Expectation Formation and Risk-Taking under Uncertainty: Evidence from Car Race Experiments

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The BIG picture.

Optimal Expectation Theory - ARC Project

- How are expectations formed when there is money at stake?
- Are expectations on average right?
- Do individuals overestimate small probabilities and underestimate large ones?
- Is the expected future the same as the past ?
- How do individuals update?
- $\Longrightarrow$ The goal is to look at all of this.

This study

- Explore the process of expectation formation
- . . . and how this relates to behaviour.
- How do economic and psychological characteristics affect both expectations and risk taking behaviour?

Outline

Experimental design issues.

- Confront participants with a noisy random outcome that evolves over a time frame.
- Make participants care about the “monetary” outcome. and establish emotional ownership on the outcome.
- Obtain expectations AND behavioural evidence at several points during the unfolding of the event.
- Obtain a number of psychological and socio-economic covariates.

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Stages of the experiment

- Introductory questionnaire
- Relaxation: 5 min of beach sounds (voiceover introduction)
- Real effort task (cross-sum calculations) leading to income earning
- Test race: 3 laps with voiceover, 1 full race
- 6 real races with three pitstops each
- 6 rounds of ‘Guess the Winner’
- Demographics questionnaire

Generate the outcome

- Six animated car races for 10 laps with 5 cars.
- Cars race all with the same AR(1)-like random process.
- Cars are prone to engine failures which will set them back (2 failures in 5 laps on average).
- The race is designed to be interesting and to feel “real”.

$$s_t = \theta * s_{base} + (1 - \theta) * (s_{t-1} * (1 + U(-\gamma, \gamma))) \tag{1}$$

How to make participant care about the outcome?

- Income from real effort task.
- Choose the colour of the car (blue, magenta, red, yellow).
- Tradeoff between the wagered amount and the failure rate of their car.
- $\Longrightarrow$ **Mechanics:**
  - Betting 100% of earnings reduces the chances of winning close to 0%.
  - Betting 50% of earnings will give a chance of 1 in 5 of winning the race.
  - Betting 0% of earnings will increase the chances of winning to almost 100%.
- Amount to be won: 5 or 15 times the wagered amount (depending on the treatment). Losing pays off nothing. $\Longrightarrow$ Very steep payoff function.

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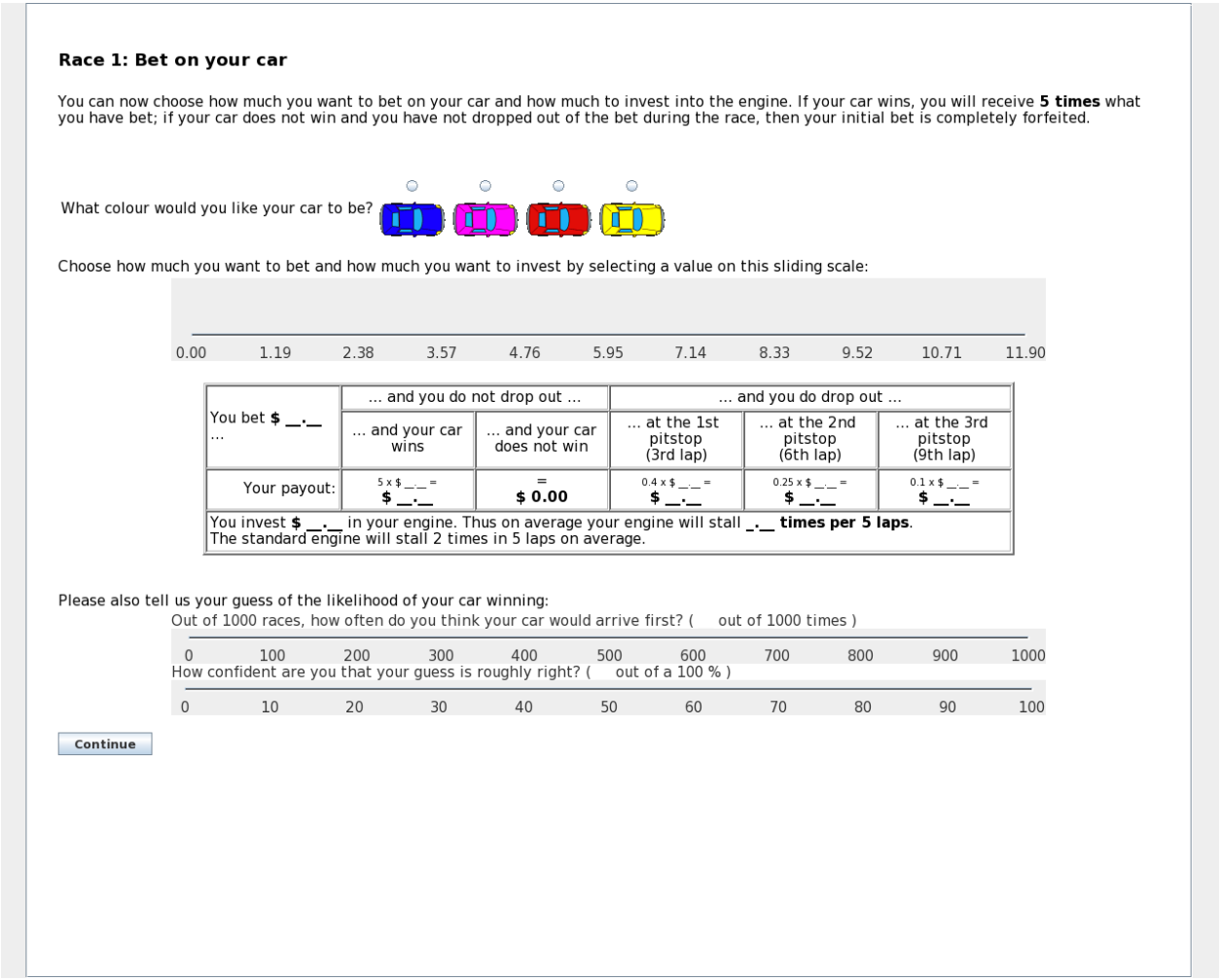
Pre race investment screen



Race 1: Bet on your car

You can now choose how much you want to bet on your car and how much to invest into the engine. If your car wins, you will receive **5 times** what you have bet; if your car does not win and you have not dropped out of the bet during the race, then your initial bet is completely forfeited.

What colour would you like your car to be?

Choose how much you want to bet and how much you want to invest by selecting a value on this sliding scale:

0.00 1.19 2.38 3.57 4.76 5.95 7.14 8.33 9.52 10.71 11.90

You bet **$ __.__** ...	... and you do not drop out ...		... and you do drop out ...		
	... and your car wins	... and your car does not win	... at the 1st pitstop (3rd lap)	... at the 2nd pitstop (6th lap)	... at the 3rd pitstop (9th lap)
Your payout:	5 x $ __.__ = **$ __.__**	= **$ 0.00**	0.4 x $ __.__ = **$ __.__**	0.25 x $ __.__ = **$ __.__**	0.1 x $ __.__ = **$ __.__**
You invest **$ __.__** in your engine. Thus on average your engine will stall **_.__ times per 5 laps**. The standard engine will stall 2 times in 5 laps on average.					

Please also tell us your guess of the likelihood of your car winning:

Out of 1000 races, how often do you think your car would arrive first? (out of 1000 times)

0 100 200 300 400 500 600 700 800 900 1000

How confident are you that your guess is roughly right? (out of a 100 %)

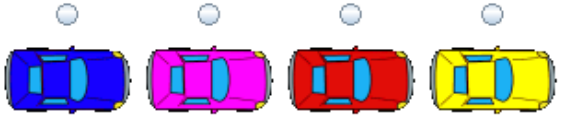
0 10 20 30 40 50 60 70 80 90 100

Continue

Figure: Screenshot of the pre-race investment screen.

Pre race investment screen

What colour would you like your car to be?



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Continue

Measuring expectations

- Before each race on the investment screen.
- At each pitstop after laps 3, 6 and 9.
- Two questions:
  - *“Out of 1000 races, how often do you think your car would arrive first?”*
  - *“How confident are you that your guess is roughly right?”*

Capturing behaviour

- At the pitstops, participants can drop out for 40%, 25%, 10% of the wagered amount.

