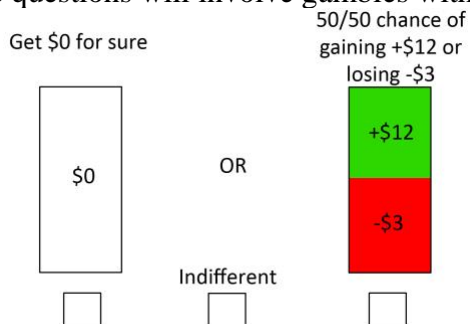Suppose this trial was selected for payment.

- If you picked the option on the left, you will not receive or lose any additional money.
- If you picked the option on the right, you will roll a six-sided die. If the number that comes up on the die is 1, 2, or 3, you will gain additional $12. If you roll 4, 5, or 6 you will lose $3. In other words, you are equally likely to gain $12 or lose $3.
- If you chose indifferent, the computer will make the decision for you with the sure and uncertain option being equally likely to be picked.

If you gain money in the experiment, the experimenter will give it to you at the end of the session. If you lose money in the experiment, you will have to give it to the experimenter at the end of the session.

Any questions?
Remember that at the end of the experiment one of the questions will be picked for payment and you will receive the option that you selected.

Practice questions
We want to make sure that you understand the task and payment. We will ask you to answer what would happen and how much money you would make in three different scenarios. This is not the task yet. This is just to make sure that you understand everything. If you have trouble answering the question, put your hand up and the experimenter will come over to help you.

[Insert here a picture of a gain trial with a choice between a gamble that pays $13 on the right and sure outcome of $6 on the left. On the top have a sign "Practice Question"]
Suppose that this trial gets selected for payment. Imagine that in this trial you selected the option on the left. Select ALL answers that are true:
   a) I get additional $6
   b) My total payment is $41 ($35 I received in the beginning of the study + $6)
   c) I lose $6
   d) My total payment is $29 ($35 I received in the beginning of the study - $6)
   e) I get additional $13
   f) My total payment is $48 ($35 I received in the beginning of the study + $13)
   g) I roll a die to determine my payment

[Insert here a picture of a gain trial with a choice between a gamble that pays -$8 on the left and sure outcome of -$4 on the right. On the top have a sign "Practice Question"]
Suppose that this trial gets selected for payment. Imagine that in this trial you selected the option on the left. Select all answers that are true:
   a) I roll a die to determine my payment
   b) I lose $4 for sure
   c) I gain $4 for sure
   d) I either lose $8 or nothing
   e) My total payment is either $35 or $28 ($35 I received in the beginning of the study - $8)
   f) My total payment is for sure $35

[Insert here a picture of a mixed trial with a choice between a gamble that pays -$8 or $10 on the right and sure outcome of $0 on the left. On the top have a sign "Practice Question"]
Suppose that this trial gets selected for payment. Imagine that in this trial you selected the option on the left. Select all answers that are true:
   a) I roll a die to determine my payment
   b) I lose $8 for sure
   c) I gain $10 for sure

d) I do not gain or lose anything
e) My total payment is $35
f) My total payment is $45 ($35 I received in the beginning of the study + $10)

Practice Question 1: Answers
a). This is TRUE. I selected the sure outcome of $6 on the left, so I can get additional $6 for sure.
b). This is TRUE, because my total payment is the sum of $35 I received in the beginning of the study and payoff from my decisions, which equals $35 + $6 = $41.
c). This is FALSE, because the sure outcome of $6 means I gain $6, not I lose $6.
d). This is FALSE, because my total payment is the sum of $35 I received in the beginning of the study and payoff from my decisions, which equals $6. $35 + $6 = $41.
e). This is FALSE, because I selected the option on the left, which is a sure outcome of $6.
f). This is FALSE, because my total payment is the sum of $35 I received in the beginning of the study and payoff from my decisions, which equals $6. $35 + $6 = $41.
g). This is FALSE, because I selected the left option on the left, which is a sure outcome. There is no need to roll a die to determine payment.

Practice Question 2: Answers
a). This is TRUE, because I selected the option on the left, which is a gamble.
b). This is FALSE, because I need to roll a die to determine my payment.
c). This is FALSE, because I need to roll a die to determine my payment.
d). This is TRUE, because the option on the left is a gamble with 50% chance to lose nothing or 50% chance to lose $8.
e). This is TRUE, because I either lose $8 or nothing, and my total payment is the sum of $35 I received in the beginning of the study and the outcome from my choice, which equals to either $35-$0 = $35 or $35 - $8 = $27.
f). This is FALSE, because I need to roll a die to determine my payment.

Practice Question 3: Answers
a). This is FALSE, because I selected the option on the left, which is a sure outcome.
b). This is FALSE, the option on the left is a sure outcome of $0.
c). This is FALSE, the option on the left is a sure outcome of $0.
d). This is TRUE, the sure outcome on the left is $0.
e). This is TRUE, because my total payment is the sum of $35 I received in the beginning of the study and the outcome from my choice, which equals to $35 + $0 =$35.
f). This is FALSE, because the sure outcome on the left is $0.

If you have any questions please raise your hand now.
We will now start part 1 of the session. Press ok to bring up the next instructions.

Part 1: Observation
I will now read out the next set of instructions on your screens. Please follow along.

You have been randomly paired with another person in the room for the next part of the session. You have also been randomly selected to be either a choice-maker or an observer of the choices being made in this next section.

Your screen will be displaying whether you are a Choice-Maker or an Observer.

In this part of the session there are 120 choices to be made.

From here there are different instructions for Choice-Makers and Observers. I will read out the instructions for both starting with Choice-Makers:

When instructed by the supervisor, your partner will come over and sit down to the right of you. You may not speak to each other during this stage of the session.

You will be making choices while your partner is observing. It is in your partner's best interest to pay attention to the choices you make. Later in the session, your partner will be shown a few randomly selected choices from this set, and then asked to recall which option you chose. The observer will earn money for each correctly recalled choice.

Also, one of your choices may be selected at random at the end of the session to be paid-out for real. The choices will only impact your own payment, with no effect on how much money your partner receives.

Now I will read the instructions for the Observers:

When instructed by the supervisor, you will come over and sit down to the right of your partner. You may not speak to each other during this stage of the session.

You will be observing while your partner is making choices. It is in your best interest to pay attention to the choices your partner makes. Later in the session, you will be shown a few randomly selected choices from this set, and then asked to recall which option your partner chose. You will earn money for each correctly recalled choice.

Also, one of your partner's choices may be selected at random at the end of the session to be paid-out for real. The choices will only impact your partner's payment, with no effect on how much money you receive.

Now everybody please listen. Before we tell you who you are partnered with, we would like you to fill in a short questionnaire. To continue you need to type in a password. The password is dog.

I will now read the instructions displayed on screen for the observers:

When instructed by the supervisor, you can start moving over to your partner and sit down to the right of them.

Below this should be displayed the seat number of your partner.

Ask me if you need assistance finding the right seat. You may not speak to each other during this stage of the session.

Now for everyone:

Once all 120 choices have been made, wait quietly until everyone else has finished at which point I will give instructions on the next part of the session. Observers can now press the OK button and start moving over to your partner's seat.

The password to start the choices is "choice5" all one word. You may now begin.

Part 2:
Now that everyone is finished with that, please return to your original seats.

You will now be given 120 choices to complete. **If you are an observer**, one of these choices will be paid out at the end of the session. **If you are a Choice-Maker** one of these choices may be paid out at the end of the session or one of your choices from the previous set may be paid out.

Before you start working on your choices, we would like you to fill in a short questionnaire.
To continue you need to type in a password. The password is table

Testing and Questionnaire
You will now complete a test to see how well you know your partner.

Again, there are 2 sets of different instructions for observers and choice-makers. I will read the instructions for Choice-Makers first.

Choice-makers

You will see a selection of 3 choices that your partner was asked to make. Select the option you think they would most likely have made. You will receive $1 for each correct answer.

Observers

You will see a selection of 3 choices that your partner made while you were observing. Select the option you think they chose. You will receive $1 for each correct answer.

Now for everyone

When you finish the test, you need to answer several questions. Answer honestly, remembering all data is collected and stored anonymously. After you have completed the questions, you will see a screen showing your payment from the session along with how it was calculated. Once everyone finishes, you will be able to collect your payment. Please wait seated until instructed by the experimenter.

The password to continue to the tests is "tested".

Payment instructions
The computer will now select one of your choices at random for payment. Press "continue"
You will be paid based on the decision scenario shown below.

Appendix B. Questionnaires

a. State anxiety questionnaire

	Not at all	Somewhat	Moderate	Very much
I feel calm	1	2	3	4
I am tense	1	2	3	4
I feel upset	1	2	3	4
I am relaxed	1	2	3	4
I feel content	1	2	3	4
I am worried	1	2	3	4

b. Post-experiment questionnaire

1) What do you think the experiment was about?

Demographics & about experiment
   1) Gender
   2) Age

Choice-Maker
   3) How many of the test questions do you think your partner remembered correctly?

   0   1   2   3

   4) For what proportion of your choices do you think your partner was paying attention?

   all   most   half   less than half   none

   5) Do you think your session partner cared about what your choices were?

   yes   no

   6) Did you try to be more consistent with your choices for your observer's benefit?

   yes   no

   7) When you were being observed did you feel more focused on the task or more distracted?

   more distracted | slightly more distracted | no change | slightly more focused | more focused

   8) Compared to the private choice making stage, do you think having your session partner watching made you take:

   more risks   less risks   no change

   9) Compared to the private choice making stage, do you think having your session partner watching made you pay:

   more attention to the task   less attention to the task   no change

Please explain how your choices were different.

Observer
3) For what proportion of your partner's choice were you paying attention?

all   most   half   less than half   none

4) Did you care about what your session partner's choices were?

yes   no

5) Compared to their choices in the private stage, do you think having you watching made your partner take:

more risks   less risks   no change

6) Compared to their choices in the private stage, do you think having you watching made your partner pay:

more attention to the task   less attention to the task   no change

Please explain how you think their choices were different.

About your partner
1) Have you met your session partner before this study?

yes   no

2) Do you remember ever seeing your session partner before this study?
yes   no

3) Do you think it is likely that your will interact with your partner after the session has ended?
yes   no

4) Rate your partner on a scale 1 to 5 for the following characteristics:
Attractive
Strong
Wealth
Practical
Responsible

About yourself
5) Rate yourself on a scale of 1 to 5 for the following characteristics:
Attractive
Strong
Wealth
Practical
Responsible
6) (For university students) Home faculty:

Second home faculty (for combined degree):
Year of study: 1st, 2nd, 3rd, 4th, 5th, 6th+
(For high school students) Name of high school:
Year of study: 7, 8, 9

7) Are you an international student?
   yes   no

8) How many siblings do you have?
   How many of your siblings are younger than you?

9) What do you identify as your nationality?

