

Ferreira, Ines A.; Jones, Sam; Mouco, Jorge

**Working Paper**

## Character or context: What explains behavioural dishonesty in low-income countries?

WIDER Working Paper, No. 2020/98

**Provided in Cooperation with:**

United Nations University (UNU), World Institute for Development Economics Research (WIDER)

*Suggested Citation:* Ferreira, Ines A.; Jones, Sam; Mouco, Jorge (2020) : Character or context: What explains behavioural dishonesty in low-income countries?, WIDER Working Paper, No. 2020/98, ISBN 978-92-9256-855-9, The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki,  
<https://doi.org/10.35188/UNU-WIDER/2020/855-9>

This Version is available at:

<https://hdl.handle.net/10419/229322>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

## WIDER Working Paper 2020/98

### **Character or context**

What explains behavioural dishonesty in low-income countries?

Ines A. Ferreira,<sup>1</sup> Sam Jones,<sup>2</sup> and Jorge Mouco<sup>2</sup>

August 2020

**Abstract:** We run a lab-in-the-field experiment with 1,060 university students in Mozambique to examine the correlates of behavioural dishonesty, distinguishing between intrinsic and extrinsic factors. Using an incentivized dice game, which yields direct estimates of the propensity to cheat, we find that the effects of demographic and personality traits (e.g., gender, work ethic) generally run in the opposite direction to previous studies. Contingent situational factors, including temperature, humidity, and the number of participants in the room, are associated with large differences in dishonesty—for example, on warm and humid days the predicted cheating rate increased by 14 percentage points. However, in line with theories of trait activation, these extrinsic effects are highly heterogeneous and interact with intrinsic factors, which we believe constitutes an important area for further research.

**Key words:** cheating, dice game, dishonest behaviour, Mozambique, personality traits, temperature

**JEL classification:** C91, D91, O12

**Acknowledgements:** We sincerely thank Nikolaj A. Harmon for very useful discussions and for making available the material used in his prior work on this topic. We are also grateful to Thomas Markussen, Marco Piovesan, and Alexander Sebald for helpful interactions, as well as to attendants of the TRIBE meeting and the IGM Conference ‘Transformation Towards Better Jobs’ (November 2019) for comments on the design and provisional results. We are thankful for the support of Hanna Berkel and Ricardo Santos and the whole IGM team in Mozambique in the implementation of the experiment, data collection, and data input.

---

<sup>1</sup> University of Copenhagen, Copenhagen, Denmark; <sup>2</sup> UNU-WIDER; corresponding author: [jones@wider.unu.edu](mailto:jones@wider.unu.edu)

This study has been prepared within the project on [Inclusive growth in Mozambique—scaling-up research and capacity](#), implemented in collaboration between UNU-WIDER, University of Copenhagen, University Eduardo Mondlane, and the Mozambican Ministry of Economics and Finance. The project is financed through specific programme contributions by the governments of Denmark, Finland, and Norway.

Copyright © UNU-WIDER 2020

Information and requests: [publications@wider.unu.edu](mailto:publications@wider.unu.edu)

ISSN 1798-7237 ISBN 978-92-9256-855-9

<https://doi.org/10.35188/UNU-WIDER/2020/855-9>

Typescript prepared by Gary Smith.

The United Nations University World Institute for Development Economics Research provides economic analysis and policy advice with the aim of promoting sustainable and equitable development. The Institute began operations in 1985 in Helsinki, Finland, as the first research and training centre of the United Nations University. Today it is a unique blend of think tank, research institute, and UN agency—providing a range of services from policy advice to governments as well as freely available original research.

The Institute is funded through income from an endowment fund with additional contributions to its work programme from Finland, Sweden, and the United Kingdom as well as earmarked contributions for specific projects from a variety of donors.

Katajanokanlaituri 6 B, 00160 Helsinki, Finland

The views expressed in this paper are those of the author(s), and do not necessarily reflect the views of the Institute or the United Nations University, nor the programme/project donors.

## 1 Introduction

A growing literature seeks to understand how (dis)honesty varies between and across populations. While laboratory experiments have identified various intrinsic drivers of behavioural dishonesty (e.g., Barfort et al. 2019; Fosgaard 2019; Gächter and Schulz 2016; Hanna and Wang 2017), few studies have sought to disentangle how intrinsic and extrinsic factors might interact in real-world situations, where anonymity is rarely complete and environmental distractions vary. Furthermore, the vast majority of studies pertain to high-income countries, and many of these rely on responses from (economics) students who may have some prior awareness of behavioural games (see Fosgaard 2020).

We contribute to the literature on dishonesty by comparing the influence of multiple intrinsic and extrinsic factors on cheating behaviour among undergraduates in Mozambique, based on a multi-factor personality questionnaire combined with an incentivized dice game. The experiment was undertaken during scheduled university classes, permitting students to voluntarily opt-out rather than relying on a (convenience) opt-in sample. Data collection sessions varied on multiple dimensions, including the physical environment, the number of participants, the time of day, and plausible prior knowledge of the opportunity to earn rewards, due to information spillovers from peers. This design permits us to compare the influence of these extrinsic factors against a wide range of intrinsic variables, including demographic characteristics and various measures of preference and personality (e.g., risk aversion, pro-sociality, work orientation, the Big Five, and public service motivation).

Our main finding is that the intrinsic demographic and personality variables not only explain a small share of the variation in observed cheating, but also tend to run in the opposite directions to findings from previous studies. Extrinsic factors, on the other hand, make a quantitatively large difference to cheating, even after accounting for course-specific fixed effects; but their salience nonetheless varies with certain intrinsic factors. In particular, we find the cheating behaviour of both women and risk-loving participants appears much more sensitive to variation in physical conditions (weather), as well as the number of participants in the session. In line with Cohn et al. (2014), Ruffle and Tobol (2014), and Jacobsen et al. (2018), among others, as well as the broader literature on how different personality traits (behaviours) are activated under different conditions (e.g., Horstmann et al. 2018; Sherman et al. 2015), these results support the notion that a substantial part of unethical behaviour is situation-contingent. This moves us beyond simplistic stereotypes of honest versus dishonest personality types. Rather, it highlights the salience of the interaction between intrinsic and extrinsic characteristics, which constitutes an important avenue for future research.

Section 2 briefly summarizes the behavioural literature on cheating behaviour; Sections 3 and 4 describe the experiment and our analytical strategy; Section 5 reports our results; and Section 6 ends with a summary and discussion.

## 2 Related literature

Studies of dishonesty span various disciplines, including (behavioural) economics, management, psychology, and sociology. A common objective is not only to measure the prevalence of dishonest behaviour, but also to pinpoint its underlying drivers. Touching briefly on measurement, a first challenge is to clarify what constitutes dishonest or unethical behaviour.<sup>1</sup> Although precise definitions and associated measures vary (see Rosenbaum et al. 2014), most studies suggest dishonest behaviour entails some form of deceit or lying; or, as Xu and Ma (2015) suggest, dishonesty typically involves rule-breaking for

---

<sup>1</sup> For an overview of the literature on dishonesty, see Jacobsen et al. (2018).

personal gain (also Gächter and Schulz 2016). In practice, empirical (quantitative) measurement of dishonesty faces obvious challenges. While self-reported measures of honesty have a long pedigree (e.g., DePaulo et al. 1996; Serota and Levine 2015), a number of more recent experimental studies provide direct measures of revealed honesty, such as observed through ticket evasion (e.g., Bucciol et al. 2013), returning excess change in a restaurant (Alatas et al. 2009), or through various games/tasks that provide incentives to cheat (e.g., Fischbacher and Föllmi-Heusi 2013; Isakov and Tripathy 2017).<sup>2</sup>

With respect to the correlates of dishonest behaviour, two largely distinct themes emerge from the literature. The first refers to what might be considered intrinsic or at least slowly changing factors, which include demographic characteristics, personality traits, individual preferences, and established social norms. The idea is that differences in such deep factors might then account for seemingly large differences in (average) tendencies to violate rules across different societies (Gächter and Schulz 2016) as well as systematic differences across individuals in the same society. Several studies indicate that women behave differently to men when it comes to (dis)honesty, with many finding that women are more honest (Azar et al. 2013; Barfort et al. 2019; Bucciol et al. 2013; Fosgaard et al. 2013; Hanna and Wang 2017). However, this does not seem to be an ‘iron law’—a small number of other studies find women to be more tolerant of corruption or dishonesty (Alatas et al. 2009), indicating that gender differences in dishonesty may reflect other cultural norms, as well as prior exposure to opportunities to cheat.

Among other intrinsic factors, age and cognitive skills have been found to play a role in unethical behaviour. Fosgaard (2020) demonstrates that younger individuals tend to exhibit higher levels of dishonesty, but also that individuals with higher (reflective) cognitive skills tend to cheat more, presumably as they can better spot such pertinent opportunities. Fiddick et al. (2016) argue that there is good theoretical and empirical evidence to suggest that specific personality traits, such as agreeableness and conscientiousness (dimensions of the ‘Big Five’), can help predict the propensity to violate rules (see also Bratton and Strittmatter 2013); and Jackson et al. (2002) found more neurotic individuals have lower impulse control and a higher propensity to cheat. Early on, Eisenberger and Shank (1985) found that students with a higher work ethic were less prone to cheating, while Hongwei et al. (2017) find that more religious students tend to engage less in academic misconduct (see also Hugh-Jones 2016; McCabe et al. 2001). A number of studies suggest cheating is correlated with occupational preferences, but in complex ways. For example, Hanna and Wang (2017) find that students in India who would prefer to work in the public sector tend to cheat more (on a dice game adapted from Fischbacher and Föllmi-Heusi 2013); but Barfort et al. (2019) find the opposite result among Danish students (in law, economics, and political science).

The above types of intrinsic drivers of (dis)honesty can be expected to vary both between and within societies. At the same time, a second theme of the literature points to extrinsic situational factors that can exert a significant influence on dishonest behaviour (Jacobsen et al. 2018; Rosenbaum et al. 2014). As Horstmann et al. (2018) note, virtually all contemporary theories of personality ascribe a significant role to external influences, the idea being that situational cues will activate specific behaviours or traits. So, in our case, at least some individuals may be more honest in certain situations but less so in others. Looking at which situational cues may be relevant, three general types of variables have been suggested. First is the informational environment, including exposure to specific reference points, primes, or norm-nudges about (dis)honesty that provide an anchor for subsequent behaviour (i.e. they help set the effective rules of the particular game in play). For example, Köbis et al. (2015) show that perceived descriptive norms about the prevalence of corruption in a given context play an important role in reducing levels of corruption. The authors find that these effects exist when the perception of descriptive norms is

---

<sup>2</sup> Note that various studies tend to find a positive (albeit imperfect) correlation between self-reported (dis)honesty, honesty elicited from laboratory games, and behaviour in the field (e.g., Dai et al. 2018; Halevy et al. 2014).

elicited both prior to and after the participants play a corruption game, as well as when they receive short statements containing descriptive norm information. Differences in framing—that is, how the study or experiment is presented—similarly make a difference to behaviour. Fosgaard (2019) finds that imposing high default answers in a task in which participants need to report the outcome of die rolls in private leads to an increase in the outcomes reported. Buccioli and Piovesan (2011) show that explicitly asking children not to cheat reduces the probability of reporting the rewarded outcome of the game by 16 per cent, and Cohn et al. (2014) find that priming the professional identity of bankers subsequently leads then to engage in more dishonest behaviour.

Second, numerous studies find that the perceived degree of anonymity or risk of detection is highly pertinent to dishonest behaviour. Some have focused on how just the feeling of being observed can affect behaviour. Fischbacher and Föllmi-Heusi (2013) find that lying is increased when a double-blind procedure is introduced to the dice game experiment, as it eases possible fears by participants about what the experimenter might think about their reported number. Haley and Fessler (2005) show that visual cues that manipulate the degree of observability lead to a significant increase in generosity in a dictator game. Others found support for the diffusion-of-responsibility hypothesis, according to which individuals with motivation to engage in antisocial behaviour will be more likely to do so when in a group of similarly motivated individuals (e.g., Conrads et al. 2013; Mathes and Kahn 1975). Lying can be psychologically easier (Conrads et al. 2013) in a group environment where tracing individual acts is more difficult and which, therefore, offers protection against feelings of one’s own personal responsibility for behaving according to social norms (Mathes and Kahn 1975).

Last, variation in individual mood or attention, which are often linked to environmental factors (Denissen et al. 2008; Keller et al. 2005), also seem to affect honesty. Various studies have linked weather conditions (such as temperature or precipitation) with individual productivity (e.g., Lee et al. 2014), as well as crime (Ranson 2014).<sup>3</sup> However, little is known about the effect of weather conditions on honest behaviour more specifically. One exception is Buccioli et al. (2013), who report statistically significant correlations between bus fare evasion and the temperature of the day. There is also evidence of differences in honesty depending on the time of day and day of the week. Ruffle and Tobol (2014) find that honesty varies when the timing (day) of the experiment determines the proximity to enjoying the gains of dishonesty. Specifically, they find that when Israeli soldiers can cheat on a dice game to achieve a longer weekend break, they are less prone to cheat on the first day of the week, when the benefit is furthest away. Isakov and Tripathy (2017) found a negative correlation between the time of day and cheating.

### 3 Study design

#### 3.1 Overview

The previous section indicated that a wide range of factors, both intrinsic and extrinsic, plausibly affect (dis)honest behaviour. For good reasons, many studies seek to isolate specific (types of) factors, such as by removing most extrinsic influences in a standardized computer laboratory setting. However, few studies have sought to jointly examine both sets of factors (e.g., Buccioli et al. 2013) and, to our knowledge, none have done so in a low-income country setting, where social norms regarding ethical behaviour may differ from those in high-income countries.