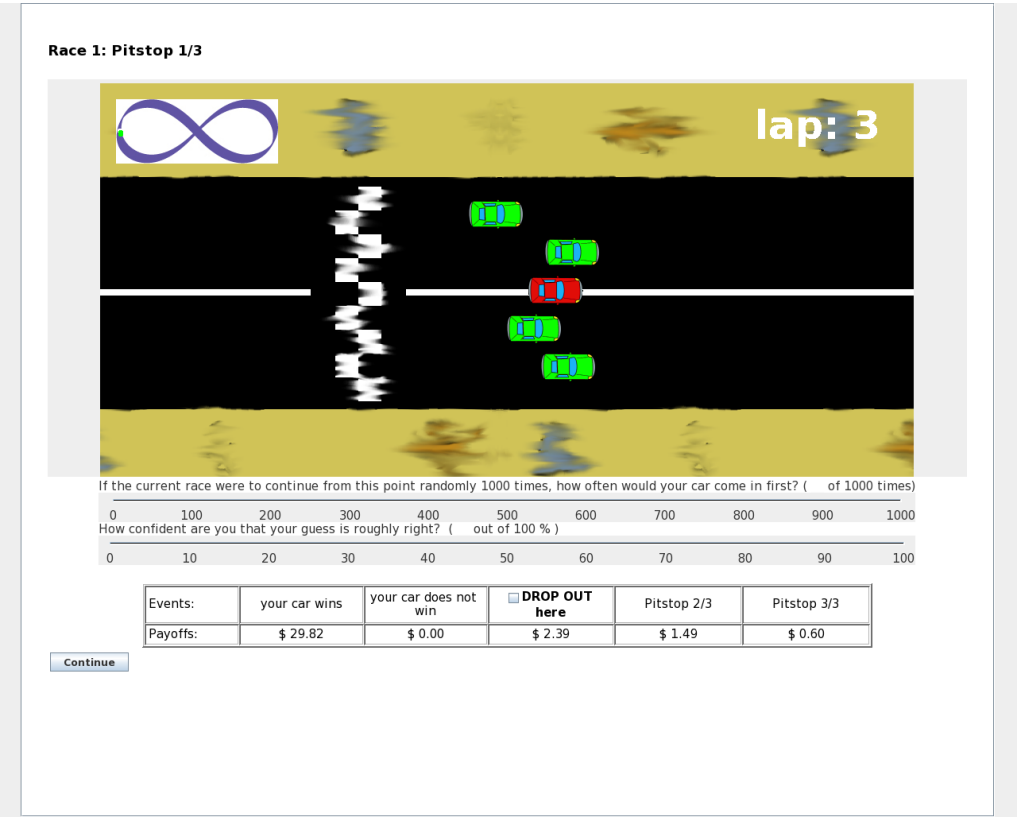
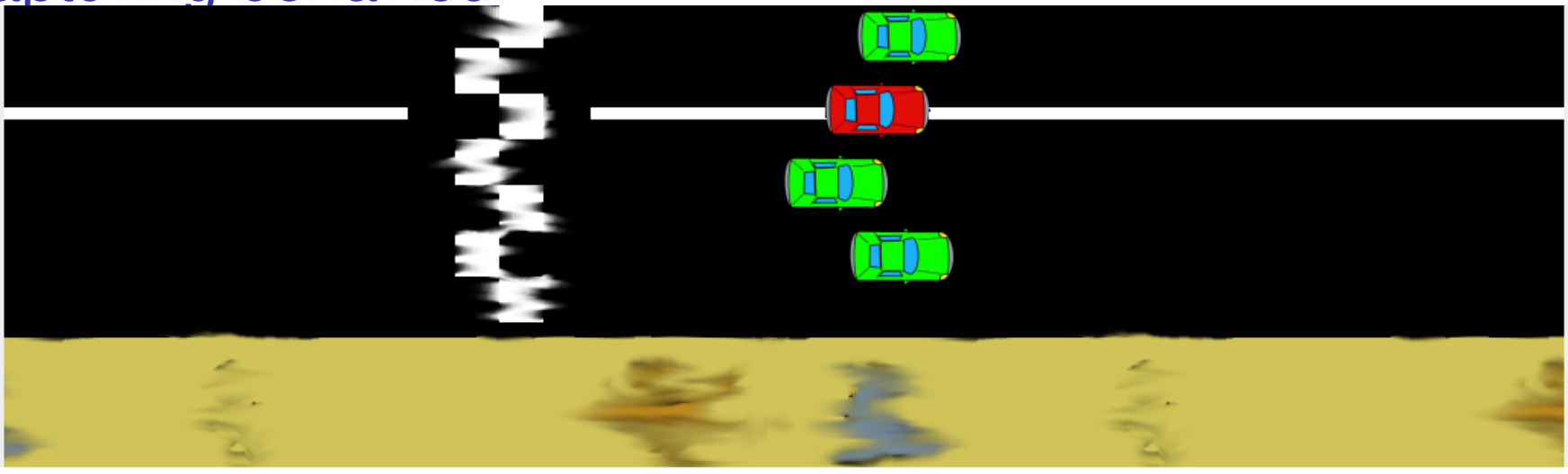


Figure: Screenshot of the car race at the first pitstop showing the positions of the cars and the payoffs for the respective events.

Capturing behaviour



If the current race were to continue from this point randomly 1000 times, how often would your car come in first? (of 1000 times)

0 100 200 300 400 500 600 700 800 900 1000

How confident are you that your guess is roughly right? (out of 100 %)

0 10 20 30 40 50 60 70 80 90 100

Events:	your car wins	your car does not win	☐ **DROP OUT here**	Pitstop 2/3	Pitstop 3/3
Payoffs:	$ 29.82	$ 0.00	$ 2.39	$ 1.49	$ 0.60

Continue

Psychological scales and socio-economic variables

- Question sets on: Self esteem, Optimism, Savouring, Locus of Control, and Risk Aversion at the beginning of the experiment.
- Additional demographics questionnaire at the end of the experiment.

Participants

- Recruited from the UNSW ASBlab subject pool with ORSEE.
- Well-maintained student population.
- Registered 280, 239 showed up and completed the experiment.
- **Demographics:** 22 years old, 45.25% female, 17% Australian, 41% native English speakers, 85% experience with experiments.

Treatments

- 4 treatments (so far) in 8 sessions.
- Average payoff $23.60 ($5 - $105.20)

Treatment	**Win-Value**	**Show-Up Fee**	**No. participants**
Baseline	5 times the bet	$ 5	58
Low Stakes	**2 times** the bet, *but payoff for 2nd and 3rd place*	$ 5	61
High Stakes	**15 times** the bet	$ 5	61
Wealth	5 times the bet	**$ 20**	59

Outline

Analysis I: Stated expectations vs. real winning percentage

- Examine relationship between:
- Subjective winning percentage as stated by the participant at the pitstop. (EXPECTATION)
- Real winning percentage as obtained by running simulations of the races from the pitstop position. (WINPC)

