ABSTRACT

Objective: the purpose of this study is to present how the insertion of control mechanisms, such as auditing and professional ethical standards, would influence the dishonest behavior of individuals in particular, and within a group.

Method: an experiment was performed with 204 participants in whom they would watch a die-rolling game and report the number shown by the dice. Nevertheless, the payment was tied to the number they reported and not to the number seen, thus making them dishonest.

Originality/Relevance: it is the first study in Brazil that seeks to verify components of collective dishonesty; previous works only analyzed individual dishonesty. In addition, both nationally and internationally, it is the first research in which mechanisms that are capable of inhibiting collective dishonesty are analyzed.

Results: it was possible to verify that the audit and the reading of some articles of the Professional Code of Ethics of the Accountant made the participants less dishonest: when the individuals were not subject to any control mechanism, 27% of the participants were dishonest; On the other hand, when they were subject to an audit process or after reading the PCEA articles, the percentage of dishonest ones was 9%.

Theoretical/Methodological Constraints: in the experiment it was possible to corroborate the hypothesis of the research: the control mechanisms presented (audit and reading articles in the PCEA) resulted in more honest decisions.

Social/Management Contributions: this work puts into question the research on dishonesty, not only its ethical and moral aspects, but also its financial impacts.

Keywords: Dishonesty; Experiments; Control Mechanisms; Groups; Behavioral Finance.
1 INTRODUCTION

The study of dishonesty has two main streams: the first, based on traditional economic theory and the studies of Becker (1968), is based on the idea that individuals are rational and dishonest acts are committed on the basis of a relation of cost-benefit analysis, supported by the following threefold: the benefits received from the action, the possibility of being discovered and the applicable punishment. However, while believing that individuals are rational, Becker (1993) himself, years later, argued that ethical factors could influence this process.

Thus, the second stream of studies, based mainly on the research of Ariely (2012), emphasizes that dishonest behavior is also influenced by self-justifications, that is, concepts that we make of our own honesty that cannot be overcome. Even if the dishonest act satisfy the rational precepts of committing it (high benefits, little risk of being discovered and weak punishment), the individual may not be totally dishonest, just so as not to hurt the self-image of his own honesty.

These two theories are the basis for the study of dishonest behavior, and several researches have been developed to understand the motives that lead individuals to be dishonest (Castillo, Petrie, Torero & Viceisz, 2014; Gino, Ayal & Ariely, 2013; Lima, Avelino & Cunha, 2017; Mazar, Amir & Ariely, 2008; Mazar & Ariely, 2006; Santos, 2011; Melo Segundo, 2016; Tomazelli, 2011). Nowadays a series of corruption scandals involving large companies such as Enron, WorldCom, and even Brazilian companies such as Petrobras, Furnas, Eletronuclear and several companies in the civil construction industry are evident. These events reinforce the idea that dishonest attitudes in the corporate world are hardly committed by an individual alone, but by a group of people, and in some cases, by the top echelon of the company.

To understand the motivators of dishonest group behavior, some international researches have been developed (Bénabou, 2012; Bénabou & Tirole, 2006; Charness & Sutter, 2012; Conrads, Irlenbusch, Rilke & Walkowitz, 2013; Fischbacher & Follmi-Heusi, 2013; Kocher, Schudy & Spantig, 2017; Kugler, Bornstein, Kocher & Sutter, 2007; Sutter, 2009). Nevertheless, in Brazil, there is still no research that has addressed the issue of collective dishonesty.

In order to verify if the insertion of moral reminders would be able to minimize the dishonest behavior of the individuals, the researches reached the same conclusion: the honesty of the individuals tends to appear before moral reminders (Ariely, 2012; Aveyard, 2014; Bucciol & Piovesan, 2011; Keizer, Lindenberg & Steg, 2008; Mullen & Nadler, 2008; Pruckner & Sausgruber, 2013; Utikal & Fischbacher, 2013). Thereby, when conducting group discussions, they may cheat less when facing moral reminders.

With the recent corruption scandals involving Brazilian and international companies, and based on the theory that moral reminders tend to reduce dishonest behavior, the following research problem arose: Are control mechanisms capable of influencing the dishonest behavior of individuals and groups?

