Data Organisation

1 Raw oTree data

The raw data is organised in a participant-based style, where one row records a complete session for a participant, containing multiple apps and subsessions (rounds). Therefore, same variables in different apps and rounds are identified by different prefix `AppName.RoundNumber.` in their variable names.

1.1 Participant and session variables

variable name	description
participant.	
code	unique hash tag for each participant
label	label assigned to each participant, predefined in `.\rooms\econlab_participant.txt`
label_num	convert label string to numerical value, for example `"p01"` to `1`
time_started_utc	start time of the experiment for the participant, in the form of a time string `"YYYY/mm/dd HH:MM:SS"`
date_num	partially convert start time string to numerical value to identify session, for example `"2022/05/06 1:30:58"` to `2022050601`
session.	
code	unique hash tag for each session (experiment)
treatment_num	3-digit numerical label for session name in configuration, where the first digit stands for number of players per group, the second digit for the order of dutch auction, and the thrid digit for the order of honolulu auction
config.	
real_world_cuurrency_per_point	default configurable parameter
participation_fee	default configurable parameter
name	recording the name of the session, for example, `02_D2H1` means two-players-per-group (`02`) honolulu auction first (`H1`) and then dutch auction (`D2`)
discount_a	custom configurable parameter, used to change the discount factor $d(t) = a - bt$
discount_b	custom configurable parameter, used to change the discount factor $d(t) = a - bt$
start_price	custom configurable parameter, starting price for the honolulu auction
price_tick	custom configurable parameter, speed of the virtual clock in the auction, it takes `price_tick` seconds for the virtual clock to tick once
num_test_rounds	number of test rounds
num_formal_rounds	number of formal rounds
start_round_dutch	custom configurable parameter, `0` if test rounds are included, otherwise it starts at `start_round_dutch` -th formal round
start_round_honolulu	same as above
skip_intro_dutch	custom configurable parameter, `0` if displaying auction introduction, `1` if skipping it
skip_intro_honolulu	same as above

1.2 Application, subsession, group and player variables

Every variable in this section takes the form `AppName.RoundNumber.Modle.VarName`, for example, `02_Dutch.3.group.dutch_time_elapsed` means the variable which is named as `dutch_time_elapsed` and belongs the `group` this player is allocated to in this round (`3`) in application (or say experiment part) `02_Dutch` (that is two-player-per-group dutch auction). Here `Modle` can be one of the three options: `subsession` (equivalent to round), `group` or `player`, depending on the data this variable records.

1.2.1 for auction

variable name	description
AppName.RoundNumber.	
subsession.	
round_number	number of round, should be the same as `RoundNumber`
price_start	starting price of the auction in this round
group.	
id_in_subsession	unique group id in a given subsession, taking the form of `1, 2, 3, ...`
dutch_time_elapsed	time spent in dutch stage in seconds
dutch_final_price	item price when dutch stage ends
have_dutch_winner	`1` if someone bids in dutch stage, `0` if no one bids in dutch stage
have_contest_winner	(honolulu only) `0` if no one bids in dutch and the contest stages, `1` if no challenger in the contest stage and the dutch winner buys the item, otherwise a number of `have_contest_winner` players compete for the item in english stage the combination of `have_dutch_winner, have_contest_winner` records how the game goes on: `0, 0` if no one has ever bid until the end of the auction, `0,1` if no one bid in the dutch stage but someone won the item at min price in the contest stage, `0, n` if no one bid in dutch stage but `n` bidders competed for the min price and then played the english stage, `1, 1` if no one challenged the dutch winner; `1, n+1` if dutch winner was challenged by `n` other bidders
english_time_elapsed	(honolulu only) time spent in english stage in seconds
english_final_price	(honolulu only) item price when english stage ends
final_price	(honolulu only) final price of the item when the honolulu auction ends
player.	
id_in_group	unique player id in a given group, taking the form of `1, 2, 3, ...`
payoff	payoff in this round
item_value	item value in this round
is_dutch_winner	`1` if is dutch winner, otherwise `0`
contest_status	(honolulu only) `1` if is dutch winner or is contest challenger; `2` if is not dutch winner and leaving the contest; `0` if is not dutch winner and no response in the contest
is_english_winner	(honolulu only) `1` if being active until the end of english stage; `0` if leaving the english stage in the middle or not participating the english stage can have multiple winners
english_dropout_elpased	(honolulu only) `None` (empty) if not participating the english stage, otherwise `english_dropout_elpased` seconds elapsed from english start to dropout
is_final_winner	`1` if is the final buyer of the item, otherwise `0`