To address this gap, we designed a lab-in-the-field experiment, focusing on undergraduates studying at the largest public university in Mozambique (*Universidade de Eduardo Mondlane*). While participation

---

<sup>3</sup> For an overview of the literature on the influence of weather on different economic outcomes, see Dell et al. (2014).

in the study was voluntary, based on explicit written consent (see the survey materials in Appendix A1), the study was run in collaboration with the pedagogical directors of each of the five main teaching faculties (education, economics, natural sciences, humanities and social sciences, and agronomy), enabling us to schedule most data collection sessions in lieu of scheduled lectures/lessons. As such, we had no direct control over (or prior knowledge of) the number of students attending each session, students did not proactively self-select to participate in the study, and, after being provided with relevant information, just a handful opted not to participate. The sessions ran during August 2019 and were organized to cover a broad range of courses and student types (freshmen to finalists). In total, we ran 30 different sessions spanning 11 different degree courses, and collected data from 1,060 participants.<sup>4</sup>

Each data collection session followed a strict protocol. First, the objective and nature of the study was presented (orally and in writing). Here, we emphasized our interest in investigating behaviour and future choices (e.g. careers) in situations of uncertainty. We explained that participants would play a range of incentivized games, for which they would receive nominal remuneration, and complete a questionnaire (see Appendix A1). For those choosing to continue, we then explained how the games were to be played (see below) and distributed the questionnaire. We requested participants to space themselves out in the classroom/lecture hall as much as possible, and the team of enumerators remained in the room at all times but made an effort not to monitor behaviour—that is, we remained distant unless a student asked for help. After completing the questionnaire, an enumerator would complete a sheet summarizing the outcomes of the incentivized games and calculate the corresponding monetary payout. This was then double-checked by a second enumerator, followed by immediate payment in cash. Payments ranged from 50 to 350 meticals (MZN), with an average of 100 MZN (~US\$1.5).<sup>5</sup>

### 3.2 Questionnaire

The questionnaire contained seven parts (plus four series of the dice game, described below) and was explicitly fully anonymous, meaning we did not record individual names in the questionnaire and answers cannot be traced back to individuals. In addition to basic demographic characteristics (age, gender, etc.), we elicited academic background information (score on the university entrance exam), future career preferences, as well as answers to a range of standard personality (trait) measures. As shown in Table 1, the final sample is well-balanced between men and women, covers a wide range of ages, and the average study length is just under three years.

Taking our cue from the literature, we adapted three main sets of personality questions. First, we asked students about the importance of work using five statements from the European Values Survey complemented with an additional statement on why people should work. Together, the set of five questions has been used before as a measure of work ethic (e.g., Stam et al. 2016). Second, we used a short-form version of the Big Five Model of Personality, which includes the personality traits: neuroticism, extraversion, agreeableness, conscientiousness, and openness. Neuroticism is linked with stress and capacity to deal with challenging situations, whereas extraversion relates to interactions with others and to being action-oriented (Bratton and Strittmatter 2013). Agreeableness is associated with cooperation and acting in an unselfish manner, while conscientiousness is the tendency to be organized and hardworking; the last trait relates to the tendency to be open to new aesthetic or intellectual experiences (Almlund et al. 2011).<sup>6</sup> Our translation was inspired by the English version of the 10-item questionnaire included in Rammstedt and John (2007), which has also been part of the 2010–12 World Values Survey.

---

<sup>4</sup> We obtained ethical approval for the research project from UNU-WIDER in June 2019.

<sup>5</sup> While this may not seem like a large amount, in the Mozambican context it is not trivial, being equal to around half the daily minimum wage.

<sup>6</sup> For a more detailed description of these traits and an overview of the different applications of this personality profile see Bratton and Strittmatter (2013) and Almlund et al. (2011).

Table 1: Descriptive statistics

|                            | 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 |
| 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 10 a.m.             | 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 |

Note: unless otherwise indicated, all variables are expressed in percentages, including dummy variables; 'raw' refers to the unit-wise observed average score for personality (Likert scale) questions; B5 refers to a component of the Big Five; PSM refers to public service motivation.

Source: authors' compilation.

Third, following recent studies on the relationship between career preferences and unethical behaviour (e.g. Olsen et al. 2018), we elicited students' motivation towards the public sector (PSM), focusing on four core dimensions—self-sacrifice, compassion, commitment to public values, and attraction to policy-making—and using an adapted translation of the 16-item questionnaire proposed by Kim et al. (2013). In order to combine answers on the various personality trait questions (sets), we follow Macdonald et al. (2008) and use the first principal component factor, standardized to mean zero and standard deviation of one. However, to get a sense of the dispersion of the raw answers, which are all placed on a Likert scale from 1 to 5, Table 1 reports the simple means of answers to each of the sets of questions.

### 3.3 Games and information treatment

Three incentivized games were interspersed along the questionnaire. At the start, participants responded to a lottery game in which the analytical objective was to elicit risk preferences. They were told that around one-tenth of respondents would be randomly selected to participate in a coin toss game at the end of the session, in which they could win an amount of money depending on their prior choice among five different lotteries, representing different degrees of risk aversion. The riskiest option would reward them with 200 MZN in the case of heads and nothing otherwise, and the least risky would reward them with 80 MZN in case of either heads or tails. Classifying individuals as risk-loving if they chose the former option and risk-averse if they chose the latter, Table 1 indicates that just under half of the respondents made extreme choices, with 25 per cent being risk-averse.



A second game was used to measure pro-sociality. Here, we asked individuals whether they would be willing to donate some part of their participation gratuity to one of four possible local charities. The initial gratuity was set to 50 MZN, and the fixed donation options were 0, 17, 33, or 50 MZN (equal to 0, 33, 66, or 100 per cent of the value), which would then be matched by the organizers. As indicated in Table 1, the majority of students were willing to make some donation—the median donation was 17 MZN; 20 per cent donated the full amount and just 16 per cent donated nothing.<sup>7</sup>

Third, we ran a modified version of the dice-in-cup game, introduced by Fischbacher and Föllmi-Heusi (2013) and used in a range of studies (e.g., Barfort et al. 2019; Hanna and Wang 2017).<sup>8</sup> As implemented in our case, for each of 40 separate rolls of a single dice, split into four rounds of 10 rolls, participants were first instructed to guess the expected outcome of the roll. Next, they were asked to roll the die inside a cup (to ensure privacy), after which they were to note down their guess as well as whether the die had shown the previously guessed number. The nature of the game made it possible for students to obtain a pecuniary gain by misreporting the outcomes. Instructions placed at the beginning of each round explained that for each correct self-reported guess the subject would earn 3 MZN, and for each wrong guess they would earn 1 MZN. Assuming the dice are unbiased, and that participants only cheat when it is to their advantage (they do not misreport correct guesses as incorrect), the estimated cheat rate for individual  $i$  is thereby given by:  $c_i = 6/5 \times (t_i/40 - 1/6)$ , where  $t$  is the self-reported number of correct guesses.

Table 1 and Figure 1 summarize the distribution of outcomes for  $c$ , which represents the primary dependent variable throughout, as well as the raw number of reported correct guesses ( $t$ ; the two measures are perfectly correlated). As found elsewhere, most students *do* cheat on the game. However, around 25 per cent of students recorded nine or fewer correct guesses, which would be consistent with almost completely honest reporting (in around 90 per cent of cases, a binomial variable with 40 trials and success probability of 1/6 takes a value of nine or less), while about 20 per cent of the students reported 20 or more correct guesses. Compared to the same game run elsewhere, admittedly often under different conditions, the average cheat rate of 23 per cent (equal to about eight excess correct guesses) is actually fairly moderate. For example, Barfort et al. (2019) report an average cheat rate of 42.2 per cent, and that 73 per cent of the students indicated 10 or more correct guesses.

Alongside the dice game, we ran a simple informational treatment. In half of the questionnaires we included the following text (here, translated from Portuguese), placed together with instructions for each round of 10 rolls:

Some time ago, we asked other students to play the same game and to try to guess the outcome of a dice roll. In every 100 students, 73 indicated that they guessed correctly at least 10 times in 40 rolls (1 in 4 times) and 35 indicated they had correctly guessed at least 30 times in 40 rolls (3 in 4 times).

The information on previous cheat rates was inspired in Barfort et al. (2019) and the objective was to alert (attentive) students to the possibility of cheating, as well as to suggest a norm or anchor point for the game. This speaks closely to previous work on dishonest behaviour. For example, Fosgaard et al. (2013) manipulated the report sheet of an experiment in which participants had to reveal the result of a coin toss, in order to disentangle the effect of ‘cheating conformity’ (inferring that cheating is the norm) from the effect of ‘cheating awareness’ (becoming aware that cheating is an option). More similar to our approach is the design of Köbis et al. (2015), who presented participants with statements that prompted the norm,: ‘Almost nobody...’ versus ‘Almost everybody...’ before they played a corruption game.

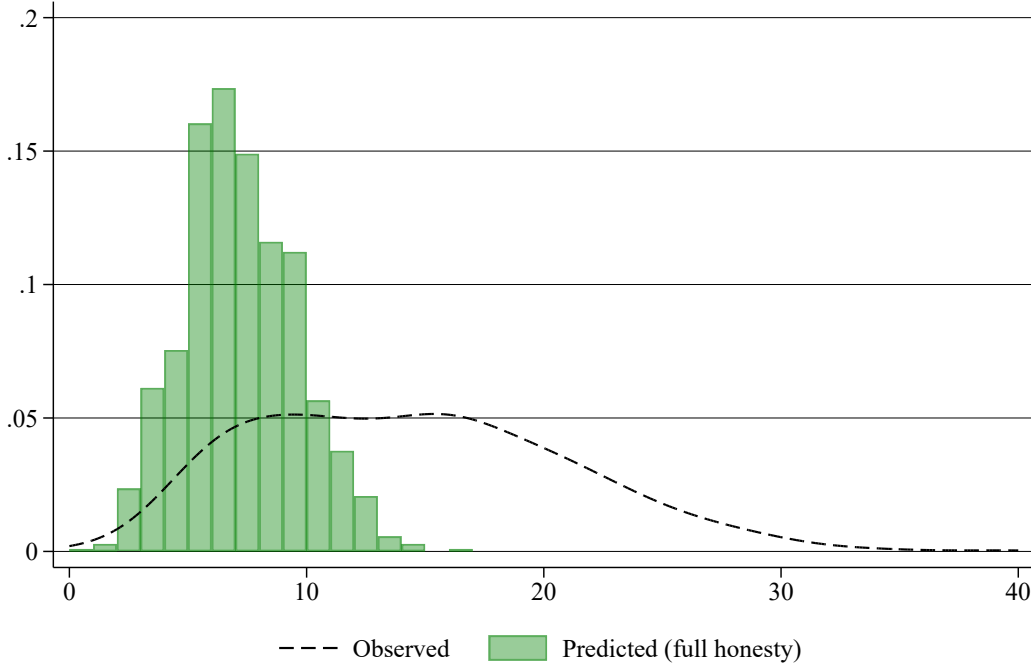
---

<sup>7</sup> We operationalize our measure of pro-sociality as the share of the gratuity individuals were willing to donate.

<sup>8</sup> The validity of the dice game against real-world behaviour has been confirmed in different studies using it in field experiments. See Olsen et al. (2018) for an overview.

The ‘control’ questionnaires simply omitted this additional guidance, but were otherwise identical in all respects. Both questionnaire types were mixed randomly (approximately half and half) within each session.

Figure 1: Observed distribution of the number of correct guesses versus expected distribution from 40 rolls of a true dice



Note: the figure shows a histogram of the expected (null) distribution of correct guesses (under full honesty, drawn from a binomial distribution) versus the distribution of observed (reported) correct guesses, given by the dashed line; the  $x$ -axis represents the total of correct guesses and the  $y$ -axis is the density.

Source: authors' construction.

## 4 Methods

Our analytical approach is straightforward. To compare the relevance and importance of the different sets of factors (individual character versus situational context), we focus on the following saturated model:

$$c_{ijk} = \alpha_k + X_i' \beta_1 + Z_{ij}' \beta_2 + \varepsilon_i \quad (1)$$

where  $X$  is a vector of intrinsic variables;  $Z$  is a vector of extrinsic variables;  $j$  indexes the separate data collection sessions; and  $\alpha_k$  allows for more aggregate fixed effects, such as by faculty or course. As discussed below, 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).

The intrinsic variables entering the model have already been discussed (Section 3.2). They are summarized in Appendix Table A1, alongside the postulated direction of their association with cheating, based on previous studies. The extrinsic variables variously capture the physical environment, the timing of the session, (prior) information available to students, and the scope for anonymity. The physical variables were taken from the nearest official weather station, located approximately 6 km from the university,

and refer to the same day and start time of each session.<sup>9</sup> August is typically a cool and dry month in Maputo, with an average daily high of 24.3°C (observed in August 2019). Thus, we code temperatures at or above 25°C as ‘warm’; the session was deemed to be ‘humid’ if the humidity level was above 60 per cent; and ‘sunny’ indicates the absence of material cloud cover at the time. While these cut-off points are somewhat arbitrary, they broadly align to previously used definitions of (un)comfortable weather conditions (see above), which point to important non-linearities in their effects (e.g. Sepänen et al. 2003), while also allowing for variation across sessions (see Table 1).

Consistent with the day-of-week effect identified by Ruffle and Tobol (2014), we include dummy variables for the first and last workday of the week. The hypothesis is that temporal proximity to the weekend may not only alter students’ moods, but may also enhance the perceived value of extra spending money. In order to account for the effect of the time of day, we included a dummy for ‘early’ when the session was before 10 a.m. We expect that, in line with Isakov and Tripathy (2017), later sessions will be correlated with higher dishonesty levels. A count variable for the number of days since the first session run in the faculty was also added to control for the fact that students might communicate with each other about the experiment, which, we speculate, could increase the chances of cheating. Finally, we include a control for the number of participants in the session in order to account for different degrees of anonymity depending on the size of the group. We expect this variable to be positively correlated with cheating, given that larger groups can lead to a diffusion of responsibility, as well as dilute the effect of ‘feeling observed’, thereby increasing anonymity.

## 5 Results

### 5.1 Baseline

Our main results are presented in Table 2. To begin, we treat the intrinsic (character) and extrinsic (context) variables separately, as per columns (1) and (2), followed by the full model in column (3), which follows equation (1). Sub-columns (a)–(c) allow for alternative fixed effects, namely: (a) none; (b) faculties; and (c) courses. All models are estimated by ordinary least squares (OLS) and standard errors are clustered at the session level. The dependent variable is the estimated cheat rate ( $c$ ), multiplied by 100. Thus, a marginal effect of 1 corresponds to an increase of 1 percentage point in the expected propensity to cheat.

Four main insights can be drawn. First, the faculty/course fixed effects generally make small differences to the estimated coefficients, and increase the explanatory power of the model only marginally. Perhaps the only exception here concerns some of the extrinsic variables (weather and timing); however, even here qualitative results remain unchanged and, if anything, some results become more acute (e.g. the result for ‘sunny’), implying the extrinsic variables do not merely capture unobserved differences between students across courses. Second, there seems to be minimal overlap or covariance across the two groups of factors as a whole, demonstrated by the fact that coefficients in the saturated model are highly comparable to the corresponding coefficients in the previous two separate models. As such, and as might be reasonably expected, it follows that the two sets of factors are very much distinct.

---

<sup>9</sup> Available at [www.wunderground.com/weather/FQMA?cm\\_ven=localwx\\_pwsdash](http://www.wunderground.com/weather/FQMA?cm_ven=localwx_pwsdash), accessed 12 February 2020.