Thus, the purpose of this study is to present how the insertion of control mechanisms, such as auditing and professional ethical standards, would influence the dishonest behavior of individuals in particular, and in a group. To achieve the objective of the research, an experiment based on the data set developed by Fischbacher and Föllmi-Heusi (2013) and Kocher, Schudy and Spantig (2017) was used.

Furthermore, corruption is one of the great evils of Brazilian society: in spite of having one the largest economies in the world, Brazil is still considered to be a developing country due to its high rates of illiteracy and corruption. In addition, 70% of Brazilians consider
corruption as one of the main problems of the country (Rosa, Bernardo, Vicente & Petri 2015). Some reasons for this perception would be the corruption scandals involving Petrobras, the growing unemployment and problems in the economy.

Nevertheless, the problem of dishonesty is not exclusive to the public sector: by proposing the Agency Theory, Jensen and Meckling (1976) stated that the conflict of interests and the informational asymmetry existing in the relation between agent and principals can lead to the problem of Agency, causing the agent to incur in ethical deviations to achieve his own interests. The assumption of this conflicting relationship and the maximization of well-being lead individuals to fraudulent actions and noncompliance with their obligations. Dumer, Brambati, Souza and Gobbi (2016) have shown that the main motivators of tax fraud by business managers are the disappointment with the State to perform the public administration function and the financial accumulation of the company, in order to yield greater profits.

Therefore, identifying those responsible for fraudulent acts and their motivators can help to combat these deviations. In this context, accounting can be inserted as a fundamental part in the control of dishonest acts, since it can help in the control of internal procedures of the company and in the verification of possible deviations.

Furthermore, the International Accounting Standards Board (IASB) in its Conceptual Framework (2018) expressed that the general purpose of financial reporting must have two fundamental qualitative characteristics: relevance and faithful representation. In other words, the financial information must be useful in a sense that the information should not only present a relevant phenomenon, but also faithfully represent the reality being portrayed, being complete, neutral, and error-free. This indicates that the accounting information gains value as it is presented without deviations.

In view of the above, it is important to understand the mechanisms that drive dishonest attitudes and their effects on the value of companies and the general society in order to help in the creation of more effective control mechanisms.

In the following section the theoretical foundation that will approach concepts about professional ethics and previous researches that used control mechanisms as a means to inhibit dishonesty will be presented; below, the methods used for the development of the research are shown, with the description of the experiment applied to the sample and its stages; then the results found in the research are included; and, finally, the final considerations.

2 LITERATURE REVIEW

The concept of morality can be understood as the values (good or bad, allowed or forbidden) and the correct conduct valid for the members of a society (Chauí, 2002). Every culture and every society have their own morality and may even exist several morals in the same society.

Ethics, therefore, is the "science of human conduct before the being and its fellows" (Sá, 2001, p. 15), within which studies are developed on what is approved or disapproved in the field of virtuous actions. However, ethics and morals are not synonymous: ethics is what should or should not be lived, what is correct; while morality is the set of norms and rules established in a given society, and may vary according to the local culture (Tomazelli, 2011). Since ethics is of vital importance for the behavior of man in society, then the need arises to transfer this concept to the reality of business too, in which professional ethics can be understood as the application of ethics concepts in professional activities (Camargo, 2008).
In the beginning, for Aristotle, the economics was seen as a branch of ethics, which should include all other sciences, for the purpose of man's well-being (Sen, 1999). At that time, economics was seen as the art of managing the family, however, especially through the consolidation of the capitalist market model, self-interest has been an important feature in economic theory and is therefore considered a rational thought, thus, shifting from the ethics and economics, causing a number of shortcomings (Sen, 1999).

Adam Smith (1983), known as the father of modern economics, defended the idea of self-interest. In other words, one must be concerned only with their own interests and that the market is responsible for bringing mutual gains to trade. The wealth of a nation resulted from the action of individuals moved by their own interest. However, Smith was also concerned with the use of ethical principles in business (Sen, 1993; Sen, 1999).

