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Drawing the line somewhere: An experimental study of moral compromise.

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Abstract

In a study by Shalvi, Dana, Handgraaf and De Dreu (2011) it was convincingly demonstrated that psychologically, the distinction between right and wrong is not discrete, rather it is a continuous distribution of relative 'rightness' and 'wrongness'. Using the 'die-under- the-cup' paradigm participants over-reported high numbers on the roll of a die when there were financial incentives to do so and no chance of detection for lying. Participants generally did not maximize income, instead making moral compromises. In an adaptation of this procedure in a single die experiment 9% of participants lied that they had rolled a '6' when they had not compared to 2.5% in the Shalvi et.al. study suggesting that when the incentive is donation to charity this encourages **more** dishonesty than direct personal gain. In a follow-up questionnaire study where sequences of three rolls were presented, lying increased where counterfactuals became available as predicted by Shalvi et.al. A novel finding is reported where 'justified' lying is more common when comparative gains are higher.

An investigation of individual differences revealed that economics students were much more likely to lie than psychology students. Relevance to research on tax evasion, corporate social responsibility and the 'credit crunch' is discussed.

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Introduction

The decision of whether to lie or not in order to benefit financially is a process that has been the subject of extensive study. Allingham and Sandmo (1972) proposed rational economic man (REM) as a model of decision-making in the context of tax evasion. They argued that the decision to lie could be viewed as an economic calculation. However, the simplicity of the REM model has been criticised in more recent studies. Lewis, Carrera, Cullis and Jones (2009) highlighted the importance of cultural and individual differences in tax evasion. One explanation given for these variations is the differences in social norms which create formal and informal incentives for honesty. However, Fischbacher and Heusi (2008) conducted a study where no formal incentives for honesty existed and still participants abstained from lying. This suggests that social rules may become internalised or that individuals, in addition to wanting to appear favourable to others, also want to appear favourable to themselves (Bénabou and Tirole, 2002). Shalvi, Dana, Handgraaf and De Dreu (2011) found in their die-roll paradigm that the majority of participants did not lie in order to gain the maximum amount financially even when the detection rate was zero, however, participants did lie to some degree. Mazar, Amir and Ariely (2008) explain that the tendency to lie a little bit, but not as much as one possibly could, by proposing that people lie to some degree to increase their profit, but not so much as to threaten their positive self-concept as honest individuals.

1.1. Justified ethicality

One method of lying without threatening positive self-concept is to justify the lie. Kunda (1990) in a review of the relevant reasoning literature, argues that there is compelling evidence that people arrive at the conclusions they want to, that is by satisfying self interest, providing reasonable justifications for these conclusions are available. In an experimental manipulation Shalvi et al., (2011) studied justified ethicality by using a die-roll paradigm in which only the participant can see the outcome of the die roll and gain money according to the number on the die they state. The authors reported that the extent to which people allowed themselves to lie depended on the availability of self-justifications that only they know about. When participants were allowed additional die rolls to verify the legitimacy of the die, they lied to a greater extent than participants with only one die roll and appeared to report the largest number they saw on any of the rolls even though they knew the subsequent rolls did not count for payment. Shalvi et al., (2011) proposed that people adjust their perception of what is, or is not, morally acceptable according to the availability of a self-justification for doing it.

They found that participants judged dishonest reports to be less dishonest when they are equal to one of the additional die rolls. This supports the idea by Hsee (1995), that ethical evaluations and subsequent behaviour are not perceived as a right versus wrong dichotomy but more as a continuum.

1.2. Individual differences

Krebs and Denton (2005) argued that whether moral reasoning is activated or not is determined by the moral issue itself, the context in which the moral issue is being considered combined with a variety of individual differences. This idea was furthered by Lewis et al., (2009) who claimed that individual differences can be explained by the interaction of three levels, first the individual level where the tendency to calculate in order to maximise net expected utility is a personal characteristic that some individuals will have and others will not. Secondly the social level which deals with how people are socialised differently, and finally, the importance of differences in cultural norms. Specifically Lewis et.al. (2009) showed the economics students compared to psychology students, men compared to women and Italian students compared to English students were more prone to cheating.

