**Codebook**

**Main variables (cleaned dataset)**

The variables below are used in the main analysis found in the datasets with the suffix “\_clean”. Some come directly from the raw dataset, others are defined/constructed by us in the cleaning files. Below this list we include an overview of additional variables, found in the raw dataset.

**General variables**

|  |  |
| --- | --- |
| **experiment** | 1 shock experiment (2018);  2 loss experiment (march 2021);  3 multiple gabor experiment (jan 2022);  4 dot task (march 2022); |
| **id** | Participant id |
| **trial** | Trial number |
| **idtreatmentblock** | Unique number for each block of consecutive trials with same treatment |

**Trial or trial block response variables**

|  |  |
| --- | --- |
| **correct** | 0 wrong answer  1 correct answer |
| **correct100** | Correct \* 100 (rescale) |
| **confcor** | Confidence in correct answer (experiment 1 only) |
| **confcor100** | Confcor \*100 (experiment 1 only) |
| **true\_shock** | 0 No shock/loss in this trial  1 Shock/loss in this trial |
| **rt** | Response times in milliseconds |
| **concentration** | Likert response (1: Strongly disagree, 5: Strongly agree) to “I was extremely concentrated on correctly identify the pattern” |
| **anxiety** | Likert response (1: Strongly disagree, 5: Strongly agree) to “I felt anxious about losing money from my endowment”  Experiment 4: includes score of 0 “Not anxious, because there was no endowment and no possibility of a loss for these trials” |

**Treatment variables**

|  |  |
| --- | --- |
| **aligned** | 0 No shock/loss trial  1 Shock/loss trial |
| **difficult** | Higher value is harder pattern  Experiment 1: 0, 1, 2, 3 (3 being exactly vertical patterns - that we drop)  Experiment 2: 0, 1  Experiment 3: 0, 1 where difficulty is a median split of the continuous llr variable  Experiment 4: 0, 1, 2, 3 discrepancy in the number of red/blue dot (2, 4, 6, or 8) |
| **accbonus** | 0 low accuracy bonus  1 high accuracy bonus |
| **ab\_nominal** | Accuracy bonus nominal value in pounds |
| **stake** | Loss size (coding reflects the order of experiments)  0 is no losses, 1 is 10 pence loss, 2 is 5 pound loss, 3 is 1 pound loss. |
| **stake\_nominal** | Nominal loss value in GBP (see ‘stake’) |
| **endowment** | initial endowment, in GBP (£) |
| **current\_money** | remaining endowment, in GBP (£) |

**Personal variables and questionnaire items**

LK5 - [Likert items 1-5] “The following questions serve to improve our future experiments’ instructions. Please rate how much you agree to the following statements”.

|  |  |
| --- | --- |
| **age** | text input to question “How old are you?” |
| **female** | 0 other  1 female |
| **gender\_other** | Gender not male nor female (mostly “non binary”) |
| **totalmistakes** | Total number of mistakes in control questions. |
| **risk\_seeking** | Likert scale 1-7: “How would you evaluate your own attitude towards risk: Are you rather a risk-taking or risk-averse person (trying to avoid risks)? 1: Very risk-averse, 7: Very risk-seeking” |
| **confusioncontrol** | “Which of the following determines whether an explosion (i.e. a loss from your endowment) can occur in a given trial?”  0: The announced loss tilt and the actual tilt of the pattern,  1: My guess about the actual tilt of the pattern, Both of the above, I don't know |
| **never\_felt\_deceived** | “During the experiment, I never thought that I was deceived by the experimenters about my possible gains or losses.” LK5 |
| **difficulty\_instructions** | “How difficult did you find it to follow the instructions of this experiment?” 7-point Likert, 1:Very easy, 7: Very difficult |
| **count\_dots** | Experiment 4 only: “I tried to count the dots in order to determine the correct answer”  0: Never,  1: Sometimes,  2: Always |
| **bai** | Beck’s anxiety index: average score on items below. |
| **dpessimism** | Defensive Pessimism: defensive pessimism subscale (reported below). |
| **wishful** | Individual level wishful thinking over all trials (excluding neutral trials without losses) |

**BAI Anxiety Questionnaire**

“Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by choosing the number in the corresponding space in the column next to each symptom.” 4-point Likert: Not at all, Mildly but it didn’t bother me much, Moderately – it wasn’t pleasant at times, Seriously – it bothered me a lot.

