

## Honesty after a labor relationship

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## Abstract

At the end of a controlled experiment where research assistants were hired for coding news from online newspapers, the experimenter-employer asked a number of them to roll a die and report the result in order to be paid in cash an amount linear on the reported number from 1 to 6 that could go from 1.6 to 9.4 USD. Another (control) group of similar students, recruited in a similar manner, were also invited to perform the same die-roll task, but they had no prior labor relationship with the experimenter-employer. Our treatment group showed in average higher levels of honesty as their distribution of reported numbers was less skewed to the right, that is, the long-term labor relationship group was more likely to report numbers that are closer to the uniform (honest) distribution than our control, and than other reported numbers in this kind of experiments. We conjecture that the previous experimenter-subject relationship of the treatment group induced higher levels of honesty among the participants. One of the possible reasons is that the labor relationship created for the group of "treatment" students included a series of shocks that involved the possibility of involuntary unemployment, bringing incentives for the students to signal honesty as a trait that could be valued in the labor market. This paper contributes to the growing literature on understanding the motives for honesty and cheating.

**JEL:** D73, C93, D01, E24, J24

**Keywords:** Honesty, Cheating, Labor relationships, Unemployment, Experiments

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# Honestidad después de una relación laboral\*

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## Abstract

Al final de un experimento controlado, donde se contrataron asistentes de investigación para la codificación de noticias de los periódicos en línea durante un mes, el experimentador-empleador los invitó a lanzar un dado y reportar el resultado con el fin de pagar en efectivo una cantidad proporcional y lineal en el número reportado, de 1 a 6. Otro grupo (control) de estudiantes similares, fue invitado a realizar la misma tarea, pero sin tener relación laboral previa con el experimentador-empleador. Nuestro grupo de tratamiento mostró niveles promedio más altos de honestidad, ya que la distribución de los números reportados por estos fue menos sesgada a la derecha. Es decir, el grupo de relaciones de trabajo fue más propenso a reportar números que están más cerca de la distribución uniforme (honesto) que el grupo de control, y que otros estudios con este tipo de experimento. Se conjetura que la relación laboral del grupo de tratamiento indujo mayores niveles de honestidad entre los participantes. Una de las posibles razones es que la relación de trabajo creada para el grupo de estudiantes de tratamiento incluía una serie de choques que implicaba la posibilidad de desempleo involuntario, generando incentivos para que los estudiantes interpretaran la honestidad como un rasgo que podría ser valorado en el mercado de trabajo. Este artículo contribuye a la creciente literatura sobre la comprensión de los motivos de la honestidad y el engaño.

**JEL:** D73, C93, D01, E24, J24

**Keywords:** Honestidad, Engaño, Relaciones Laborales, Experimentos, Desempleo

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# 1 Introduction

Being honest is an unquestionable trait that most employers would seek in a potential worker. Even if dishonest workers were to bring short-term gains for the firm, the long-run risks of such behavior could endanger the sustainability of the organization. Workers should then try to signal honesty in order to become more eligible for a job, particularly under competitive labor markets and unemployment pressures. Further, being honest increases the self-image of individuals who will derive utility from seeing themselves as honest even if foregoing the extra rents from cheating.

However, dishonest acts also provide short-run material payoffs for those committing them. The payoffs from cheating can compensate the risks of being caught and lose a permanent contractual relationship, and could also affect the depletion of the self-image through guilt or shame. Mazar et al. (2008) propose a theory of self-concept maintenance, where individuals balance the act of cheating and being honest to maintain a self-image that makes them believe they are honest while reaping the benefits of some degree of cheating. When cheating or honesty can be signalled towards a potential employer, individuals would rebalance these incentives towards increasing the probability of being employed, or getting a contract renewed, through honesty.

In this paper we present the results from a simple die-roll experiment with a group of students who were given the task to report the result obtained from a one-shot six-sided die-roll and earn an amount of money linearly proportional to the number reported. We compare the results between a group of students who had just ended a one-month labor relationship as research assistants and a control group of students, recruited through the same means as the treatment group when hired for the assistantship. The distribution of the numbers reported by the subjects in the treatment group is closer to the uniform distribution than the one of the reported numbers by the control group. This is taken as evidence of higher levels of honesty in the treatment group. A plausible explanation is discussed in Section 4, we now turn to the experimental design and Section 3 presents the results.