1.3 Rationale

Behavioural studies indicate that *homo realitus*, unlike *homo economicus*, favours moral compromise over wealth maximization . These moral compromises, reaching acceptable conclusions about ones own (bad, but not as bad as it could be) behaviour is influenced by the availability of justifications.The first study reported is a replication of the Shalvi et.al single-throw-hidden -die experiment with a twist: how might the results differ when the money earned is for charity rather than for oneself? Might this offer a justification for lying?

The second study builds on the Shalvi et.al.(2011) hypothetical three roll study where it was shown that counterfactuals encourage justified lying. Kunda (1990)has made the case for the role of motivation in reasoning: could it be that justifications, are grasped with more enthusiasm when they represent greater comparative gain?

Three rolls of the dice produces 216 sequences (6x6x6): both in the current study and the original, only a selection of these sequences was employed. 20 combinations were used in the current questionnaire as a

starting point for some speculative hypotheses. The selected combinations were chosen to address the following questions:

Would honesty decrease when the first throw of 3 was low? (i.e. where comparative gain is greater).

Would 'justified' lying increase when there was a 6 in the sequence, (but not appearing first)? (i.e. where comparative gain is greatest)

Are outright lies more common when no 'suitable' counterfactuals are available? (i.e. where roll numbers are lower than the original).

Differences between participants studying Economics and Psychology and between males and females were also examined. Lewis et.al.(2009) have shown, in a questionnaire study of hypothetical tax returns , Economists and males are more likely to see it as a calculated gamble (and evade more) whereas Psychologists and females are more likely to see it as a moral issue (and evade less).Could it be that Economists and males are simply more likely to cheat? The three role questionnaire provides a test for the influence of degree choice and gender as well as the form the lying takes (i.e. whether or not it is justified by counterfactuals.).

2. Method

2.1. Design and materials

A cross-sectional design was used, with a die-under-cup paradigm and self-report questionnaire. The questionnaire comprised 20, 3-die-roll sequences designed to assess the effects of throwing low scores first, throwing a 6 (but not first) and the effects of 'unsuitable' counterfactuals. Degree studied (whether Psychology or Economics) and gender was also recorded.

2.2. Participants

Opportunity sampling was used to recruit 94 students (34 Male and 60 Female) from the University of Bath. The participants varied in their year of degree, 38 were Economics students and 56 were Psychology students. The average age was 19.82 years old and the standard deviation was 1.44. Participants were recruited by email, visiting lectures and seminars and through personal contacts.

2.3. Procedure

The participants were asked to complete a consent form followed by standardised instructions being read to each participant individually (see Appendix 1). Participants were then asked to roll a die and earn money for Cancer Research UK according to what they reported rolling. The die was placed under a plastic cup that had a small hole in the top, participants had to shake the cup to roll the die and then look through the hole to see what was rolled (Fischbacher & Heusi, 2008; Shalvi, et al., 2011) (see Figure 1). This assured the participants that only they would know the result. After rolling the die the participants were asked to state the number they rolled and then they were asked to roll the die again to check its legitimacy and to ensure no one else would know what number they rolled after they had left the experiment. They were then given the corresponding amount of money in 10p pieces (1 = 10p, 2 = 20p etc) to their stated die roll to put in the charity box. The participants were then asked to complete the questionnaire (Appendix 2). A delayed debriefing via email was administered one week after the experiment was completed, this was to prevent participants from discussing the experiment with classmates who had yet to do the experiment.