10) If you do not identify as Australian, how long have you been living in Australia?
   less than 6 months   between 6 months and 1 year   between 1 and 3 years
   more than 3 years   Not applicable (I am Australian)

11) Out of the following options how would you identify your predominant ethnic heritage?
   African
   East Asian
   European
   Indigenous Australian
   Middle Eastern
   North/South/Central American
   Pacific Islander
   South Asian
   South-East Asian
   Other (specify _____)

Appendix C Additional Tables and Figures

Table C1. Monetary amounts in AUD used in the experiment. Participants were choosing between a guaranteed sum of money and a 50-50 lottery with two possible outcomes. In loss trials, all amounts were multiplied by -1. In mixed trials, to construct a lottery, each of the eight Lottery amounts 1 was paired with 10 different Lottery amounts 2 obtained by multiplying Lottery amount 1 by 10 factors {-1/4; -3/8; -1/2; -8/5; -3/4; -7/8; -1; -5/4; -3/2; -2}.

Guaranteed amount	Lottery amount 1	Lottery amount 2
Gain trials		
1	3	0
2	4	0
3	7	0
3	8	0
4	7	0
4	12	0
5	12	0
5	13	0
6	12	0
6	12	0
6	13	0
7	19	0
8	18	0
8	25	0
10	17	0
10	22	0
10	23	0
10	25	0
13	22	0
13	28	0
Mixed trials		
0	{$2, $4, $5, $6, $8, $9, $10, $12}	Lottery amount 1 multiplied by {-1/4; -3/8; -1/2; -8/5; -3/4; -7/8; -1; -5/4; -3/2; -2}

Table C2. The effect of trial number on noise parameter. Maximum likelihood estimates using data from all Choice-Makers. trial number is from 1 to 240.

	18-24 years old	12-17 years old
Risk tolerance in gains (α^g)		
constant	-0.2239***	-0.1550+
	(0.0671)	(0.0815)
Risk tolerance in losses (α^l)		
constant	-0.1965***	-0.3034***
	(0.0534)	(0.0412)
Loss aversion (λ)		
constant	1.0151***	1.7898***
	(0.1759)	(0.4115)
noise		
trial number	-0.0006	-0.0175*
	(0.0019)	(0.0079)
constant	1.7064***	7.0780**
	(0.3817)	(2.3761)
N	7440	10080

Standard errors clustered on participant in parentheses

+ p<0.1, * p<0.01, ** p<0.05, *** p<0.001

Table C3. Effect of observation (excluding trials with indifference selected). Maximum likelihood estimates of risk attitudes and loss aversion for all Choice-Makers. observed is equal to 1 if made decisions under observation, and 0 if made decisions in private; male is an indicator variable for male subjects; age is age in years; wealth is self-reported wealth on a scale from 1 (very poor) to 5 (very rich); trial number is from 1 to 240. Models (1) - (5) use data from older adolescents (18-24 years old) and models (6) - (10) use data from younger adolescents (12-17 years old).

	18-24 years old					12-17 years old				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Risk tolerance in gains (α^g)										
observed	0.5624***	0.5748***	0.5850***	0.6152***	0.5689***	-0.1067	-0.0958	-0.0774	-0.0913	-0.0917
	(0.0655)	(0.0769)	(0.0832)	(0.0834)	(0.0778)	(0.1109)	(0.0816)	(0.0724)	(0.0782)	(0.0907)
male			0.0236					0.2252**		
			(0.0843)					(0.0790)		
age				0.0321					0.0221	
				(0.0344)					(0.0229)	
wealth					0.0417					-0.0167
					(0.0562)					(0.0461)
trial number		0.0003	0.0002	0.0004	0.0003		-0.0027***	-0.0027***	-0.0026***	-0.0027***
		(0.0005)	(0.0005)	(0.0004)	(0.0005)		(0.0003)	(0.0003)	(0.0003)	(0.0003)
constant	-0.6207***	-0.6318***	-0.6538***	-1.3203+	-0.7642***	-0.0305	0.2077**	0.0797	-0.1418	0.2604
	(0.0825)	(0.0874)	(0.0986)	(0.7522)	(0.1919)	(0.0743)	(0.0657)	(0.0904)	(0.3742)	(0.1801)
Risk tolerance in losses (α^l)										
observed	0.1724***	0.3204***	0.3231***	0.3074***	0.3126***	-0.0256	-0.0382	-0.0398	-0.0416	-0.0101
	(0.0373)	(0.0634)	(0.0605)	(0.0570)	(0.0620)	(0.0535)	(0.0512)	(0.0427)	(0.0502)	(0.0618)
male			0.0527					-0.0896		
			(0.0745)					(0.0721)		
age				-0.0278					0.0349	
				(0.0282)					(0.0218)	
wealth					-0.0860*					0.0226
					(0.0387)					(0.0574)
trial number		0.0015***	0.0014***	0.0014***	0.0015**		-0.0005*	-0.0005*	-0.0004+	-0.0004*
		(0.0004)	(0.0004)	(0.0004)	(0.0004)		(0.0002)	(0.0002)	(0.0002)	(0.0002)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
constant	-0.2844***	-0.4757***	-0.4989***	0.0909	-0.1887+	-0.2368***	-0.1581***	-0.1269*	-0.7178*	-0.2523
	(0.0552)	(0.0653)	(0.0793)	(0.5800)	(0.1059)	(0.0349)	(0.0392)	(0.0591)	(0.3554)	(0.1900)
Loss aversion (λ)										
observed	0.4170***	0.6437***	0.6376***	0.5963***	0.6478***	-0.0352	-0.1263	-0.0848	-0.1423	-0.0383
	(0.0899)	(0.1544)	(0.1524)	(0.1170)	(0.1486)	(0.2332)	(0.2292)	(0.1894)	(0.2332)	(0.3330)
male			0.1009					0.6119*		
			(0.1669)					(0.3025)		
age				-0.0683					0.0612	
				(0.0650)					(0.0893)	
wealth					-0.0214					-0.1460
					(0.1031)					(0.2362)
trial number		0.0026*	0.0022+	0.0021*	0.0026*		0.0002	0.0000	0.0005	0.0003
		(0.0012)	(0.0012)	(0.0010)	(0.0012)		(0.0013)	(0.0011)	(0.0013)	(0.0011)
constant	0.6746***	0.3926***	0.3546**	1.8047	0.4549	1.7675***	1.5964***	1.2316***	0.6241	2.0381**
	(0.1392)	(0.1099)	(0.1261)	(1.3605)	(0.3414)	(0.3546)	(0.2646)	(0.2802)	(1.4204)	(0.7722)
noise										
constant	1.2773***	1.2829***	1.2665***	1.2525***	1.2519***	3.9651***	3.0959***	2.6693***	3.1390***	3.0424***
	(0.2456)	(0.2345)	(0.2363)	(0.2315)	(0.2137)	(0.9774)	(0.6784)	(0.5037)	(0.6989)	(0.6867)
N	7013	7013	7013	7013	7013	9766	9766	9766	9766	9766

Standard errors clustered on individual in parentheses

+p<0.1, *p<0.05, **p<0.01, ***p<0.001

Table C4. Ordinal logit regression for effect of observation using within-subject comparison for all Choice-Makers. Dependent variable = 1 if participant chose the lottery, = 0.5 if indifferent, = 0 if selected the safe option. observed = 1 if the participant is observed and 0 otherwise. safe amount is the amount associated with the safe choice and lottery amount 1 and lottery amount 2 are possible earnings from the lottery. 12-17 y. o. is an indicator variable for participants who are 12 to 17 years old. Model (1) includes data from gain trials only. Model (2) includes data from loss trials only. Model (3) includes data from mixed trials only. Lottery amount 2 is omitted in models (1) and (2) because it's always zero in gain and loss trials. Safe amount is omitted in model (3) because it's always zero in mixed trials.

	(1) gains	(2) losses	(3) mixed
observed	1.1125***	0.6424**	1.6999***
	(0.1871)	(0.2153)	(0.1558)
safe amount	-0.3235***	-0.4974***	
	(0.0312)	(0.0558)	
lottery amount 1	0.1339***	0.2553***	0.3264***
	(0.0145)	(0.0325)	(0.0323)
lottery amount 2			0.6008***
			(0.0555)
12-17 y.o.	0.6854***	0.1709	0.7655**
	(0.1691)	(0.2153)	(0.2720)
12-17 y.o. X observed	-1.2711***	-0.7904*	-1.1049***
	(0.2779)	(0.3138)	(0.2425)
N	4380	4380	26280

Marginal effects

Standard errors clustered on participant in parentheses

+ p<0.1, * p<0.01, ** p<0.05, *** p<0.001

Table C5. Ordinal logit regression for effect of observation using between-subject comparison for all Choice-Makers. Dependent variable = 1 if participant chose the lottery, = 0.5 if indifferent, = 0 if selected the safe option. observed = 1 if the participant is observed and 0 otherwise. safe amount is the amount associated with the safe choice and lottery amount 1 and lottery amount 2 are possible earnings from the lottery. 12-17 y. o. is an indicator variable for participants who are 12 to 17 years old. Model (1) includes data from gain trials only. Model (2) includes data from loss trials only. Model (3) includes data from mixed trials only. Lottery amount 2 is omitted in models (1) and (2) because it's always zero in gain and loss trials. Safe amount is omitted in model (3) because it's always zero in mixed trials.

	(1) Gain trials	(2) Loss trials	(3) Mixed trials
observed	1.5080***	1.6870***	1.3673***
	(0.3672)	(0.3930)	(0.3501)
safe amount	-0.4719***	-0.5565***	
	(0.0611)	(0.0828)	
lottery amount 1	0.2036***	0.2874***	0.2853***
	(0.0298)	(0.0466)	(0.0289)
lottery amount 2			0.4228***
			(0.0476)
12-17 y.o.	1.6320***	1.1612**	1.0192**
	(0.3846)	(0.3976)	(0.3517)
12-17 y.o. X observed	-1.7734***	-1.9326***	-1.6424**
	(0.5244)	(0.5468)	(0.5154)
N	1460	1460	5840

Marginal effects

Standard errors clustered on participant in parentheses

+ p<0.1, * p<0.01, ** p<0.05, *** p<0.001

Appendix D Additional analysis

D.1 Order effects

We checked for three types of order effects in our data: order 1 (Observed-Private) versus order 0 (Private-Observed), the effect of trial number, and the effect of the type of and the choice made in the preceding trial.

D.1.1 Behaviour in Observed-Private versus Private-Observed condition

Choice-Makers made the same percentage of risky choices when they started with Observed and Private treatment (28.53% vs 28.07%, $p = 0.88$). For 18-24-year-olds[1] these statistics are 32.19% vs 28.00%, $p = 0.34$. For 12-17-year-olds[2], these statistics are 25.24% vs 28.12%, $p = 0.49$. These results are generally confirmed in domain-specific regression analysis presented in Table D1.1. One exception is that older adolescents were more likely to choose loss gambles in order 1. However, given no overall systematic differences, order it is not included as a control variable in our main analysis.

Table D1.1. Ordinal logit regression for effect of observation controlling for the treatment order and the trial number. Dependent variable = 1 if participant chose the lottery, = 0.5 if indifferent, = 0 if selected the safe option. safe amount is the amount associated with the safe choice and lottery amount 1 and lottery amount 2 are possible earnings from the lottery. observed = 1 if the participant is observed and 0 otherwise. male is an indicator variable for male subjects; age is age in years; wealth is self-reported wealth on a scale from 1 (very poor) to 5 (very rich). order = 1 if the treatment order is Observed-Private and 0 if the treatment order is Private-Observed. trial number is from 1 to 240. Models (1) and (4) include data from gain trials only. Models (2) and (5) include data from loss trials only. Models (3) and (6) include data from mixed trials only. Lottery amount 2 is omitted in models (1), (2), (4) and (5) because it's always zero in gain and loss trials. Safe amount is omitted in model (3) and (6) because it's always zero in mixed trials.