## 2 Experimental Design

To test the hypothesis of whether the degree of honesty changes if subjects have a long-term relationship with the experimenter, we implement two treatments. In the *relationship* treatment, we recruited students who had been part of a different (field) experiment. Blanco et al. (2013) employed almost 400 research assistants for a one-month period to code news

on politicians from the two main Colombian newspapers’ online archives.<sup>1</sup> The last day of their RA job, their research assistants in Universidad de Los Andes were invited to participate in our experiment, which was carried out on a different day but on the same schedule of their RA position and the experimenter was their previous supervisor. For the *control* treatment we recruited students who are not part of their sample.<sup>2</sup>

The experimental task was to write down the result of a die-roll in a paper sheet which was provided by the experimenter. The die was inside a non-transparent plastic cup which had holes on it to allow light to enter the cup and allow the participant to see the result of the roll without lifting the cup. It was made very clear that the only person who would see the result of the die-roll was the participant and that no one else would look into the cup. We had several cups, so the experimenter handed the plastic cup to one participant and left the desk. Each participant went through the experimental task privately. Participants were instructed to record the result of a single roll of the die in the paper sheet provided. Once the experimenter picked up the paper sheet, they could keep the die to roll it as many times as they wanted to check that the die was fair.

Table 1: Payment by reported number

<b>Reported number</b>	<b>Payment in COP</b>	<b>Payment in min. wage</b>	<b>Payment in USD</b>
1	3,000	1	1.6
2	6,000	2	3.1
3	9,000	3	4.7
4	12,000	4	6.2
5	15,000	5	7.8
6	18,000	6	9.4

We paid participants according to the number stated in their sheet. The reported number was multiplied by 3.000 and those were the participants’ earnings in Colombian Pesos (COP). Therefore, higher reported numbers meant higher earnings at no risk of being caught. The expected earnings for a perfectly honest person should be COP 10,500, which was close to what the treatment participants earned in an average session in the previous labor market experiment. Table 1 reports payments in COP, in the equivalent hourly minimum wage for the year of the experiment and American Dollars (USD) according to

<sup>1</sup>Their experiment took place in Universidad de los Andes and Universidad del Rosario, they implemented one treatment in each University. To avoid confounds of their treatments into our data, we only recruited participants in Universidad de Los Andes. Therefore, in the *relationship* treatment all the participants had been research assistants for a one-month period and had been exposed to the same treatment.

<sup>2</sup>We used the same recruitment procedure as Blanco et al. (2013) and the experimenters were the same as in the *relationship* treatment sessions. The two samples show no statistical difference in terms of age, gender, socio-economic stratum, major, years in college, academic load, GPA.

the exchange rate at the time of the experiment.<sup>3</sup>

### 3 Results

Overall, 103 students participated in the experiment, 51 in the *control* treatment and 52 in the *relationship* one. The histogram in Figure 1 shows the distribution of the die-roll results reported by treatment. The distribution for the *control* treatment is clearly skewed to the right, while the one for the *relationship* treatment is more evenly distributed over the whole range of possible outcomes. This implies that subjects in the *control* treatment report high numbers with a higher frequency, which is taken as a sign of cheating. A Fisher’s exact test allows us to conclude that the distributions are significantly different ( $\chi^2(5)=13.49$ , p-value=0.015).

In their original die-roll design experiment, Fischbacher & Heusi (2013) report in their baseline results that the frequencies for the sides of die (1,2,3,4,5,6) are respectively (6.4%, 7.2%, 11.6%, 12.6%, 27.2% and 35%). Our observed frequencies were (4%, 10%, 7%, 23%, 27%, 29%) for the entire sample, but differ significantly by group as shown in Figure 1.

Our data are similar to several studies using this paradigm of the die-roll where in average there are more reported cases than the perfect honesty prediction of 1/6. All these studies report more frequent die-rolls of 4s, 5s and 6s, and much lower frequencies reported for 1s, 2s and 3s, and with a consistent increasing steps pattern (See also Suri et.al 2011; Arbel et.al 2014; Ibañez et.al 2014).

To be able to claim that being in a long-term labor relationship changes the probability of cheating, we first have to rule out that the difference observed in the results reported can be attributed to other pre-existing differences between the subjects who participated in our treatments and the control group.

Table 2 presents the socio-demographic of our control and treatment samples. A *t-test* for the difference in mean, or a  $\chi^2$  test is performed to test for significant differences in age, gender, socioeconomic status, GPA, major and number of terms in college. As shown in the Table, our samples are unbalanced only in the case of strata, which is a proxy for socioeconomic status.<sup>4</sup> Therefore, we use strata as a control variable in Table 3, where

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<sup>3</sup>All the sessions were ran in October 2011, when the average exchange rate was 1,924 COP per USD.

