

## Character or context:

What explains behavioural dishonesty in low-income countries?

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- Few studies have sought to disentangle how intrinsic and extrinsic factors might interact
- Vast majority of studies pertain to high-income countries
- Comparing the influence of multiple intrinsic and extrinsic factors on cheating behaviour among undergraduates in Mozambique

Dishonest behaviour – experimental studies providing a measure of revealed honesty (e.g. Bucciol et al, 2013; Fischbacher and Föllmi-Heusi, 2013)

Correlates of dishonest behaviour:

- **Intrinsic/ slowly changing:**

- Gender (e.g. Azar et al., 2013; Barfort et al., 2019; Bucciol et al., 2013; Fosgaard et al., 2013; Hanna and Wang, 2017; Alatas et al, 2009)
- Age and Cognitive skills (e.g. Fosgaard, 2020)
- Personality traits (e.g. Fiddick et al., 2016; Jackson et al, 2002)

- **Extrinsic situational factors:**

- Informational environment (e.g. Köbis et al., 2015; Fosgaard, 2019; Bucciol and Piovesan, 2011; Cohn et al, 2014)
- Perceived degree of anonymity/ risk of detection (e.g. Fischbacher and Föllmi-Heusi, 2013; Haley and Fessler, 2005; Conrads et al, 2013)
- Environmental factors (e.g. Bucciol et al, 2013; Ruffle and Tobol, 2014; Isak and Tripathy, 2017)

## Questionnaire:

- 7 parts + 4 series of the dice game

## Data collected:

- **Dishonesty: dice-in-cup game**
- **Intrinsic factors:**
  - Demographic characteristics (age, gender, etc.)
  - Academic background information (score on the university entry exam)
  - Preferences: future career; risk (lottery game); pro-sociality (dictator game)
  - Measures of personality: importance of work (European Values Survey); Big Five; PSM (answers combined with the first principal component factor, standardized to mean zero and standard deviation of one)

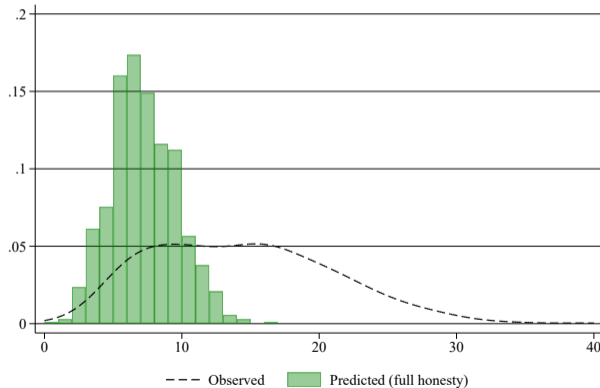
## Data collected:

- **Extrinsic factors:**

- Physical environment: temperature and humidity on the day and start time of the session
- Timing of the session: dummy variables for the first and last workday of the week; dummy for early when the session was before 10 a.m.
- Spillovers from peers: count of the number of days since the first session run in the faculty
- Scope of anonymity: number of participants in the session

## Information treatment

Figure: Observed distribution of the number of correct guesses versus expected distribution from 40 rolls of a true dice



	Mean	Std. dev.	Min.	Median	Max.	Obs.
Age (years)	22.57	4.82	17.00	21.00	56.00	1,060
Female	54.25	49.84	0.00	100.00	100.00	1,060
Study length (years)	2.77	1.44	1.00	3.00	8.00	1,060
Entrance score	58.88	9.25	28.25	60.00	87.00	1,060
Risk loving	18.11	38.53	0.00	0.00	100.00	1,060
Risk averse	24.72	43.16	0.00	0.00	100.00	1,060
Pro-sociality	48.65	32.36	0.00	34.00	100.00	1,060
Work orientation (raw)	3.11	0.68	1.00	3.08	5.00	1,060
B5 extraversion (raw)	2.72	1.02	1.00	3.00	5.00	1,057
B5 agreeableness (raw)	3.24	1.02	1.00	3.00	5.00	1,057
B5 conscientiousness (raw)	3.78	1.04	1.00	4.00	5.00	1,055
B5 neuroticism (raw)	2.87	1.33	1.00	3.00	5.00	1,055
B5 openness (raw)	3.65	1.08	1.00	3.50	5.00	1,055
PSM sacrifice (raw)	3.36	0.79	1.00	3.25	5.00	1,060
PSM value (raw)	4.63	0.56	1.25	5.00	5.00	1,057
PSM compassion (raw)	4.51	0.69	1.00	4.75	5.00	1,057
PSM interest (raw)	4.75	0.43	1.00	5.00	5.00	1,057