Analysis I: EXPECTATION vs. WINPC

Scatterplot

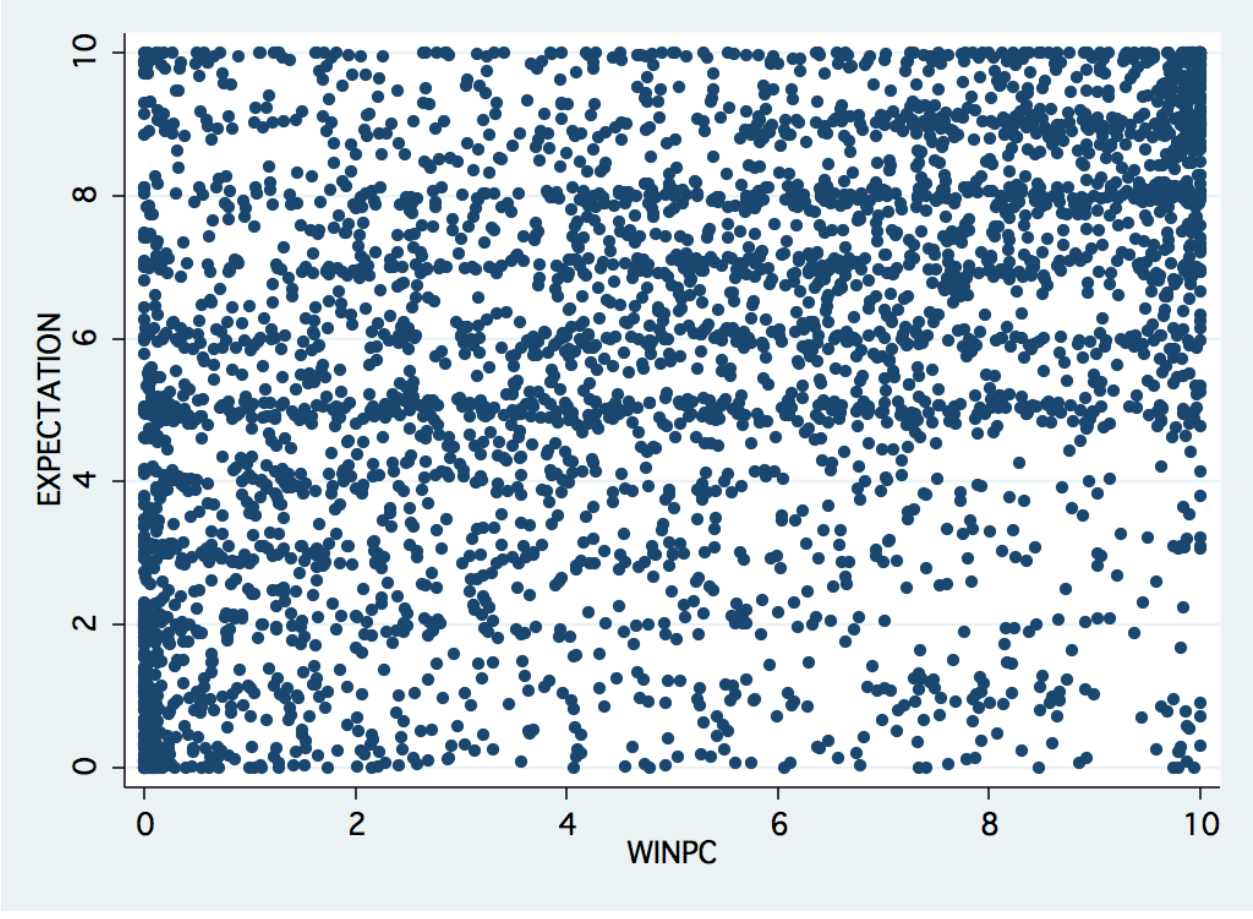


Figure: Scatterplot of expected vs. real winning chance at the pitstop.

Analysis I: EXPECTATION vs. WINPC

Kernel plot

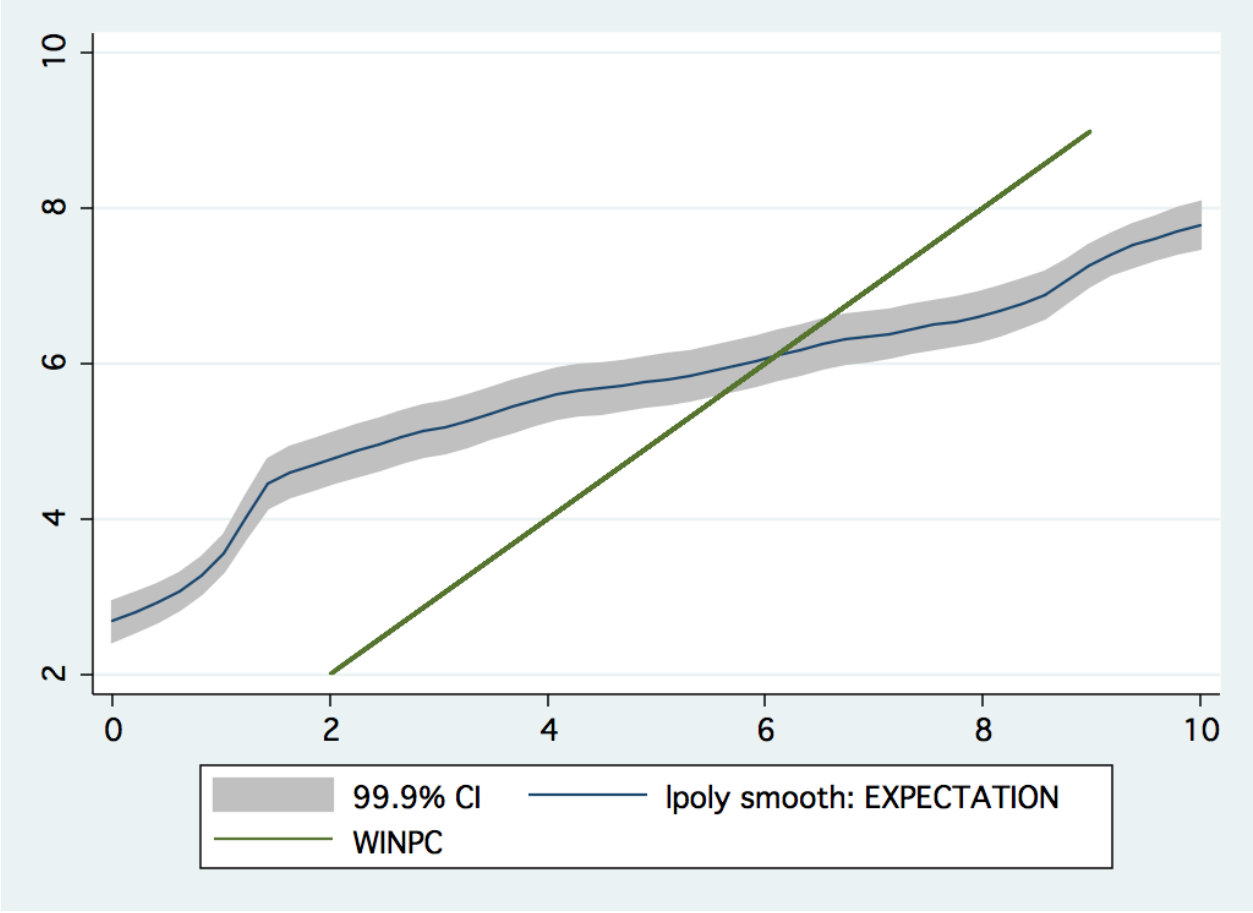
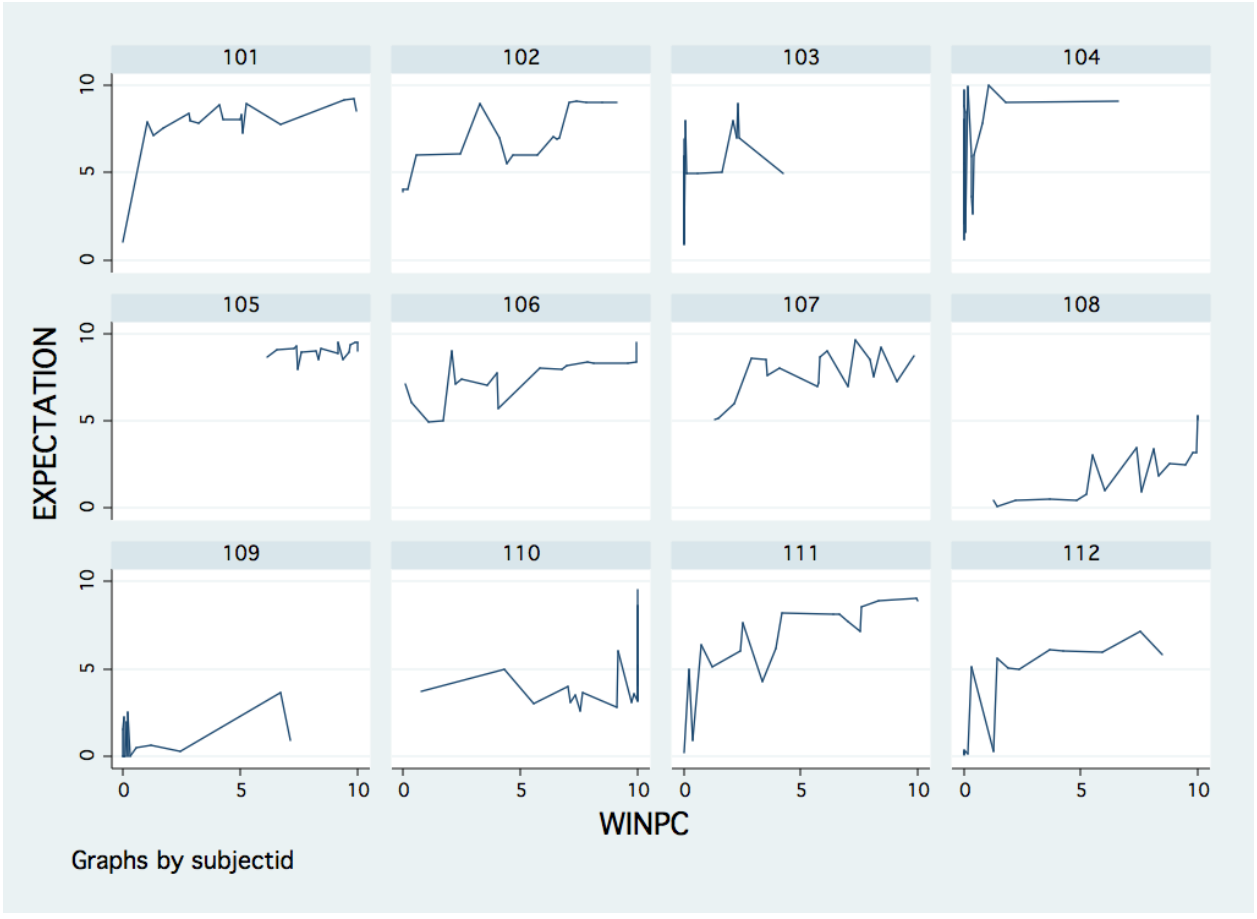