	18-24 years old			12-17 years old		
	(1)	(2)	(3)	(4)	(5)	(6)
	gains	losses	mixed	gains	losses	mixed
safe amount	-0.4056***	-0.7938***		-0.2969***	-0.4346***	
	(0.0799)	(0.1628)		(0.0477)	(0.0771)	
lottery amount 1	0.1703***	0.4177***	0.2791***	0.1220***	0.2251***	0.2339***
	(0.0386)	(0.0960)	(0.0321)	(0.0218)	(0.0451)	(0.0319)
lottery amount 2			0.4475***	0.0000	0.0000	0.3607***
			(0.0514)			(0.0579)
observed	1.5950***	0.8062+	1.3170***	-0.2046	-0.1699	0.0215
	(0.2612)	(0.4197)	(0.1726)	(0.1413)	(0.1742)	(0.1092)
male	0.1267	0.9813**	-0.0406	0.1239	-0.6308+	-0.4502
	(0.3325)	(0.3551)	(0.3621)	(0.2999)	(0.3525)	(0.3018)

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[1] Overall, 17 18-24-year-old Choice-Makers completed the task in Observed-Private order and 14 in Private-Observed order.

[2] Overall, 19 12-17-year-old Choice-Makers completed the task in Observed-Private order and 23 in Private-Observed order.

age	0.0493	0.0232	0.1269	0.0884	0.2032	0.1005
	(0.1236)	(0.1447)	(0.1352)	(0.1018)	(0.1336)	(0.1293)
wealth	0.1889	-0.0978	-0.0065	0.0300	0.3609+	0.1629
	(0.2530)	(0.1901)	(0.2135)	(0.1919)	(0.2033)	(0.1809)
order	0.0409	1.5662**	0.2065	-0.0555	0.0447	-0.2716
	(0.4834)	(0.4961)	(0.3624)	(0.2748)	(0.3421)	(0.3163)
trial number	0.0029	-0.0013	0.0004	-0.0068***	-0.0064***	-0.0077***
	(0.0018)	(0.0026)	(0.0011)	(0.0009)	(0.0012)	(0.0008)
N	1240	1240	4960	1680	1680	6720

Marginal effects

Standard errors clustered on participant in parentheses

+ $p<0.1$, * $p<0.01$, ** $p<0.05$, *** $p<0.001$

D.1.2 Effect of trial number on choice

As shown in Table D1.1, we found that younger adolescents generally become more risk averse in all types of trials. Therefore, we control for trial number in our analysis.

D.1.3. Past trial effects

Finally, we investigated whether the order in which questions were presented affected choice and therefore should be controlled for. For example, it is possible that participants act differently if they saw a gain trial, mixed trial, or loss trial in the proceeding trial. We, therefore, checked whether: (1) the expected value of the selected option on the previous trial, (2) the expected value of the past trial, as well as (3) the type of the past trial (gain, loss, mixed) have an effect on Choice-Makers' preferences. As shown in Tables D1.2 –D1.4, none of these variables affected preferences and hence we do not include them as control variables in the analysis.

Table D1.2. Ordinal logit regression of the effect of the expected value of the previously selected option on preferences. Observed is equal to 1 if made decisions under observation, and 0 if made decisions in private; EV selected is the expected value of the option selected in the previous trial.

	18-24 years old			12-17 years old		
	(1) gains	(2) losses	(3) mixed	(4) gains	(5) losses	(6) mixed
observed	1.1578***	0.8083***	0.9068***	-0.2515	-0.2598	-0.1134
	(0.1603)	(0.1674)	(0.1145)	(0.2122)	(0.2026)	(0.1810)
EV selected	0.0284+	0.0110	8.6694*	0.0392**	-0.0072	3.7193***
	(0.0155)	(0.0362)	(3.8050)	(0.0147)	(0.0257)	(1.0415)
N	1240	1240	4960	1680	1680	6720

Marginal effects

Standard errors clustered on participant in parentheses

+ $p<0.1$, * $p<0.01$, ** $p<0.05$, *** $p<0.001$

Table D1.3. Ordinal logit regression for the effect of the expected value of the rewards in the previous trial on preferences. Observed is equal to 1 if made decisions under observation, and 0 if made decisions in private; EV of the previous trial is the expected value of the rewards in the previous trial.

	18-24 years old			12-17 years old		
	(1)	(2)	(3)	(4)	(5)	(6)
	gains	losses	mixed	gains	losses	mixed
observed	1.1700***	0.8312***	0.9877***	-0.2539	-0.2584	-0.1074
	(0.1655)	(0.1689)	(0.0552)	(0.2138)	(0.2035)	(0.1723)
EV of the previous trial	-0.0006	0.0100	0.0073	-0.0036	0.0149	0.0001
	(0.0107)	(0.0145)	(0.0068)	(0.0098)	(0.0148)	(0.0046)
N	1228	1225	4925	1670	1664	6662

Marginal effects
Standard errors clustered on participant in parentheses
+ $p<0.1$, * $p<0.01$, ** $p<0.05$, *** $p<0.001$

Table D1.4. Ordinal logit regression of the effect of the previous trial type on preferences. Observed is equal to 1 if made decisions under observation, and 0 if made decisions in private; gain is equal to 1 if the previous trial is in the gain domain, and 0 if not; loss is equal to 1 if the previous trial is in the loss domain and 0 if not; the baseline category is the mixed domain.

	18-24 years old			12-17 years old		
	(1)	(2)	(3)	(4)	(5)	(6)
	gains	losses	mixed	gains	losses	mixed
observed	1.1718***	0.8088***	1.0006***	-0.2504	-0.2380	-0.1041
	(0.1636)	(0.1706)	(0.0545)	(0.2144)	(0.2001)	(0.1701)
gain	-0.2207	-0.0915	-0.0148	0.0410	-0.2404	0.0093
	(0.1753)	(0.2251)	(0.0753)	(0.1275)	(0.2038)	(0.0654)
loss	0.1964	-0.0531	0.0583	-0.2055	-0.0247	0.0188
	(0.1723)	(0.2546)	(0.0879)	(0.1483)	(0.1693)	(0.0769)
N	1234	1230	4914	1670	1670	6656

Marginal effects
Standard errors clustered on participant in parentheses
+ $p<0.1$, * $p<0.01$, ** $p<0.05$, *** $p<0.001$

D.1.4 Order effects in Observers' behavior

Our data allows us to assess whether Observers are affected by observing Choice-Makers' decisions prior to making their own choices. We find that participants who had the opportunity to observe Choice-Makers' decisions before making their own decisions (those in order 1) are less risk-tolerant in gains but their risk tolerance in losses, loss aversion and noise parameter are not different (Table D1.5).

Additionally, we find that the frequency with which Observers choose risky options in gain, loss, and mixed domains is more positively correlated with the frequency of the Choice-Maker's risky choices when they had a chance to observe the decisions of the Choice-Maker. Even though the correlations remain weak and are only significant in order 1 for loss and mixed trials, this provides some evidence that the Observers were to some extent imitating their partner's behavior. In the gain domain, for older adolescents, the correlation coefficient between Observers' choices and Choice-Makers' choices is 0.53 ($p = 0.027$) in order 1 versus -0.37 ($p = 0.191$) in order 0. For younger adolescents, the coefficient is 0.38 ($p = 0.103$) versus -0.17 ($p = 0.443$). In the loss domain, for older adolescents, the coefficient is -0.10 ($p = 0.693$) versus 0.10 ($p = 0.726$) and for younger adolescents, the coefficient is 0.46 ($p = 0.047$) versus 0.13 ($p = 0.567$). And in the mixed domain, for older adolescents, the coefficient is -0.11 ($p = 0.672$) versus -0.42 ($p = 0.135$), and for younger adolescents, the coefficient is 0.39 ($p = 0.092$) versus 0.06 ($p = 828$).

Table D1.5 The effect of prior observation on Observers' preferences. Maximum likelihood estimates of risk attitudes and loss aversion for Observers. Order is 1 if Observers had the opportunity to observe Choice-Makers' decisions before making their own choices, and 0 if the Observers made their own choices before they had the opportunity to observe the decisions of a Choice-Maker.

Risk tolerance in gains (α^g)	
order	-0.6453***
	(0.1747)
trial number	0.0013
	(0.0009)
constant	-0.2266***
	(0.0687)
Risk tolerance in losses (α^l)	
order	-0.0250
	(0.1133)
trial number	-0.0011+
	(0.0006)
constant	-0.1108+
	(0.0632)
Loss aversion (λ)	
order	-0.6054
	(0.5378)
trial number	0.0043
	(0.0031)
constant	1.0569***
	(0.1900)
noise	

order	-1.3734
	(0.8983)
trial number	0.0116*
	(0.0059)
constant	1.3421***
	(0.3126)
N	8760

Standard errors clustered on individual in parentheses
+p<0.1, *p<0.05, **p<0.01, ***p<0.001

D.2 Preferences in our whole sample

To add to the emerging literature on the development of preferences from adolescence to adulthood, we analyzed data from all participants. This includes all decisions of Observers and Choice-Makers, a total of 146 participants. Here, we only include decisions made in private to avoid contamination by the effects of observation on decision-making (Table D2.1).

In the gain domain, previous literature found that the relative risk aversion of university students typically ranges from -0.6 to -0.3 (Dohmen et al., 2010; Dohmen et al., 2011; Eckel & Grossman, 2008; Holt & Laury, 2002)[3]. Our estimate for older participants is -0.58 Table D2.1, which is significantly different from zero ($p < 0.001$) and within the bounds found previously, indicating a typical level of risk aversion. There are fewer studies estimating risk attitudes in the loss domain and their findings are mixed.[4] Harbaugh et al. (2002) and Abdellaoui et al. (2007) found that university students were risk seeking in losses, while Etchart-Vincent & l'Haridon (2011) found that the majority of their sample was risk averse. Our sample was also risk averse ($\alpha^l = -0.2879$, $p < 0.001$) and less risk averse in losses than in gains. A meta-analysis of loss aversion (Walasek et al., 2018), based mainly on research studies with university students, found loss aversion , λ, to be relatively small 1.31 (95% CI: 1.10-1.53)[5]. Our estimate is 1.03, which is slightly out of the range and is not significantly different from one ($p = 0.812$), suggesting essentially no loss aversion.

There are fewer studies with younger adolescents with we can compare our results. In the gain domain,

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[3] To make estimates directly comparable, we adjusted them to our power utility function (see section 2.4).

[4] In addition, most studies used hypothetical questions to investigate the loss domain (Booij et al., 2010; Laury & Holt, 2011).

[5] A more recent meta-analysis of loss aversion (Brown et al. 2021) found that the mean loss aversion coefficient is between 1.8 and 2.1. Since this meta-analysis include all available empirical estimates of loss-aversion instead that only under risky contexts, the conclusion may be less comparable to our estimates.