Table 2: Baseline OLS regression estimates for the cheat rate

|                              | (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**   |
|                              | (1.17)        | (1.15)   | (1.17)   |             |          |          | (1.18)       | (1.15)   | (1.20)   |
| Age (years)                  | −0.15         | −0.16    | −0.15    |             |          |          | −0.16        | −0.15    | −0.16    |
|                              | (0.17)        | (0.14)   | (0.14)   |             |          |          | (0.15)       | (0.14)   | (0.14)   |
| Study length (years)         | −0.54         | −0.64    | −0.42    |             |          |          | 0.79         | 0.76     | 0.85     |
|                              | (0.65)        | (0.54)   | (0.51)   |             |          |          | (0.58)       | (0.55)   | (0.58)   |
| Entrance score               | 1.79**        | 2.21***  | 2.29***  |             |          |          | 2.26***      | 2.75***  | 2.88***  |
|                              | (0.76)        | (0.72)   | (0.74)   |             |          |          | (0.53)       | (0.73)   | (0.73)   |
| Risk-loving                  | 1.17          | 1.00     | 0.92     |             |          |          | 1.02         | 1.06     | 1.08     |
|                              | (1.77)        | (1.72)   | (1.70)   |             |          |          | (1.66)       | (1.65)   | (1.66)   |
| Risk-averse                  | −1.16         | −1.09    | −1.32    |             |          |          | −0.64        | −0.72    | −0.78    |
|                              | (1.61)        | (1.60)   | (1.56)   |             |          |          | (1.58)       | (1.59)   | (1.60)   |
| Pro-sociality                | −1.01         | −0.95    | −1.00    |             |          |          | −0.94        | −0.82    | −0.84    |
|                              | (0.63)        | (0.62)   | (0.61)   |             |          |          | (0.58)       | (0.61)   | (0.62)   |
| Work orientation (std)       | 1.77***       | 1.69***  | 1.74***  |             |          |          | 1.62***      | 1.55***  | 1.51**   |
|                              | (0.53)        | (0.55)   | (0.55)   |             |          |          | (0.54)       | (0.55)   | (0.55)   |
| B5 extraversion (std)        | −0.01         | 0.09     | 0.09     |             |          |          | −0.05        | 0.08     | 0.05     |
|                              | (0.53)        | (0.57)   | (0.58)   |             |          |          | (0.53)       | (0.55)   | (0.56)   |
| B5 agreeableness (std)       | −0.79         | −0.94    | −0.91    |             |          |          | −0.61        | −0.72    | −0.68    |
|                              | (0.66)        | (0.64)   | (0.64)   |             |          |          | (0.67)       | (0.67)   | (0.68)   |
| B5 conscientiousness (std)   | 2.10***       | 1.94***  | 1.88***  |             |          |          | 1.83***      | 1.81***  | 1.75***  |
|                              | (0.56)        | (0.59)   | (0.59)   |             |          |          | (0.55)       | (0.56)   | (0.57)   |
| B5 neuroticism (std)         | −0.26         | −0.46    | −0.54    |             |          |          | −0.45        | −0.57    | −0.63    |
|                              | (0.71)        | (0.72)   | (0.73)   |             |          |          | (0.71)       | (0.71)   | (0.73)   |
| B5 openness (std)            | −0.03         | −0.03    | −0.01    |             |          |          | 0.17         | 0.12     | 0.09     |
|                              | (0.43)        | (0.42)   | (0.43)   |             |          |          | (0.43)       | (0.42)   | (0.42)   |
| PSM sacrifice (std)          | 1.27**        | 1.04*    | 1.23**   |             |          |          | 1.12**       | 0.96*    | 1.01*    |
|                              | (0.54)        | (0.53)   | (0.51)   |             |          |          | (0.53)       | (0.54)   | (0.56)   |
| PSM value (std)              | −1.50**       | −1.52**  | −1.66**  |             |          |          | −1.58**      | −1.58**  | −1.63**  |
|                              | (0.70)        | (0.68)   | (0.66)   |             |          |          | (0.65)       | (0.65)   | (0.67)   |
| PSM compassion (std)         | −1.12         | −1.10    | −1.06    |             |          |          | −1.12        | −1.09    | −1.10    |
|                              | (0.69)        | (0.70)   | (0.70)   |             |          |          | (0.71)       | (0.72)   | (0.71)   |
| PSM interest (std)           | 1.12**        | 1.14**   | 1.09**   |             |          |          | 1.17**       | 1.19**   | 1.22**   |
|                              | (0.52)        | (0.50)   | (0.51)   |             |          |          | (0.52)       | (0.52)   | (0.51)   |
| Sunny                        |               |          |          | 0.17        | 1.90     | 5.49**   | −0.35        | 2.13     | 5.06**   |
|                              |               |          |          | (1.72)      | (1.43)   | (2.08)   | (1.67)       | (1.30)   | (1.74)   |
| Warm                         |               |          |          | 3.04**      | 5.66***  | 3.63**   | 5.29***      | 6.83***  | 6.12***  |
|                              |               |          |          | (1.14)      | (1.14)   | (1.48)   | (1.86)       | (1.31)   | (1.87)   |
| Humid                        |               |          |          | 1.11        | 5.07***  | 3.70*    | 4.20*        | 8.21***  | 8.05***  |
|                              |               |          |          | (1.65)      | (1.49)   | (1.93)   | (2.10)       | (1.44)   | (1.75)   |
| Before 10 a.m.               |               |          |          | −3.53***    | −3.41*** | −3.34*** | −4.60***     | −4.47*** | −4.67*** |
|                              |               |          |          | (0.93)      | (0.88)   | (1.16)   | (0.86)       | (0.82)   | (1.10)   |
| Monday                       |               |          |          | 1.63        | −0.14    | −3.78*   | 2.11         | −0.40    | −3.54**  |
|                              |               |          |          | (1.66)      | (1.65)   | (2.13)   | (1.68)       | (1.71)   | (1.63)   |
| Friday                       |               |          |          | 7.11***     | 3.86**   | 1.66     | 7.51***      | 4.26**   | 2.35     |
|                              |               |          |          | (1.68)      | (1.80)   | (1.91)   | (1.82)       | (1.68)   | (1.47)   |
| Days in faculty (log)        |               |          |          | 3.23***     | 3.70***  | 3.49***  | 3.80***      | 4.28***  | 4.30***  |
|                              |               |          |          | (0.78)      | (0.71)   | (0.95)   | (0.78)       | (0.53)   | (0.68)   |
| Info. treatment              |               |          |          | −1.48       | −1.45    | −1.48    | −1.13        | −1.12    | −1.13    |
|                              |               |          |          | (0.91)      | (0.90)   | (0.91)   | (0.97)       | (0.97)   | (0.97)   |
| Participants (log)           |               |          |          | 4.99***     | 3.16**   | 3.21**   | 5.79***      | 4.78***  | 5.87***  |
|                              |               |          |          | (1.43)      | (1.18)   | (1.57)   | (1.61)       | (1.18)   | (1.65)   |
| Constant                     | 22.55***      | 22.31*** | 22.40*** | 20.32***    | 17.68*** | 18.85*** | 17.87***     | 15.47*** | 15.74*** |
|                              | (1.13)        | (0.98)   | (0.91)   | (0.87)      | (1.33)   | (1.37)   | (1.65)       | (1.48)   | (1.66)   |
| Obs.                         | 1,036         | 1,036    | 1,036    | 1,036       | 1,036    | 1,036    | 1,036        | 1,036    | 1,036    |
| Total R <sup>2</sup> (adj.)  | 0.05          | 0.06     | 0.07     | 0.05        | 0.05     | 0.05     | 0.09         | 0.09     | 0.09     |
| Within R <sup>2</sup> (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.       |

Note: significance: \*\*\* 0.01, \*\* 0.05, \* 0.1. The table shows OLS regressions of the estimated cheat rate ( $\times 100$ ) on intrinsic factors (1), extrinsic factors (2), and both factors in column (3); sub-columns (a)–(c) allow for alternative fixed effects, namely: none (−), faculties (F), and courses (C); standard errors clustered at the session level shown in parentheses.

Source: authors' compilation.

Third, turning to more specific results and focusing on the saturated model hereafter, five intrinsic variables are positively and significantly related to cheating (at the 5 per cent level). In line with previous studies, higher cognitive skills are positively associated with the propensity to cheat—that is, individuals with entrance scores two standard deviations above the mean are predicted to cheat 5 per cent more often, on average. The other results, however, run contrary to other studies. While women often have shown to be more honest than men, in our case we find that the conditional effect of being a woman increases the estimated cheat rate by around 3 percentage points. Also, rather than being associated with higher honesty, we find a one standard deviation increase in either work orientation or the Big Five (B5) dimension of conscientiousness maps to an expected increase in the cheat rate of about 2 percentage points. The same effect direction (although smaller in magnitude) obtains for both the PSM sacrifice and interest sub-dimensions, suggesting that individuals willing to make some sacrifice for the public interest, as well as those with interest in public policy-making, are more likely to cheat. While these results would appear contrary to those of Olsen et al. (2018) with Danish students, it merits note that the amount of variation in these measure of public sector motivation is limited, with the majority of participants scoring high (see Table 1); also, and more in line with expectations, for the small share recording a low score for public sector values they do appear more likely to cheat.

Fourth, as per Rosenbaum et al. (2014) *inter alia*, environmental conditions appear to make a systematic difference to cheating behaviour (on average), which obtains after controlling for fixed effects at the faculty or course levels—that is, these effects remain material when comparing students within the same course. Looking at the physical variables, in line with previous literature, less comfortable working conditions are associated with substantially higher average cheating rates. Indeed, model 3(c) indicates that the rate of cheating during warm and humid sessions was around 14 percentage points higher than in sessions taking place at cooler and drier times. Taking into account that these conditions are measured with error, since they refer to general ambient outside conditions, not those in each classroom, the magnitude of these effects is noteworthy. Two complementary interpretations seem appropriate here. First, in keeping with studies undertaken in other tropical countries, we find individuals are sensitive to higher temperatures and humidity (Yi and Chan 2017) in the sense that their performance (e.g. self-control) falls as temperatures rise. Second, on warmer and more humid days, individuals are less likely to stay indoors; thus, the possible uses of monetary rewards from cheating are more salient (e.g. Lee et al. 2014).

The results for the timing of the sessions indicate the propensity to cheat is lower in the mornings (by around 5 percentage points) as well as earlier in the week (by a similar amount). The former would be consistent with impeded cognitive alertness, while the latter is in line with the results of Ruffle and Tobol (2014). The more we repeat inquiry seasons within the same faculty, the more the subjects are likely to cheat, with an increase of about 4 percentage points for each doubling of the number of days, likely driven by information spillovers between students whereby later players are more aware that cheating is a viable option that will be rewarded. This suggests that learning by experience (directly and indirectly), including knowledge of impunity, is an important driver of dishonesty. Similarly, subjects were more likely to cheat when the number of participants in the session was larger. We found an increase of about 6 percentage points in the cheat rate for each log point increase in the number of participants, which is in line with anonymity/monitoring effects such as found by Barr et al. (2009), who find that higher monitoring in a public servant’s game reduced bribery.

## 5.2 Robustness

We briefly validate the robustness of the previous findings, using the saturated model and the self-reported count of correct guesses as the dependent variable, and applying four alternative estimators: OLS; Poisson; negative binomial (which allows for over-dispersed count data); and probit, in which we redefine the dependent variable to equal 1 if the number of correct guesses is greater than 20 and 0 otherwise. The results are shown in Table 3, where sub-column (a) refers to the full sample, including

fixed effects at faculty level. To verify whether our results are driven by outliers, we drop correct guess counts above the 95th and below the 5th percentiles in sub-column (b).

Comparing the baseline results with those of Table 3, we see that the baseline results are robust to both the choice of estimator and exclusion of outliers. Namely, the positive and significant relationship between cognitive skills and cheating is maintained, as well as those for being female and work orientation. Conscientiousness continues to be the only trait of the Big Five with a statistically significant effect across all specifications. In terms of the PSM dimensions, the importance of commitment to public values, interest in public service, and self-sacrifice is confirmed, although the coefficient for the latter loses significance when outliers are excluded. Finally, when considering the contextual variables, no change in our findings emerges from the alternative estimators and samples.

### 5.3 Heterogeneity

The results presented thus far have focused on the conditional expectation of cheating, ignoring possible interactions across the explanatory variables. Indeed, while Figure 1 shows that the distribution of the observed correct guesses has a long right-hand tail, suggesting a high degree of dispersion, our regressions thus far explain just a small fraction of the variation. Part of this may be due to coefficient heterogeneity—that is, omitted interaction terms. To explore this parsimoniously, we stratify the saturated model along a series of separate binary variables reflecting a number of the intrinsic factors. As reported in Table 4, these are: (1) gender (male/female), (2) entrance exam score, (3) work orientation, and (4) risk appetite. We dichotomize the two continuous variables into low and high, being values above and below their means respectively; and a low risk appetite is defined as choosing one of the three lowest lottery monetary values; and high either of the remaining two.

To facilitate interpretation, in columns (1)–(4) we run a series of Gauss–Newton auxiliary regressions (MacKinnon 1992), based on the residuals from the baseline saturated model estimated in column (3b) of Table 2. For each indicated sub-sample, the present estimates report the arithmetic difference relative to the baseline estimates, which are replicated in the first column for reference, where the relevant null hypothesis is that the difference is zero. As such, the estimated coefficients that would pertain for each sub-sample can be read as the sum of the relevant baseline coefficient plus the particular sub-sample deviation.

The main insight that emerges from these results is the evidence of quantitatively large differences in responses to extrinsic factors, and the physical variables in particular. For example, if we calculate the expected cheat rate for humid, sunny, and warm days (together), we find a difference of around 23 percentage points between men and women (holding all other variables fixed). Put differently, these factors do not seem to make a significant difference for men, but are highly significant for women, for whom the predicted cheat rate jumps by 26.5 percentage points. A similar gap obtains between the low and high risk appetite groups. The risk-averse group do not appear to be sensitive to variation in these weather conditions, while the risk-loving group participants are expected to cheat 25.4 percentage points more on warm, sunny, and humid days. Notably, however, these two sub-groups that appear more sensitive to physical conditions (women and the risk-loving) tend to show lower baseline cheating rates, as captured by the constant terms. In this sense, the positive and significant coefficient on the female dummy variable in the baseline results appears to be driven by heterogeneity (bias from omitted interaction terms), not a higher propensity to cheat *per se*.