Figure: Kernel plot, with 45 degree line for reference

Analysis I: EXPECTATION vs. WINPC

Selected individuals



Analysis I: EXPECTATION vs. WINPC

OLS regression with robust standard errors, standardised beta coefficients

Table: Expectation formation

	(1) EXPECTATION			(2) EXPECTATION			(3) EXPECTATION		
	b	t	beta	b	t	beta	b	t	beta
WINPC	0.488***	(43.07)	0.545	0.420***	(30.41)	0.469	0.422***	(30.61)	0.472
Rate of failure				-0.400***	(-7.41)	-0.128	-0.387***	(-7.25)	-0.123
Income earned in real effort task				-0.040***	(-6.50)	-0.079	-0.039***	(-6.45)	-0.078
High Stakes Treatment				-0.088	(-0.75)	-0.012	-0.087	(-0.74)	-0.012
Low Stakes Treatment				-0.513***	(-4.50)	-0.071	-0.515***	(-4.54)	-0.072
Wealth Treatment				-0.433***	(-3.77)	-0.060	-0.434***	(-3.81)	-0.060
Constant	3.091***	(45.66)		5.137***	(25.23)		5.572***	(24.78)	
Race dummies	No			No			Yes		
Pitstop dummies	No			No			Yes		
AdjR-sq	0.297			0.318			0.322		
Obs	4299			4299			4299		

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

Analysis I: EXPECTATION vs. WINPC

Discussion

- *WINPC* alone explains about 30% of the variance.
- Participants are overconfident on average.
- Treatment type and progression do not significantly change this.

Analysis II: Determinants of expectation formation

OLS regression with robust standard errors, standardised beta coefficients

Table: Expectation formation

	(1) EXPECTATION			(2) EXPECTATION			(3) EXPECTATION		
	b	t	beta	b	t	beta	b	t	beta
WINPC	0.362***	(26.27)	0.403	0.365***	(26.64)	0.406	0.388***	(33.65)	0.433
Rate of failure	-0.590***	(-10.20)	-0.187	-0.601***	(-10.70)	-0.190	-0.665***	(-11.84)	-0.212
Income earned in real effort task	-0.026***	(-4.06)	-0.049	-0.029***	(-4.65)	-0.056			
Locus of Control (LoC)	0.052	(1.93)	0.029	0.028	(0.96)	0.016			
Savouring Anticipate Index	-0.159***	(-4.26)	-0.067	-0.164***	(-4.29)	-0.070			
Savouring Moment Index	-0.187***	(-4.27)	-0.080	-0.202***	(-4.61)	-0.087			
Savouring Reminisce Index	0.116**	(3.09)	0.051	0.154***	(3.95)	0.068			
Age	-0.002	(-0.16)	-0.002	-0.006	(-0.45)	-0.007			
Gender	-0.085	(-1.12)	-0.013	-0.101	(-1.25)	-0.016			
Australian	-0.638***	(-6.00)	-0.076	-0.627***	(-5.86)	-0.075			
Constant	2.978***	(6.22)		3.548***	(5.78)		5.388***	(14.91)	
Treatment, Race, & Pitstop dummies	Yes			Yes			Yes		
Individual dummies	No			No			Yes		
Socio-economics	No			Yes			No		
AdjR-sq	0.456			0.468			0.717		
Obs	4193			4193			4298		

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

Analysis II: Determinants of expectation formation

Discussion

- Socio-economic factors and psychological scales explain additional 10% of variation.
- Traditional economic factors (education, income, parents) seem to be less influential.
- Key variables
  - **Savouring anticipate** index, higher = more savouring for the future
  - **Savouring moment** index, higher = more savouring of the moment
  - **Locus of control** index, higher = more control
  - **Australian**
- Added individual fixed effects explain up to 70% of variance.

Analysis III: Behavioural Evidence

OLS regression with robust standard errors, standardised beta coefficients

Table: Behavioural evidence

	(1) Drop out			(2) Drop out			(3) Drop out			(4) Drop out		
	b	t	beta	b	t	beta	b	t	beta	b	t	beta
EXPECTATION	-0.025***	(-14.81)	-0.295				-0.016***	(-11.30)	-0.188	-0.021***	(-9.83)	-0.248
WINPC				-0.023***	(-17.25)	-0.313	-0.002	(-1.31)	-0.023	-0.000	(-0.25)	-0.005
Rate of failure							0.128***	(14.55)	0.423	0.131***	(13.61)	0.429
Income earned in real effort task							-0.000	(-0.48)	-0.007	-0.001	(-0.80)	-0.014
Locus of Control (LoC)										-0.001	(-0.31)	-0.005
Savouring Anticipate Index										0.001	(0.18)	0.004
Savouring Moment Index										-0.009*	(-2.19)	-0.050
Savouring Reminisce Index										0.010*	(2.25)	0.054
Age										0.001	(0.48)	0.008
Gender										-0.009	(-1.11)	-0.018
Australian										0.002	(0.16)	0.002
Riskaversion										0.006**	(2.81)	0.043
Constant	0.204***	(16.48)		0.175***	(17.82)		0.028	(1.08)		0.039	(0.57)	
Treatment, Race, & Pitstop dummies	No			No			Yes			Yes		
Socio-economics	No			No			No			Yes		
AdjR-sq	0.087			0.098			0.259			0.281		
Obs	3935			3935			3935			3547		

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

Analysis III: Behavioural Evidence

Discussion

- Drop out is affected by stated expectation on top of WINPC. Effect is small, but robust.
- Socio-demographics and psychological scales do not explain much.
- Stated risk-aversion has a small positive effect.

Outline

Robustness I: Learnings, updating

- Do we see evidence of learning and/or confusion?
- Findings remain relatively stable over the six races.
- Expectation remains stable over the three pitstops.

Robustness I: ACCURACY

- Variable that captures the accuracy of the prediction.
- Calculated as the difference between EXPECTATION and WINPC, divided by the standard deviation of WINPC.