Eckel et al. (2012) found extreme risk aversion ($\alpha^g = -1.9$) with 15-17 year olds and Tymula et al. (2012, 2013) found risk aversion ($\alpha^g = -0.4$) with 12-17 year olds[6]. Cheung et al (2021), estimating utility curvature from riskless choices in the gain domain using Convex Time Budget design (Andreoni & Sprenger, 2012a), found utility curvature for monetary rewards to be between -0.56 and 0.03, depending on the estimation technique. Our estimate of α^g is -0.11, which indicates significant risk aversion ($p = 0.021$) but less risk aversion on average than in the other studies. In the loss domain, Tymula et al. (2013) found 12-17 year old adolescents to be risk seeking ($\alpha^l \in (0.5, 0.7)$) whereas our adolescents are risk averse (α^l=-0.24, $p < 0.001$) (though less averse than that in the gain domain). We are not aware of any previous structural estimates of loss aversion for younger adolescents, making the comparison impossible. 12-17 year olds in our sample were slightly but significantly ($p = 0.008$) loss averse ($\lambda = 1.53$).

Table D2.1 Structural estimates of risk tolerance in gains and losses, and loss aversion with all 146 participants. 12-17 y. o. is an indicator variable equal to one for participants who are 12 to 17 years old.

	18-24 years old	12-17 years old	All participants
Risk tolerance in gains (α^g)			
constant	-0.5781***	-0.1066*	-0.2636***
	(0.0697)	(0.0463)	(0.0509)
Risk tolerance in losses (α^l)			
constant	-0.2879***	-0.2374***	-0.2639***
	(0.0440)	(0.0349)	(0.0273)
Loss aversion (λ)			
constant	1.0336***	1.5291***	1.4051***
	(0.1418)	(0.1981)	(0.1459)
noise			
12-17 y.o.			1.2216**
			(0.4484)
constant	1.8673***	3.1004***	2.8883***
	(0.3366)	(0.4983)	(0.3702)
N	7440	10080	17520

Standard errors clustered on individual in parentheses
+p<0.1, *p<0.05, **p<0.01, ***p<0.001

We then estimated the effect of age on preferences in our whole sample as well as in each of the age

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[6] There are more studies that investigated risk preference in gains with adolescents (for example see Harbaugh et al., 2002, Sutter et al., 2013 and Tymula, 2019) but did not provide utility estimates that can be compared to our findings.

groups separately, while controlling for gender, wealth, and trial number. In our estimations, we modify the exponent of the power utility function in the following way:

$$1 + a^g = 1 + a_0^g + a_1^g \times age + \sum_i a_i^g \times Z_i$$

$$1 - a^l = 1 - a_0^l - a_1^l \times age - \sum_i a_i^l \times Z_i$$

$$\lambda = \lambda_0 + \lambda_1 \times age + \sum_i \lambda_i \times Z_i$$

The results are presented in Table D2.2. We find that risk tolerance (measured by the power utility curvature) decreases with age by 0.027 without controls and by 0.056 with controls, but this effect occurs only in the gain domain. Neither risk tolerance in the losses, nor loss aversion are influenced by age. Overall, there is also no effect of age on the noise term, even though there are differences in noise term between the age groups (compare to Tables D2.1 and D3.5).

Table D2.2 Structural estimates of risk tolerance in gains and losses, and loss aversion with all 146 participants. age is age in years; male is an indicator variable for male subjects; wealth is self-reported wealth on a scale from 1 (very poor) to 5 (very rich); trial number is from 1 to 240.

	All participants	All participants	All participants	18-24 years old	12-17 years old
Risk tolerance in gains (α^g)					
age	-0.0272**	-0.0563***	-0.0414**	0.0944	-0.0139
	(0.0105)	(0.0119)	(0.0148)	(0.0597)	(0.0308)
male		0.1746*	0.1133	0.5170**	0.1828*
		(0.0747)	(0.1093)	(0.1848)	(0.0841)
wealth		-0.0293	-0.1284	0.1288	-0.0677
		(0.0741)	(0.1118)	(0.1094)	(0.0775)
trial number		-0.0030***	-0.0029**	-0.0012	-0.0028***
		(0.0004)	(0.0010)	(0.0009)	(0.0004)
constant	0.2211	1.0038***	1.1097*	-3.1670*	0.4936
	(0.2004)	(0.2914)	(0.4331)	(1.4905)	(0.5215)
Risk tolerance in losses (α^l)					
age	-0.0032	-0.0038	-0.0028	0.0199	0.0004
	(0.0100)	(0.0136)	(0.0118)	(0.0425)	(0.0390)
male		-0.0379	0.0182	0.0466	-0.0110
		(0.0544)	(0.0532)	(0.0832)	(0.0853)
wealth		0.0109	-0.0339	-0.0364	-0.0084

		(0.0495)	(0.0684)	(0.0315)	(0.0841)
trial number		-0.0006	-0.0004	0.0002	-0.0010*
		(0.0004)	(0.0005)	(0.0005)	(0.0005)
constant	-0.2048	-0.1421	-0.0596	-0.6214	-0.1023
	(0.1747)	(0.2513)	(0.2860)	(0.8266)	(0.6805)
Loss aversion (λ)					
age	0.0379	-0.0106	0.0509	0.0513	-0.0148
	(0.0323)	(0.0454)	(0.0582)	(0.1015)	(0.1179)
male		0.2074	0.0556	0.1926	0.5021
		(0.1969)	(0.2725)	(0.1663)	(0.3169)
wealth		-0.0398	-0.4593	0.0581	-0.2293
		(0.2021)	(0.4032)	(0.1072)	(0.3382)
trial number		-0.0006	0.0001	-0.0003	-0.0006
		(0.0011)	(0.0019)	(0.0011)	(0.0013)
constant	0.7492	1.5417*	1.9924*	-0.3870	2.2196
	(0.5597)	(0.7427)	(0.9746)	(1.9043)	(2.0561)
noise					
age			0.1207		
			(0.1653)		
male			-0.8178		
			(0.6050)		
wealth			-0.5557		
			(0.5420)		
trial number			0.0003		
			(0.0074)		
constant	2.8168***	2.2525***	2.6657	1.5742***	2.2574***
	(0.3457)	(0.2632)	(1.8109)	(0.2771)	(0.3278)
N	17520	17520	17520	7440	10080

Standard errors clustered on individual in parentheses
+$p<0.1$, *$p<0.05$, **$p<0.01$, ***$p<0.001$

D.3 Mechanism

In this section, we investigate possible mechanisms that could drive the effect of observation identified in our analysis.

D.3.1 Anxiety

We investigated whether state anxiety, a measure that was previously associated with risk taking behaviors (Peng et al., 2014; Raghunathan & Pham, 1999) and increases when we anticipate to perform tasks in public (Brooks, 2014), mediates the effects of observation on preferences. Before participants

commenced the decision-making task, we asked them to fill in a short questionnaire that measures state anxiety, i.e. anxiety felt in the current moment, in 6 different dimensions: calmness, tense, upset, relaxed, content and worried (Marteau & Bekker, 1992) . Each participant filled in this questionnaire twice: once after being told that they were about to start decision-making task in private but before the commencement of the task, and once after being told that they were about to start decision-making task under observation but before the commencement of task. We can therefore check if the prospect of being observed increases individuals' state anxiety and whether the magnitude of this increase is related to a change in preferences. With 73 Choice-Makers, in our within-subject design, assuming alpha=0.05 and power of 0.90, we should have been able to detect changes in anxiety that correspond to a small-to-medium effect size of 0.346 (Cohen's d).

As shown in Table D3.1, participants' anxiety scores in five dimensions — calmness, tense, relaxed, content and worried — were all highly correlated with one another. We therefore summarized them to form one anxiety score: *anxiety = tense + worried – calmness – relaxed – content.* How *upset* participants were is not systematically correlated with other dimensions of anxiety, so we investigated this score separately.

Table D3.1. Correlation matrix of anxiety scores for Choice-Makers

A. Anxiety scores elicited before the start of the private condition N=73

	Calmness	Tense	Upset	Relaxed	Content	Worried
Calmness	1.00					
Tense	-0.621***	1.00				
Upset	-0.145	0.168	1.00			
Relaxed	0.779***	-0.631***	-0.147	1.00		
Content	0.487***	-0.307**	-0.144	0.549***	1.00	
Worried	-0.351***	0.561***	0.304***	-0.465***	-0.309***	1.00

+p<0.1, *p<0.05, **p<0.01, ***p<0.001

B. Anxiety scores elicited before the start of the observed condition N=73

	Calmness	Tense	Upset	Relaxed	Content	Worried
Calmness	1.00					
Tense	-0.678***	1.00				
Upset	-0.292	0.326	1.00			
Relaxed	0.666***	-0.546***	-0.320	1.00		
Content	0.462***	-0.436***	-0.346	0.635***	1.00	
Worried	-0.454***	0.568***	0.365***	-0.525***	-0.487***	1.00

+p<0.1, *p<0.05, **p<0.01, ***p<0.001

Our conjecture that the prospect of being observed increases state anxiety turned out to be untrue. The *anxiety* and *upset* scores were not different when participants learned that they would be performing the decision-making task under observation and when they learned that they will be deciding in private. This holds for both older and younger adolescents. For older adolescents, *anxiety* difference is -0.613 which is not statistically different from 0 ($p = 0.123$), and *upset* difference is 0.097 which also is not statistically different from 0 ($p = 0.448$). For younger adolescents, *anxiety* (*upset*) difference is -0.214 (-0.024) which is also not statistically different from 0 with $p = 0.515$ ($p = 0.570$). Generally, younger adolescents have higher anxiety scores (-5.202) than older adolescents (-7.210), and this difference is significant from 0 ($p = 0.004$)[7].

Approximately half of our participants first completed the task under observation and then in private and the other half in the opposite order. It is therefore possible that if anxiety levels change over the course of the experiment, for example participants are more anxious in the beginning of the study than towards its end, this can obscure the effect that the prospect of observation has on state anxiety. To verify whether this is the case, we regressed individual *anxiety* and *upset* scores on whether the participant was about to start the task under observation and on whether this was the first or the second time they are completing the anxiety questionnaire. As shown in Table D3.2, the state anxiety scores

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[7] This holds for both male and female participants. For male participants, the *anxiety* difference is -0.194, which is not statistically different from 0 ($p = 0.572$), and the *upset* difference is 0.065, which also is not statistically different from 0 ($p = 0.423$). For female participants, the *anxiety* (*upset*) difference is -0.524 (-0.095), which is also not statistically different from 0. Generally, female participants have higher anxiety scores (-5.524) than male participants (-6.774), and this difference is significant from 0 ($p = 0.083$).

were neither affected by the prospect of being observed, nor by whether participants were completing the questionnaire for the first or second time.[8]

Table D3.2. Impact of the prospect of observation and questionnaire repetition on anxiety and upset scores for all Choice-Makers. Ordinal least squares regression with anxiety (middle column) or upset (column on the right) as dependent variables. observed equals 1 when the participant knows (s)he is about to start the decision-making task under observation and 0 otherwise. number equals 1 when the participant is completing the anxiety questionnaire the first time and it is equal to 2 when the participant is completing the anxiety questionnaire the second time. Fixed effects included and standard errors clustered on the level of participant.

	anxiety	upset
observed	-0.382	0.0278
	(0.252)	(0.0594)
number	-0.132	-0.0278
	(0.252)	(0.0594)
constant	-5.666***	1.192***
	(0.322)	(0.0682)
N	146	146

Standard errors clustered on individual in parentheses
+p<0.1, *p<0.05, **p<0.01, ***p<0.001

As expected, given that the prospect of observation does not increase anxiety, changes in anxiety scores do not moderate the strength of the effect of observation on risk preferences. To establish this, for each individual, we created a descriptive measure of a change in their risk preference under observation by taking the difference between the proportion of times the participant selected risky lottery under observation and in private. We then regressed this variable on a change in individual anxiety scores given by: $anxiety(upset)_{diff}$ = anxiety(upset) before observation – anxiety(upset) before private. Table D3.3 shows that the change in risk preference cannot be explained by the change in anxiety or upset measurements neither in older nor in younger adolescents. Since the change in the frequency of risky choices under observation and in private does not relate to changes in state anxiety scores in any of the trial types (gain, loss, and mixed), we can indirectly conclude that changes in the anxiety scores cannot explain changes in loss aversion under observation as well. We note, however, that it is possible that participants do not experience anxiety at the prospect of being observed but nevertheless get anxious when observed which is unobservable to us due to the nature of our data.