Last, these results reveal some heterogeneity in responses to the number of participants in the room, which we interpret as affecting the perceived degree of anonymity (sense of own responsibility). In particular, both women and those with a higher risk appetite are sensitive to this variable—namely, for every doubling of the number of individuals in the room, the expected cheat rate increases by 4 percentage points for women and 8 percentage points among risk-lovers.

Table 3: Alternative models based on the count of reported correct guesses

|                            | (1) OLS            |                    | (2) Poisson        |                    | (3) Neg. binomial  |                    | (4) Probit         |                   |
|----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|
|                            | (a)                | (b)                | (a)                | (b)                | (a)                | (b)                | (a)                | (b)               |
| Female                     | 0.89**<br>(0.38)   | 0.74*<br>(0.37)    | 0.89**<br>(0.38)   | 0.74**<br>(0.37)   | 0.83**<br>(0.39)   | 0.72*<br>(0.37)    | 0.06**<br>(0.02)   | 0.05**<br>(0.02)  |
| Age (years)                | -0.05<br>(0.05)    | -0.04<br>(0.04)    | -0.05<br>(0.05)    | -0.04<br>(0.04)    | -0.05<br>(0.05)    | -0.05<br>(0.05)    | 0.00<br>(0.00)     | 0.00<br>(0.00)    |
| Study length (years)       | 0.25<br>(0.18)     | 0.12<br>(0.15)     | 0.26<br>(0.18)     | 0.13<br>(0.15)     | 0.25<br>(0.18)     | 0.12<br>(0.15)     | 0.01<br>(0.01)     | 0.01<br>(0.01)    |
| Entrance score             | 0.92***<br>(0.24)  | 0.54***<br>(0.19)  | 0.93***<br>(0.25)  | 0.55***<br>(0.20)  | 0.92***<br>(0.24)  | 0.54***<br>(0.19)  | 0.02<br>(0.02)     | 0.01<br>(0.02)    |
| Risk-loving                | 0.35<br>(0.55)     | 0.46<br>(0.41)     | 0.33<br>(0.53)     | 0.44<br>(0.40)     | 0.32<br>(0.55)     | 0.44<br>(0.41)     | 0.02<br>(0.03)     | 0.01<br>(0.03)    |
| Risk-averse                | -0.24<br>(0.53)    | -0.04<br>(0.53)    | -0.28<br>(0.53)    | -0.06<br>(0.52)    | -0.28<br>(0.54)    | -0.07<br>(0.53)    | 0.00<br>(0.03)     | 0.01<br>(0.03)    |
| Pro-sociality              | -0.27<br>(0.20)    | -0.25<br>(0.20)    | -0.28<br>(0.21)    | -0.25<br>(0.20)    | -0.32<br>(0.21)    | -0.27<br>(0.20)    | -0.01<br>(0.01)    | -0.01<br>(0.01)   |
| Work orientation (std)     | 0.52***<br>(0.18)  | 0.52***<br>(0.18)  | 0.52***<br>(0.18)  | 0.53***<br>(0.18)  | 0.54***<br>(0.18)  | 0.55***<br>(0.18)  | 0.04***<br>(0.01)  | 0.05***<br>(0.01) |
| B5 extraversion (std)      | 0.03<br>(0.18)     | 0.03<br>(0.19)     | 0.04<br>(0.18)     | 0.04<br>(0.18)     | 0.06<br>(0.19)     | 0.04<br>(0.19)     | -0.01<br>(0.01)    | -0.01<br>(0.01)   |
| B5 agreeableness (std)     | -0.24<br>(0.22)    | -0.32<br>(0.22)    | -0.25<br>(0.22)    | -0.32<br>(0.21)    | -0.27<br>(0.22)    | -0.34<br>(0.21)    | -0.02**<br>(0.01)  | -0.03**<br>(0.01) |
| B5 conscientiousness (std) | 0.60***<br>(0.19)  | 0.55***<br>(0.19)  | 0.61***<br>(0.19)  | 0.56***<br>(0.19)  | 0.61***<br>(0.19)  | 0.56***<br>(0.19)  | 0.03**<br>(0.01)   | 0.03**<br>(0.01)  |
| B5 neuroticism (std)       | -0.19<br>(0.24)    | -0.28<br>(0.18)    | -0.19<br>(0.23)    | -0.28<br>(0.17)    | -0.17<br>(0.23)    | -0.26<br>(0.17)    | -0.03*<br>(0.02)   | -0.04**<br>(0.02) |
| B5 openness (std)          | 0.04<br>(0.14)     | -0.14<br>(0.16)    | 0.03<br>(0.14)     | -0.15<br>(0.16)    | 0.02<br>(0.14)     | -0.16<br>(0.15)    | -0.01<br>(0.02)    | -0.01<br>(0.02)   |
| PSM sacrifice (std)        | 0.32*<br>(0.18)    | 0.14<br>(0.19)     | 0.32*<br>(0.18)    | 0.14<br>(0.19)     | 0.33*<br>(0.17)    | 0.15<br>(0.18)     | 0.01<br>(0.01)     | 0.00<br>(0.01)    |
| PSM value (std)            | -0.53**<br>(0.22)  | -0.39*<br>(0.23)   | -0.52***<br>(0.20) | -0.39*<br>(0.21)   | -0.52**<br>(0.20)  | -0.39*<br>(0.22)   | -0.01<br>(0.02)    | -0.01<br>(0.02)   |
| PSM compassion (std)       | -0.36<br>(0.24)    | -0.35<br>(0.23)    | -0.37<br>(0.23)    | -0.35*<br>(0.21)   | -0.37<br>(0.23)    | -0.35*<br>(0.21)   | -0.03**<br>(0.02)  | -0.03*<br>(0.01)  |
| PSM interest (std)         | 0.40**<br>(0.17)   | 0.37**<br>(0.15)   | 0.42**<br>(0.18)   | 0.38**<br>(0.16)   | 0.40**<br>(0.18)   | 0.38**<br>(0.16)   | 0.03*<br>(0.02)    | 0.03*<br>(0.02)   |
| Sunny                      | 0.71<br>(0.43)     | 0.21<br>(0.43)     | 0.58<br>(0.44)     | 0.13<br>(0.45)     | 0.61<br>(0.44)     | 0.16<br>(0.44)     | 0.09***<br>(0.02)  | 0.08***<br>(0.03) |
| Warm                       | 2.28***<br>(0.44)  | 1.31***<br>(0.39)  | 2.36***<br>(0.43)  | 1.34***<br>(0.40)  | 2.36***<br>(0.42)  | 1.39***<br>(0.41)  | 0.13***<br>(0.03)  | 0.09***<br>(0.03) |
| Humid                      | 2.74***<br>(0.48)  | 1.46***<br>(0.47)  | 2.86***<br>(0.49)  | 1.53***<br>(0.49)  | 2.85***<br>(0.46)  | 1.55***<br>(0.47)  | 0.09***<br>(0.03)  | 0.04<br>(0.03)    |
| Before 10 a.m.             | -1.49***<br>(0.27) | -1.08***<br>(0.28) | -1.67***<br>(0.26) | -1.15***<br>(0.28) | -1.69***<br>(0.26) | -1.16***<br>(0.27) | -0.07***<br>(0.02) | -0.04*<br>(0.02)  |
| Monday                     | -0.13<br>(0.57)    | -0.11<br>(0.54)    | 0.01<br>(0.57)     | -0.02<br>(0.55)    | 0.01<br>(0.57)     | -0.06<br>(0.55)    | -0.02<br>(0.03)    | -0.04<br>(0.03)   |
| Friday                     | 1.42**<br>(0.56)   | 1.24**<br>(0.57)   | 1.59***<br>(0.55)  | 1.32**<br>(0.57)   | 1.62***<br>(0.55)  | 1.34**<br>(0.58)   | 0.02<br>(0.03)     | -0.00<br>(0.03)   |
| Days in faculty (log)      | 1.43***<br>(0.18)  | 0.82***<br>(0.19)  | 1.49***<br>(0.17)  | 0.86***<br>(0.18)  | 1.46***<br>(0.17)  | 0.85***<br>(0.19)  | 0.09***<br>(0.01)  | 0.07***<br>(0.02) |
| Info. treatment            | -0.37<br>(0.32)    | -0.55<br>(0.34)    | -0.37<br>(0.31)    | -0.55*<br>(0.33)   | -0.39<br>(0.32)    | -0.56*<br>(0.33)   | -0.03<br>(0.03)    | -0.03<br>(0.03)   |
| Participants (log)         | 1.59***<br>(0.39)  | 1.04***<br>(0.37)  | 1.59***<br>(0.37)  | 1.03***<br>(0.35)  | 1.53***<br>(0.38)  | 0.99***<br>(0.37)  | 0.12***<br>(0.03)  | 0.10***<br>(0.03) |
| Obs.                       | 1,036              | 967                | 1,039              | 970                | 1,039              | 970                | 1,052              | 984               |

Note: significance: \*\*\* 0.01, \*\* 0.05, \* 0.1. The dependent variable in columns (1)–(3) is the raw count of reported correct guesses; in column (4) it is a binary variable that takes the value of 1 if the individual reports more than 20 correct guesses; sub-columns (a) include all observations, sub-columns (b) drop all counts above the 95th and below the 5th percentile of the observed distribution; all models include faculty fixed effects; marginal effects are reported; standard errors clustered at the session level are shown in parentheses.

Source: authors' compilation.

Table 4: Heterogeneity analysis

|                              | Base               | (1) Gender         |                    | (2) Entrance score |                 | (3) Work orientation |                  | (4) Risk appetite  |                     |
|------------------------------|--------------------|--------------------|--------------------|--------------------|-----------------|----------------------|------------------|--------------------|---------------------|
|                              |                    | Male               | Female             | Low                | High            | Low                  | High             | Low                | High                |
| Female                       | 2.66**<br>(1.15)   | 0.00<br>(.)        | 0.00<br>(.)        | -0.90<br>(1.59)    | 0.29<br>(1.66)  | -0.66<br>(1.71)      | 1.03<br>(2.06)   | -0.65<br>(1.64)    | 0.99<br>(2.01)      |
| Age (years)                  | -0.15<br>(0.14)    | -0.23<br>(0.25)    | 0.11<br>(0.21)     | 0.09<br>(0.22)     | -0.08<br>(0.23) | 0.29<br>(0.23)       | -0.15<br>(0.19)  | 0.04<br>(0.14)     | -0.00<br>(0.23)     |
| Study length (years)         | 0.76<br>(0.55)     | -0.60<br>(0.84)    | 0.82<br>(0.65)     | 1.22<br>(0.80)     | -0.98<br>(0.67) | 0.09<br>(0.94)       | -0.26<br>(0.87)  | 0.13<br>(0.60)     | -0.49<br>(0.93)     |
| Entrance score               | 2.75***<br>(0.73)  | 0.16<br>(0.92)     | -0.34<br>(1.18)    | 1.07<br>(1.39)     | 0.40<br>(1.70)  | 0.31<br>(1.28)       | 0.13<br>(1.18)   | -0.65<br>(0.87)    | 1.38<br>(1.37)      |
| Risk-loving                  | 1.06<br>(1.65)     | 1.88<br>(2.19)     | -1.74<br>(2.15)    | -0.91<br>(2.99)    | 1.25<br>(2.13)  | 2.16<br>(2.79)       | -1.40<br>(2.20)  | 0.00<br>(.)        | -0.93<br>(1.19)     |
| Risk-averse                  | -0.72<br>(1.59)    | 2.45<br>(2.28)     | -1.45<br>(2.11)    | -0.39<br>(1.93)    | 0.61<br>(1.95)  | 0.85<br>(2.28)       | -0.19<br>(2.24)  | 0.27<br>(1.83)     | 0.00<br>(.)         |
| Pro-sociality                | -0.82<br>(0.61)    | -0.73<br>(0.75)    | 0.75<br>(0.93)     | 0.43<br>(0.73)     | -0.05<br>(0.92) | -0.77<br>(0.73)      | 0.62<br>(1.04)   | -0.03<br>(0.84)    | 0.32<br>(0.94)      |
| Work orientation (std)       | 1.55***<br>(0.55)  | 0.89<br>(1.05)     | -0.59<br>(0.90)    | 0.58<br>(0.70)     | -0.49<br>(0.83) | 1.11<br>(0.92)       | -0.13<br>(1.65)  | -0.18<br>(0.68)    | 0.11<br>(1.13)      |
| B5 extraversion (std)        | 0.08<br>(0.55)     | 1.24<br>(0.93)     | -1.04<br>(0.85)    | -0.00<br>(0.72)    | 0.00<br>(0.88)  | 0.48<br>(0.63)       | -0.75<br>(0.73)  | 0.33<br>(0.64)     | -0.91<br>(0.81)     |
| B5 agreeableness (std)       | -0.72<br>(0.67)    | -0.81<br>(1.44)    | 0.36<br>(0.74)     | 0.91<br>(0.99)     | -0.94<br>(0.81) | 0.58<br>(0.99)       | -0.50<br>(1.15)  | 0.05<br>(0.72)     | 0.33<br>(1.18)      |
| B5 conscientiousness (std)   | 1.81***<br>(0.56)  | -0.65<br>(1.21)    | 0.79<br>(0.61)     | -0.61<br>(0.89)    | 0.37<br>(0.84)  | 0.48<br>(0.74)       | -0.57<br>(0.74)  | 0.65<br>(0.79)     | -1.50<br>(0.92)     |
| B5 neuroticism (std)         | -0.57<br>(0.71)    | 1.00<br>(1.11)     | -0.46<br>(0.80)    | 0.15<br>(0.75)     | -0.16<br>(1.07) | 0.77<br>(0.88)       | -0.74<br>(1.06)  | 0.68<br>(0.61)     | -0.97<br>(1.45)     |
| B5 openness (std)            | 0.12<br>(0.42)     | 0.00<br>(0.85)     | -0.11<br>(0.67)    | 0.50<br>(0.82)     | -0.53<br>(0.53) | -0.45<br>(0.67)      | 0.41<br>(0.86)   | 0.20<br>(0.59)     | -0.67<br>(0.98)     |
| PSM sacrifice (std)          | 0.96*<br>(0.54)    | -0.06<br>(0.91)    | 0.00<br>(0.81)     | 0.54<br>(0.74)     | -0.38<br>(0.72) | 0.30<br>(0.84)       | -0.12<br>(0.75)  | 0.59<br>(0.81)     | -0.68<br>(0.74)     |
| PSM value (std)              | -1.58**<br>(0.65)  | 0.53<br>(1.03)     | -0.21<br>(0.95)    | -0.74<br>(0.82)    | 0.47<br>(1.10)  | -0.35<br>(0.82)      | 0.67<br>(1.21)   | -0.39<br>(0.80)    | 0.83<br>(1.07)      |
| PSM compassion (std)         | -1.09<br>(0.72)    | -0.46<br>(1.29)    | -0.14<br>(0.92)    | 1.44*<br>(0.82)    | -1.55<br>(1.31) | 1.63<br>(1.10)       | -1.51*<br>(0.78) | -1.03<br>(0.78)    | 2.19**<br>(1.05)    |
| PSM interest (std)           | 1.19**<br>(0.52)   | -0.37<br>(0.90)    | 0.47<br>(0.78)     | -1.35*<br>(0.68)   | 1.75<br>(1.11)  | -0.56<br>(0.74)      | 0.82<br>(0.96)   | -0.11<br>(0.73)    | -0.26<br>(1.05)     |
| Sunny                        | 2.13<br>(1.30)     | -6.91***<br>(1.24) | 5.45***<br>(1.41)  | 1.46<br>(1.52)     | -1.96<br>(1.98) | 2.36<br>(2.16)       | -2.63<br>(2.28)  | 0.23<br>(1.81)     | -0.05<br>(1.56)     |
| Warm                         | 6.83***<br>(1.31)  | -4.85**<br>(1.76)  | 7.60***<br>(2.29)  | 3.55*<br>(2.07)    | -2.91<br>(2.16) | 1.42<br>(3.00)       | -0.95<br>(2.93)  | -5.15***<br>(1.59) | 10.60***<br>(2.45)  |
| Humid                        | 8.21***<br>(1.44)  | 2.43<br>(2.54)     | 0.90<br>(1.80)     | 1.84<br>(2.37)     | -2.51<br>(2.86) | 3.98<br>(3.42)       | -2.10<br>(3.74)  | -3.30<br>(2.21)    | 7.73**<br>(3.51)    |
| Before 10am                  | -4.47***<br>(0.82) | -0.03<br>(1.39)    | -1.10<br>(1.22)    | -0.48<br>(1.54)    | -0.11<br>(1.49) | -2.02<br>(1.91)      | 0.46<br>(1.40)   | -2.82**<br>(1.37)  | 2.83<br>(1.74)      |
| Monday                       | -0.40<br>(1.71)    | 4.23***<br>(1.23)  | -2.48<br>(2.03)    | 2.47<br>(1.82)     | -0.50<br>(2.99) | -5.60**<br>(2.66)    | 5.22**<br>(2.50) | 1.14<br>(2.55)     | 0.53<br>(2.19)      |
| Friday                       | 4.26**<br>(1.68)   | 1.98<br>(1.93)     | -2.36<br>(1.84)    | 0.33<br>(1.87)     | 1.28<br>(3.13)  | -3.53<br>(3.16)      | 3.55<br>(2.60)   | -0.28<br>(2.55)    | 0.75<br>(2.10)      |
| Days in faculty (log)        | 4.28***<br>(0.53)  | -0.32<br>(0.86)    | 1.04<br>(0.64)     | 0.23<br>(1.14)     | -0.02<br>(0.75) | 0.61<br>(1.08)       | 0.09<br>(0.95)   | -0.73<br>(0.83)    | 2.07*<br>(1.05)     |
| Info. treatment              | -1.12<br>(0.97)    | -0.29<br>(1.21)    | 0.34<br>(1.60)     | -0.21<br>(1.63)    | -0.40<br>(1.45) | 0.16<br>(1.62)       | -0.71<br>(1.40)  | -0.96<br>(1.51)    | 1.74<br>(2.12)      |
| Participants (log)           | 4.78***<br>(1.18)  | -2.46<br>(1.56)    | 3.66**<br>(1.53)   | 1.31<br>(1.85)     | -2.55<br>(2.17) | -1.34<br>(3.28)      | 0.49<br>(2.18)   | -5.05***<br>(1.80) | 8.20***<br>(2.27)   |
| Constant                     | 15.47***<br>(1.48) | 5.07**<br>(2.10)   | -7.52***<br>(2.40) | -1.86<br>(2.39)    | 3.04<br>(2.51)  | 0.71<br>(3.41)       | 0.10<br>(2.61)   | 5.30**<br>(2.12)   | -11.05***<br>(3.10) |
| Obs.                         | 1,036              | 471                | 563                | 513                | 520             | 508                  | 528              | 675                | 361                 |
| R <sup>2</sup> (adj.)        | 0.09               | -0.02              | -0.02              | -0.04              | -0.04           | -0.04                | -0.04            | -0.02              | -0.00               |
| Within R <sup>2</sup> (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               |