anxiety\_q1: Numbness or tingling

anxiety\_q2: Feeling hot

anxiety\_q3: Wobbliness in the legs

anxiety\_q4: Inability to relax

anxiety\_q5: Fear of the worst will happen

anxiety\_q6: Dizziness/lightheadedness

anxiety\_q7: Heart pounding/racing

anxiety\_q8: Feeling unsteady

anxiety\_q9: Feeling terrified or afraid

anxiety\_q10: Nervousness

anxiety\_q11: Feeling of choking

anxiety\_q12: Hands trembling

anxiety\_q13: Feeling shaky/unsteady

anxiety\_q14: Fear of losing control

anxiety\_q15: Difficulty breathing

anxiety\_q16: Fear of dying

anxiety\_q17: Scare

anxiety\_q18: Indigestion

anxiety\_q19: Weakness / confusion

anxiety\_q20: Flushed face

anxiety\_q21: Hot flush / sweat

**Defensive pessimism questionnaire**

“Think of a situation where you want to do your best. It may be related to work, to your social life, or to any of your goals. When you answer the following questions, please think about how you prepare for that kind of situation. Rate how true each statement is for you.” 1:Not at all true of me, 7:Very true of me.

pessimism\_q1: I often start out expecting the worst, even though I will probably do OK.

pessimism\_q2: I worry about how things will turn out.

pessimism\_q3: I carefully consider all possible outcomes.

pessimism\_q4:I often worry that I won't be able to carry through my intentions.

pessimism\_q5: I spend lots of time imagining what could go wrong.

pessimism\_q6: I imagine how I would feel if things went badly.

pessimism\_q7: I try to picture how I could fix things if something went wrong.

pessimism\_q8: I'm careful not to become overconfident in these situations.

pessimism\_q9: I spend a lot of time planning when one of these situations is coming up.

pessimism\_q10: I imagine how I would feel if things went well.

pessimism\_q11: In these situations, sometimes I worry more about looking like a fool than doing really well

pessimism\_q12: Considering what can go wrong helps me to prepare

We focus on the defensive pessimism subscale (items 1, 2, 4, 5, 6 and 11), following

Lim, Lena, “A two-factor model of defensive pessimism and its relations with achievement motives,"

The Journal of Psychology, 2009, 143 (3), 318-336.

**Secondary variables (raw data)**

The list below contains additional variables, found in the raw datasets, with the suffix “\_raw”. Note that all variables are available in all experiments, mostly because differences between experimental tasks, and small changes to the closing questionnaire.

**General variables**

|  |  |
| --- | --- |
| **Experiment** | 0 shock experiment (2018);  1 loss experiment (march 2021);  2 multiple gabor experiment (jan 2022);  3 dot task (march 2022); |
| **session** | Experiment blocks |
| **participant** | Participant id |
| **trial** | Trial number |
| **date** | Date of participant elicitation [Exp. 1-5] |

**Trial or trial block response variables**

|  |  |
| --- | --- |
| **correct** | 0 wrong answer  1 correct answer |
| **true\_ans** | Actual pattern  -1: left (-45 deg, \), +1:right (+45 deg, /) [Exps 1-3,5]  -1:red, +1:blue [Exp 4] |
| **confidence** | Confidence in correct answer (50 to 100) |
| **true\_shock** | 0 No shock/loss in this trial  1 Shock/loss in this trial |
| **rt** | Response times in milliseconds |
| **delay** | Waiting time for shock/loss in milliseconds [Exp.1] |
| **concentration** | Likert response (1: Strongly disagree, 5: Strongly agree) to “I was extremely concentrated on correctly identify the pattern” |
| **anxiety** | Likert response (1: Strongly disagree, 5: Strongly agree) to “I felt anxious about losing money from my endowment”  Experiment 4: includes score of 0 “Not anxious, because there was no endowment and no possibility of a loss for these trials” |
| **resp** | Choice of diagonal/category.  -1: left (-45 deg, \), +1:right (+45 deg, /) [Exps 1-3,5]  -1:red, +1:blue [Exp 4] |
| **resp\_side** | The key pressed ( -1: left, +1:right) |
| **side** | The response mapping (pairing of key with category). +1: \ /; -1: / \. (For Exp 4, +1: blue-right ; -1: blue-left). This multiplied with resp\_side is resp |