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[8] The results remain the same when we redo the analysis only for the group that was affected by observation, that is 18- to 24-year-olds.

Table D3.3. Impact of the anxiety and upset scores on risk preferences for all Choice-Makers.
Linear regression with dependent variable equal to the difference between the proportion of times an individual selected risky lottery under observation and in private. $anxiety_{diff}$ and $upset_{diff}$ are equal to the difference between anxiety scores and upset scores measured before observation stage and that measured before private stage. Models (1) – (3) use data from older adolescents (18-24 years old) and models (4) – (6) use data from younger adolescents (12-17 years old).

	18-24 years old			12-17 years old		
	(1)	(2)	(3)	(4)	(5)	(6)
	gains	losses	mixed	gains	losses	mixed
$anxiety_{diff}$	-0.0065	-0.0003	-0.0114	0.0054	-0.0082	0.0029
	(0.0115)	(0.0075)	(0.0125)	(0.0171)	(0.0077)	(0.0207)
$upset_{diff}$	0.0603+	0.0116	-0.0291	-0.0444	0.0028	-0.0911
	(0.0353)	(0.0231)	(0.0385)	(0.1337)	(0.0600)	(0.1621)
constant	0.1719***	0.0535**	0.2404***	-0.0388	-0.0168	-0.0261
	(0.0255)	(0.0167)	(0.0278)	(0.0359)	(0.0161)	(0.0435)
N	31	31	31	42	42	42

Standard errors clustered on individual in parentheses
+p<0.1, *p<0.05, **p<0.01, ***p<0.001

D.3.2 Other factors

The propensity to change behavior in a particular way under observation could be mediated by other individual characteristics of the Choice-Makers as well as the characteristics of their Observers. We investigated some obvious candidates: familiarity with the observer, the likelihood to interact with the observer in the future, perceived observation intensity captured by the degree to which the Choice-Makers believed that the observer is paying attention to their choices, self-assessed wealth, popularity, gender, and age difference. Ball et al (2010) found that people perceive women, stronger, wealthier, and more attractive people to take more risks. We used the difference in Choice-Maker's self and partner ratings on these characteristics to assess if they change their behavior to be more like the Observer when observed. For example, since wealthier individuals are perceived to take more risks, the poorer the Choice-Maker thinks (s)he is relative to the Observer, the more risk tolerant she should become under observation relative to in private. To reveal any other significant differences between the two age groups, we compared them on all questionnaire variables (Table D3.4) with a plan to then test whether the variables on which the two age groups significantly differ mediate the effect of observation.

Table D3.4. Comparison of 18-24 year old and 12-17 year old Choice Makers on the questionnaire variables. p-values are based on two-sided, unpaired t-test of means and when indexed with ^ they are based on Pearson's chi-squared test. attractiveness is on a scale from 1 (very unattractive) to 5 (very attractive); Strength is on a scale from 1 (very weak) to 5 (very strong); wealth is on a scale from 1 (very poor) to 5 (very rich); practicality is on a scale from 1 (very impractical) to 5 (very practical); responsibility is from 1 (very irresponsible) to 5 (very responsible); familiar is on a scale from 0 (never met and never seen before) to 2 (met before and seen before); interact after is on a scale from 1 (very unlikely) to 5 (very likely); perceived attention is on a scale from 1 (none) to 5 (all); perceived care is 1 if participants think their session partner cared about what their choices were; consistency is 1 if participants are more consistent with their choices for observer's benefit; focus is 0 if there is no change, 1 if more distracted under observation, and 2 if more focused under observation; risk tolerance is 0 if there is no change, 1 if take less risk under observation, and 2 if take more risk under observation; attention is 0 if there is no change, 1 if pay less attention to task under observation, and 2 if pay more attention to task under observation.

	18-24 y.o. mean	12-17 y.o. mean	p-value
Individual characteristics			
Male	0.4839	0.3810	0.3862
Siblings	1.1935	1.6190	0.0640
Attractiveness	3.4516	3.3333	0.5855
Strength	3.6129	3.3571	0.2627
Wealth	3.2581	3.4286	0.3536
Practicality	3.9032	3.6667	0.2810
Responsibility	4.1290	3.9048	0.1943
Perceptions about the partner			
Partner's attractiveness	3.0645	3.5000	0.0612
Partner's strength	2.9677	3.3095	0.0896
Partner's wealth	3.1290	3.6905	0.0002
Partner's practicality	3.4516	3.4048	0.8326
Partner's responsibility	3.7742	4.0000	0.2472
Familiarity (knowing the partner)			
Familiar	0.0323	0.3333	0.0146
Interact after	1.5161	2.2857	0.0098
Observation intensity as perceived by choice-maker			
Partner's correctness	2.1935	2.0952	0.5930
Perceived attention	3.8387	4.0714	0.640^
Perceived care	0.6452	0.7857	0.1882
Self-reported change in behavior under observation			
Consistency	0.2258	0.3691	0.0646
Focus	2.3226	1.8333	0.025^
Risk tolerance	0.3548	0.6429	0.011^
Attention	1.1612	1.0952	0.296^
Anxiety			
Anxiety difference	-0.6129	-0.2142	0.4322
Upset difference	0.0968	-0.0238	0.3110

Our only result that is consistent between the structural analysis (Table D3.5) and logistic regressions (Table D3.6) is quite counterintuitive – Choice-Makers who subjectively felt they were observed more

intensively were slightly less affected by observation. However, the attention of the observer does not fully capture the effects of observation in our study, as the effect of the variable observed remains highly significant even when controlling for the interaction of observed and attention. We also note that the effect does not replicate for the between-subject approach (Table D3.8 and Table D3.9).

Since age and gender differences may play a more prominent role in our sample of younger adolescents, we additionally checked for the effect of age difference separately for each group (Table D3.7). We find that this is not the case.

Although no other variables significantly and consistently mediated the effect of observation, we nevertheless explain how each was measured. To assess familiarity between Choice-Makers and Observers, in the questionnaire, we asked participants if they had known and/or seen their partner before they came to the experiment. To construct a measure of familiarity, we summed the responses to these two questions together. To measure the intensity of observation, in the questionnaire, we asked each Choice-Maker what proportion of their choices they thought their Observer paid attention to. Wealth was measured on a 5-point Likert scale. To investigate whether these differences in the relative perception of own versus partner's wealth modulate the effect of observation on choices, we constructed a new variable, *wealth difference,* equal to the difference between own self-reported wealth and their perception of their partner's wealth. To investigate whether strength and attractiveness modulate the effect of observation on preference, we first constructed a measure of popularity as the sum of participants' responses to strength and attractiveness assessment questions. To assess if the differences in the relative perception of a participant's own versus their partner's popularity, we constructed a new variable, *popularity difference*, equal to the difference between self-reported popularity and their perception of their partner's popularity.

When comparing younger and older adolescents on all questionnaire variables (Table D3.4), we find a further difference between the age groups to be that more 12-17 year olds reported being less focused when observed by a partner. At the same time, somewhat on the contrary, they also reported being more consistent in their decisions under observation. To assess whether the consistency in the choice was indeed affected by observation, we checked whether the size of the noise parameter in our structural model was influenced by observation and found that it was not.

Finally, we note that more 12-17 year olds than 18-24 year olds reported that they became more risk-tolerant under observation ($p = 0.011$). This self-report contradicts the results based on the actual

choice data, highlighting the importance of collecting incentive-compatible choice data in addition to questionnaires.

Table D3.5. Effect of observation. Maximum likelihood estimates of risk attitudes and loss aversion for Choice-Makers. observed is equal to 1 if made decisions under observation, and 0 if made decisions in private; 12-17 y. o. is an indicator variable equal to one for participants who are 12 to 17 years old; familiar is the familiarity score between Choice-Maker and Observer from the post-experiment questionnaire; interact after is how likely Choice-Makers expect to interact with their Observers after the experiment; attention is the perceived attention score Choice-Maker believe to be observed during the task from the post-experiment questionnaire; wealth difference is the difference between own self-reported wealth and the perception of partner's wealth; popularity difference is the difference between own self-reported attractiveness and strength and the perception of partner's attractiveness and strength; partner male is an indicator variable equal to one if partner's gender is male; same gender is an indicator variable equal to one if the Choice-Maker and the Observer are in same gender; age difference is the difference between own age and partner's age; trial number is from 1 to 240.

variable:	familiar	interact after	attention	wealth difference	popularity difference	partner male	same gender	age difference	
Risk tolerance in gains (α^g)									
observed	0.3156**	0.5978**	1.7432***	0.3696***	0.3832***	0.2796+	0.3443**	0.3367***	0.1172
	(0.1010)	(0.2063)	(0.4495)	(0.1032)	(0.1024)	(0.1607)	(0.1283)	(0.0938)	(0.1627)
12-17 y.o.	0.3379**	0.1686	0.4409**	0.1411	0.2414	0.3854**	0.3707**	0.2399	0.5018***
	(0.1052)	(0.2584)	(0.1503)	(0.1648)	(0.2970)	(0.1400)	(0.1274)	(0.1908)	(0.1142)
12-17 y.o. X observed	-0.3834***	-0.3132	-0.7052***	-0.4446*	-0.5046*	-0.3778*	-0.5489+	-0.5375**	-0.2004
	(0.1163)	(0.1961)	(0.1972)	(0.2218)	(0.2324)	(0.1696)	(0.3285)	(0.1937)	(0.1931)
variable	-21.7383***	0.0725	0.2018**	-0.0949	-0.0134	-0.0724	-0.2676	0.0200	
	(0.7084)	(0.0797)	(0.0727)	(0.0990)	(0.0270)	(0.1583)	(0.2033)	(0.0363)	
variable X observed	20.6988***	-0.1446	-0.2949***	0.1166	0.0179	0.2061	0.1954	-0.0457	
	(0.9706)	(0.0887)	(0.0894)	(0.1164)	(0.0515)	(0.1997)	(0.2929)	(0.0554)	
trial number	-0.0011*	-0.0007	-0.0007	-0.0004	-0.0005	-0.0015+	-0.0009	-0.0003	-0.0016*
	(0.0005)	(0.0006)	(0.0005)	(0.0008)	(0.0015)	(0.0009)	(0.0011)	(0.0009)	(0.0007)
constant	-0.3502***	-0.4951*	-1.3837***	-0.3506**	-0.3717***	-0.3544***	-0.3221**	-0.3798***	-0.3420***
	(0.0966)	(0.1960)	(0.3971)	(0.1087)	(0.0932)	(0.0975)	(0.1145)	(0.1061)	(0.0949)
Risk tolerance in losses (α^l)									
observed	0.1645*	0.4966***	0.9050*	0.2040***	0.2211**	0.0551	0.2223*	0.2107***	0.0203
	(0.0733)	(0.1051)	(0.3533)	(0.0549)	(0.0741)	(0.1776)	(0.1127)	(0.0586)	(0.1147)
12-17 y.o.	0.0877	-0.0610	0.1519+	-0.0097	0.0455	0.1297	0.1117	0.0463	0.0792
	(0.0622)	(0.1284)	(0.0853)	(0.0748)	(0.1547)	(0.0982)	(0.0873)	(0.0900)	(0.0710)
12-17 y.o. X observed	-0.2215**	-0.1300	-0.4164**	-0.2402*	-0.2737*	-0.1084	-0.2812	-0.2906**	-0.0329
	(0.0834)	(0.1325)	(0.1367)	(0.1170)	(0.1180)	(0.1634)	(0.1730)	(0.1095)	(0.1296)