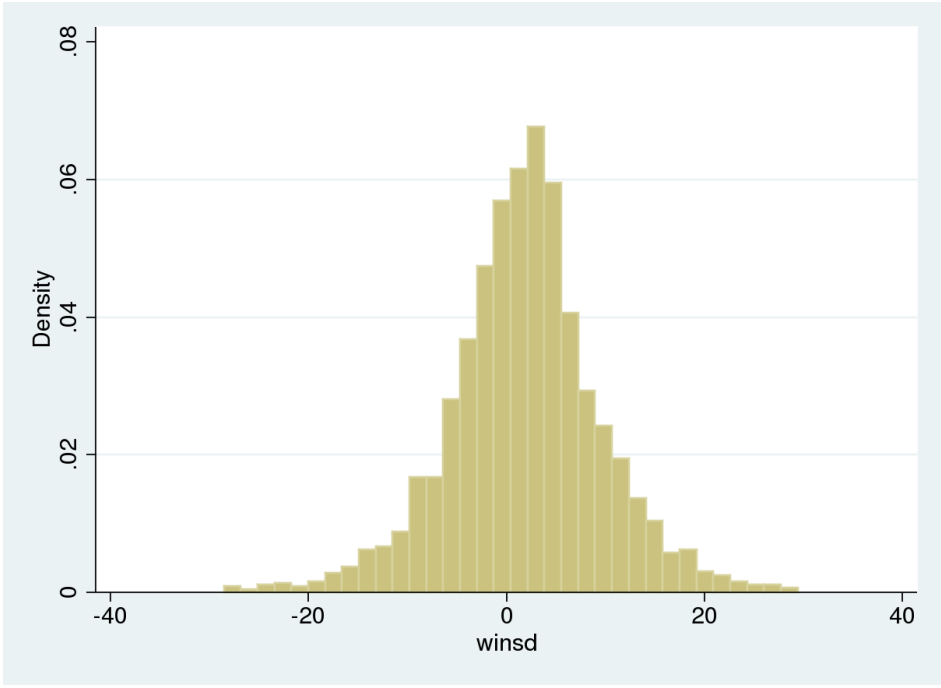
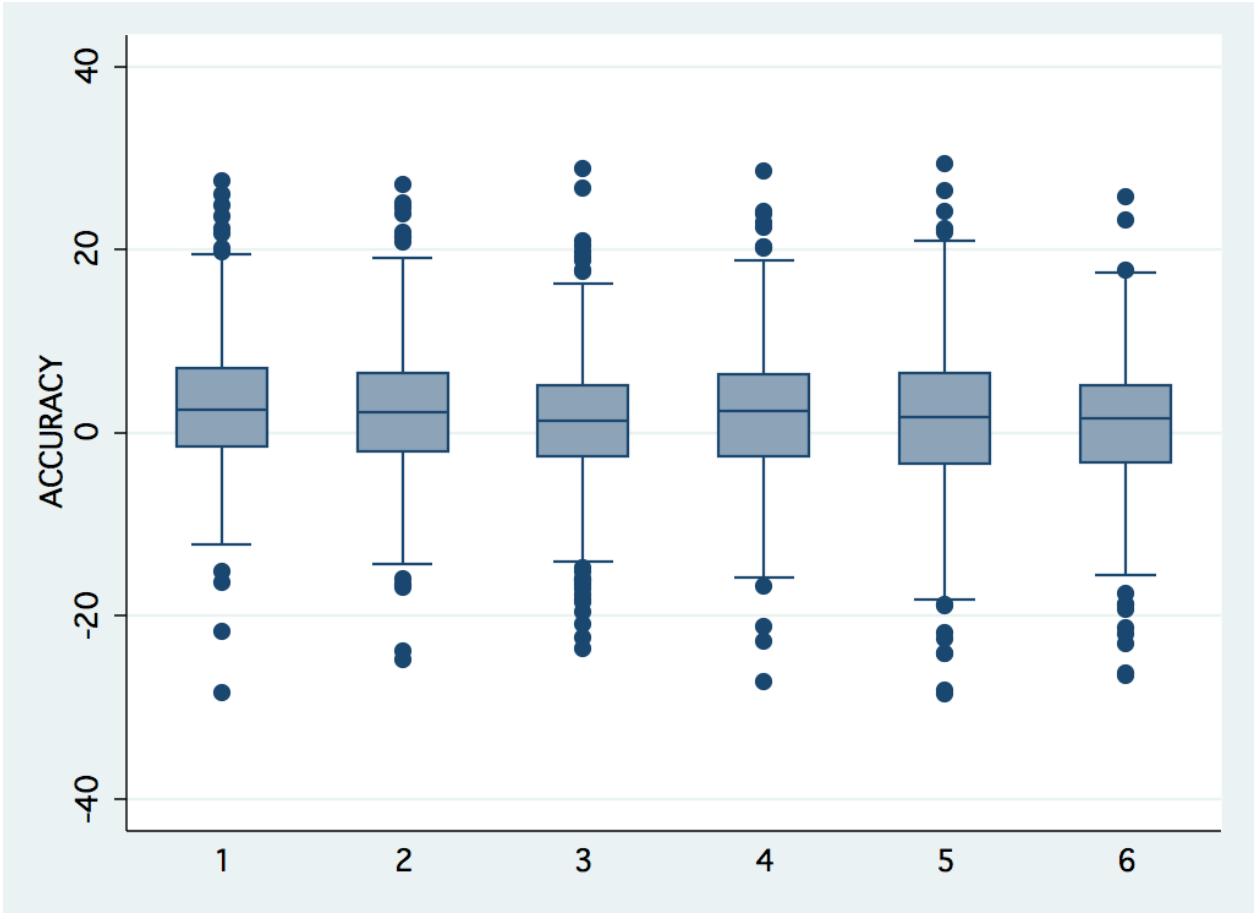
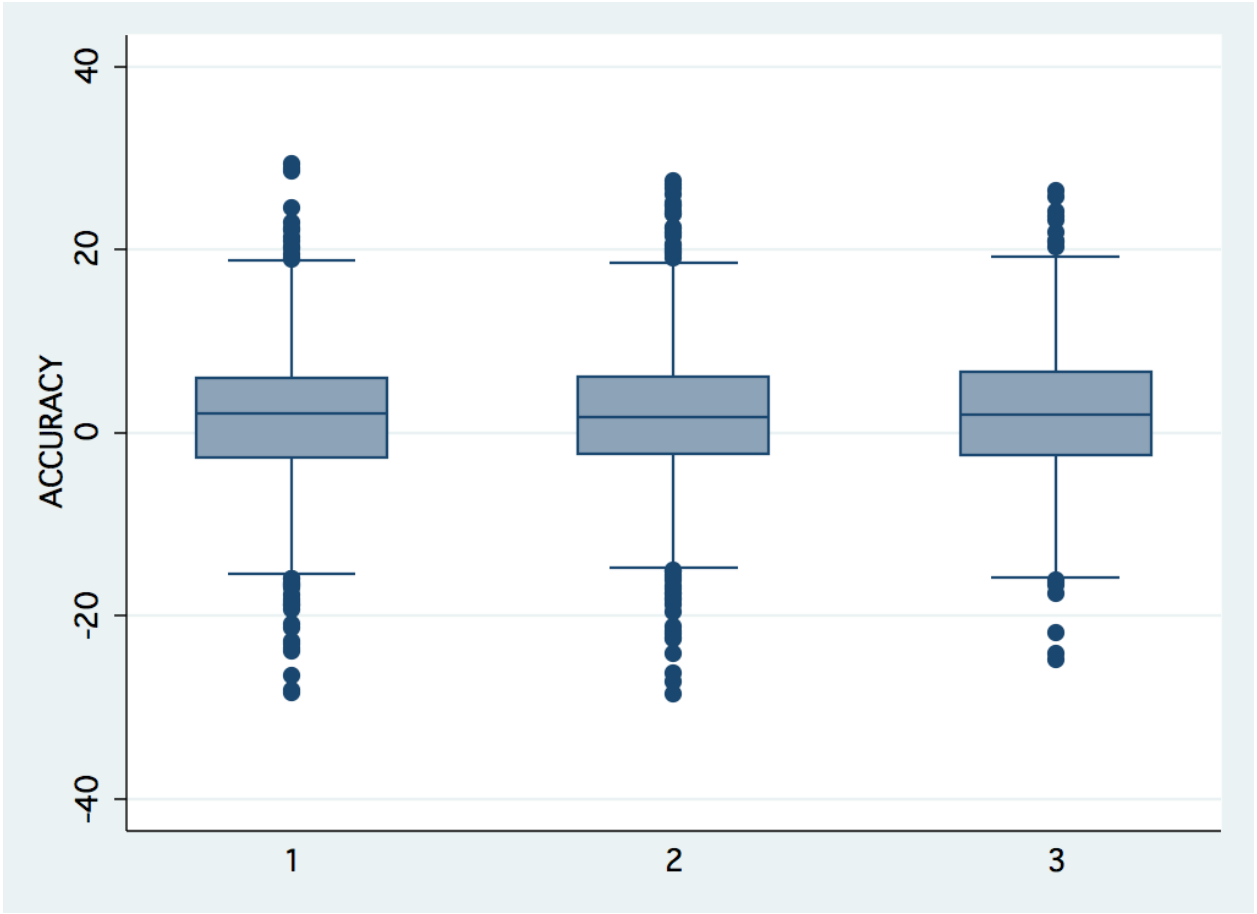


Figure: Histogram of ACCURACY

ACCURACY over the six races



ACCURACY over the three pitstops



Robustness: Evidence for emotional involvement

Do participants switch car color after bad outcomes?

```
. probit colswitch Lwin if pitstopnum == 1

Probit regression                                 Number of obs   =       1194
                                                  LR chi2(1)      =      88.89
                                                  Prob > chi2     =     0.0000
Log likelihood = -713.45416                       Pseudo R2       =     0.0586

------------------------------------------------------------------------------
   colswitch |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        Lwin |  -.8733255   .0945348    -9.24   0.000     -1.05861   -.6880407
       _cons |  -.0862557   .0528079    -1.63   0.102    -.1897573    .0172458
------------------------------------------------------------------------------

. mfx

Marginal effects after probit
      y  = Pr(colswitch) (predict)
         =  .31943427
------------------------------------------------------------------------------
variable |      dy/dx    Std. Err.      z    P>|z|  [    95% C.I.   ]       X
---------+--------------------------------------------------------------------
    Lwin |  -.3120793      .03347   -9.32   0.000  -.377689  -.24647   .438583
------------------------------------------------------------------------------
```

Outline

Conclusion

- Experimental design to observe expectation formation.
- Large variance in the process $\Longrightarrow$ larger variance in responses.
- Evidence of rational and emotional responses.
- Psychological determinants explain a substantial portion of the variance of expectations.
- We find behavioural evidence for the relevance of expectations.

Outlook

- Refine analysis, do more robustness tests.
- Run additional treatments to explore findings.