Following the thought of Smith, ethics was moving away from the economy (whichever the idea of self-interest), thus resulting in the criterion called "Pareto Optimality", which consists in finding solutions for certain situations, in which at least one of the agents will be better off without degrading the situation of other agents. That is, at least one of the agents is in a better situation than before (more useful), without reducing the usefulness of the others (no one is harmed). In this way, the “Pareto Optimality” is not necessarily a beneficial solution, from the social point of view (Sen, 1993). Consequently, the modern economy was based on the idea of self-interest and the “Pareto Optimality”.

It is possible to affirm, therefore, that a self-interested behavior can possess ethical problems, emphasizing the freedom of choice of the individual. With the intention of mitigating this problem, the teaching of ethics as a reflection in the organizational environment arose in the 1960s in schools in the United States. In this way, the creation of Professional Codes of Ethics was developed, with the main objective of being the formation of the professional awareness of its members about behavior patterns (Tomazelli, 2011).

Each profession has its own specific Code of Ethics, which varies according to its norms and rules and it presents the ideal conduct that each professional should have in the exercise of his profession. The Code of Ethics should support decisions taken in an organizational setting, also aware that every individual should have their own ethical concepts.

The studies by Ariely (2012), Mazar, Amir and Ariely (2008) and Mazar and Ariely (2006) found that individuals have a self-image about their honesty, and they are capable of committing dishonest attitudes, as long as they do not go beyond the threshold of this ethical self-concept, to the point of feeling like a criminal.

In order to check the influence of the control mechanisms over dishonest behavior, national and international studies about the solution of this problem were developed: Utikal and Fischbacher (2013) conducted an experiment among university students and nuns and found that religious presented a less greedy behavior; on the other hand, Abeler, Becker and Falk (2014) and Ruffle and Tobol (2014) showed that religion has no influence on honesty; Ariely (2012) and Pruckner and Sausgruber (2013) showed that when faced with moral reminders, such as recite the 10 commandments or put the hand on the Bible, individuals presents less dishonest behavior.

In Brazil, Santos (2011) found in an experiment that a moral reminder concerning religion does not significantly affect dishonesty; Melo Segundo (2016) observed that individuals who attend more regularly religious ceremonies are less dishonest; Ganassin (2016) found no relation between the anchors tested and the level of dishonesty of the individuals.

Regarding gender, several papers did not present evidence of their influence on dishonesty (Abeler, Becker & Falk, 2014; Erat & Gneezy, 2012; Franzen & Pointner, 2013;
Gravert, 2013; Lundquist, Ellingsen, Gribbe & Johannesson, 2009). Azar, Yosef and Bar-Eli (2013) have shown that women are more likely to tell the truth, but they would also have greater ability to make excuses.

The number of people involved in a task can influence dishonesty too: Charness and Sutter (2012) and Kugler et al. (2007) argued that the same people who are honest individually can make dishonest decisions in a group; Sutter (2009) showed that individuals are more dishonest in groups than individually; Conrads et al. (2013) stated that in a group task, it is more difficult to detect the person responsible for the fraud and this tends to be more recurrent.

However, Bénabou (2012) and Bénabou and Tirole (2006) identified that there may be a less dishonest tendency when individuals are inserted in a group as a result of social concerns with the image. In addition, as a group, individuals may have a better understanding of standards, thus reducing dishonest behavior (Kocher, Schudy & Spantig, 2017).

As there is evidence that moral reminders are capable of influencing individuals' dishonest behavior (Abeler, Becker & Falk, 2014; Ariely, 2012; Pruckner & Saussarrier, 2013; Santos, 2011), it is necessary to study this influence in the collective behavior.

As shown, several researches have identified that individuals make more dishonest decisions when in a group than individually. As in everyday business, most decisions are taken collectively (board, meetings). The occurrence of dishonesty is a factor that must be observed, since the damage can occur, not only in the company, but for all the people affected by it, either its employees or in the society in which it is inserted.

Thus, the objective is to identify possible tools that would reduce dishonesty: auditing, performed in companies as a control mechanism, allows independent individuals to review the work done. This mechanism, even without any type of punishment, can inhibit dishonesty since individuals would be exposed to external review, which could compromise their image before others (Bénabou, 2012; Bénabou & Tirole, 2006).