4. Results and Discussion

In the single throw die-under-cup study a one sample Kolmogorov-Smirnov Z test was used to assess whether the recorded throws produced a distribution which was significantly different from a uniform distribution of a fair die ($Z= 2.37$, $p< 0.001$. As Figure 2 reveals this significant result was due to an under-reporting , in particular, of ‘1’s and ‘2’s and a over-reporting of ‘6’s. This differs from the result to Shalvi et.al. single roll condition ($Z=1.16$, ns). In the current study 24.5% of the participants said they rolled a ‘6’ where a fair roll would produce a figure of 17%. So the difference between these figures is the proportion of people who lied about rolling a ‘6’. Fischbacher and Heusi (2008) have argued that this figure should be multiplied by 6/5 to take into account participants who actually threw a ‘6’ but would have lied had they thrown a lower number. Therefore the calculation of ‘6’ roll liars is (24.5%-17%)6/5 = 9%. This is considerably higher than the Shalvi et.al. result of 2.5% for a single throw. A plausible explanation for this difference is that making contributions to a cancer charity rather than direct personal gain provides a justification for lying. This could be similar to what Gino and Pierce (2010) have termed the ‘Robin Hood effect’ although as the researchers supplied the funds themselves it is hardly a case of stealing from the rich to give to the poor. An alternative, or perhaps inter-rated

explanation, is that the relatively trivial amounts in the current study, a maximum of 60p(1$) compared to 6$ in the Shalvi et.al. study , made the lie more morally acceptable and the liars less uncomfortable.

The second part of the study comprised hypothetical three rolls of the die. Across the 20 questions, 73% of responses were honest, 16% were 'justified' lies and 9 % were out-and-out lies i.e.without counterfactual justification (only 2% answered in a way that suggested they did not understand what they were being asked to do).

As anticipated, honesty was tested most when the first roll was a '1' where the sequence 1,3,6, produced 33% 'justified' lies and 1,5,6, 30%.

'Justified' lying increased when there was a '6' in the sequence (but not occurring first) e.g. 1,3,6 (33% lied); 4,5,6,(32%); 1,5,6, (30%).

Taken as a whole these three results support Shalvi et.al.'s finding that counterfactuals increase lying. What is new is that particular counterfactual combinations appear to encourage lying more than others i.e. where comparative gains are higher.

Were outright lies more common when no 'suitable' counterfactuals were available? The answer appears to be 'yes'. For the sequence 1,1,1, 18% were outright lies and for 3,3,3, 13% were outright lies.

Turning to individual differences next a mixed ANOVA (General Liner Model) was used to ascertain whether mean dice scores differed between Economists and Psychologists and between males and females across the twenty combinations. Degree course proved to be highly significant ($F= 13.2, p< 0.001$); the effects for gender and the gender/degree interaction were both insignificant ($F = 0.38, F= 2.69$).Of the twenty comparisons (one for each question) Economists reported significantly higher dice scores on 12 occasions ; the remaining 8 't' tests were insignificant (for all the 't' results see Table 5.)

Table 1 presents the proportion of honest responses to justified lies and outright lies for Economists compared to Psychologists. A significant chi square figure of 161.1, d.f.=2, $p< 0.001$ revealed that while Psychologists are no saints, Economists are more likely to lie (both outright lies and 'justified' lies) and are less likely to be honest.

This interpretation requires elaboration as Table 2 reveals that males are less honest (Chi square 41.4,df =2, $p< 0.001$). In our sample there were

more male economists than female economists and more female psychologists than male psychologists. Two further chi square tests were undertaken to assess whether the main effect is due to degree choice or gender. Table 3 shows that for males, degree choice is significant (Chi square 154.5, df = 2, $p < 0.001$) but not for females (Chi square 5.1, df =2, n.s.). Comparing tables 3 and 4 it can be seen that honesty among male and female psychologists is very similar whereas there is tendency for female economists to be more honest than male economists. Increasing the number of male psychologists would have little effect on the overall result, whereas increasing the number of females in the economics sample may marginally decrease the significance of the degree choice effect. With this caveat it can be concluded that degree choice is the dominant effect.

5. Conclusions

The one throw die-in-the-cup method neatly demonstrates willingness to make moral compromises. For some people there are occasions when lying can be justified e.g. where gains are for charity rather than personal gain. The hypothetical three die roll study demonstrates not only that available (and suitable) counterfactuals increase 'justified' lying, but also that 'justified' lying in more common where comparative gains are higher i.e. where the incentives are more pronounced. Furthermore it has been shown that outright lies are more common where there are no suitable counterfactuals.