Note: significance: \*\*\* 0.01, \*\* 0.05, \* 0.1. The dependent variable is the residual of the estimated cheat rate obtained from Table 2 column (3b); column (1) estimates separate Gauss–Newton regressions for men and women; columns (2) and (3) split the sample above and below the mean with respect to the entrance exam score and work orientation; column (4) splits the sample between more risk-averse (low) and risk-loving (high) participants; all models include faculty fixed effects; standard errors clustered at the session level are shown in parentheses.

Source: authors' compilation.



## 6 Conclusion

Much of the economics literature on the determinants of dishonest behaviour has focused on the role of intrinsic characteristics, such as cognitive ability, gender, or risk preferences, as well as differences in socio-cultural norms. In this paper we have sought to widen the scope of previous work by considering the additional influence of extrinsic factors, namely objective situational cues, such as the weather, perceived anonymity, and the informational environment. We also undertook the analysis in a novel context, namely during scheduled classes for undergraduates of various disciplines studying at Mozambique's largest university.

Similar to other studies, we measure cheating using a dice-in-cup game, which we ran alongside a multi-factor personality questionnaire. Our first main finding is that while intrinsic factors do matter, they typically do so in the opposite direction to previous studies. For instance, in our sample, women cheated significantly more than men, as did individuals with a higher orientation towards work and the more conscientious. However, even after including course-specific fixed effects, these factors explained a small share of variation in dishonesty.

Second, extrinsic factors made a quantitatively large difference to cheating behaviours. Hotter weather conditions, defined as sessions ran at warmer, sunnier, and more humid times of day, were associated with cheating rates 15 percentage points higher than under other conditions. And while earlier times of day were associated with less cheating, sessions held on Fridays and in the presence of a larger number of participants were generally associated with an increased propensity to cheat. Third, further investigation of the interaction between intrinsic and extrinsic factors suggests this is a fruitful line of enquiry. Indeed, not only did we find evidence of material heterogeneity in general, but we found that women and more risk-loving participants appeared much more susceptible to variations in extrinsic factors (e.g. weather and anonymity variables) than the other participants.

With the exception of a specific information treatment, we recognize that the extrinsic variables employed in this study were not experimentally manipulated. Therefore, results concerning these variables could be somewhat spurious. Even so, these factors remain salient even after controlling for faculty and course fixed effects. Moreover, our finding that external factors do shape (ethical) behaviour, in the sense of activating specific traits, is hardly controversial. The primary conclusion, therefore, is not that intrinsic factors are in any way trivial or unimportant. Rather, our results indicate that dishonesty should be viewed as a behaviour that is activated or inhibited under particular conditions, not as a homogeneous or constant trait. Thus, studying the interaction between underlying personality traits and the situational triggers of dishonesty constitutes a promising avenue for future research, and may be especially important to better tackle corruption in both low- and high-income countries.

## References

- Alatas, V., L. Cameron, A. Chaudhuri, N. Erkal, and L. Gangadharan (2009). 'Gender, Culture, and Corruption: Insights from an Experimental Analysis'. *Southern Economic Journal*, 75(3): 663–80.
- Almlund, M., J. Heckman, and T. Kautz (2011). 'Personality Psychology and Economics'. NBER Working Paper 16822. Cambridge, MA: NBER. <https://doi.org/10.3386/w16822>
- Azar, O.H., S. Yosef, and M. Bar-Eli (2013). 'Do Customers Return Excessive Change in a Restaurant? A Field Experiment on Dishonesty'. *Journal of Economic Behavior & Organization*, 93: 219–26. <https://doi.org/10.1016/j.jebo.2013.03.031>
- Barfort, S., N.A. Harmon, F. Hjorth, and A.L. Oslen (2019). 'Sustaining Honesty in Public Service: The Role of Selection'. *American Economic Journal: Economic Policy*, 11(4): 96–123. <https://doi.org/10.1257/pol.>

- Barr, A., M. Lindelow, and P. Serneels (2009). 'Corruption in Public Service Delivery: An Experimental Analysis'. *Journal of Economic Behavior & Organization*, 72(1): 225–39. <https://doi.org/10.1016/j.jebo.2009.07.006>
- Bratton, V.K., and C. Strittmatter (2013). 'To Cheat or Not to Cheat? The Role of Personality in Academic and Business Ethics'. *Ethics & Behavior*, 23(6): 427–44. <https://doi.org/10.1080/10508422.2013.811077>
- Buccioli, A., F. Landini, and M. Piovesan (2013). 'Unethical Behavior in the Field: Demographic Characteristics and Beliefs of the Cheater'. *Journal of Economic Behavior & Organization*, 93: 248–57. <https://doi.org/10.1016/j.jebo.2013.03.018>
- Buccioli, A., and M. Piovesan (2011). 'Luck or Cheating? A Field Experiment on Honesty with Children'. *Journal of Economic Psychology*, 32(1): 73–78. <https://doi.org/10.1016/j.joep.2010.12.001>
- Cohn, A., E. Fehr, and M.A. Maréchal (2014). 'Business Culture and Dishonesty in the Banking Industry'. *Nature*, 516(7529): 86–89. <https://doi.org/10.1038/nature13977>
- Conrads, J., B. Irlenbusch, R.M. Rilke, and G. Walkowitz (2013). 'Lying and Team Incentives'. *Journal of Economic Psychology*, 34: 1–7. <https://doi.org/10.1016/j.joep.2012.10.011>
- Dai, Z., F. Galeotti, and M.C. Villeval (2018). 'Cheating in the Lab Predicts Fraud in the Field: An Experiment in Public Transportation'. *Management Science*, 64(3): 1081–100. <https://doi.org/10.1287/mnsc.2016.2616>
- Dell, M., B.F. Jones, and B.A. Olken (2014). 'What Do We Learn from the Weather? The New Climate–Economy Literature'. *Journal of Economic Literature*, 52(3): 740–98. <https://doi.org/10.1257/jel.52.3.740>
- Denissen, J.J., L. Butalid, L. Penke, and M.A. van Aken (2008). 'The Effects of Weather on Daily Mood: A Multilevel Approach'. *Emotion*, 8(5): 662–67. <https://doi.org/10.1037/a0013497>
- DePaulo, B.M., D.A. Kashy, S.E. Kirkendol, M.M. Wyer, and J.A. Epstein (1996). 'Lying in Everyday Life'. *Journal of Personality and Social Psychology*, 70(5): 979. <https://doi.org/10.1037/0022-3514.70.5.979>
- Eisenberger, R., and D.M. Shank (1985). 'Personal Work Ethic and Effort Training Affect Cheating'. *Journal of Personality and Social Psychology*, 49(2): 520. <https://doi.org/10.1037/0022-3514.49.2.520>
- Fiddick, L., G.L. Brase, A.T. Ho, K. Hiraishi, A. Honma, and A. Smith (2016). 'Major Personality Traits and Regulations of Social Behavior: Cheaters Are Not the Same as the Reckless, and You Need to Know Who You're Dealing With'. *Journal of Research in Personality*, 62: 6–18. <https://doi.org/10.1016/j.jrp.2016.02.007>
- Fischbacher, U., and F. Föllmi-Heusi (2013). 'Lies in Disguise: An Experimental Study on Cheating'. *Journal of the European Economic Association*, 11(3): 525–47. <https://doi.org/10.1111/jeea.12014>
- Fosgaard, T. (2019). 'Defaults and Dishonesty: Evidence from a Representative Sample in the Lab'. *Journal of Economic Behavior & Organization*, 157: 670–79. <https://doi.org/10.1016/j.jebo.2018.11.006>
- Fosgaard, T.R. (2020). 'Students Cheat More: Comparing the Dishonesty of a Student Sample and a Representative Sample in the Laboratory'. *Scandinavian Journal of Economics*, 122(1): 257–79. <https://doi.org/10.1111/sjoe.12326>
- Fosgaard, T.R., L.G. Hansen, and M. Piovesan (2013). 'Separating Will from Grace: An Experiment on Conformity and Awareness in Cheating'. *Journal of Economic Behavior & Organization*, 93: 279–84. <https://doi.org/10.1016/j.jebo.2013.03.027>
- Gächter, S., and J.F. Schulz (2016). 'Intrinsic Honesty and the Prevalence of Rule Violations Across Societies'. *Nature*, 531(7595): 496–99. <https://doi.org/10.1038/nature17160>
- Halevy, R., S. Shalvi, and B. Verschuere (2014). 'Being Honest about Dishonesty: Correlating Self-Reports and Actual Lying'. *Human Communication Research*, 40(1): 54–72. <https://doi.org/10.1111/hcre.12019>
- Haley, K.J., and D.M. Fessler (2005). 'Nobody's Watching? Subtle Cues Affect Generosity in an Anonymous Economic Game'. *Evolution and Human Behavior*, 26(3): 245–56. <https://doi.org/10.1016/j.evolhumbehav.2005.01.002>