<sup>4</sup>Neighbourhoods in Bogotá have a score from 1 to 6 (called strata) which is used to price-discriminate the tariff charged for public utilities. People who live in strata 5 and 6 (and to some extent 4) subsidise the utilities of those living in strata 1 and 2. Real state and rent prices are positively correlated with this stratification. Therefore, the income level of a household is highly correlated to the stratum of her neighbourhood of residence. We use the stratum as a proxy of socioeconomic status. Importantly, the strata is not self-reported. In the recruitment process, the applicants had to report their address of residence. We

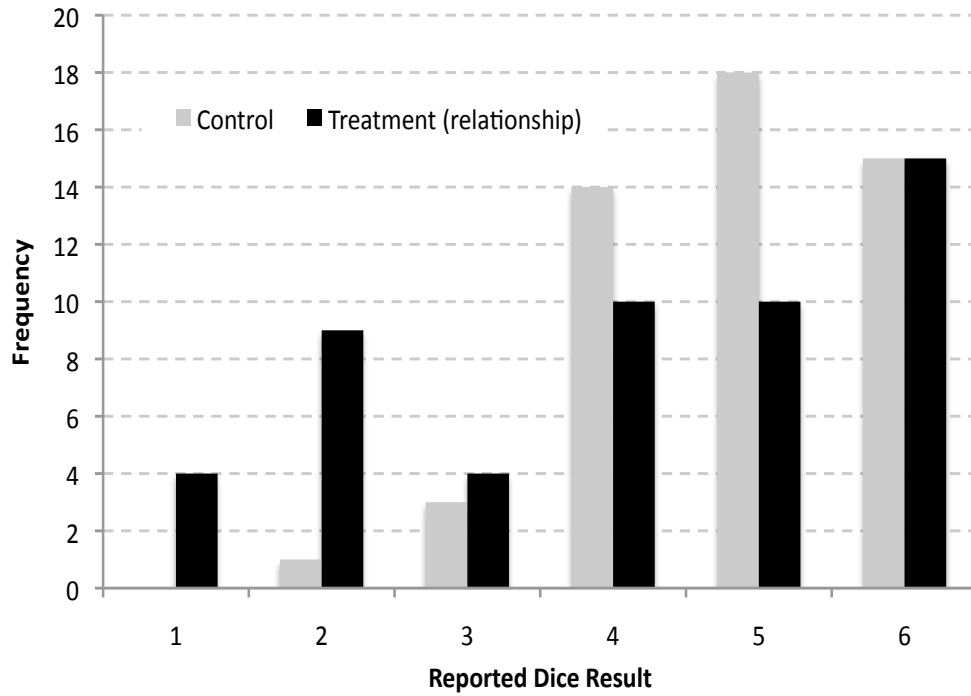


Figure 1: Distribution of reported results by treatment

we test the significance of the treatment (labor relationship) in our outcome, namely, the reported number as a proxy for a higher probability of lying.

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looked up each address on a map to determine the respective stratum.

Table 2: Sample Differences

VARIABLE	Control (Mean)	Treatment (Mean)	DIFFERENCE	
			T-test	$\chi^2$ -test
Age	20.54 (2.60)	20.94 (1.89)	(t=-0.887)	
Gender (1=Female 0=Male)	0.29 (0.46)	0.37 (0.49)		( $\chi^2=0.59$ )
Socio economic status	3.86 (1.00)	4.43 (1.22)		(Fisher=0.095)*
GPA	3.89 (0.34)	4.00 (0.32)	(t=-1.615)	
Major	3.13 (2.67)	3.04 (2.06)	(t=0.178)	
No. of Terms in College	4.93 (2.53)	5.63 (2.34)	(t=-1.392)	

Standard errors in parentheses.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

When one cell has an expected frequency of five or less, Fisher's exact test is performed instead of Pearson-Chi2

Table 3 reports the results of OLS regressions where the reported results of the die-roll is the dependent variable and the variable *treatment* is the regressor. The variable *treatment* is a dummy variable that equals 1 for subjects in the *labor relationship* treatment and equals 0 otherwise. Subjects in the *relationship* treatment are significantly more likely to report a low number than subjects in the *control* treatment. This suggests that having a long-term work relationship with the other party decreases the likelihood of cheating. This result is robust to the addition of stratum fixed effects and number of participants in the session as controls.<sup>5</sup> Note that the number of observations is different in each column, the reason is that one subject of the control group did not report his address during the recruiting process, hence, we lack the information for his stratum.<sup>6</sup>

<sup>5</sup>One may think that the propensity to cheat in our experimental task could be correlated to the size of the session. For example, being in a large session makes easier to hide individual cheating. Therefore, we add the number of participants in the session as a control variable.