Other studies have found that moral reminders, especially those related to religion, are able to "remind" individuals about ethics and induce a more honest behavior (Ariely, 2012; Melo Segundo, 2016; Pruckner & Saussarrier, 2013; Santos, 2011). In order to relate to business activity, the articles of the Professional Code of Ethics of the Accountant (PCEA) were used as moral reminders.

Thus, it is possible to verify that right or wrong depends on each individual and the situation in which one is inserted: the same person can present a morally acceptable behavior in one scenario, and a dishonest behavior in another. Therefore, it is necessary to understand which mechanisms influence dishonesty and to the ones that can diminish it, especially when it comes to a group of people.

3 EXPERIMENTAL DESIGN

To achieve the purpose of this research, possible dishonesty inhibitors were inserted in the experiment in order to observe if the posture of the participants changed, with respect to honesty, when subjected to a process of control and monitoring of their activities. For this, an experiment will be carried out, based on the die-rolling game of Fischbacher and Föllmi-Heusi (2013) and Kocher, Schudy and Spantig (2016), which was divided into two stages.

The experiment consists in: the player should watch a video on the computer with a die-rolling game, whose numbers range from 1 to 6; in this stage of the experiment, all participants saw the same number 1 (one). Then each participant should report the number they saw on the dice, however, their compensation is linked to the number informed, thus
enabling dishonesty. Each number reported by the participant equals one point, which is equivalent to BRL 1.00 (one real). The sum of the points was done by the computer itself, at the end of the experiment, when the participant received the amount of his remuneration.

In the first stage of the experiment, the participants were divided into two groups, randomly formed by the system, called GroupPC and GroupNoPC. The difference between each group consists of the rules for playing and the remuneration system: the participants inserted in the GroupPC should inform the same number on the die-rolling to receive the remuneration; if at least one participant in the group reports a different number, everyone in the group would receive 0 (zero) points. For this, the system chose at random three members to participate in the group and, before informing the number of the dice, the members would chat for two minutes in a virtual chat room.

With respect to the GroupNoPC, three members were selected randomly by the system too, but the difference lies in the form of payment: the members also discuss for two minutes in the chat, however, each one receive the compensation according to the value reported; there was no need for participants to report the same number.

The second part of the experiment is similar to the first one, though, at this moment, possible mechanisms that inhibit dishonesty are inserted: the possibility of some group going through an audit process or reading some articles of the Professional Code of Ethics of the Accountant.

Thus, in the second part of the experiment, after visualization of a new video with the die-rolling (in this stage, the video presented the number two) and before informing the number, the participants were warned that, at random, a group would be chosen to go through an audit of the given response – which would be performed on the computer itself. In case the group that went through the audit had informed a value different from the one observed in the dice, the participant (for the treatment GroupNoPC) or the whole group (for the GroupPC) would receive 0 (zero) points. Possibly because they were subject to investigation of the information reported, the individuals might feel inhibited to commit dishonest acts, especially because they might not receive the reward.

Another portion of the participants was tested whether the inclusion of articles of PCEA by CFC (Federal Accounting Council in Brazil) Resolution n. 803/1996, which deals with the Professional Code of Ethics of the Accountant, decreased dishonesty. The members were divided into groups GroupPC and GroupNoPC, shortly after the release of the dice and before the conversation in the chat with the other members of the group, items from PCEA appeared on a screen (specifically, articles 2, 3, 9 and 12), which deal about the ethical behavior of professionals and the sanctions that they may suffer if they do not comply with the norms. Immediately after reading it, participants should correctly answer a multiple-choice question about articles read in order to check whether the reading was actually done so they could move on to the next phase (there was a set of 3 random questions in order to impede the participants from communicating with each other and discover the answer).