variable	-0.1670	0.0995*	0.0436	-0.0504+	-0.0073	-0.0805	-0.0543	0.0047	
	(0.2168)	(0.0472)	(0.0555)	(0.0269)	(0.0194)	(0.0793)	(0.0766)	(0.0386)	
variable X observed	-0.1004	-0.1778**	-0.1558+	-0.0062	-0.0087	0.0546	-0.0017	-0.0509	
	(0.1085)	(0.0625)	(0.0806)	(0.0412)	(0.0251)	(0.0880)	(0.0877)	(0.0624)	
trial number	0.0003	0.0009*	0.0009**	0.0009*	0.0007	-0.0001	0.0006	0.0009+	-0.0007
	(0.0003)	(0.0004)	(0.0003)	(0.0004)	(0.0009)	(0.0008)	(0.0007)	(0.0005)	(0.0004)
constant	-0.3084***	-0.5537***	-0.6382*	-0.3610***	-0.3582***	-0.3024***	-0.3519***	-0.3594***	-0.2239***
	(0.0705)	(0.1094)	(0.2716)	(0.0628)	(0.0742)	(0.0703)	(0.0872)	(0.0569)	(0.0540)
Loss aversion (λ)									
observed	0.3259	1.4111***	3.2414***	0.5581***	0.6117*	0.0213	0.6508	0.4854**	-0.4495
	(0.2416)	(0.3016)	(0.9784)	(0.1665)	(0.2972)	(0.6064)	(0.4822)	(0.1864)	(0.4051)
12-17 y.o.	0.1722	-0.2345	0.3079	-0.2285	-0.0312	0.3516	0.2102	-0.0089	0.8674*
	(0.1672)	(0.4043)	(0.2501)	(0.2469)	(0.6283)	(0.3199)	(0.3505)	(0.3681)	(0.4203)
12-17 y.o. X observed	-0.3357	-0.1879	-1.1435**	-0.6063	-0.7519	-0.1559	-0.7063	-0.7881*	0.3813
	(0.2268)	(0.4282)	(0.3546)	(0.3921)	(0.4894)	(0.5568)	(0.7462)	(0.4018)	(0.6599)
variable	-0.4602*	0.2746+	0.2340*	-0.2123**	-0.0421	-0.1167	-0.1131	-0.0172	
	(0.2194)	(0.1597)	(0.0990)	(0.0741)	(0.0497)	(0.2755)	(0.2476)	(0.1263)	
variable X observed	-0.0702	-0.5404**	-0.6024**	0.2202	0.0080	0.4792	-0.1552	-0.1341	
	(0.1760)	(0.1881)	(0.2260)	(0.1933)	(0.0923)	(0.3514)	(0.3754)	(0.1791)	
trial number	0.0006	0.0030**	0.0031***	0.0034**	0.0029	-0.0003	0.0020	0.0034*	-0.0021
	(0.0010)	(0.0011)	(0.0008)	(0.0012)	(0.0032)	(0.0030)	(0.0028)	(0.0014)	(0.0015)
constant	0.8853***	0.3221	-0.4276	0.8405***	0.8316***	1.0200***	0.7991**	0.7536***	1.1865***
	(0.2094)	(0.2969)	(0.4629)	(0.2226)	(0.2464)	(0.2781)	(0.2919)	(0.2174)	(0.2634)
noise									
observed									2.9912
									(2.8224)
12-17 y.o.									2.1741+
									(1.1861)
12-17 y.o. X observed									-0.4202
									(1.4684)
age									0.1151
									(0.1352)

age X observed									-0.1768
									(0.1346)
trial number									0.0010
									(0.0034)
constant	1.7529***	2.0987***	2.0468***	2.1313***	2.1635***	2.1520***	2.0629***	2.1126***	-0.5242
	(0.2326)	(0.3391)	(0.3178)	(0.3521)	(0.3637)	(0.3473)	(0.3221)	(0.3370)	(2.6165)
N	17520	17520	17520	17520	17520	17520	17520	17520	17520

Standard errors clustered on individual in parentheses
+p<0.1, *p<0.05, **p<0.01, ***p<0.001

Table D3.6. Effect of observation in ordinal logit regressions for all Choice Makers. Dependent variable = 1 if participant chose the lottery, = 0.5 if indifferent, = 0 if selected the safe option. observed =1 if the participant is observed and 0 otherwise. lottery amount is the possible earning from the lottery and safe amount is the amount associated with the safe choice. familiar denotes the familiarity score collected from post-experiment questionnaire. interact after is how likely Choice-Makers expect to interact with their Observers after the experiment. attention is the perceived attention intensity collected from post-experiment questionnaire. wealth difference is the difference between own wealth and the perception of partner's wealth. popularity difference is the difference between own self-reported attractiveness and strength and the perception of partner's attractiveness and strength. same gender is an indicator equal to one if the Choice Makers and the Observers are in the same gender. age difference is the difference between own age and partner's age. partner male is an indicator variable equal to one if partner's gender is male. trial number is from 1 to 240.

A. Gains

variable:	familiar	interact after	attention	wealth difference	popularity difference	partner male	same gender	age difference
observed	0.8141***	1.1283***	2.5543***	0.7969***	0.8073***	0.8284***	0.7764**	0.6129**
	(0.1973)	(0.2723)	(0.6848)	(0.1967)	(0.1993)	(0.2042)	(0.2373)	(0.2191)
12-17 y.o.	0.8115***	0.7054**	0.7868**	0.7575**	0.7589**	0.8061***	0.8171***	0.7901***
	(0.2442)	(0.2418)	(0.2404)	(0.2399)	(0.2331)	(0.2415)	(0.2383)	(0.2354)
12-17 y.o. X observed	-0.9894***	-0.9562**	-1.0275***	-0.9957***	-1.0527***	-1.0751***	-1.0715***	-1.0402***
	(0.2991)	(0.3094)	(0.2872)	(0.2915)	(0.2911)	(0.2905)	(0.2863)	(0.2821)
variable	-0.0322	0.1352	0.1296	-0.1317	-0.0407	-0.3441	-0.1000	-0.0090
	(0.3357)	(0.1147)	(0.1567)	(0.1352)	(0.0701)	(0.2433)	(0.2387)	(0.0545)
variable X observed	-0.2248	-0.1827+	-0.4390*	0.2101	-0.0015	0.5164+	0.0784	0.0285
	(0.2502)	(0.1079)	(0.1760)	(0.1302)	(0.0592)	(0.2757)	(0.2566)	(0.0635)
safe amount	-0.3330***	-0.3332***	-0.3350***	-0.3332***	-0.3332***	-0.3326***	-0.3326***	-0.3335***

	(0.0422)	(0.0422)	(0.0421)	(0.0423)	(0.0423)	(0.0421)	(0.0422)	(0.0421)
lottery amount 1	0.1381***	0.1382***	0.1391***	0.1382***	0.1382***	0.1380***	0.1380***	0.1383***
	(0.0198)	(0.0198)	(0.0198)	(0.0198)	(0.0198)	(0.0197)	(0.0198)	(0.0197)
trial number	-0.0029*	-0.0026*	-0.0025*	-0.0027*	-0.0029*	-0.0028*	-0.0028*	-0.0028*
	(0.0011)	(0.0012)	(0.0011)	(0.0012)	(0.0012)	(0.0012)	(0.0011)	(0.0011)
N	2920	2920	2920	2920	2920	2920	2920	2920

Marginal effects
Standard errors clustered on participant in parentheses
+ p<0.1, * p<0.01, ** p<0.05, *** p<0.001

B. Losses

variable:	familiar	interact after	attention	wealth difference	popularity difference	partner male	same gender	age difference
observed	0.7989**	1.2541***	2.0575**	0.7783**	0.7629**	0.7367**	0.8115**	0.7717**
	(0.2562)	(0.3736)	(0.6625)	(0.2584)	(0.2658)	(0.2386)	(0.2759)	(0.2977)
12-17 y.o.	0.4278	0.3745	0.5150+	0.5477+	0.4559	0.5355*	0.6154*	0.5158+
	(0.2867)	(0.2910)	(0.2723)	(0.2879)	(0.2868)	(0.2721)	(0.2491)	(0.2702)
12-17 y.o. X observed	-1.0590**	-0.8819**	-1.0099**	-1.0341**	-1.0269**	-1.0138**	-1.0453**	-1.0660**
	(0.3679)	(0.3317)	(0.3414)	(0.3640)	(0.3696)	(0.3401)	(0.3483)	(0.3568)
variable	0.2896	0.1877+	0.0541	0.0571	-0.0573	-0.1801	-0.5566*	-0.0313
	(0.2853)	(0.1129)	(0.1710)	(0.1648)	(0.0744)	(0.2880)	(0.2763)	(0.0690)
variable X observed	-0.0330	-0.2789+	-0.3281*	0.1110	0.0319	0.0582	-0.0739	-0.0479
	(0.3395)	(0.1525)	(0.1531)	(0.1413)	(0.0682)	(0.2766)	(0.2830)	(0.0802)
safe amount	-0.5442***	-0.5468***	-0.5447***	-0.5442***	-0.5435***	-0.5437***	-0.5494***	-0.5435***
	(0.0768)	(0.0776)	(0.0773)	(0.0770)	(0.0771)	(0.0764)	(0.0773)	(0.0768)
lottery amount 1	0.2847***	0.2860***	0.2852***	0.2848***	0.2844***	0.2845***	0.2875***	0.2844***
	(0.0449)	(0.0454)	(0.0451)	(0.0450)	(0.0450)	(0.0446)	(0.0450)	(0.0449)
trial number	-0.0007	-0.0004	-0.0006	-0.0006	-0.0007	-0.0009	-0.0009	-0.0007
	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0012)	(0.0013)	(0.0013)
N	2920	2920	2920	2920	2920	2920	2920	2920

Marginal effects
Standard errors clustered on participant in parentheses
+ p<0.1, * p<0.01, ** p<0.05, *** p<0.001