**Treatment/task-specific variables**

|  |  |
| --- | --- |
| **DV** | Right-tilt evidence in degrees of deviation from cardinal (negative: left [\], positive: right [/]). [Exps 1, 2 and 5] |
| **angle** | Clockwise degrees of tilt relative to vertical, from -90 (left) to +90 (right) [Exps 1, 2 and 5] |
| **llr** | Right-tilt evidence measured in log-likelihood ratio (negative: left [\], positive: right [/]) [Exp 3] |
| **nbluedots** | number of blue dots in the array [Exp 4] |
| **accBonus** | Size of the accuracy bonus |
| **kstake** | Loss size: 1 is no loss, 2 is 10 pence loss, 3 is 5 pound loss  [Exp. 2] |
| **kcond** | Treatment (1: Left-tilted shock pattern - accuracy bonus 1 euros ; 2: Left-tilted shock pattern - accuracy bonus 20 euro; 3: Left-tilted shock pattern - accuracy bonus 1 euros ; 4: Left-tilted shock pattern - accuracy bonus 20 euro;) [Experiment 1] |
| **endowment** | initial endowment, in GBP (£) |
| **currentMoney** | remaining endowment, in GBP (£) |
| **lossTilt** | Diagonal of category associated with loss, in clockwise degrees relative to vertical. (-45: left, +45: right, 0: none) [ Exps 2,3, and 5], or color of loss category (-1:red, 1: blue, 0: none) [Exp 4]. |
| **tiltaligned** | Alignment of shock/loss/gain category with true state. 1: aligned, -1: anti-aligned, 0: not applicable (either zero evidence or no-stakes condition) |
| **payoffTilt** | Diagonal of category associated with gain/loss, in clockwise degrees relative to vertical. -45: left, +45: right) [Exp 5] |
| **initialslider** | Initial position of slider to indicate confidence evalution [Exp.1] |
| **condition** | Indicator for Gain or Loss frame treatment. [Exp 5] |

**Personal variables**

LK5 - [Likert items 1-5] “The following questions serve to improve our future experiments’ instructions. Please rate how much you agree to the following statements”.