<sup>6</sup>An Ordered Probit regression for the reported number also shows a significant and negative effect of the treatment



Table 3: Regressions Results

Dependent Variable: Reported number		
	(1)	(2)
Treatment	-0.728*** (0.272)	-0.743** (0.295)
Constant	4.843*** (0.138)	4.908*** (0.694)
Controls		✓
Observations	103	102
R-squared	0.066	0.080

Robust standard errors in parentheses.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Control variables: strata fixed effects and session size.

## 4 Discussion

The experimental literature on dishonesty continues to grow but there are pending questions on what triggers and discourages cheating. Much of the literature shows the malleability of human decisions that involve the possibility of cheating, including context, social norms and incentives, or even the level of exhaustion of the person at the moment of facing the ethical dilemma (Ariely, 2012).

The study of honesty in competitive settings such as the environment in which our treatment group was involved, is also a new area of research where open questions remain. On the one hand there are studies where priming has a significant negative effect on honesty. For instance, a recent study with employees in the banking industry showed that a reminder of being in the financial banking industry made bank employees to report data from a ten times coin-tossing task that were indicative of more cheating. The stakes were quite significant with earnings up to US\$200 (Cohn et.al, 2014). Also Cohn, Marchal, & Noll (2013) show that priming prisoners with a reminder of their criminal condition increased dishonesty when reporting the result of flipping a coin ten times for a financial reward for lying.

The trend in these studies to evaluate the actual context in a more naturally occurring settings such as our labor relationship setting enhances the external validity of these experimental methods. For example Ibañez & Vargas(2014) report in their study conducted in

coca-growing areas in Colombia that those immersed in municipalities with a larger fraction under coca production reported higher numbers in the same die-roll experiment.

However, it is interesting to note that the levels of dishonesty that are found in most of these experimental studies are rather small if one considers the financial stakes and the level of privacy and anonymity of the reported data by the participants where the expected costs of sanctioning are essentially zero, since the experimenter or a third party cannot verify the actual outcomes obtained in the flipping of the coins or the rolling of dice.

On the other hand, several studies also report levels of honesty in these kinds of experiments that question the presumption that most people would take advantage of situations in which monitoring and sanctioning are implausible. Suri et.al (2011), for instance, show that in virtual markets with thousands of people such as in Amazon's Mechanical Turk, most people are honest when participating in these experiments, specially if considering such levels of anonymity and impersonal exchange. In a recent study Pascual-Ezama et.al (2015) report the result of the largest cross-country study found as of today, using a coin-flipping method in 16 countries around the developed and developing world. The results also suggest very low levels of cheating, and further, no correlation with the usual transparency or corruption international indices available.

We take these studies as an indication of how nascent this literature is. Our experiment suggests a causal positive relationship between a previous labor relationship and honesty. Notice, these students were involved in an actual competitive labor market, not related to the subsequent -and unknown to them- task of reporting the rolling of a die. We argue that the previous market relationship caused more honest behavior in the treatment group than what observed in the control group of students recruited only for this die-roll task.

An explanation for this result lies at the very essence of how the labor market experiment reported in Blanco, Dalton & Vargas (2013) was conducted previous to our honesty task. These subjects (our treatment group) were hired through a competitive market where involuntary unemployment was induced for most of the days of the study. As explained before, these people were hired as research assistants to code news from web based newspapers. The experimenters ranked the RAs according to their productivity performance which was measured based on a random sampling of the reported data. This implied that cheating or slacking could be detected, affecting the labor productivity of the ranked participants and thus their chances in getting hired during the sessions in which a shock induced an excess of labor supply. In such environment honesty, instead of cheating, could increase earnings as well as the probability of being hired. The interesting consequence is that such experience and valuation for honesty was transported to the later task where they had to report the result of a die-roll for an extra cash amount between 1.6 and 9.4 USD with zero cost of cheating.

Notice, most of the experiments that use different cues or primings to test behavioral effects in honesty involve a lab-controlled task of short duration right before the honesty task is conducted. We have taken a different approach by using a more natural environment -the labor relationship that lasted for a month for our treated subjects, adding to the external validity of our experiment.

These results extend the findings in the literature that honesty can be maleable and subject to different primings and manipulations before the subjects are presented with the possibility of an extra monetary gain from dishonesty. How long would these interventions could last remains an open question, but as Ariely (2012) suggests, resetting the self-image vs personal gains balance every now and then seems a natural lessons from these studies, recognizing that honesty, as valuable as it is in the social and economic domains, can be recovered through simple means and reminders.

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