At the level of individual differences it has been demonstrated that Economists are more willing to cheat. This is of some concern given that people with economics degrees hold prominent positions in financial institutions: might this undermine effective corporate social responsibility policies and the avoidance of another 'credit crunch' ?(Lewis,2010).

In the context of tax compliance the results suggest that people are generally honest and pay their taxes without taking into account the chances of detection (unless they are economists) and when they evade they do so in 'justified' ways which do not maximise their income. In a country like the U.K. where voluntary tax compliance is high this is not major problem: it remains to be seen whether respondents say they throw more 6's in countries where tax compliance is poor e.g. Italy. If the authorities wanted to collect more revenue should they target people with economics degrees? There is always the problem that more authoritative zeal can lead to more resistance.

A systematic analysis of the three roll experiment and the invitation to lie may constitute a useful extension of this work, nevertheless it must be remembered that the willingness to lie is contextual and it has been demonstrated here for example that the form of financial incentives makes a difference.

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Appendix 1: Script for die-roll-paradigm

To the experimenter:

- Thank the participant for coming.
- Get them to sign the consent form and explain about the delayed debrief by email.
- Say it is a two-part experiment comprising a die roll game and a questionnaire.

Tell the participants the following:

- The first part of the experiment is a die roll game.
- You need to roll the die once under the cup.
- There is a hole on top of the cup that allows you to see what number you have rolled.
- There is no way that I can see or know what number you have rolled.
- One you have rolled the die look through the hole on top of the cup and state the number you have rolled.
- The number that you roll corresponds to the amount of money we (the experimenters) will donate to Cancer Research UK on your behalf. Rolling a 1 = 10p, 2 = 20p etc.
- Once you have stated the number, roll the dice another two times to check the legitimacy of the die and get rid of the number you have rolled so we have no way of checking.
- Now if you could complete the questionnaire that would be great.

To the experimenter:

- Thank the participant again.

Appendix 2 : Questionnaire

Thank you for helping us with our research. The information you provide is completely confidential and there are no 'right' or 'wrong' answers to the questions posed. You are free to omit any questions you do not feel comfortable answering.

Please ring your answer to the following questions in terms of *what you would do in these situations.*

Imagine you roll a die three times: the die cannot and will not be seen by anyone else. The amount you roll on the first throw determines the amount you are paid in pounds by the experimenter (roll a 1 and receive £1, 2 = £2 etc.), the second and third throws are just to check the legitimacy of the die but do not count for payment.