C. Mixed

variable:	familiar	interact after	attention	wealth difference	popularity difference	partner male	same gender	age difference
observed	0.7469***	0.8338**	1.8303**	0.7631***	0.6923***	0.7543***	0.5663***	0.7596***
	(0.1503)	(0.2583)	(0.5781)	(0.1502)	(0.1478)	(0.1490)	(0.1533)	(0.1700)
12-17 y.o.	0.3459	0.2275	0.2619	0.3243	0.2435	0.2860	0.3827	0.2911
	(0.2503)	(0.2696)	(0.2532)	(0.2627)	(0.2717)	(0.2485)	(0.2466)	(0.2497)
12-17 y.o. X observed	-0.9511***	-0.8295***	-0.8079***	-0.8582***	-0.7602**	-0.8346***	-0.9095***	-0.8342***
	(0.2366)	(0.2244)	(0.2319)	(0.2393)	(0.2484)	(0.2443)	(0.2350)	(0.2377)
variable	-0.1499	0.0947	0.1854	0.0636	-0.0461	-0.1453	-0.5193*	0.0400
	(0.4028)	(0.1279)	(0.1607)	(0.1670)	(0.0697)	(0.2773)	(0.2615)	(0.0766)
variable X observed	0.3603	-0.0348	-0.2702*	-0.0669	0.0708	-0.0102	0.4303*	-0.0268
	(0.2692)	(0.1124)	(0.1321)	(0.1155)	(0.0434)	(0.1969)	(0.1901)	(0.0534)
lottery amount 1	0.2461***	0.2462***	0.2462***	0.2457***	0.2460***	0.2457***	0.2471***	0.2459***
	(0.0236)	(0.0236)	(0.0241)	(0.0239)	(0.0240)	(0.0239)	(0.0246)	(0.0239)
lottery amount 2	0.3888***	0.3888***	0.3888***	0.3881***	0.3886***	0.3882***	0.3901***	0.3884***
	(0.0408)	(0.0409)	(0.0418)	(0.0416)	(0.0416)	(0.0415)	(0.0426)	(0.0415)
trial number	-0.0038**	-0.0036**	-0.0036**	-0.0038**	-0.0037**	-0.0037**	-0.0038**	-0.0038**
	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)
N	11680	11680	11680	11680	11680	11680	11680	11680

Marginal effects
Standard errors clustered on participant in parentheses
+ p<0.1, * p<0.01, ** p<0.05, *** p<0.001

Table D3.7. Effect of observation. Maximum likelihood estimates of risk attitudes and loss aversion for Choice-Makers. observed is equal to 1 if made decisions under observation, and 0 if made decisions in private; partner male is an indicator variable equal to one if partner's gender is male; same gender is an indicator variable equal to one if the Choice-Maker and the Observer are in same gender; age difference is the difference between own age and partner's age; trial number is from 1 to 240.

variable:	18-24 years old			12-17 years old		
	age difference	partner male	same gender	age difference	partner male	same gender
Risk tolerance in gains (α^g)						

observed	0.5648***	0.5313***	0.5686***	-0.1042	-0.1224	-0.2159+
	(0.0879)	(0.0919)	(0.1016)	(0.0903)	(0.1184)	(0.1236)
variable	-0.0381	0.0005	0.1725	0.0106	-0.0431	-0.1885
	(0.0415)	(0.0005)	(0.2111)	(0.0807)	(0.1244)	(0.1307)
variable X observed	0.0334	0.1639	-0.0834	-0.0206	0.0868	0.2464
	(0.0353)	(0.1614)	(0.1246)	(0.0867)	(0.1967)	(0.1818)
trial number	0.0002	0.0167	0.0006	-0.0026***	-0.0026***	-0.0026***
	(0.0006)	(0.1360)	(0.0009)	(0.0007)	(0.0004)	(0.0004)
constant	-0.6535***	-0.7127***	-0.7053***	0.1863**	0.1974*	0.2596***
	(0.0910)	(0.1297)	(0.1791)	(0.0685)	(0.0837)	(0.0657)

Risk tolerance in losses (α^l)

observed	0.3013***	0.3363***	0.3190***	-0.0487	-0.0596	-0.0229
	(0.0618)	(0.0580)	(0.0636)	(0.0508)	(0.0817)	(0.0719)
variable	-0.0318	-0.0041	-0.0148	-0.0115	-0.0856	0.0854
	(0.0348)	(0.0798)	(0.0902)	(0.1735)	(0.0847)	(0.0781)
variable X observed	-0.0110	-0.0628	-0.0004	0.0626	0.0467	-0.0096
	(0.0165)	(0.0538)	(0.0656)	(0.1864)	(0.1358)	(0.1026)
trial number	0.0015**	0.0016***	0.0017**	-0.0002	-0.0003	-0.0006*
	(0.0005)	(0.0004)	(0.0006)	(0.0011)	(0.0004)	(0.0003)
constant	-0.5141***	-0.4845***	-0.4919***	-0.2214	-0.1680**	-0.2196***
	(0.0975)	(0.0700)	(0.1221)	(0.1725)	(0.0573)	(0.0530)

Loss aversion (λ)

observed	0.5394***	0.5600***	0.6504***	-0.1660	-0.3033	-0.0041
	(0.1260)	(0.1485)	(0.1524)	(0.3021)	(0.4087)	(0.3214)
variable	-0.0881	0.1847	0.1775	-0.1421	-0.1634	0.3414
	(0.0819)	(0.1748)	(0.2378)	(0.7632)	(0.4251)	(0.3810)
variable X observed	-0.0364	0.0921	-0.0580	0.2889	0.5074	-0.1104
	(0.0281)	(0.1678)	(0.1472)	(0.7798)	(0.7576)	(0.4466)
trial number	0.0022*	0.0029*	0.0034*	0.0018	0.0009	-0.0005
	(0.0010)	(0.0012)	(0.0017)	(0.0053)	(0.0023)	(0.0014)
constant	0.4199***	0.3110*	0.2942	1.4261***	1.5388***	1.3427***
	(0.1235)	(0.1386)	(0.1988)	(0.3905)	(0.3264)	(0.2341)

noise

constant	1.3463***	1.2892***	1.3716***	3.2868**	3.1939***	3.0144***
	(0.2581)	(0.2190)	(0.2746)	(1.0936)	(0.7420)	(0.6467)
N	7440	7440	7440	10080	10080	10080

Standard errors clustered on individual in parentheses

+p<0.1, *p<0.05, **p<0.01, ***p<0.001

D.3.3 Between-subject analysis of the mechanism

While this analysis picks up on some of the significance of familiarity, wealth, popularity, age difference and attention, none of these effects is consistent between the structural (Table D3.8) and regression (Table D3.9) approach. The mediating effect of attention from within-subject analysis does not arise in between-subject analysis. As in within-subject analysis, the general effect of observation remains significant with the inclusion of various potential candidate mechanisms suggesting that none of them is the true mechanism that fully mediates the effect of observation on behavior.

Table D3.8. Effect of observation. Maximum likelihood estimates of risk attitudes and loss aversion for Choice-Makers using between-subject comparison. observed is equal to 1 if made decisions under observation, and 0 if made decisions in private; 12-17 y. o. is an indicator variable equal to one for participants who are 12 to 17 years old; familiar is the familiarity score between Choice-Maker and Observer from the post-experiment questionnaire; interact after is how likely Choice-Makers expect to interact with their Observers after the experiment; attention is the perceived attention score Choice-Maker believe to be observed during the task from the post-experiment questionnaire; wealth difference is the difference between own self-reported wealth and the perception of partner's wealth; popularity difference is the difference between own self-reported attractiveness and strength and the perception of partner's attractiveness and strength; partner male is an indicator variable equal to one if partner's gender is male; same gender is an indicator equal to one if the Choice-Makers and the Observers are in the same gender; age difference is the difference between own age and partner's age; trial number is from 1 to 120.

variable:	familiar	interact after	attention	wealth difference	popularity difference	partner male	same gender	age difference
Risk tolerance in gains (α^g)								
observed	0.4311**	0.5806***	1.3341*	0.5367***	0.5909***	0.5421***	0.4781**	0.5132**
	(0.1405)	(0.1587)	(0.5907)	(0.1544)	(0.1598)	(0.1514)	(0.1565)	(0.1933)
12-17 y.o.	0.4309**	0.5367*	0.5539***	0.5195**	0.5920***	0.5274***	0.5487***	0.5888***
	(0.1390)	(0.2337)	(0.1381)	(0.1582)	(0.1592)	(0.1448)	(0.1417)	(0.1773)
12-17 y.o. X observed	-0.4369**	-0.5553*	-0.6937***	-0.6036***	-0.6651***	-0.6099***	-0.7024***	-0.7356***
	(0.1575)	(0.2515)	(0.1774)	(0.1788)	(0.1847)	(0.1650)	(0.1713)	(0.2014)
variable	-23.0058***	-0.0114	0.1214	-0.0310	0.0048	-0.0127	-0.0759	0.0031
	(0.1891)	(0.0600)	(0.1168)	(0.0480)	(0.0128)	(0.0910)	(0.0906)	(0.0282)
variable X observed	22.6583***	-0.0491	-0.1846	0.1068	-0.0034	0.2553+	0.2031	-0.0020
	(0.3092)	(0.0737)	(0.1276)	(0.0719)	(0.0210)	(0.1385)	(0.1391)	(0.0308)
trial number	-0.0001	0.0001	0.0002	0.0006	0.0004	0.0003	0.0004	0.0003
	(0.0003)	(0.0004)	(0.0005)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0003)
constant	-0.4382**	-0.5108***	-1.0812+	-0.5608***	-0.5997***	-0.5339***	-0.5258***	-0.5982**
	(0.1333)	(0.1449)	(0.5623)	(0.1513)	(0.1569)	(0.1445)	(0.1422)	(0.1853)
Risk tolerance in losses (α^l)								
observed	0.2824**	0.4689**	-0.0934	0.3294***	0.4043***	0.3525***	0.4081**	0.4501**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(0.0942)	(0.1541)	(0.5405)	(0.0996)	(0.0969)	(0.0886)	(0.1359)	(0.1420)
12-17 y.o.	0.1418+	0.2081	0.2587***	0.2364*	0.2899***	0.2085**	0.2703**	0.2910**
	(0.0819)	(0.1728)	(0.0738)	(0.0974)	(0.0872)	(0.0769)	(0.0872)	(0.1062)
12-17 y.o. X observed	-0.2310+	-0.2747	-0.4296*	-0.3191*	-0.3432**	-0.2518+	-0.3308**	-0.4399**
	(0.1316)	(0.2095)	(0.1799)	(0.1391)	(0.1273)	(0.1316)	(0.1221)	(0.1449)
variable	-0.1984	0.0195	-0.1892+	0.0600+	0.0255	0.0474	0.0097	-0.0679*
	(0.2566)	(0.0869)	(0.1035)	(0.0363)	(0.0157)	(0.1077)	(0.0990)	(0.0288)
variable X observed	-0.0942	-0.1116	0.1060	-0.1257*	-0.0630*	-0.1131	-0.0538	0.0583+
	(0.2758)	(0.1234)	(0.1367)	(0.0606)	(0.0294)	(0.1362)	(0.1284)	(0.0341)
trial number	0.0000	-0.0001	0.0006	0.0005	0.0006	0.0003	0.0005	0.0002
	(0.0003)	(0.0004)	(0.0004)	(0.0005)	(0.0004)	(0.0005)	(0.0004)	(0.0005)
constant	-0.3232***	-0.4212***	0.3234	-0.4170***	-0.4885***	-0.4427***	-0.4686***	-0.4705***
	(0.0758)	(0.1019)	(0.4278)	(0.0870)	(0.0827)	(0.0691)	(0.1145)	(0.1368)