|  |  |
| --- | --- |
| **age** | text input to question “How old are you?” |
| **female** | 0 other  1 female |
| **gender\_other** | Gender not male nor female (mostly “non binary”) |
| **totalmistakes** | total mistakes in control question |
| **handedness** | “What is your dominant hand” (left handed / right handed) |
| **current\_studies** | “If you are a student, what is your field of study?” |
| **risk\_seeking** | Likert scale 1-7: “How would you evaluate your own attitude towards risk: Are you rather a risk-taking or risk-averse person (trying to avoid risks)? 1: Very risk-averse, 7: Very risk-seeking” |
| **answer\_predicts\_loss** | “During the experiment, I believed that the losses were related to my responses, not the orientation of the patterns”. LK5 |
| **instr\_currency** | “During the experiment, I understood that the numbers shown are in Euros [Exp. 1]/ Pounds [Exp2-5].” |
| **instr\_loss\_resp** | “During the experiment, I believed the shocks were associated with my own answer, not with the true pattern.” LK5 |
| **loss\_determined\_by** | Which of the following determines whether a loss from your endowment can occur in a given trial?”  \* The announced loss tilt and the actual tilt of the pattern,  \* My guess about the actual tilt of the pattern,  \* Both of the above,  \* I don't know  [Exp 2-5] In Exp. 4 “tilt of the pattern” was replaced by “category of the array”. |
| **confusioncontrol** | “Which of the following determines whether an explosion (i.e. a loss from your endowment) can occur in a given trial?”  0: The announced loss tilt and the actual tilt of the pattern,  1: My guess about the actual tilt of the pattern, Both of the above, I don't know |
| **could\_predict\_loss** | “During the experiment, I was always able to predict when I would suffer losses.” LK5 |
| **instr\_deception** | “During the experiment, I never thought that I was deceived by the experimenters about my possible gains or losses.” LK5 |
| **instr\_confidence** | “During the experiment, I I understood that it is was in my best interest to state my actual confidence.” (Shock experiment only) LK5 |
| **instr\_unclear** | “Were there any parts of the instructions that were not clear to you?” (open question) |
| **previous\_loss\_experiments** | Multiple choice response to question “Have you ever participated in an experiment in which you could suffer financial loss?”. Options: “Yes”, “No”, “Maybe, but I can’t remember” |
| **previous\_loss\_experiments\_influence** | “To what extent do you think this previous experience of losses influenced your decisions in the experiment today?” 5-point Likert (1:Not at all, 5:Extremely) |
| **previous\_deception** | “Have you ever participated in an experiment in which you were deceived by the experimenter?”. Options: “Yes”, “No”, “Maybe, but I can’t remember” |
| **previous\_deception\_influence** | “To what extent do you think that this previous experience with deception influenced your decisions / behaviour in the experiment today”. 5-point Likert (1:Not at all, 5:Extremely) |
| **difficulty\_instructions** | “How difficult did you find it to follow the instructions of this experiment?” 7-point Likert, 1:Very easy, 7: Very difficult |
| **difficulty\_remember\_conditions** | “How difficult did you find it to keep in mind information about the potential losses and bonuses associated with trials”. 7-point Likert, 1:Very easy, 7: Very difficult |
| **loss\_optimism** | “I would rather be optimistic about the possibility of losing money, so I don’t feel anxious about it.”  1:Not at all true of me, 7:Very true of me. |
| **loss\_pessimism** | “I would rather be pessimistic about the possibility of losing money, so I won’t be disappointed when a loss actually occurs.”  1:Not at all true of me, 7:Very true of me. |
| **shock\_event** | If you believed the shocks were associated with a particular event, what was the event? [Open question]. |
| **afterlife** | “Please indicate how much you agree with the following statement : “I believe in the existence of an afterlife”.”1:Totally disagree, 7:Totally agree |
| **climate\_worry** | “Please indicate how much you agree with the following statement: “I am worried about climate change””. 1:Totally disagree, 7:Totally agree |
| **bonus\_motivation** | “Please rate the following statement: "The accuracy bonus motivated me to try hard to correctly identify the patterns"”. 1: Totally disagree, 7: Totally agree |
| **bonus\_magnitude\_motivation** | “On the trials with a 10 pound accuracy bonus I tried harder to be accurate than on the trials with a 0.05 pound accuracy bonus” 1: Totally disagree, 7:Totally agree |
| **count\_dots** | Experiment 4 only: “I tried to count the dots in order to determine the correct answer”  0: Never,  1: Sometimes,  2: Always |
| **war\_worry** | “How likely do you think it is that the war in Ukraine will escalate further with terrible consequences for your country? By terrible consequences we mean a direct attack on your country or the need for your country to send a considerable number of soldiers to fight in the war. \*””. 1:Very unlikely, 7:Very likely |
| **bai** | Beck’s anxiety index (see items below) |
| **emoreg** | Emotional regulation score (see items below) |
| **cogrep** | Cognitive reappraisal score (see items below) |
| **dpessimism** | Defensive pessimism score (see items below) |
| **coviddamage** | “How likely do you think it is that you will be infected with Covid-19 and suffer serious damage to your health before the end of 2021/22?”  Very likely, likely, unlikely, very unlikely, has already happened |
| **coviddeath** | “How likely do you think it is that someone you know will die of Covid-19 before the end of 2021?” Very likely, likely, unlikely, very unlikely, has already happened |
| **covidelimination** | “How likely do you think it is that vaccination efforts will have mostly eliminated the threat of Covid-19 in your country by the end of 2022?” Very likely, likely, unlikely, very unlikely, has already happened |
| **comments** | “Do you have any comments about the experiment that you would like to share with us?” (Free text) |

**EMOTION & ANXIETY**

[Section of likert items 1-7: Never, Rarely, Ocasionally, Sometimes, Often, Mostly, Always]

Please rate how often you experienced each of the emotions listed below during the blocks in which you suffered losses (but not at the moment of the loss)

emot\_block\_anxiety: “Anxiety”

emot\_block\_fear: “Fear”

emot\_block\_frustration: “Frustration”

emot\_block\_surprise: “Surprise”

emot\_block\_disgust: “Disgust”

emot\_block\_sadness: “Sadness”

emot\_block\_joy: “Joy”

emot\_block\_anger: “Anger”