1. You roll a **1, 3 and 6**, what do you state as the number for payment:

   1 2 3 4 5 6

2. You roll a **6, 3 and 4**, what do you state as the number rolled for payment:

   1 2 3 4 5 6

3. You roll a **3, 6 and 6**, what do you state as the number rolled for payment:

   1 2 3 4 5 6

4. You roll a **2, 5 and 4**, what do you state as the number rolled for payment:

   1 2 3 4 5 6

5. You roll a **1, 1 and 1**, what do you state as the number rolled for payment:

   1 2 3 4 5 6

6. You roll a **3, 6 and 1**, what do you state as the number rolled for payment:

   1 2 3 4 5 6

7. You roll a **1, 5 and 4**, what do you state as the number rolled for payment:

1 2 3 4 5 6

8. You roll a **4, 3 and 5**, what do you state as the number rolled for payment:

1 2 3 4 5 6

9. You roll a **5, 2 and 2**, what do you state as the number rolled for payment:

1 2 3 4 5 6

10. You roll a **5, 6 and 6**, what do you state as the number rolled for payment:

1 2 3 4 5 6

11. You roll a **1, 5 and 6**, what do you state as the number rolled for payment:

1 2 3 4 5 6

12. You roll a **2, 5 and 1**, what do you state as the number rolled for payment:

1 2 3 4 5 6

13. You roll a **3, 2 and 6**, what do you state as the number rolled for payment:

1 2 3 4 5 6

14. You roll a **4, 1 and 5**, what do you state as the number rolled for payment:

1 2 3 4 5 6

15. You roll a **1, 1 and 3**, what do you state as the number rolled for payment:

1 2 3 4 5 6

16. You roll a **2, 6 and 2**, what do you state as the number rolled for payment:

1 2 3 4 5 6

17. You roll a **4, 5 and 6**, what do you state as the number rolled for payment:

1 2 3 4 5 6

18. You roll a **1, 1 and 1**, what do you state as the number rolled for payment:

1 2 3 4 5 6

19. You roll a **3, 3 and 3**, what do you state as the number rolled for payment:

1 2 3 4 5 6

20. You roll a **3, 6 and 4**, what do you state as the number rolled for payment:

1 2 3 4 5 6

Please supply the following pieces of information about yourself:

Degree Programme:
Year of Study :
Age:

Table 1: Honesty, Lying and Degree Choice

	Honesty	Justified Lying	Outright Lying
Psychologists	85%*	9%	6%
Economists	59%	28%	13%

* Rounded percentages. All Chi Square calculations are from raw scores.

Chi Square 161.2, d.f. = 2 , $p < 0.001$

Table 2: Honesty, Lying and Gender

	Honesty	Justified Lying	Outright Lying
Male	67%	19%	14%
Female	79%	16%	6%

Chi Square 41.4, d.f. =2, $p < 0.001$

Table 3: Males only: Honesty, Lying and Degree Choice.

	Honesty	Justified Lying	Outright Lying
Psychologists	92%	3%	5%
Economists	48%	30%	23%

Chi Square 154.5, d.f. =2, $p < 0.001$

Table 4: Females only: Honesty, Lying and Degree Choice.

	Honesty	Justified Lying	Outright Lying
Psychologists	82%	11%	6%
Economists	68%	27%	6%

Chi Square 5.1, d.f. =2, n.s.

Table(s)

Table 5: A table to show the mean dice roll given by both psychologists and economists for each of the twenty hypothetical dice-roll questions

Sequence	Degree Programme	Mean	t	p
Q1. 1-3-6	Psych	1.68	4.2	.001
	Eco	3.32		
Q2. 6-3-4	Psych	5.88	1.8	n.s.
	Eco	5.53		
Q3. 3-6-6	Psych	3.54	3.24	.002
	Eco	4.42		
Q4. 2-5-4	Psych	2.46	3.38	.001
	Eco	3.45		
Q5. 1-1-1	Psych	1.21	2.0	n.s.
	Eco	1.76		
Q6. 3-6-1	Psych	3.30	2.68	n.s.
	Eco	3.97		
Q7. 1-5-4	Psych	1.80	3.1	.003
	Eco	3.00		
Q8. 4-3-5	Psych	4.13	1.77	n.s.
	Eco	4.39		
Q9. 5-2-2	Psych	4.93	0.87	n.s.
	Eco	4.76		
Q10. 5-6-6	Psych	5.09	3.69	.001
	Eco	5.42		
Q11. 1-5-6	Psych	1.86	4.7	.001
	Eco	3.74		
Q12. 2-5-1	Psych	2.43	3.42	.001
	Eco	3.42		
Q13. 3-2-6	Psych	3.27	3.41	.001
	Eco	4.16		
Q14. 4-1-5	Psych	4.09	1.59	n.s.
	Eco	4.34		
Q15. 1-1-3	Psych	1.52	2.86	.006
	Eco	2.45		
Q16. 2-6-2	Psych	2.57	2.92	.005
	Eco	3.58		
Q17. 4-5-6	Psych	4.30	3.16	.002
	Eco	4.84		
Q18. 1-1-1	Psych	1.52	0.84	n.s.
	Eco	1.76		
Q19. 3-3-3	Psych	3.25	0.83	n.s.
	Eco	3.39		
Q20. 3-6-4	Psych	3.36	3.47	.001
	Eco	4.24		

Figure 1: Die-in-the-cup procedure

Figure 2: The frequency and percentage of die rolls stated by all the participants compared to the average frequency of 16.