1.2.2 for auction feedback

variable name	description
AppName.RoundNumber.	
player.	
auc0	question on frequency of buying the item, `1` if alwyas bought, `2` if sometimes bought, `3` if never bought
auc1	question 1 on degree of agreement, `1-7` scale, `1` if completely disagree, `7` if completely agree
auc2	question 2 on degree of agreement, same as above
auc3	question 3 on degree of agreement, same as above
auc4	question 4 on degree of agreement, same as above
auc5	question on feeling of buying the item, `1-7` scale, `1` if exteremely sad, `7` if exteremely happy
auc6	question on feeling of not buying the item, same as above

2 Reformatted oTree data

Using Data Reformat.ipynb to generate reformatted data from raw data, which is organised in a round-based style, where one row records one round of action for a participant.

2.1 Participant and session variables

Same as raw data.

2.2 Application, subsession, group and player variables

`AppName.RoundNumber` is no longer required. Others are the same as raw data.

The table below explains newly added variable(s) calculated from raw data variables:

variable name	description
group.	
auctioneer_utility	the actual auctioneer's utility from that group of auction
player.	
dropout_price	the displayed price the player saw in the experiment when he clicked "Leave" on the contest stage or the english stage, or won the item
dropout_payoff	the player's payoff if he were to win the item at the displayed dropout price
dropout_price_accurate	the accurate price when the player clicked "Leave" on the contest stage or the english stage, or won the item
dropout_payoff_accurate	the player's payoff if he were to win the item at the accurate dropout price
paydiff_norm	the average per period point deviations of bidder payoffs from the theoretical prediction by period
paydiff_pct	the average percentage deviations of bidder payoffs from the theoretical prediction

2.3 Prediction variables

For given `session.config` parameters, the theoretical model in our paper Unusual Fish Auctions is used to predict each player's optimal behaviour. The predictions for group and player variables are named with prefix `predict.` added to their original variable names.

The table below gives **important notes** on those prediction variables which need to be explained in a different way from their prototypes.

variable name	description
predict.	
group.	
have_contest_winner	(honolulu only) no longer needed since every auction must have a winner theoretically
player.	
contest_status	(honolulu only) `1` if is dutch winner or is contest challenger; `0` if is not dutch winner and leave or no response in the contest
is_final_winner	it will always be the same as `is_english_winner` since random allocation among multiple english winners cannot be predicted, don't forget to randomly decide one final winner when using this variable

3 Qualtrics data

Refer to our google document [DRAFT] Behavioral Survey for question numbers mentioned in descriptions.

3.1 Pre survey

old variable name	new variable name	description
ICAR test		
Q65	Q1.1	-
	Q1.1_score	`1` if correct, `0` if wrong
Q66	Q1.2	-
	Q1.2_score	`1` if correct, `0` if wrong
Q67	Q1.3	-
	Q1.3_score	`1` if correct, `0` if wrong
Q68	Q1.4	-
	Q1.4_score	`1` if correct, `0` if wrong
Q84	Q1.5	-
	Q1.5_score	`1` if correct, `0` if wrong
CRT test		
Q85	Q2.1	-
	Q2.1_score	`1` if correct, `0` if wrong
Q86	Q2.2	-
	Q2.2_score	`1` if correct, `0` if wrong
Q87	Q2.3	-
	Q2.3_score	`1` if correct, `0` if wrong
Q88	Q2.4	-
	Q2.4_score	`1` if correct, `0` if wrong
Q89	Q2.5	-
	Q2.5_score	`1` if correct, `0` if wrong
risk preference		