- Hanna, R., and S.-Y. Wang (2017). 'Dishonesty and Selection into Public Service: Evidence from India'. *American Economic Journal: Economic Policy*, 9(3): 262–90. <https://doi.org/10.1257/pol.20150029>
- Hongwei, Y., P.L. Glanzer, B.R. Johnson, R. Sriram, and B. Moore (2017). 'The Association between Religion and Self-Reported Academic Honesty Among College Students'. *Journal of Beliefs & Values*, 38(1): 63–76. <https://doi.org/10.1080/13617672.2016.1207410>
- Horstmann, K.T., J.F. Rauthmann, and R.A. Sherman (2018). 'Measurement of Situational Influences'. In V. Zeigler-Hill and T.K. Shackelford (eds), *The SAGE Handbook of Personality and Individual Differences*. Thousand Oaks, CA: SAGE.
- Hugh-Jones, D. (2016). 'Honesty, Beliefs about Honesty, and Economic Growth in 15 Countries'. *Journal of Economic Behavior & Organization*, 127: 99–114. <https://doi.org/10.1016/j.jebo.2016.04.012>
- Isakov, M., and A. Tripathy (2017). 'Behavioral Correlates of Cheating: Environmental Specificity and Reward Expectation'. *PLoS One*, 12(10): e0186054. <https://doi.org/10.1371/journal.pone.0186054>
- Jackson, C.J., S.Z. Levine, A. Furnham, and N. Burr (2002). 'Predictors of Cheating Behavior at a University: A Lesson from the Psychology of Work'. *Journal of Applied Social Psychology*, 32(5): 1031–46. <https://doi.org/10.1111/j.1559-1816.2002.tb00254.x>
- Jacobsen, C., T.R. Fosgaard, and D. Pascual-Ezama (2018). 'Why Do We Lie? A Practical Guide to the Dishonesty Literature'. *Journal of Economic Surveys*, 32(2): 357–87. <https://doi.org/10.1111/joes.12204>
- Keller, M.C., B.L. Fredrickson, O. Ybarra, S. Côté, K. Johnson, J. Mikels, A. Conway, and T. Wager (2005). 'A Warm Heart and a Clear Head: The Contingent Effects of Weather on Mood and Cognition'. *Psychological Science*, 16(9): 724–31. <https://doi.org/10.1111/j.1467-9280.2005.01602.x>
- Kim, S., W. Vandenabeele, B.E. Wright, L.B. Andersen, F.P. Cerase, R.K. Christensen, C. Desmarais, M. Koumenta, P. Leisink, B. Liu, J. Palidaukaite, L.H. Pedersen, J.L. Perry, A. Ritz, J. Taylor, and P. De Vivo (2013). 'Investigating the Structure and Meaning of Public Service Motivation Across Populations: Developing an International Instrument and Addressing Issues of Measurement Invariance'. *Journal of Public Administration Research and Theory*, 23(1): 79–102. <https://doi.org/10.1093/jopart/mus027>
- Köbis, N.C., J.-W. van Prooijen, F. Righetti, and P.A.M. Van Lange (2015). 'Who Doesn't? The Impact of Descriptive Norms on Corruption'. *PLoS One*, 10(6): e0131830. <https://doi.org/10.1371/journal.pone.0131830>
- Lee, J.J., F. Gino, and B.R. Staats (2014). 'Rainmakers: Why Bad Weather Means Good Productivity'. *Journal of Applied Psychology*, 99(3): 504. <https://doi.org/10.1037/a0035559>
- Macdonald, C., M. Bore, and D. Munro (2008). 'Values in Action Scale and the Big 5: An Empirical Indication of Structure'. *Journal of Research in Personality*, 42(4): 787–99. <https://doi.org/10.1016/j.jrp.2007.10.003>
- MacKinnon, J.G. (1992). 'Model Specification Tests and Artificial Regressions'. *Journal of Economic Literature*, 30(1): 102–46.
- Mathes, E., and A. Kahn (1975). 'Diffusion of Responsibility and Extreme Behavior'. *Journal of Personality & Social Psychology*, 31(5): 881–86. <https://doi.org/10.1037/h0076695>
- McCabe, D.L., L.K. Treviño, and K.D. Butterfield (2001). 'Cheating in Academic Institutions: A Decade of Research'. *Ethics & Behavior*, 11(3): 219–32. [https://doi.org/10.1207/S15327019EB1103\\_2](https://doi.org/10.1207/S15327019EB1103_2)
- Olsen, A.L., F. Hjorth, N. Harmon, and S. Barfort (2018). 'Behavioral Dishonesty in the Public Sector'. *Journal of Public Administration Research and Theory*, 29(4): 572–90. <https://doi.org/10.1093/jopart/muy058>
- Rammstedt, B., and O.P. John (2007). 'Measuring Personality in One Minute or Less: A 10-Item Short Version of the Big Five Inventory in English and German'. *Journal of Research in Personality*, 41(1): 203–12. <https://doi.org/10.1016/j.jrp.2006.02.001>
- Ranson, M. (2014). 'Crime, Weather, and Climate Change'. *Journal of Environmental Economics and Management*, 67(3): 274–302. <https://doi.org/10.1016/j.jeem.2013.11.008>

- Rosenbaum, S.M., S. Billinger, and N. Stieglitz (2014). 'Let's be Honest: A Review of Experimental Evidence of Honesty and Truth-Telling'. *Journal of Economic Psychology*, 45: 181–96. <https://doi.org/10.1016/j.joep.2014.10.002>
- Ruffle, B.J., and Y. Tobol (2014). 'Honest on Mondays: Honesty and the Temporal Separation between Decisions and Payoffs'. *European Economic Review*, 65: 126–35. <https://doi.org/10.1016/j.euroecorev.2013.11.004>
- Sepänen, O., W.J. Fisk, and D. Faulkner (2003). 'Cost Benefit Analysis of the Night-Time Ventilative Cooling in Office Building'. Report. Berkeley, CA: Lawrence Berkeley National Laboratory.
- Serota, K.B., and T.R. Levine (2015). 'A Few Prolific Liars: Variation in the Prevalence of Lying'. *Journal of Language and Social Psychology*, 34(2): 138–57. <https://doi.org/10.1177/0261927X14528804>
- Sherman, R.A., J.F. Rauthmann, N.A. Brown, D.G. Serfass, and A.B. Jones (2015). 'The Independent Effects of Personality and Situations on Real-Time Expressions of Behavior and Emotion'. *Journal of Personality and Social Psychology*, 109(5): 872. <https://doi.org/10.1037/pspp0000036>
- Stam, K., I. Sieben, E. Verbakel, and P.M. de Graaf (2016). 'Employment Status and Subjective Well-Being: The Role of the Social Norm to Work'. *Work, Employment and Society*, 30(2): 309–33. <https://doi.org/10.1177/2F0950017014564602>
- Xu, Z.X., and H.K. Ma (2015). 'Does Honesty Result from Moral Will or Moral Grace? Why Moral Identity Matters'. *Journal of Business Ethics*, 127(2): 371–84. <https://doi.org/10.1007/s10551-014-2050-x>
- Yi, W., and A.P. Chan (2017). 'Effects of Heat Stress on Construction Labor Productivity in Hong Kong: A Case Study of Rebar Workers'. *International Journal of Environmental Research and Public Health*, 14(9): 1055. <https://doi.org/10.3390/ijerph14091055>

## A1 Additional table

Table A1: Summary of variables entering regression models

| Group     | Variable label       | Description                                          | Correl. | Scaling       |
|-----------|----------------------|------------------------------------------------------|---------|---------------|
| Intrinsic | Female               | Identifies as a woman                                | –       | Dummy         |
|           | Age                  | Student age in years                                 | –       | Centred count |
|           | Entrance score       | Exam entrance score mean                             | +       | Standardized  |
|           | Study length         | Years studying at the university                     | ?       | Continuous    |
|           | Work orientation     | Measure of orientation towards work (work ethic)     | –       | Standardized  |
|           | Pro-sociality        | Share of participation gratuity donated              | –       | Continuous    |
|           | Risk-loving          | Chose most risky lottery                             | +       | Dummy         |
|           | Risk-averse          | Chose least risky lottery                            | –       | Dummy         |
|           | B5 extraversion      | Big Five personality dimension                       | ?       | Standardized  |
|           | B5 agreeableness     | Big Five personality dimension                       | –       | Standardized  |
|           | B5 conscientiousness | Big Five personality dimension                       | –       | Standardized  |
|           | B5 neuroticism       | Big Five personality dimension                       | +       | Standardized  |
|           | B5 openness          | Big Five personality dimension                       | ?       | Standardized  |
|           | PSM sacrifice        | Willingness to sacrifice private for public interest | –       | Standardized  |
|           | PSM value            | Commitment to public (sector) values                 | –       | Standardized  |
|           | PSM compassion       | Compassion towards unknown others                    | –       | Standardized  |
|           | PSM interest         | Attraction to public service/policy                  | –       | Standardized  |
| Extrinsic | Sunny                | No cloud cover                                       | ?       | Dummy         |
|           | Warm                 | Temperature $\geq 25$ °C                             | +       | Dummy         |
|           | Humid                | Humidity above 60 per cent                           | +       | Dummy         |
|           | Monday               | First day of week                                    | –       | Dummy         |
|           | Friday               | Last day of week                                     | +       | Dummy         |
|           | Before 10 a.m.       | Session begun before 10 a.m.                         | –       | Dummy         |
|           | Days in faculty      | No. days since survey begun in given faculty         | +       | Log           |
|           | Info. treatment      | Exposure to information treatment                    | ?       | Dummy         |
|           | Participants         | No. participants in session                          | ?       | Log           |

## A1.1 Survey material

|                                                            |
|------------------------------------------------------------|
| PESQUISA SOBRE ESTUDANTES DA UNIVERSIDADE EDUARDO MONDLANE |
|------------------------------------------------------------|

### **Objectivos**

Este inquérito enquadra-se num projecto de pesquisa sobre os actuais alunos da Universidade Eduardo Mondlane. O estudo analisa as suas atitudes em relação ao mundo e as suas decisões em situações caracterizadas por incerteza.

Nesta fase do projecto pedimos a estudantes desta universidade que respondam a vários grupos de perguntas num questionário que é feito durante o período lectivo.

### **Pesquisadores**

Este projecto é liderado por um equipa de pesquisadores da Universidade de Copenhaga (Dinamarca), da UNU-WIDER (Finlândia) e do Centro de Estudos de Economia e Gestão, da Faculdade de Economia da Universidade Eduardo Mondlane. Os investigadores principais são: Professor Sam Jones, UNU-WIDER ([jones@wider.unu.edu](mailto:jones@wider.unu.edu)), Dra. Inês Ferreira, Universidade de Copenhaga ([if@econ.ku.dk](mailto:if@econ.ku.dk)) e o Dr. Ricardo Santos, UNU-WIDER ([ricardo.santos@wider.unu.edu](mailto:ricardo.santos@wider.unu.edu)). Eles podem ser contactados para obter mais informações sobre a pesquisa.

O projecto de pesquisa foi aprovado pelo Excelentíssimo Reitor da Universidade Eduardo Mondlane, Prof. Doutor Orlando António Quilambo.

### **A sua participação**

A sua participação no projecto hoje é voluntária. Pode descontinuar a sua participação a qualquer momento, sem repercussões. Todas as suas respostas são confidenciais e anónimas – i.e., nenhum dado pessoal será partilhado com a Universidade ou outra instituição. Do mesmo modo, as suas respostas não contarão para nenhuma avaliação.

Devido ao número limitado de recursos, é possível que nem todos os que estão dispostos a participar no projecto sejam seleccionados para responder ao inquérito base (hoje). Se for esse o caso, a selecção será aleatória.

A sua participação no projecto terá uma remuneração simbólica, mas não trará nenhum outro benefício pessoal (tais como oportunidades de emprego).

### **Consentimento**

*Declaração: Tendo lido este formulário, entendo o propósito da pesquisa e que a minha participação é voluntária.*

Nome completo: \_\_\_\_\_

Número de telefone/telemóvel: \_\_\_\_\_

Endereço electrónico (email): \_\_\_\_\_

Dou o meu consentimento para participar [marque uma só caixa]: Sim: ☐ Não: ☐

Se for “sim”, assinatura: \_\_\_\_\_

## INVESTIGAÇÃO SOBRE ESTUDANTES DA UNIVERSIDADE EDUARDO MONDLANE

Muito obrigado por participar neste estudo sobre os actuais alunos da Universidade Eduardo Mondlane. O estudo analisa as suas atitudes em relação ao mundo e as suas decisões em situações caracterizadas por incerteza.

As suas respostas são anónimas e serão utilizadas apenas de acordo com os objectivos deste estudo.

Durante o estudo, vamos pedir-lhe que responda a vários grupos de perguntas. Entre os grupos de perguntas, ganhará uma recompensa pela sua participação através de pequenos jogos. A recompensa ser-lhe-á paga depois de completar o questionário. As perguntas e os jogos serão apresentados ao longo do questionário, mas estimamos que, em média, cada participante conclua o questionário em 30 minutos e ganhe pelo menos 40 MT.

### PARTE I. DONATIVO

Bem-vindo/a ao estudo. Antes de prosseguirmos, temos uma oferta de 50 MT como agradecimento pelo tempo despendido no questionário.

Poderá optar por receber esta quantia imediatamente no final desta sessão e juntamente com o valor adicional adquirido durante o questionário. No entanto, poderá também optar por doar uma parte deste dinheiro a uma das seguintes instituições de caridade para contribuir para ajudar as vítimas dos ciclones Idai e Keneth:

- Fundação para o Desenvolvimento da Comunidade
- Instituto Nacional de Gestão de Calamidades
- Fundo das Nações Unidas para a Infância (UNICEF)
- Programa Alimentar Mundial da Organização das Nações Unidas
- Cruz Vermelha

Dependendo do valor que escolha doar, nós iremos adicionalmente doar uma determinada quantia, de acordo com o seguinte esquema de donativos:

|         | O seu donativo | O nosso donativo | Donativo total |
|---------|----------------|------------------|----------------|
| Opção A | 0 MT           | 0 MT             | 0 MT           |
| Opção B | 17 MT          | 9 MT             | 26 MT          |
| Opção C | 33 MT          | 12 MT            | 45 MT          |
| Opção D | 50 MT          | 12 MT            | 62 MT          |

Por favor, responda a todas as questões numeradas.

1. Por favor, indique qual das opções de donativo escolhe, colocando um 'X' na coluna 'Escolha do Participante' na Folha 1.

Se escolheu uma das opções B, C ou D, a qual das instituições de caridade devemos dar o donativo?

|                                                             |       |
|-------------------------------------------------------------|-------|
| Fundação para o Desenvolvimento da Comunidade               | _____ |
| Instituto Nacional de Gestão de Calamidades                 | _____ |
| Fundo das Nações Unidas para a Infância (UNICEF)            | _____ |
| Programa Alimentar Mundial da Organização das Nações Unidas | _____ |
| Cruz Vermelha                                               | _____ |

2. Já tinha prestado algum tipo de ajuda para a recuperação do ciclone (por exemplo, transferência bancária, donativo de alimentos, roupas, etc.)?

Sim \_\_\_\_\_ Não \_\_\_\_\_

2.1. Se respondeu sim, por favor, indique o tipo de ajuda.

---

## PARTE II. LOTARIA

Como já foi referido, este questionário está relacionado, entre outras coisas, com a forma como lida com situações em que existem elementos de incerteza. De entre os participantes no estudo, vamos escolher um grupo que irá participar numa lotaria simples com o lançamento de uma moeda. Aproximadamente 1 em cada 10 participantes será seleccionado para participar.

Caso seja seleccionado para participar nesta lotaria, no final do questionário irá lançar uma moeda ao ar e receberá um valor diferente consoante sair cara ou coroa. Pode escolher a remuneração para cada um dos cenários de acordo com as opções abaixo:

|         | Remuneração se sair cara | Remuneração se sair coroa |
|---------|--------------------------|---------------------------|
| Opção A | 200 MT                   | 0 MT                      |
| Opção B | 160 MT                   | 30 MT                     |
| Opção C | 140 MT                   | 40 MT                     |
| Opção D | 120 MT                   | 50 MT                     |
| Opção E | 80 MT                    | 80 MT                     |

1. Por favor, indique qual das opções de remuneração escolhe, colocando um 'X' na coluna 'Escolha do participante' na Folha 1.