Table: Descriptive statistics (cont..)

	Mean	Std. dev.	Min.	Median	Max.	Obs.
Sunny	53.77	49.88	0.00	100.00	100.00	1,060
Warm	76.89	42.18	0.00	100.00	100.00	1,060
Humid	17.92	38.37	0.00	0.00	100.00	1,060
Before 10am	29.06	45.42	0.00	0.00	100.00	1,060
Monday	22.26	41.62	0.00	0.00	100.00	1,060
Friday	21.42	41.04	0.00	0.00	100.00	1,060
Days in faculty (count)	5.40	3.48	1.00	5.50	15.00	1,060
Participants (count)	43.82	19.59	12.00	41.00	84.00	1,060
Info. treatment	49.25	50.02	0.00	0.00	100.00	1,060
Correct throws (count)	14.36	6.55	0.00	14.00	40.00	1,039
Cheat rate (est.)	23.07	19.65	-20.00	22.00	100.00	1,039



$$c_{ijk} = \alpha_k + X_1' \beta_1 + Z_{ij}' \beta_2 + \varepsilon_i$$

$X$  - vector of intrinsic variables

$Z$  - vector of extrinsic variables

$j$  - data collection sessions

$\alpha_k$  - aggregate fixed effects, such as by faculty or course

- The extrinsic variables capture specific exogenous aspects of the data collection environment, and thus mainly vary at the session level.
- Recognizing that faculty/course fixed effects may proxy for (and thus absorb) underlying preferences or personality traits, we show estimates for the model both with and without these effects.
- Furthermore, in order to investigate the interaction between explanatory variables of interest, we go on to stratify the regression analysis (e.g. by gender).

	(1) Character			(2) Context			(3) Complete		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
Female	2.25*	2.75**	2.78**				1.97	2.66**	2.56**
Entrance score	1.79**	2.21***	2.29***				2.26***	2.75***	2.88***
Work orientation (std.)	1.77***	1.69***	1.74***				1.62***	1.55***	1.51**
B5 conscientiousness (std.)	2.10***	1.94***	1.88***				1.83***	1.81***	1.75***
PSM sacrifice (std.)	1.27**	1.04*	1.23**				1.12**	0.96*	1.01*
PSM value (std.)	-1.50**	-1.52**	-1.66**				-1.58**	-1.58**	-1.63**
PSM interest (std.)	1.12**	1.14**	1.09**				1.17**	1.19**	1.22**
Sunny				0.17	1.90	5.49**	-0.35	2.13	5.06***
Warm				3.04**	5.66***	3.63**	5.29***	6.83***	6.12***
Humid				1.11	5.07***	3.70*	4.20*	8.21***	8.05***
Before 10am				-3.53***	-3.41***	-3.34***	-4.60***	-4.47***	-4.67***
Monday				1.63	-0.14	-3.78*	2.11	-0.40	-3.54**
Friday				7.11***	3.86**	1.66	7.51***	4.26**	2.35
Days in faculty (log.)				3.23***	3.70***	3.49***	3.80***	4.28***	4.30***
Participants (log.)				4.99***	3.16**	3.21**	5.79***	4.78***	5.87***
Constant	22.55***	22.31***	22.40***	20.32***	17.68***	18.85***	17.87***	15.47***	15.74***
Obs.	1,036	1,036	1,036	1,036	1,036	1,036	1,036	1,036	1,036
Total R2 (adj.)	0.05	0.06	0.07	0.05	0.05	0.05	0.09	0.09	0.09
Within R2 (adj.)	0.04	0.04	0.04	0.04	0.03	0.02	0.08	0.07	0.06
Fixed effects?	-	F.	C.	-	F.	C.	-	F.	C.