Thank you for your attention

Expected vs. real winning chance

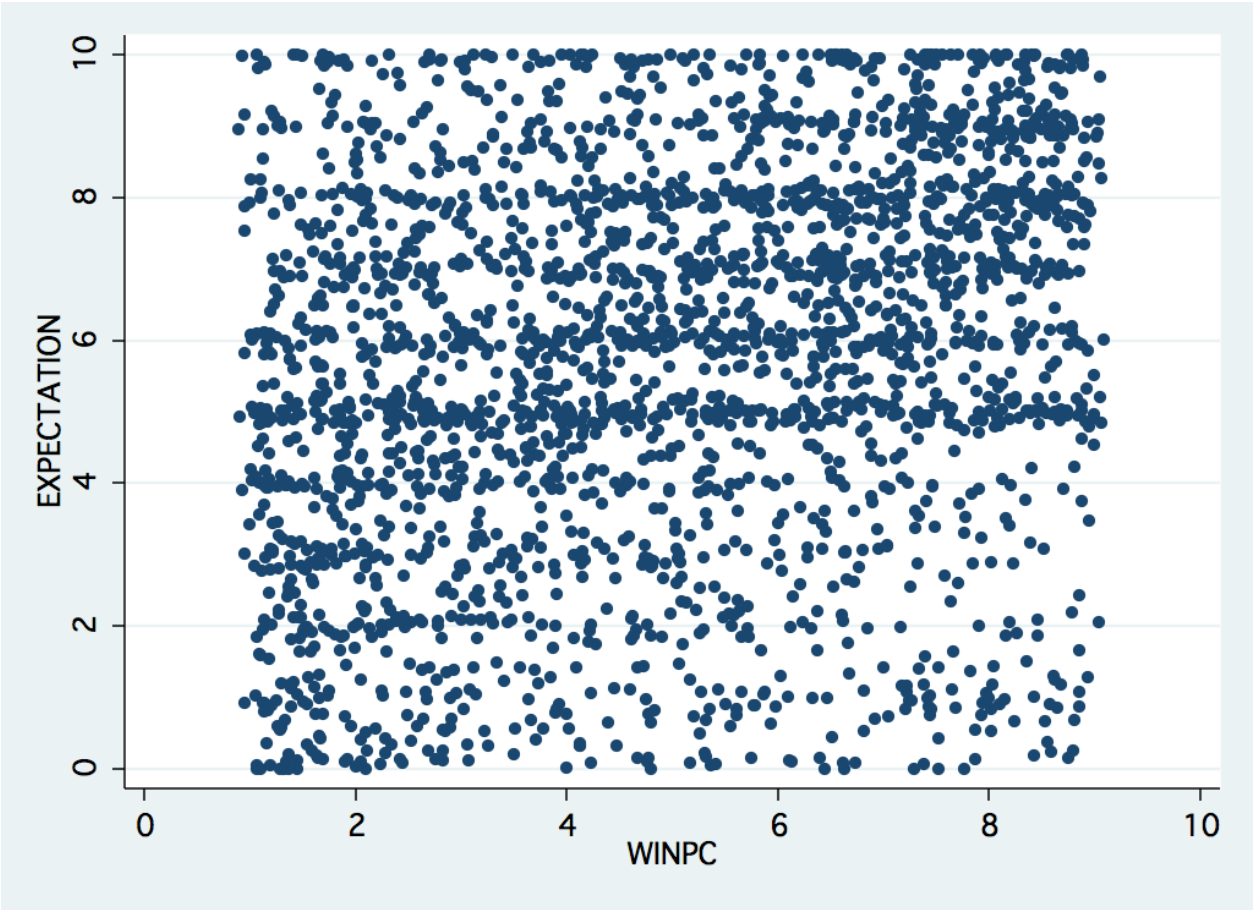


Figure: Scatterplot of expected vs. real winning chance per pitstop with restricted sample

Expected vs. real

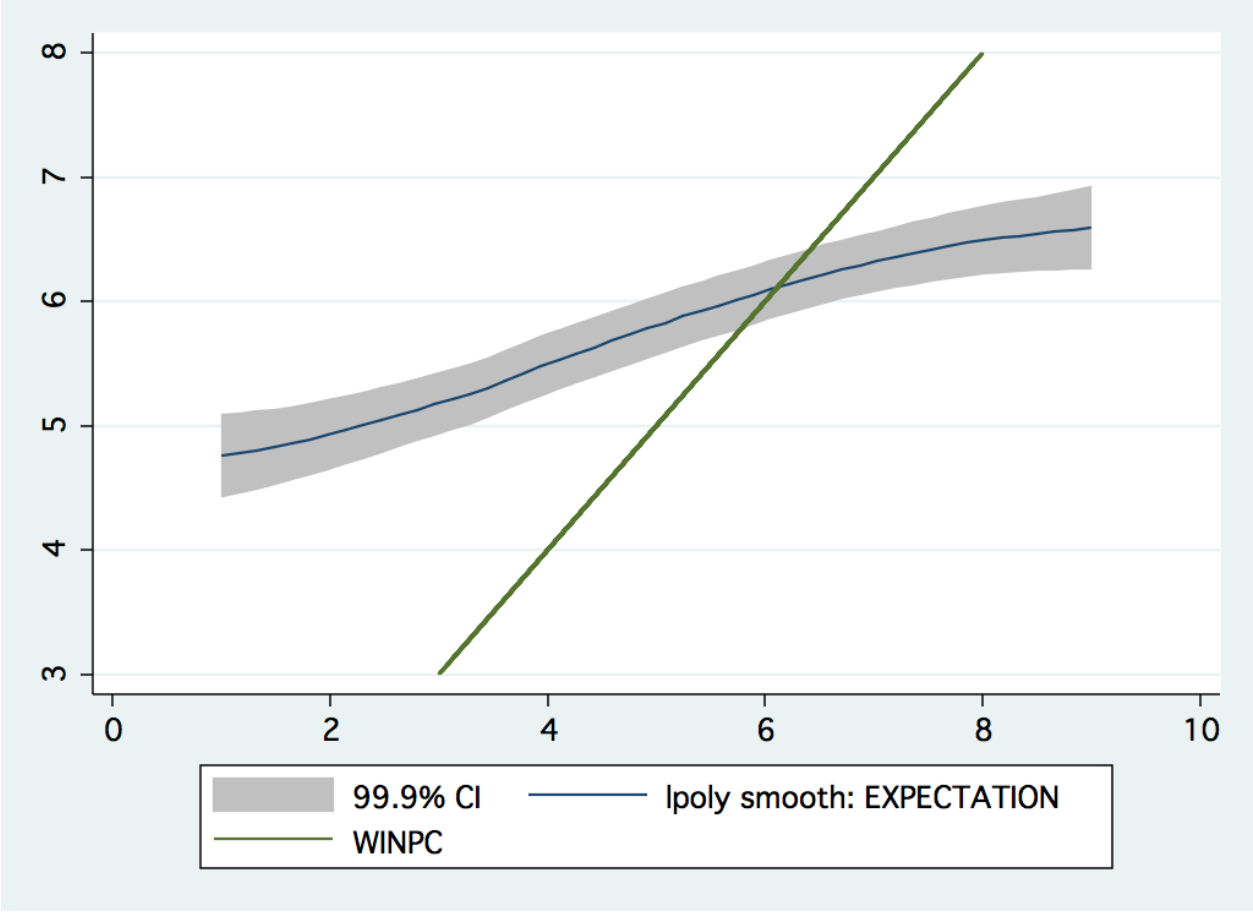


Figure: Kernel plot, with 45 degree line for reference with restricted sample

SD win I

New variable to explain, SD difference of psexpectation and actual winpc.

```
. gen winsd = ((psexpectation_r - winpc_r)/10)/sdwin;
(474 missing values generated)

. sum winsd;

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
       winsd |      3825    5.888271     38.4411  -505.9136   536.5856

. sum winsd if `ifs';

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
       winsd |      2523    1.861312     7.69123   -28.5526   29.42124
```

Full Table 1

Regression table

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Wealth Treatment				-0.433***	(-3.77)	-0.060	-0.434***	(-3.81)	-0.060
racenum==2							-0.198	(-1.50)	-0.024
racenum==3							-0.533***	(-4.06)	-0.063
racenum==4							-0.422**	(-3.20)	-0.050
racenum==5							-0.384**	(-2.78)	-0.046
racenum==6							-0.691***	(-5.15)	-0.082
pitstopnum==2							-0.122	(-1.25)	-0.018
pitstopnum==3							-0.173	(-1.80)	-0.026
Constant	3.091***	(45.66)		5.137***	(25.23)		5.572***	(24.78)	
AdjR-sq	0.297			0.318			0.322		
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Full Table 2