Será informado no final da sessão se foi seleccionado para participar na lotaria.

Por favor, responda a todas as questões numeradas.



### PARTE III. PERGUNTAS PESSOAIS

Antes do início da pesquisa, por favor responda a algumas questões breves sobre si.

1. Qual é o seu género? Masculino \_\_\_\_ Feminino \_\_\_\_

2. Qual é a sua idade? \_\_\_\_

3. Qual o nome da província onde nasceu?

|              |      |                 |      |          |      |
|--------------|------|-----------------|------|----------|------|
| Cabo Delgado | ____ | Maputo (cidade) | ____ | Sofala   | ____ |
| Gaza         | ____ | Maputo          | ____ | Tete     | ____ |
| Inhambane    | ____ | Nampula         | ____ | Zambézia | ____ |
| Manica       | ____ | Niassa          | ____ |          |      |

4. Qual o nome da província onde residia antes de entrar para Universidade?

|              |      |                 |      |          |      |
|--------------|------|-----------------|------|----------|------|
| Cabo Delgado | ____ | Maputo (cidade) | ____ | Sofala   | ____ |
| Gaza         | ____ | Maputo          | ____ | Tete     | ____ |
| Inhambane    | ____ | Nampula         | ____ | Zambézia | ____ |
| Manica       | ____ | Niassa          | ____ |          |      |

5. Você faz parte deste estudo porque é aluno/a da Universidade Eduardo Mondlane. Por favor, indique o ano em que iniciou os seus estudos (pela primeira vez) nesta Universidade. \_\_\_\_

6. Qual foi a sua nota de admissão para a universidade? Se não se lembrar exactamente, escreva um valor aproximado (por favor, especifique a nota com uma casa decimal, por exemplo, 14.7). \_\_\_\_

7. Tem actualmente ou alguma vez teve um emprego?

Sim \_\_\_\_ Não \_\_\_\_

7.1. Em caso afirmativo, indique para que tipo de empregador trabalhou.

|                                     |      |
|-------------------------------------|------|
| Uma instituição pública             | ____ |
| Uma empresa privada                 | ____ |
| Uma organização sem fins lucrativos | ____ |
| Um negócio da minha família         | ____ |
| A machamba da minha família         | ____ |
| Por conta própria                   | ____ |

3

Por favor, responda a todas as questões numeradas.

8. As próximas perguntas são sobre os seus planos de trabalho futuros. Imagine que obteve o seu grau académico e que pode agora escolher livremente entre diferentes tipos de empregos. Ordene as seguintes cinco categorias de acordo com a sua preferência:

- A. Sector público
- B. Sector privado (como empregado/a)
- C. Organização sem fins lucrativos (como empregado/a)
- D. Negócio familiar (como empregado/a)
- E. Por conta própria

Deve indicar a categoria que escolhe, escrevendo a letra correspondente (ex. Sector Público = A)

- 8.1. Qual é a sua 1ª preferência (a sua categoria favorita)? \_\_\_\_\_ (coloque aqui a letra)
- 8.2. Qual é a sua 2ª preferência? \_\_\_\_\_ (coloque aqui a letra)
- 8.3. Qual é a sua 3ª preferência? \_\_\_\_\_ (coloque aqui a letra)
- 8.4. Qual é a sua 4ª preferência? \_\_\_\_\_ (coloque aqui a letra)
- 8.5. Qual é a sua 5ª preferência (a categoria menos favorita)? \_\_\_\_\_ (coloque aqui a letra)

9. Claro que, neste momento, é muito difícil que tenha a certeza sobre se gostaria do tipo de emprego que irá ter. Pedimos, por isso, que nos indique o grau da sua confiança nas prioridades que indicou na pergunta anterior. Para cada opção pedimos que indique um valor entre 0 e 10, em que 0 significa que não tem certeza nenhuma que este tipo de emprego tenha a prioridade que indicou na pergunta anterior, e 10 significa que tem completa certeza da prioridade que indicou. Por exemplo, se colocou o “Negócio familiar” como o 3º favorito, 0 significa que não tem certeza nenhuma de que este seria a 3ª escolha (podia ser a 2ª ou a 4ª escolha), e 10 significa que tem a certeza total de que é o tipo de emprego que escolheria em 3º lugar.

- Sector público \_\_\_\_\_
- Sector privado (como empregado/a) \_\_\_\_\_
- Organização sem fins lucrativos (como empregado/a) \_\_\_\_\_
- Negócio familiar (como empregado/a) \_\_\_\_\_
- Por conta própria \_\_\_\_\_

Por favor, responda a todas as questões numeradas.

10. Quais são os factores que são importantes para si em termos de selecção de um emprego? Considere os seguintes factores e ordene-os de acordo com o grau de importância que têm para si:

- A. Nível de salário
- B. Condições de trabalho (por exemplo, horas de trabalho, condições de maternidade e paternidade, etc.)
- C. Responsabilidades importantes (por exemplo, influência/poder)
- D. Conteúdo do trabalho (tarefas divertidas/emocionantes)
- E. Segurança no emprego (baixo risco de ficar desempregado)

Em cada pergunta em baixo, indique a letra que corresponde à sua escolha (ex. Nível de salário = A):

- 10.1. Qual é a 1ª característica mais importante? \_\_\_\_ (coloque aqui a letra)
- 10.2. Qual é a 2ª característica mais importante? \_\_\_\_ (coloque aqui a letra)
- 10.3. Qual é a 3ª característica mais importante? \_\_\_\_ (coloque aqui a letra)
- 10.4. Qual é a 4ª característica mais importante? \_\_\_\_ (coloque aqui a letra)
- 10.5. Qual é a 5ª característica mais importante? \_\_\_\_ (coloque aqui a letra)

11. Agora pedimos-lhe que pense em dois empregos específicos que sejam relevantes e atraentes para si quando se graduar. Um deles é o emprego que é para si o mais relevante e atraente no sector privado (no momento em que acabar o seu curso). O segundo é o emprego que é para si o mais relevante e atraente no sector público (no momento em que acabar o seu curso).

Quando tiver pensado nos dois empregos, considere cada um dos cenários salariais abaixo, sabendo que a única coisa que muda é o pagamento. Marque com um 'X' o seu sector preferido.

|                                                                                                                                                                         | Emprego no sector<br><b>privado</b> | Emprego no sector<br><b>público</b> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|
| 11.1. Qual dos dois empregos preferiria sabendo que o emprego no sector <b>privado</b> paga <b>10000 MT a mais</b> por mês do que o emprego no sector <b>público</b> ?  |                                     |                                     |
| 11.2. Qual dos dois empregos preferiria sabendo que o emprego no sector <b>privado</b> paga <b>5000 MT a mais</b> por mês do que o emprego no sector <b>público</b> ?   |                                     |                                     |
| 11.3. Qual dos dois empregos preferiria sabendo que os dois empregos têm o <b>mesmo salário</b> ?                                                                       |                                     |                                     |
| 11.4. Qual dos dois empregos preferiria sabendo que o emprego no sector <b>privado</b> paga <b>5000 MT a menos</b> por mês do que o emprego no sector <b>público</b> ?  |                                     |                                     |
| 11.5. Qual dos dois empregos preferiria sabendo que o emprego no sector <b>privado</b> paga <b>10000 MT a menos</b> por mês do que o emprego no sector <b>público</b> ? |                                     |                                     |

5

Por favor, responda a todas as questões numeradas.

## JOGO DE LANÇAMENTO DO DADO – SÉRIE 1

Terminou de responder à primeira série de perguntas.

O objectivo agora é verificar se consegue adivinhar em situações marcadas por aleatoriedade. Para isso, deve jogar 10 rondas de um jogo de lançamento de dado, em que pode ganhar uma remuneração em cada ronda.

Terá que adivinhar qual o valor que vai sair no dado. Quanto maior for o número de rondas em que adivinhar correctamente, maior será o valor da remuneração.

Em cada ronda, deve seguir as seguintes instruções:

1. Primeiro, tem que tentar adivinhar o número de pontos que vai sair, de 1 a 6.
2. Quando tiver pensado no seu palpite, lance o dado dentro do copo que lhe foi dado.
3. Depois de ter visto o resultado do lançamento, registe o número de pontos em que tinha pensado na tabela, na coluna PALPITE e na linha correspondente ao lançamento.
4. Se o seu palpite for igual ao número de pontos que saiu no lançamento do dado, marque um 'X' na coluna CORRECTO e ganhará 3MT. Caso contrário, marque um 'X' na coluna INCORRECTO e ganhará 1MT.
5. No final das 10 rondas, registe o número total de palpites correctos e incorrectos na última linha da tabela, na respectiva coluna. Copie estes totais para a Folha 1.

Exemplo:

|              | PALPITE | CORRECTO | INCORRECTO |
|--------------|---------|----------|------------|
| Lançamento 1 | 5       | X        |            |
| Lançamento 2 | 3       |          | X          |
| TOTAL        |         | 1        | 1          |

Nota: É importante que você seja cuidadoso em memorizar e especificar o número em que estava a pensar antes do lançamento do dado.

Antes de começarmos o jogo de dados, gostaríamos de saber se as regras são claras. Para isso, pedimos-lhe que considere o Exemplo 1. Tendo em conta o palpite registado na tabela e o número de pontos obtido no lançamento do dado indicados no Exemplo 1, indique o resultado do lançamento, assinalando com um 'X' na coluna 'CORRECTO' ou na coluna 'INCORRECTO' na seguinte tabela:

*Exemplo 1*

Número de pontos no lançamento do dado: 4

|            | PALPITE | CORRECTO | INCORRECTO |
|------------|---------|----------|------------|
| Lançamento | 2       |          |            |

Por favor, responda a todas as questões numeradas.

Considere agora o Exemplo 2. Tendo em conta o palpite registado na tabela e o número de pontos obtido no lançamento do dado indicados no Exemplo 2, indique o resultado do lançamento, assinalando com um 'X' na coluna 'CORRECTO' ou na coluna 'INCORRECTO' na seguinte tabela:

*Exemplo 2*

Número de pontos no lançamento do dado: **1**

|            | PALPITE | CORRECTO | INCORRECTO |
|------------|---------|----------|------------|
| Lançamento | 1       |          |            |

*Há algum tempo atrás, pedimos a outros estudantes para jogarem o mesmo jogo e para tentarem adivinhar o resultado do lançamento de um dado. Em cada 100 alunos, 73 indicaram que tinham acertado pelo menos 10 vezes em 40 lançamentos (acertaram 1 em cada 4 lançamentos) e 35 indicaram que tinham acertado pelo menos 30 vezes em 40 lançamentos (acertaram 3 em cada 4 lançamentos).*

Pode começar o jogo. Para esta ronda, use a seguinte tabela. Quando terminar os dez lançamentos, não se esqueça de registar o número total de palpites correctos e incorrectos na Folha 1.

1º CONJUNTO DE LANÇAMENTOS

|               | PALPITE | CORRECTO | INCORRECTO |
|---------------|---------|----------|------------|
| Lançamento 1  |         |          |            |
| Lançamento 2  |         |          |            |
| Lançamento 3  |         |          |            |
| Lançamento 4  |         |          |            |
| Lançamento 5  |         |          |            |
| Lançamento 6  |         |          |            |
| Lançamento 7  |         |          |            |
| Lançamento 8  |         |          |            |
| Lançamento 9  |         |          |            |
| Lançamento 10 |         |          |            |
| TOTAL         |         |          |            |

Por favor, responda a todas as questões numeradas.

#### PARTE IV. PERGUNTAS DE OPINIÃO

12. Agora pedimos-lhe que declare se concorda com as seguintes declarações, numa escala de 1 a 5, em que 1 indica 'discordo completamente' e 5 indica 'concordo completamente'. Marque a sua resposta com um 'X'.

|                                                                                                                | Discordo complet. |   |   |   | Concordo complet. |
|----------------------------------------------------------------------------------------------------------------|-------------------|---|---|---|-------------------|
|                                                                                                                | 1                 | 2 | 3 | 4 | 5                 |
| 1. Sou uma pessoa que é cautelosa e reservada.                                                                 |                   |   |   |   |                   |
| 2. Parto do princípio que as pessoas têm sempre as melhores intenções.                                         |                   |   |   |   |                   |
| 3. Sou uma pessoa que escolhe o caminho mais fácil.                                                            |                   |   |   |   |                   |
| 4. Sou uma pessoa que é relaxada e não fica nervosa facilmente.                                                |                   |   |   |   |                   |
| 5. Sou uma pessoa que tem poucos interesses artísticos.                                                        |                   |   |   |   |                   |
| 6. Sou uma pessoa extrovertida.                                                                                |                   |   |   |   |                   |
| 7. Sou uma pessoa que tende a concentrar-se nos erros dos outros.                                              |                   |   |   |   |                   |
| 8. Sou uma pessoa que faz coisas com muita atenção aos detalhes.                                               |                   |   |   |   |                   |
| 9. Sou uma pessoa que facilmente fica nervosa e insegura.                                                      |                   |   |   |   |                   |
| 10. Sou uma pessoa que tem uma imaginação fértil.                                                              |                   |   |   |   |                   |
| 11. Quando alguém me faz um favor, estou disposto(a) a retribuí-lo.                                            |                   |   |   |   |                   |
| 12. Se sou tratado(a) muito injustamente, vingar-me-ei na primeira ocasião, mesmo que haja um custo associado. |                   |   |   |   |                   |

13. Agora vamos questioná-lo(a) sobre a sua disposição para agir de uma certa maneira. Por favor, indique novamente a sua resposta numa escala de 1 a 5, em que 1 significa 'Completamente não disposto(a) a fazê-lo' e 5 significa 'Muito disposto(a) a fazê-lo'.

|                                                                                                                          | Complet. não disposto |   |   |   | Muito disposto |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------|---|---|---|----------------|
|                                                                                                                          | 1                     | 2 | 3 | 4 | 5              |
| 1. Até que ponto se encontra disposto(a) a fazer doações para boas causas, sem esperar nada em troca?                    |                       |   |   |   |                |
| 2. Até que ponto está disposto(a) a punir alguém que o(a) trata de forma injusta, mesmo que isso tenha custos para si?   |                       |   |   |   |                |
| 3. Até que ponto está disposto(a) a punir alguém que trata outros de forma injusta, mesmo que isso tenha custos para si? |                       |   |   |   |                |

8

Por favor, responda a todas as questões numeradas.