[Section of likert items 1-7: Never, Rarely, Ocasionally, Sometimes, Often, Mostly, Always]

Please rate how often you experienced each of the emotions listed below specifically during the moment of loss (not just generally during the loss-making blocks) \*

emot\_loss\_anxiety: “Anxiety”

emot\_loss\_fear: “Fear”

emot\_loss\_frustration: “Frustration”

emot\_loss\_surprise: “Surprise”

emot\_loss\_disgust: “Disgust”

emot\_loss\_sadness: “Sadness”

emot\_loss\_joy: “Joy”

emot\_loss\_anger: “Anger”

[Beck’s Anxiety Questionnaire]

“Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by choosing the number in the corresponding space in the column next to each symptom.” 4-point Likert: Not at all, Mildly but it didn’t bother me much, Moderately – it wasn’t pleasant at times, Seriously – it bothered me a lot.

anxiety\_q1: Numbness or tingling

anxiety\_q2: Feeling hot

anxiety\_q3: Wobbliness in the legs

anxiety\_q4: Inability to relax

anxiety\_q5: Fear of the worst will happen

anxiety\_q6: Dizziness/lightheadedness

anxiety\_q7: Heart pounding/racing

anxiety\_q8: Feeling unsteady

anxiety\_q9: Feeling terrified or afraid

anxiety\_q10: Nervousness

anxiety\_q11: Feeling of choking

anxiety\_q12: Hands trembling

anxiety\_q13: Feeling shaky/unsteady

anxiety\_q14: Fear of losing control

anxiety\_q15: Difficulty breathing

anxiety\_q16: Fear of dying

anxiety\_q17: Scare

anxiety\_q18: Indigestion

anxiety\_q19: Weakness / confusion

anxiety\_q20: Flushed face

anxiety\_q21: Hot flush / sweat

[emotional regulation questionnaire]

“We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways”. 1 (strongly disagree) - 7 (strongly agree).

regulation\_q\_1: When I want to feel more positive emotion (such as joy or amusement), I change what I’m thinking about.

regulation\_q\_2: I keep my emotions to myself.

regulation\_q\_3: When I want to feel less negative emotion (such as sadness or anger), I change what I’m thinking about.

regulation\_q\_4: When I am feeling positive emotions, I am careful not to express them.

regulation\_q\_5: When I’m faced with a stressful situation, I make myself think about it in a way that helps me stay calm.

regulation\_q\_6: I control my emotions by not expressing them.

regulation\_q\_7: When I want to feel more positive emotion, I change the way I’m thinking about the situation.

regulation\_q\_8: I control my emotions by changing the way I think about the situation I’m in.

regulation\_q\_9: When I am feeling negative emotions, I make sure not to express them

regulation\_q\_10: When I want to feel less negative emotion, I change the way I’m thinking about the situation.

[Defensive pessimism questionnaire]

“Think of a situation where you want to do your best. It may be related to work, to your social life, or to any of your goals. When you answer the following questions, please think about how you prepare for that kind of situation. Rate how true each statement is for you.” 1:Not at all true of me, 7:Very true of me.

pessimism\_q1: I often start out expecting the worst, even though I will probably do OK.

pessimism\_q2: I worry about how things will turn out.

pessimism\_q3: I carefully consider all possible outcomes.

pessimism\_q4:I often worry that I won't be able to carry through my intentions.

pessimism\_q5: I spend lots of time imagining what could go wrong.

pessimism\_q6: I imagine how I would feel if things went badly.

pessimism\_q7: I try to picture how I could fix things if something went wrong.

pessimism\_q8: I'm careful not to become overconfident in these situations.

pessimism\_q9: I spend a lot of time planning when one of these situations is coming up.

pessimism\_q10: I imagine how I would feel if things went well.

pessimism\_q11: In these situations, sometimes I worry more about looking like a fool than doing really well pessimism\_q12: Considering what can go wrong helps me to prepare

We focus on the defensive pessimism subscale (items 1, 2, 4, 5, 6 and 11), following

Lim, Lena, “A two-factor model of defensive pessimism and its relations with achievement motives,"

The Journal of Psychology, 2009, 143 (3), 318-336.