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Income earned in real effort task	-0.026***	(-4.06)	-0.049	-0.029***	(-4.65)	-0.056			
High Stakes Treatment	0.007	(0.07)	0.001	-0.112	(-1.03)	-0.016	-6.055***	(-13.95)	-0.842
Low Stakes Treatment	-0.155	(-1.38)	-0.022	-0.300**	(-2.61)	-0.042	-4.066***	(-6.83)	-0.566
Wealth Treatment	-0.191	(-1.80)	-0.026	-0.319**	(-2.86)	-0.044	-4.662***	(-12.83)	-0.642
racenum==2	-0.159	(-1.34)	-0.019	-0.159	(-1.34)	-0.019	-0.142	(-1.53)	-0.017
racenum==3	-0.601***	(-5.07)	-0.071	-0.597***	(-5.09)	-0.071	-0.551***	(-6.21)	-0.066
racenum==4	-0.509***	(-4.31)	-0.060	-0.504***	(-4.31)	-0.060	-0.461***	(-5.27)	-0.055
racenum==5	-0.475***	(-3.86)	-0.056	-0.470***	(-3.84)	-0.056	-0.410***	(-4.56)	-0.049
racenum==6	-0.826***	(-6.72)	-0.098	-0.818***	(-6.71)	-0.097	-0.733***	(-7.83)	-0.087
pitstopnum==2	-0.235**	(-2.73)	-0.035	-0.231**	(-2.71)	-0.035	-0.184**	(-3.14)	-0.028
pitstopnum==3	-0.464***	(-5.31)	-0.070	-0.453***	(-5.24)	-0.068	-0.341***	(-5.34)	-0.051
Confidence	0.043***	(25.70)	0.336	0.042***	(24.36)	0.323	0.026***	(11.52)	0.201
Good luck charms	0.116***	(3.59)	0.043	0.143***	(4.41)	0.053			
Locus of Control (LoC)	0.052	(1.93)	0.029	0.028	(0.96)	0.016			
Betting justified	0.073*	(2.06)	0.026	0.051	(1.42)	0.018			
Savouring Anticipate Index	-0.159***	(-4.26)	-0.067	-0.164***	(-4.29)	-0.070			
Savouring Moment Index	-0.187***	(-4.27)	-0.080	-0.202***	(-4.61)	-0.087			
Savouring Reminisce Index	0.116**	(3.09)	0.051	0.154***	(3.95)	0.068			
Age	-0.002	(-0.16)	-0.002	-0.006	(-0.45)	-0.007			
Gender	-0.085	(-1.12)	-0.013	-0.101	(-1.25)	-0.016			
Australian	-0.638***	(-6.00)	-0.076	-0.627***	(-5.86)	-0.075			
English	-0.062	(-0.72)	-0.010	0.012	(0.14)	0.002			
Lefthanded	0.732***	(4.08)	0.054	0.670***	(3.66)	0.049			
weekinc_1				-0.410***	(-4.11)	-0.052			
weekinc_2				0.519***	(4.99)	0.061			
weekinc_3				-0.221	(-1.89)	-0.022			
wealth_1				-0.322	(-1.78)	-0.046			
wealth_2				-0.103	(-0.54)	-0.014			
Overall, how would you rate your performance at university? 1=well above average				0.087*	(2.00)	0.025			
What was the highest year of school you completed? 1=None,2=Primary school only,				-0.065	(-1.04)	-0.012			
mum_school				-0.131	(-1.08)	-0.020			
dad_school				0.580***	(4.11)	0.078			
mum_qual				-0.367***	(-3.36)	-0.058			
dad_qual				0.212	(1.80)	0.032			
mum_hiqual				0.057	(0.76)	0.012			
dad_hiqual				-0.086	(-1.30)	-0.021			
Constant	2.978***	(6.22)		3.548***	(5.78)		5.388***	(14.91)	
individual dummies	No			No			Yes		
AdjR-sq	0.456			0.468			0.717		
Obs	4193			4193			4298		

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

Full Table 3

Regression table

Table: Behavioural evidence

	(1) Drop out			(2) Drop out			(3) Drop out			(4) Drop out		
	b	t	beta	b	t	beta	b	t	beta	b	t	beta
EXPECTATION	-0.025***	(-14.81)	-0.295				-0.016***	(-11.30)	-0.188	-0.021***	(-9.83)	-0.248
WINPC				-0.023***	(-17.25)	-0.313	-0.002	(-1.31)	-0.023	-0.000	(-0.25)	-0.005
Rate of failure							0.128***	(14.55)	0.423	0.131***	(13.61)	0.429
Income earned in real effort task							-0.000	(-0.48)	-0.007	-0.001	(-0.80)	-0.014
High Stakes Treatment							0.027**	(2.79)	0.047	0.033**	(3.23)	0.059
Low Stakes Treatment							-0.084***	(-8.23)	-0.146	-0.086***	(-7.65)	-0.148
Wealth Treatment							0.006	(0.57)	0.010	0.013	(1.06)	0.023
racenum==2							0.004	(0.36)	0.006	0.007	(0.65)	0.011
racenum==3							0.030*	(2.50)	0.044	0.024	(1.92)	0.036
racenum==4							0.050***	(4.12)	0.074	0.051***	(4.01)	0.076
racenum==5							0.022*	(2.02)	0.033	0.026*	(2.30)	0.039
racenum==6							0.039***	(3.33)	0.058	0.041***	(3.30)	0.060
pitstopnum==2							-0.030***	(-3.62)	-0.055	-0.026**	(-3.16)	-0.049
pitstopnum==3							-0.023**	(-2.78)	-0.042	-0.023**	(-2.72)	-0.043
Confidence										0.001***	(3.71)	0.087
Good luck charms										0.010**	(2.81)	0.048
Locus of Control (LoC)										-0.001	(-0.31)	-0.005
Betting justified										-0.008*	(-2.10)	-0.035
Savouring Anticipate Index										0.001	(0.18)	0.004
Savouring Moment Index										-0.009*	(-2.19)	-0.050
Savouring Reminisce Index										0.010*	(2.25)	0.054
weekinc_0										-0.011	(-0.83)	-0.022
weekinc_1										0.000	.	-0.035
weekinc_2										0.000	.	-0.000
weekinc_3										0.000	.	0.000
Age										0.001	(0.48)	0.008
Gender										-0.009	(-1.11)	-0.018
Australian										0.002	(0.16)	0.002
English										0.000	.	-0.002
Lefthanded										0.000	.	-0.008
Riskaversion										0.006**	(2.81)	0.043
wealth_1										0.006	(0.33)	0.012
wealth_2										0.009	(0.42)	0.015
Overall, how would you rate your performance at university? 1=well above average										-0.013**	(-2.84)	-0.046
What was the highest year of school you completed? 1=None,2=Primary school only,										-0.016**	(-2.71)	-0.040
mum_school										0.002	(0.22)	0.004
dad_school										-0.001	(-0.04)	-0.001
mum_qual										0.013	(1.26)	0.026
dad_qual										0.029*	(2.31)	0.056
mum_hiqual										-0.003	(-0.31)	-0.007
dad_hiqual										-0.005	(-0.69)	-0.016
Constant	0.204***	(16.48)		0.175***	(17.82)		0.028	(1.08)		0.039	(0.57)	
AdjR-sq	0.087			0.098			0.259			0.281		
Obs	3935			3935			3935			3547		

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

Selfesteem

Questions 1/5

Please select how strongly you agree or disagree with each statement below, from 'Strongly Agree' to 'Strongly Disagree'.

	strongly agree									strongly disagree
On the whole, I am satisfied with myself.	○	○	○	○	○	○	○	○	○	○
At times I think I am no good at all.	○	○	○	○	○	○	○	○	○	○
I feel that I have a number of good qualities.	○	○	○	○	○	○	○	○	○	○
I am able to do things as well as most people.	○	○	○	○	○	○	○	○	○	○
I feel I do not have much to be proud of.	○	○	○	○	○	○	○	○	○	○
I certainly feel useless at times.	○	○	○	○	○	○	○	○	○	○
I feel that I am a person of worth, or at least on an equal plane with others.	○	○	○	○	○	○	○	○	○	○
I wish I could have more respect for myself.	○	○	○	○	○	○	○	○	○	○
All in all, I am inclined to feel that I am a failure.	○	○	○	○	○	○	○	○	○	○
I take a positive attitude toward myself.	○	○	○	○	○	○	○	○	○	○

Next

Optimism

Questions 2/5

Please select how strongly you agree or disagree with each statement below, from 'Strongly Agree' to 'Strongly Disagree'.

	strongly agree									strongly disagree
When I'm in a new and unfamiliar situation, I am always optimistic that things will work out for me (in other words, I feel and think that things will be OK).	○	○	○	○	○	○	○	○	○	○
I often find myself doing things that I know, at the time I choose to do them, I will regret later.	○	○	○	○	○	○	○	○	○	○
When I expect that good things are going to happen to me in the future, I feel better about myself.	○	○	○	○	○	○	○	○	○	○
When I get disappointed about something, it makes me feel that I'm to blame, because I should have known better in the first place and not expected as much.	○	○	○	○	○	○	○	○	○	○
I always try to be cautious when I approach new and unfamiliar situations, in case something goes wrong.	○	○	○	○	○	○	○	○	○	○
I prefer to have low expectations of the future since that way I might be pleasantly surprised, and I'm protected from being disappointed.	○	○	○	○	○	○	○	○	○	○