Loss aversion (λ)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
observed	0.6013*	1.2514*	2.3887	0.7258*	0.8754**	0.6282+	1.1849*	0.8017*
	(0.2876)	(0.5879)	(2.1187)	(0.3213)	(0.3108)	(0.3213)	(0.4662)	(0.3978)
12-17 y.o.	0.1782	0.4547	0.4830+	0.4365	0.6009*	0.2922*	0.5859*	0.6408*
	(0.2131)	(0.5808)	(0.2469)	(0.3192)	(0.2766)	(0.1247)	(0.2410)	(0.2924)
12-17 y.o. X observed	-0.1127	-0.2179	-1.0757+	-0.6094	-0.7005	-0.4410	-0.7672+	-1.1200*
	(0.4364)	(0.8013)	(0.6251)	(0.5070)	(0.4617)	(0.4304)	(0.4176)	(0.5134)
variable	-0.4287*	0.0241	-0.0750	-0.0743	0.0167	0.2051	0.2813	-0.2546***
	(0.1798)	(0.3665)	(0.3222)	(0.1370)	(0.0442)	(0.2632)	(0.2635)	(0.0543)
variable X observed	-0.3387	-0.4501	-0.3906	0.3057	-0.1280	0.5055	-0.5810	0.2568**
	(0.2366)	(0.3982)	(0.5209)	(0.3038)	(0.0800)	(0.4508)	(0.4418)	(0.0919)
trial number	-0.0002+	-0.0002	0.0017	0.0022	0.0023	0.0011	0.0020	0.0010
	(0.0001)	(0.0009)	(0.0021)	(0.0018)	(0.0014)	(0.0015)	(0.0015)	(0.0017)
constant	0.9084***	0.7888+	0.9903	0.6842**	0.5915*	0.9074***	0.4905*	0.5507
	(0.1775)	(0.4423)	(1.3479)	(0.2584)	(0.2420)	(0.1834)	(0.2284)	(0.3508)

noise

constant	1.6989***	1.9584***	1.9826***	1.8612***	1.9719***	2.0462***	1.9558***	1.8853***
	(0.2402)	(0.3155)	(0.3676)	(0.2787)	(0.3272)	(0.3385)	(0.3180)	(0.2924)
N	8760	8760	8760	8760	8760	8760	8760	8760

Standard errors clustered on individual in parentheses
+p<0.1, *p<0.05, **p<0.01, ***p<0.001

Table D3.9. Effect of observation in ordinal logit regressions for all Choice Makers using between-subject comparison. Dependent variable = 1 if participant chose the lottery, = 0.5 if indifferent, = 0 if selected the safe option. observed =1 if the participant is observed and 0 otherwise. lottery amount is the possible earning from the lottery and safe amount is the amount associated with the safe choice. observed is equal to 1 if made decisions under observation, and 0 if made decisions in private; 12-17 y. o. is an indicator variable equal to one for participants who are 12 to 17 years old; familiar is the familiarity score between Choice-Maker and Observer from the post-experiment questionnaire; interact after is how likely Choice-Makers expect to interact with their Observers after the experiment; attention is the perceived attention score Choice-Maker believe to be observed during the task from the post-experiment questionnaire; wealth difference is the difference between own self-reported wealth and the perception of partner's wealth; popularity difference is the difference between own self-reported attractiveness and strength and the perception of partner's attractiveness and strength; partner male is an indicator variable equal to one if partner's gender is male; same gender is an indicator equal to one if the Choice-Makers and the Observers are in the same gender; age difference is the difference between own age and partner's age; trial number is from 1 to 120.

A. Gains

variable:	familiar	interact after	attention	wealth difference	popularity difference	partner male	same gender	age difference
observed	1.5541***	1.8599***	1.0454	1.5113***	1.5297***	1.5671***	1.5328***	1.0442*
	(0.3792)	(0.5372)	(1.5395)	(0.3716)	(0.3998)	(0.3893)	(0.4380)	(0.4154)
12-17 y.o.	1.5602***	1.5858***	1.7038***	1.6248***	1.5800***	1.6729***	1.6692***	1.6502***
	(0.4108)	(0.3800)	(0.3959)	(0.3840)	(0.3796)	(0.3833)	(0.3862)	(0.3882)
12-17 y.o. X observed	-1.4510**	-1.6671**	-1.8307***	-1.7623***	-1.7353***	-1.8374***	-1.9041***	-1.7358***
	(0.5508)	(0.5667)	(0.5314)	(0.5221)	(0.5151)	(0.5409)	(0.5163)	(0.5170)
variable	0.4194	0.1339	-0.2141	-0.0502	-0.0402	-0.4596	0.2036	0.0463
	(0.3728)	(0.1372)	(0.3419)	(0.2060)	(0.1025)	(0.4107)	(0.3867)	(0.1135)
variable X observed	-1.1044+	-0.1948	0.1071	0.0358	-0.0483	1.2169*	0.0781	-0.0187

	(0.5800)	(0.2518)	(0.3812)	(0.2650)	(0.1497)	(0.5415)	(0.5135)	(0.1362)
safe amount	-0.4825***	-0.4773***	-0.4775***	-0.4757***	-0.4776***	-0.4758***	-0.4776***	-0.4860***
	(0.0608)	(0.0609)	(0.0604)	(0.0607)	(0.0611)	(0.0606)	(0.0610)	(0.0615)
lottery amount 1	0.2084***	0.2061***	0.2063***	0.2055***	0.2063***	0.2056***	0.2063***	0.2100***
	(0.0299)	(0.0298)	(0.0296)	(0.0297)	(0.0298)	(0.0296)	(0.0298)	(0.0302)
trial number	0.0039*	0.0039*	0.0039*	0.0039*	0.0039*	0.0039*	0.0039*	0.0041*
	(0.0017)	(0.0017)	(0.0017)	(0.0017)	(0.0017)	(0.0017)	(0.0017)	(0.0017)
N	1460	1460	1460	1460	1460	1460	0.2036	1460

Marginal effects
Standard errors clustered on participant in parentheses
+ $p<0.1$, * $p<0.01$, ** $p<0.05$, *** $p<0.001$

B. Losses

variable:	familiar	interact after	attention	wealth difference	popularity difference	partner male	same gender	age difference
observed	1.7255***	1.9804**	-1.3203	1.7514***	1.8228***	1.7065***	1.7009***	1.6661***
	(0.4028)	(0.6228)	(1.4479)	(0.4096)	(0.4292)	(0.3870)	(0.4643)	(0.4700)
12-17 y.o.	1.0393*	1.0551*	1.3838**	1.2832**	1.2241**	1.1771**	1.1508**	1.1389**
	(0.4167)	(0.4129)	(0.4707)	(0.4063)	(0.4214)	(0.3939)	(0.3717)	(0.3938)
12-17 y.o. X observed	-1.9178***	-1.8503***	-2.1443***	-2.0423***	-2.0523***	-1.9475***	-1.7030***	-1.9158***
	(0.5641)	(0.5576)	(0.5982)	(0.5464)	(0.5672)	(0.5413)	(0.4810)	(0.5440)
variable	0.4265+	0.1693	-0.8084*	0.2541+	0.0333	-0.2955	-0.4252	0.0445
	(0.2362)	(0.1180)	(0.3483)	(0.1486)	(0.0873)	(0.3842)	(0.3755)	(0.1235)
variable X observed	-0.1288	-0.1327	0.7528+	-0.2285	-0.1560	0.0608	-0.1959	-0.0395
	(0.6716)	(0.3433)	(0.3909)	(0.2083)	(0.1405)	(0.5150)	(0.4731)	(0.1482)
safe amount	-0.5612***	-0.5598***	-0.5629***	-0.5592***	-0.5594***	-0.5571***	-0.5618***	-0.5586***

	(0.0821)	(0.0831)	(0.0830)	(0.0826)	(0.0827)	(0.0828)	(0.0839)	(0.0825)
lottery amount 1	0.2891***	0.2885***	0.2901***	0.2883***	0.2884***	0.2874***	0.2899***	0.2879***
	(0.0463)	(0.0469)	(0.0467)	(0.0465)	(0.0465)	(0.0466)	(0.0471)	(0.0464)
trial number	-0.0022	-0.0021	-0.0018	-0.0018	-0.0013	-0.0017	-0.0014	-0.0018
	(0.0020)	(0.0019)	(0.0020)	(0.0020)	(0.0019)	(0.0020)	(0.0019)	(0.0019)
N	1460	1460	1460	1460	1460	1460	1460	1460

Marginal effects
Standard errors clustered on participant in parentheses
+ $p<0.1$, * $p<0.01$, ** $p<0.05$, *** $p<0.001$

C. Mixed

variable:	familiar	interact after	attention	wealth difference	popularity difference	partner male	same gender	age difference
observed	1.3513***	1.1532+	0.9140	1.4444***	1.3242***	1.4425***	0.8956*	1.2839**
	(0.3509)	(0.6239)	(1.5644)	(0.3654)	(0.3832)	(0.3853)	(0.4115)	(0.4209)
12-17 y.o.	1.0933**	0.9912**	1.0341**	1.1748**	1.0622**	1.0866**	1.0109**	1.0009**
	(0.3394)	(0.3663)	(0.3802)	(0.3655)	(0.4016)	(0.3850)	(0.3337)	(0.3466)
12-17 y.o. X observed	-1.8859***	-1.8430***	-1.6644**	-1.8238***	-1.6516**	-1.7222**	-1.7589***	-1.6282**
	(0.4658)	(0.4809)	(0.5272)	(0.5173)	(0.5529)	(0.5528)	(0.4871)	(0.5095)
variable	-0.2782	0.0490	-0.0652	0.2829	0.0215	-0.2732	-0.6469+	0.1645
	(0.5580)	(0.1614)	(0.3228)	(0.2075)	(0.0900)	(0.3924)	(0.3806)	(0.1616)
variable X observed	0.7266	0.2175	0.1165	-0.3836	0.0878	0.2091	0.9685+	-0.1539
	(0.9010)	(0.3567)	(0.3883)	(0.2781)	(0.1233)	(0.5172)	(0.4958)	(0.1821)
lottery amount 1	0.2867***	0.2870***	0.2852***	0.2870***	0.2862***	0.2867***	0.2883***	0.2858***
	(0.0282)	(0.0276)	(0.0288)	(0.0284)	(0.0289)	(0.0290)	(0.0295)	(0.0289)
lottery amount 2	0.4250***	0.4256***	0.4229***	0.4253***	0.4245***	0.4248***	0.4273***	0.4237***
	(0.0463)	(0.0453)	(0.0475)	(0.0471)	(0.0477)	(0.0476)	(0.0485)	(0.0477)
trial number	-0.0007	-0.0007	-0.0007	-0.0006	-0.0007	-0.0007	-0.0007	-0.0007

	(0.0012)	(0.0011)	(0.0011)	(0.0012)	(0.0012)	(0.0011)	(0.0011)	(0.0011)
N	5840	5840	5840	5840	5840	5840	5840	5840

Marginal effects
Standard errors clustered on participant in parentheses
+ p<0.1, * p<0.01, ** p<0.05, *** p<0.001