## JOGO DE LANÇAMENTO DO DADO – SÉRIE 2

Terminou agora de responder à segunda série de perguntas.

Agora repetimos o estudo que verifica como consegue adivinhar em situações aleatórias, usando 10 novas rondas de lançamento do dado. Como na última ronda, ganha 3MT quando adivinha correctamente e 1MT caso contrário.

As instruções são as mesmas que na ronda anterior.

*Há algum tempo atrás, pedimos a outros estudantes para jogarem o mesmo jogo e para tentarem adivinhar o resultado do lançamento de um dado. Em cada 100 alunos, 73 indicaram que tinham acertado pelo menos 10 vezes em 40 lançamentos (acertaram 1 em cada 4 lançamentos) e 35 indicaram que tinham acertado pelo menos 30 vezes em 40 lançamentos (acertaram 3 em cada 4 lançamentos).*

Use a seguinte tabela para registar os seus palpites e os resultados dos lançamentos. Quando terminar, não se esqueça de registar o número total de palpites correctos e incorrectos na Folha 1.

### 2º CONJUNTO DE LANÇAMENTOS

|               | PALPITE | CORRECTO | INCORRECTO |
|---------------|---------|----------|------------|
| Lançamento 11 |         |          |            |
| Lançamento 12 |         |          |            |
| Lançamento 13 |         |          |            |
| Lançamento 14 |         |          |            |
| Lançamento 15 |         |          |            |
| Lançamento 16 |         |          |            |
| Lançamento 17 |         |          |            |
| Lançamento 18 |         |          |            |
| Lançamento 19 |         |          |            |
| Lançamento 20 |         |          |            |
| TOTAL         |         |          |            |

Por favor, responda a todas as questões numeradas.

## PARTE V. PERGUNTAS DE OPINIÃO (CONT.)

Seguem-se algumas perguntas adicionais que lhe pedimos para responder.

Os cinco diagramas abaixo mostram diferentes tipos de sociedades. Leia as descrições e veja os diagramas:

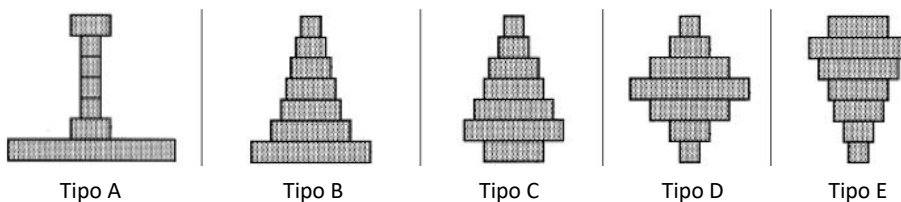
Tipo A: Uma pequena elite no topo, muito poucas pessoas no meio e uma grande massa na parte inferior (os mais pobres).

Tipo B: Uma sociedade como uma pirâmide, com uma pequena elite no topo, mais pessoas no meio e a maioria na parte inferior.

Tipo C: Uma pirâmide – com a exceção de que existem apenas algumas pessoas na parte inferior.

Tipo D: Uma sociedade onde a maioria das pessoas está no meio.

Tipo E: Muitas pessoas perto do topo e apenas algumas perto da parte inferior.



14. Qual o diagrama que considera que melhor descreve o tipo de sociedade moçambicana *hoje em dia* - qual o gráfico que mais se aproxima?

- Tipo A \_\_\_\_  
Tipo B \_\_\_\_  
Tipo C \_\_\_\_  
Tipo D \_\_\_\_  
Tipo E \_\_\_\_

15. Considerando os mesmos cinco diagramas, como acha que a sociedade moçambicana *deveria ser* - que tipo preferiria?

- Tipo A \_\_\_\_  
Tipo B \_\_\_\_  
Tipo C \_\_\_\_  
Tipo D \_\_\_\_  
Tipo E \_\_\_\_

Por favor, responda a todas as questões numeradas.



16. Gostaríamos de lhe pedir que declarasse se concorda com as seguintes declarações numa escala de 1 a 5, onde 1 indica 'discordo completamente' e 5 indica 'concordo completamente'. Marque a sua resposta com um 'X'.

|                                                                                     | Discordo complet. |   |   |   | Concordo complet. |
|-------------------------------------------------------------------------------------|-------------------|---|---|---|-------------------|
|                                                                                     | 1                 | 2 | 3 | 4 | 5                 |
| 1. É necessário uma pessoa ter um trabalho para desenvolver as suas capacidades     |                   |   |   |   |                   |
| 2. É humilhante receber dinheiro se não se trabalhou para o receber                 |                   |   |   |   |                   |
| 3. Não trabalhar torna uma pessoa preguiçosa                                        |                   |   |   |   |                   |
| 4. Trabalhar é o seu dever para a sua sociedade                                     |                   |   |   |   |                   |
| 5. O trabalho vem em primeiro lugar, mesmo que isso signifique menos tempo de lazer |                   |   |   |   |                   |
| 6. As pessoas só devem trabalhar se quiserem                                        |                   |   |   |   |                   |

17. Há quem acredite que tem controlo total sobre a maneira como a sua vida evolui, enquanto outros acham que as suas próprias acções não têm influência sobre como as coisas correm. Numa escala de 1 a 5, onde se colocaria, sendo que 1 significa 'nenhuma influência' e 5 significa 'muita influência'?

|                                                          | Nenhuma influência |   |   |   | Muita influência |
|----------------------------------------------------------|--------------------|---|---|---|------------------|
|                                                          | 1                  | 2 | 3 | 4 | 5                |
| Influência das minhas acções sobre como as coisas correm |                    |   |   |   |                  |

Por favor, responda a todas as questões numeradas.

### JOGO DE LANÇAMENTO DO DADO – SÉRIE 3

Terminou agora de responder à terceira série de perguntas.

Agora repetimos o estudo que verifica como consegue adivinhar em situações aleatórias, usando 10 novas rondas de lançamento do dado. Como na última ronda, ganha 3MT quando adivinha correctamente e 1MT caso contrário.

As instruções são as mesmas que na ronda anterior.

*Há algum tempo atrás, pedimos a outros estudantes para jogarem o mesmo jogo e para tentarem adivinhar o resultado do lançamento de um dado. Em cada 100 alunos, 73 indicaram que tinham acertado pelo menos 10 vezes em 40 lançamentos (acertaram 1 em cada 4 lançamentos) e 35 indicaram que tinham acertado pelo menos 30 vezes em 40 lançamentos (acertaram 3 em cada 4 lançamentos).*

Use a seguinte tabela para registar os seus palpites e os resultados dos lançamentos. Quando terminar, não se esqueça de registar o número total de palpites correctos e incorrectos na Folha 1.

#### 3º CONJUNTO DE LANÇAMENTOS

|               | PALPITE | CORRECTO | INCORRECTO |
|---------------|---------|----------|------------|
| Lançamento 21 |         |          |            |
| Lançamento 22 |         |          |            |
| Lançamento 23 |         |          |            |
| Lançamento 24 |         |          |            |
| Lançamento 25 |         |          |            |
| Lançamento 26 |         |          |            |
| Lançamento 27 |         |          |            |
| Lançamento 28 |         |          |            |
| Lançamento 29 |         |          |            |
| Lançamento 30 |         |          |            |
| TOTAL         |         |          |            |

Por favor, responda a todas as questões numeradas.

## PARTE VI. PERGUNTAS DE OPINIÃO (CONT.)

Seguem-se algumas perguntas adicionais que lhe pedimos para responder.

18. Gostaríamos de lhe pedir que indique se concorda com as seguintes afirmações, usando uma escala de 1 a 5, em que 1 indica 'discordo completamente' e 5 indica 'concordo completamente'. Marque a sua resposta com um 'X'.

|                                                                                                                                   | Discordo complet. |   |   |   |   | Concordo complet. |   |   |   |   |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------|---|---|---|---|-------------------|---|---|---|---|
|                                                                                                                                   | 1                 | 2 | 3 | 4 | 5 | 1                 | 2 | 3 | 4 | 5 |
| 1. Eu acredito que se tem de contribuir mais para a sociedade do que se recebe                                                    |                   |   |   |   |   |                   |   |   |   |   |
| 2. Estou disposto a arriscar ter de sobrepor o bem da sociedade às minhas necessidades pessoais                                   |                   |   |   |   |   |                   |   |   |   |   |
| 3. Eu estou pronto para sofrer privações em prol da sociedade                                                                     |                   |   |   |   |   |                   |   |   |   |   |
| 4. Eu concordaria com um bom plano para melhorar a vida das pessoas com dificuldades financeiras mesmo que isso me custe dinheiro |                   |   |   |   |   |                   |   |   |   |   |
| 5. Eu fico emocionalmente afectado quando vejo pessoas a passar necessidades                                                      |                   |   |   |   |   |                   |   |   |   |   |
| 6. Para mim é muito importante ter em conta o bem-estar dos outros                                                                |                   |   |   |   |   |                   |   |   |   |   |
| 7. Eu fico muito comovido quando vejo outras pessoas a serem tratadas injustamente                                                |                   |   |   |   |   |                   |   |   |   |   |
| 8. Eu sinto compaixão por pessoas menos privilegiadas que têm problemas                                                           |                   |   |   |   |   |                   |   |   |   |   |
| 9. Eu admiro pessoas que iniciam ou que estão envolvidas em actividades para ajudar a minha comunidade                            |                   |   |   |   |   |                   |   |   |   |   |
| 10. É importante para mim que os serviços públicos beneficiem a sociedade como um todo                                            |                   |   |   |   |   |                   |   |   |   |   |
| 11. É importante para mim contribuir para o bem comum                                                                             |                   |   |   |   |   |                   |   |   |   |   |
| 12. É meu dever cívico fazer algo que sirva para o melhor para a sociedade                                                        |                   |   |   |   |   |                   |   |   |   |   |
| 13. Eu penso que é muito importante que os cidadãos tenham as mesmas oportunidades                                                |                   |   |   |   |   |                   |   |   |   |   |
| 14. É importante que os cidadãos possam contar com uma provisão contínua de serviços públicos                                     |                   |   |   |   |   |                   |   |   |   |   |
| 15. É fundamental que os interesses das gerações futuras sejam tidos em conta aquando do desenvolvimento de políticas públicas    |                   |   |   |   |   |                   |   |   |   |   |
| 16. É essencial que os funcionários públicos ajam de forma ética                                                                  |                   |   |   |   |   |                   |   |   |   |   |

13

Por favor, responda a todas as questões numeradas.

19. Agora pedimos-lhe que declare se concorda com as seguintes declarações numa escala de 1 a 5, em que 1 indica 'discordo completamente' e 5 indica 'concordo completamente'. Marque a sua resposta com um 'X'.

|                                                                                                                                                  | Discordo complet. |   |   |   | Concordo complet. |
|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---|---|---|-------------------|
|                                                                                                                                                  | 1                 | 2 | 3 | 4 | 5                 |
| 1. Na actual situação económica, não é possível aumentar os gastos públicos em serviços de assistência social                                    |                   |   |   |   |                   |
| 2. Os políticos causam muito desperdício do dinheiro dos contribuintes                                                                           |                   |   |   |   |                   |
| 3. Muito dinheiro pode ainda ser poupado no sentido de tornar o sector público mais eficiente sem comprometer os serviços prestados aos cidadãos |                   |   |   |   |                   |
| 4. A imigração representa uma séria ameaça à nossa identidade nacional                                                                           |                   |   |   |   |                   |
| 5. Os esforços para melhorar o meio ambiente não devem ir ao ponto de prejudicar os negócios                                                     |                   |   |   |   |                   |
| 6. Os crimes violentos devem ser punidos mais severamente do que são hoje em dia                                                                 |                   |   |   |   |                   |

Por favor, responda a todas as questões numeradas.

#### JOGO DE LANÇAMENTO DO DADO – SÉRIE 4

Terminou agora de responder à quarta série de perguntas.

Agora repetimos o estudo que verifica como consegue adivinhar em situações aleatórias, usando 10 novas rondas de lançamento do dado. Como na última ronda, ganha 3MT quando adivinha correctamente e 1MT caso contrário.

As instruções são as mesmas que na ronda anterior.

*Há algum tempo atrás, pedimos a outros estudantes para jogarem o mesmo jogo e para tentarem adivinhar o resultado do lançamento de um dado. Em cada 100 alunos, 73 indicaram que tinham acertado pelo menos 10 vezes em 40 lançamentos (acertaram 1 em cada 4 lançamentos) e 35 indicaram que tinham acertado pelo menos 30 vezes em 40 lançamentos (acertaram 3 em cada 4 lançamentos).*

Use a seguinte tabela para registar os seus palpites e os resultados dos lançamentos. Quando terminar, não se esqueça de registar o número total de palpites correctos e incorrectos na Folha 1.

#### 4º CONJUNTO DE LANÇAMENTOS

|               | PALPITE | CORRECTO | INCORRECTO |
|---------------|---------|----------|------------|
| Lançamento 31 |         |          |            |
| Lançamento 32 |         |          |            |
| Lançamento 33 |         |          |            |
| Lançamento 34 |         |          |            |
| Lançamento 35 |         |          |            |
| Lançamento 36 |         |          |            |
| Lançamento 37 |         |          |            |
| Lançamento 38 |         |          |            |
| Lançamento 39 |         |          |            |
| Lançamento 40 |         |          |            |
| TOTAL         |         |          |            |

15

Por favor, responda a todas as questões numeradas.

## PARTE VII. QUESTÕES FINAIS SOBRE O ESTUDO

Finalmente, temos as seguintes perguntas sobre o estudo em si:

20. Alguma vez leu ou participou em alguma das tarefas, perguntas ou jogos que viu neste estudo?

Sim \_\_\_\_ Não \_\_\_\_

20.1. Se sim, por favor explique.

---

---

---

---

21. Tem mais algum comentário sobre a pesquisa?

---

---

---

---

22. Considerando a sessão em que se encontra, acha que houve alguém que fez batota no jogo do lançamento do dado?

Sim \_\_\_\_ Não \_\_\_\_

22.1. Se respondeu sim, indique quantas pessoas acha que fizeram batota. \_\_\_\_

O estudo terminou. Muito obrigado pela sua participação.

Antes de se dirigir à mesa para receber a remuneração que ganhou com a sua participação (e que não foi doada para uma boa causa), confirme que respondeu a todas as questões e que preencheu correctamente a coluna 'Escolha do Participante' na Folha 1. Por favor, entregue o seu questionário na mesa, juntamente com a folha que assinou com o seu consentimento e a Folha 1, e receba a sua remuneração antes de sair da sala.

16

**Por favor, responda a todas as questões numeradas.**