	Base.	(1) Gender		(2) Entrance score		(3) Work orientation		(4) Risk appetite	
		Male	Female	Low	High	Low	High	Low	High
Female	2.66**	0.00	0.00	-0.90	0.29	-0.66	1.03	-0.65	0.99
Entrance score	2.75***	0.16	-0.34	1.07	0.40	0.31	0.13	-0.65	1.38
Work orientation (std.)	1.55***	0.89	-0.59	0.58	-0.49	1.11	-0.13	-0.18	0.11
B5 conscientiousness (std.)	1.81***	-0.65	0.79	-0.61	0.37	0.48	-0.57	0.65	-1.50
PSM sacrifice (std.)	0.96*	-0.06	0.00	0.54	-0.38	0.30	-0.12	0.59	-0.68
PSM value (std.)	-1.58**	0.53	-0.21	-0.74	0.47	-0.35	0.67	-0.39	0.83
PSM compassion (std.)	-1.09	-0.46	-0.14	1.44*	-1.55	1.63	-1.51*	-1.03	2.19**
PSM interest (std.)	1.19**	-0.37	0.47	-1.35*	1.75	-0.56	0.82	-0.11	-0.26
Sunny	2.13	-6.91***	5.45***	1.46	-1.96	2.36	-2.63	0.23	-0.05
Warm	6.83***	-4.85**	7.60***	3.55*	-2.91	1.42	-0.95	-5.15***	10.60***
Humid	8.21***	2.43	0.90	1.84	-2.51	3.98	-2.10	-3.30	7.73**
Before 10am	-4.47***	-0.03	-1.10	-0.48	-0.11	-2.02	0.46	-2.82**	2.83
Monday	-0.40	4.23***	-2.48	2.47	-0.50	-5.60**	5.22**	1.14	0.53
Friday	4.26**	1.98	-2.36	0.33	1.28	-3.53	3.55	-0.28	0.75
Days in faculty (log.)	4.28***	-0.32	1.04	0.23	-0.02	0.61	0.09	-0.73	2.07*
Info. treatment	-1.12	-0.29	0.34	-0.21	-0.40	0.16	-0.71	-0.96	1.74
Participants (log.)	4.78***	-2.46	3.66**	1.31	-2.55	-1.34	0.49	-5.05***	8.20***
Constant	15.47***	5.07**	-7.52***	-1.86	3.04	0.71	0.10	5.30**	-11.05***
Obs.	1,036	471	563	513	520	508	528	675	361
R2 (adj.)	0.09	-0.02	-0.02	-0.04	-0.04	-0.04	-0.04	-0.02	-0.00
Within R2 (adj.)	0.07	-0.01	-0.01	-0.03	-0.03	-0.03	-0.03	-0.01	0.01
RMSE	18.57	18.86	18.18	18.78	18.40	18.44	18.76	18.46	18.30

- **Main findings:**

- While intrinsic factors do matter, they typically do so in the opposite direction to previous studies.
- Extrinsic factors made a quantitatively large difference to cheating behaviours.

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- While intrinsic factors do matter, they typically do so in the opposite direction to previous studies.
- Extrinsic factors made a quantitatively large difference to cheating behaviours.
- Contributions to the literature on the determinants of dishonest behaviour
  - Additional influence of extrinsic factors (objective situation cues, perceived anonymity and informational environment)
  - Novel context: scheduled classes for undergraduate students of various disciplines at the large university in Mozambique, and voluntarily opt-out.

# Thanks

For questions and comments please contact:

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Paper available at: [igmozambique.wider.unu.edu/  
working-paper/character-or-context](http://igmozambique.wider.unu.edu/working-paper/character-or-context)