old variable name	new variable name	description
All refer to description	Q3.1_sure_offer	amount of sure payment in first choice, `"Q1": 160`
	Q3.1_choice	`Sure Payment` or `50/50 Chance`
	Q3.2_sure_offer	amount of sure payment in second choice, `"Q17": 240, "Q2": 80`
	Q3.2_choice	`Sure Payment` or `50/50 Chance`
	Q3.3_sure_offer	amount of sure payment in third choice, `"Q25": 280, "Q18": 200, "Q10": 120, "Q3": 40`
	Q3.3_choice	`Sure Payment` or `50/50 Chance`
	Q3.4_sure_offer	amount of sure payment in fourth choice, `"Q29": 300, "Q26": 260, "Q22": 220, "Q19": 180, "Q14": 140, "Q11":`
	Q3.4_choice	`Sure Payment` or `50/50 Chance`
	Q3.5_sure_offer	amount of sure payment in fifth choice, `"Q31": 310, "Q30": 290, "Q27": 270, "Q28": 250, "Q23": 230, "Q24": 210, "Q20": 190, "Q21": 170, "Q15": 150,`
	Q3.5_choice	`Sure Payment` or `50/50 Chance`
time preference		
All refer to description	Q4.1_today_offer	amount of today payment in first choice, `"Q4.1": 154`
	Q4.1_choice	`Today` or `In 12 Months`
	Q4.2_today_offer	amount of today payment in second choice, `"Q4.17": 185, "Q4.2": 125`
	Q4.2_choice	`Today` or `In 12 Months`
	Q4.3_today_offer	amount of today payment in third choice, `Q4.18": 202, "Q4.25": 169, "Q4.10": 139, "Q4.3": 112`
	Q4.3_choice	`Today` or `In 12 Months`
	Q4.4_today_offer	amount of today payment in fourth choice, `"Q4.22": 210, "Q4.19": 193, "Q4.29": 177, "Q4.26": 161, "Q4.14": 1`
	Q4.4_choice	`Today` or `In 12 Months`
	Q4.5_today_offer	amount of today payment in fifth choice, `"Q4.23": 215, "Q4.24": 206, "Q4.20": 197, "Q4.21": 189, "Q4.31": 181, "Q4.30": 173, "Q4.28": 165, "Q4.27":`
	Q4.5_choice	`Today` or `In 12 Months`

3.2 Post survey

variable name	description
competitive preference	
Q3	“1. Competition brings the best out of me.”
risk preference	
Q10	“2. How willing or unwilling you are to take risks?”
time preference	
Q11	“4. Are you generally an impatient person, or someone who always shows great patience?”
Q12	“3. How willing are you to give up something that is beneficial for you today in order to benefit more from that in the future?”
regret	
Q4	“I try to get information about how the other alternatives turned out.”

variable name	description
Q5	“7. If I make a choice and it turns out well, I still feel like something of a failure if I find out that another choice would have turned out better.”
Q6	test question
Q7	“5. Whenever I make a choice, I’m curious about what would have happened if I had chosen differently.”
Q8	“8. When I think about how I’m doing in life, I often assess opportunities I have passed up.”
Q9	“9. Once I make a decision, I don’t look back.”
demographics	
Q13	“1. What is your age?”
Q14	“2. Please indicate your major”
Q15	“3. What is your standing at UH?”
Q16	“4. Which gender do you identify with?”
Q17	“5. How many economics or business classes have you taken?”
Q18_1	“Please give us feedback about the experiment: The experiment was very interesting”
Q18_2	“Please give us feedback about the experiment: The instructions were easy to understand”
Q19	“6. Please add any additional comments about the experiment below”

3.3 Embedded varibles from oTree in both surveys

These variables are used to match Qualtrics data with oTree data.

old variable name	new variable name (same as variable name in otree)
participant_code	participant.code
participant_label	participant.label
password	session.code

4 Individual behavioural data

variable name	description
session.code	unique hash tag for each session
participant.code	unique hash tag for each participant
d_	dutch auction
n_	number of occurrence
round_	list of occurred round numbers
dutch_	dutch stage
irrational_bid	winning with negative payoff
correct_win	winning as predicted
correct_lose	losing because of low item value
lucky_win	winning becuase predicted winner waited for too long or himself overbid
greedy_lose	losing because of waitting for too long
diff_	absolute difference between theoretical prediction and actual bid

variable name	description
correct_win	$bid_{predict} - price_{actual}$
lucky_win	same as above
greedy_lose	same as above
h_	honolulu auction
n_	number of occurrence
round_	list of occurred round numbers
dutch_	dutch stage
irrational_bid	winning with negative payoff
correct_win	winning as predicted
correct_lose	losing because of low item value
lucky_win	winning becuase predicted winner waited for too long or himself overbid
greedy_lose	losing because of waitting for too long
contest_	contest stage
correct_bid	join contest when item value was higher than current price
correct_leave	leave contest when item value was lower than current price
irrational	join contest when item value was already lower than current price
regret	leave contest when item value was still higher than current price
english_	english stage
irrational	leave too late
correct	leave correctly or earlier
diff_	absolute difference between theoretical prediction and actual bid
dutch_	
correct_win	$bid_{predict} - price_{actual}$
lucky_win	same as above
greedy_lose	same as above
contest_	
regret	$value_{item} - price_{actual}$
english_	
irrational	$value_{item} - price_{dropout}$
correct	same as above