Next

LoC

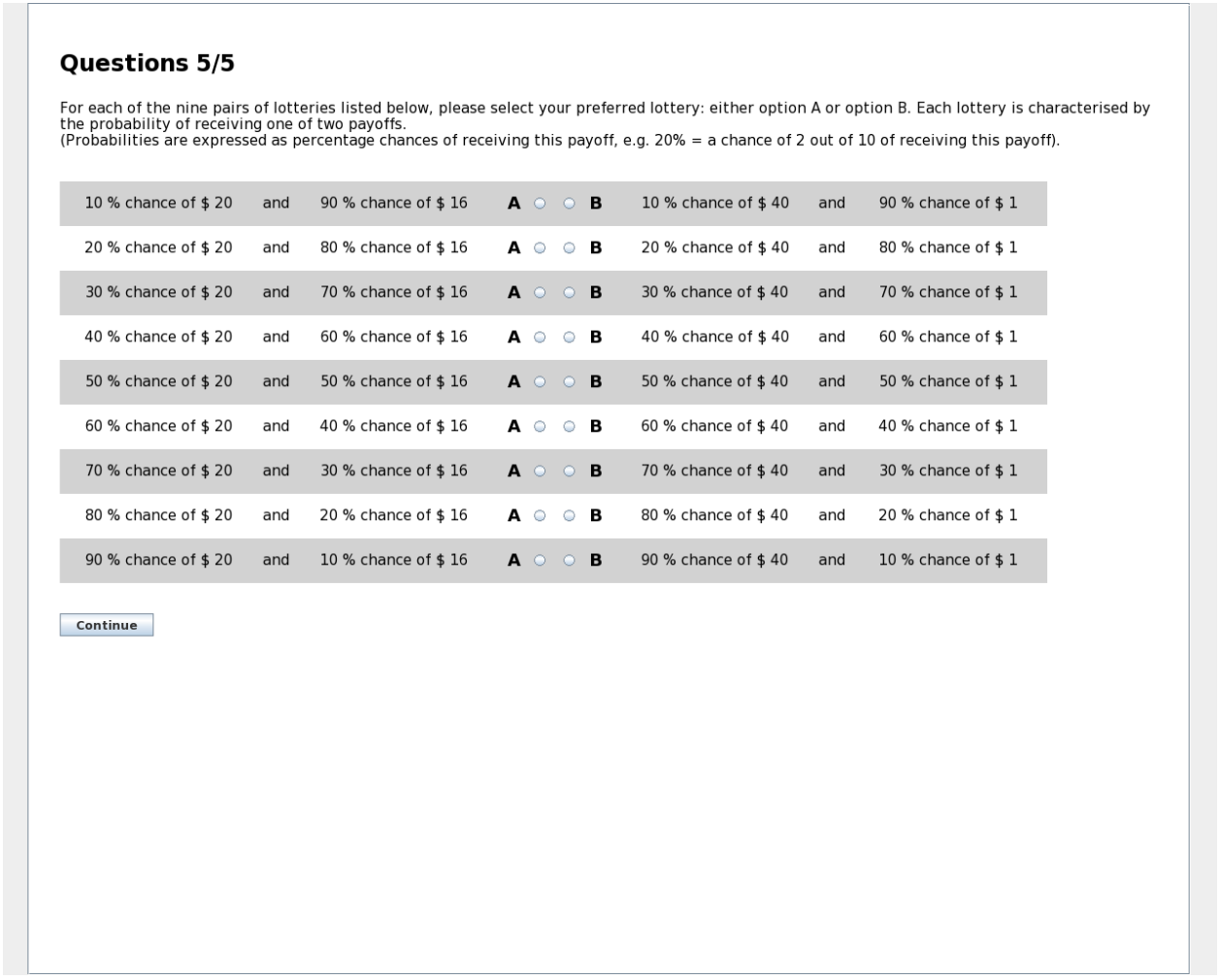
Questions 4/5

Please select whether you agree or disagree with each statement below.

	strongly agree									strongly disagree
I have little control over the things that happen to me.	○	○	○	○	○	○	○	○	○	○
There is really no way I can solve some of the problems I have.	○	○	○	○	○	○	○	○	○	○
There is little I can do to change many of the important things in my life.	○	○	○	○	○	○	○	○	○	○
I often feel helpless in dealing with the problems of life.	○	○	○	○	○	○	○	○	○	○
Sometimes I feel that I'm being pushed around in life.	○	○	○	○	○	○	○	○	○	○
What happens to me in the future mostly depends on me.	○	○	○	○	○	○	○	○	○	○
I can do just about anything I really set my mind to.	○	○	○	○	○	○	○	○	○	○

Next

Riskaversion



Questions 5/5

For each of the nine pairs of lotteries listed below, please select your preferred lottery: either option A or option B. Each lottery is characterised by the probability of receiving one of two payoffs.
(Probabilities are expressed as percentage chances of receiving this payoff, e.g. 20% = a chance of 2 out of 10 of receiving this payoff).

10 % chance of $ 20	and	90 % chance of $ 16	**A** ○	○ **B**	10 % chance of $ 40	and	90 % chance of $ 1
20 % chance of $ 20	and	80 % chance of $ 16	**A** ○	○ **B**	20 % chance of $ 40	and	80 % chance of $ 1
30 % chance of $ 20	and	70 % chance of $ 16	**A** ○	○ **B**	30 % chance of $ 40	and	70 % chance of $ 1
40 % chance of $ 20	and	60 % chance of $ 16	**A** ○	○ **B**	40 % chance of $ 40	and	60 % chance of $ 1
50 % chance of $ 20	and	50 % chance of $ 16	**A** ○	○ **B**	50 % chance of $ 40	and	50 % chance of $ 1
60 % chance of $ 20	and	40 % chance of $ 16	**A** ○	○ **B**	60 % chance of $ 40	and	40 % chance of $ 1
70 % chance of $ 20	and	30 % chance of $ 16	**A** ○	○ **B**	70 % chance of $ 40	and	30 % chance of $ 1
80 % chance of $ 20	and	20 % chance of $ 16	**A** ○	○ **B**	80 % chance of $ 40	and	20 % chance of $ 1
90 % chance of $ 20	and	10 % chance of $ 16	**A** ○	○ **B**	90 % chance of $ 40	and	10 % chance of $ 1

Continue

Analysis I: EXPECTATION vs. WINPC

Regression table clustered standard errors

Table: Expectation formation

	(1) EXPECTATION		(2) EXPECTATION		(3) EXPECTATION	
	b	t	b	t	b	t
WINPC	0.488***	(18.79)	0.420***	(18.59)	0.422***	(18.76)
Rate of failure			-0.400**	(-3.14)	-0.387**	(-3.09)
Income earned in real effort task			-0.040*	(-2.01)	-0.039*	(-1.99)
High Stakes Treatment			-0.088	(-0.23)	-0.087	(-0.22)
Low Stakes Treatment			-0.513	(-1.45)	-0.515	(-1.46)
Wealth Treatment			-0.433	(-1.16)	-0.434	(-1.16)
Constant	3.091***	(17.72)	5.137***	(9.37)	5.572***	(10.00)
Race dummies	No		No		Yes	
Pitstop dummies	No		No		Yes	
AdjR-sq	0.297		0.318		0.322	
Obs	4299		4299		4299	

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

Analysis II: Determinants of expectation formation

Regression table clustered standard errors

Table: Expectation formation

	(1) EXPECTATION		(2) EXPECTATION		(3) EXPECTATION	
	b	t	b	t	b	t
WINPC	0.362***	(15.14)	0.365***	(15.32)	0.388***	(17.68)
Rate of failure	-0.590***	(-4.66)	-0.601***	(-5.15)	-0.665***	(-6.67)
Income earned in real effort task	-0.026	(-1.33)	-0.029	(-1.55)		
Confidence	0.043***	(9.13)	0.042***	(8.76)	0.026***	(5.73)
Locus of Control (LoC)	0.052	(0.64)	0.028	(0.31)		
Savouring Anticipate Index	-0.159	(-1.43)	-0.164	(-1.45)		
Savouring Moment Index	-0.187	(-1.41)	-0.202	(-1.55)		
Savouring Reminisce Index	0.116	(1.09)	0.154	(1.37)		
Age	-0.002	(-0.06)	-0.006	(-0.17)		
Gender	-0.085	(-0.37)	-0.101	(-0.42)		
Australian	-0.638*	(-2.04)	-0.627*	(-2.01)		
English	-0.062	(-0.25)	0.012	(0.05)		
Constant	2.978*	(2.23)	3.548*	(2.19)	5.388***	(15.82)
treatment dummies	Yes		Yes		Yes	
race dummies	Yes		Yes		Yes	
pitstop dummies	Yes		Yes		Yes	
individual dummies	No		No		Yes	
Socio-economics	No		Yes		No	
AdjR-sq	0.456		0.468		0.717	
Obs	4193		4193		4298	

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