The purpose of this part in the experiment is to verify whether, when reminded of their moral standards, participants are less dishonest than when there are no such reminders. According to Santos (2011), if a reminder of moral standards has any effect on honesty, it can be said that people do not automatically remember these standards when taking their decisions. That is, in the experiment, the same participants perform the two parts (within-subjects): first, they must make the decision in a group, without inhibiting mechanisms; then, in the second part, the decision must be made after the insertion of the mechanisms in the experiment. Table 1 support on the understanding of the experiment:
Table 1  
Design of the experiment

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Part 1</th>
<th>Part 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(half of the participants with the audit and the other half with PCEA articles)</td>
<td>(half of the participants with the audit and the other half with PCEA articles)</td>
</tr>
<tr>
<td>GroupPC</td>
<td>GroupPC</td>
<td>GroupPC</td>
</tr>
<tr>
<td>GroupNoPC</td>
<td>GroupNoPC</td>
<td>GroupNoPC</td>
</tr>
</tbody>
</table>

Throughout the experiment, communication between participants was not allowed, only during chats. Before each stage of the experiment, they were given instructions on how to proceed and participants answered questions in order to show if they understood what was being asked: only after answering the question correctly, they would proceed to the next stage.

Before the start of the experiment, it was requested that each participant answer a questionnaire with questions about gender, level of education and family income, in order to obtain an overview of the respondents. At the end, it is displayed on the computer the number of points earned and the sum in reais, the value to be pocketed. Thus, each participant filled the paper on the desk with this information, delivered to the experimenter and received the corresponding amount in cash. Table 2 presented the stages of the experiment.

Based on the literature presented later and using the experiment described above, the following research hypothesis is to be tested:

H₁: When controls mechanisms (audit) and moral reminders (rules of the Professional Code of Ethics of the Accountant) are inserted, individuals are less dishonest in collective decision-making.

The sessions of the experiment were carried out in the two laboratories of the Federal University of Rio Grande do Norte, which is located in the state of Rio Grande do Norte, due to the accessibility provided, during the period from April 23rd to 24th, 2018, with students from the Accounting course.

The data were collected in 13 rounds, with an approximate duration of 20 minutes (each participant took, on average, 14 minutes to complete the experiment), with 204 participants in total. The income spent was BRL 880.00, an average of BRL 4.31 for each participant: if all the participants had been honest in their answers, the cost of the experiment would be BRL 612.00, that is, there was an expense of BRL 268.00 more due to dishonesty.

The experiment was created especially for this research and conducted through the link [http://experiment-parte3.firebaseapp.com](http://experiment-parte3.firebaseapp.com). Afterwards, the conversations were also analyzed by the participants through the chat, some fragments of the dialogues were extracted and compiled into wordclouds, through the site, [www.wordclouds.com](http://www.wordclouds.com). The purpose of creating wordclouds was to verify the expressions most used by the respondents.

In addition, the McNemar statistical test was performed in order to compare the two samples and to verify if individuals have a more honest behavior when exposed to inhibitory mechanisms than when they are not exposed. The choice of this test was due to the fact that it was composed of paired samples (for that reason the non-use of the Chi-Square test, despite the similarity) with categorical variables: the individuals were honest or dishonest. For this, IBM SPSS® software, version 20, was used.
<table>
<thead>
<tr>
<th>PHASES</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Instructions</td>
<td>Instructions are given to participants about how to proceed in the experiment, such as payment, anonymity and chat interaction.</td>
</tr>
<tr>
<td>Questionnaire</td>
<td>The participants answer a questionnaire with personal information, such as age, study institution, family income.</td>
</tr>
</tbody>
</table>

**PART 1 OF THE EXPERIMENT**

<table>
<thead>
<tr>
<th>PHASES</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructions</td>
<td>The system automatically and randomly divides the participants into two groups (GroupPC and GroupNoPC) and sends instructions on the next step to each participant, taking into account the type of group they are inserted. Participants should also inform if they understood the task to be performed.</td>
</tr>
<tr>
<td>Die-Rolling</td>
<td>Participants watch (individually) a video with the die-rolling. In this stage, the video was the same for all the participants presenting the number 1 (one).</td>
</tr>
<tr>
<td>Instructions for group interaction</td>
<td>Participants received instructions about how the chat will work, such as the time they would have to talk and the prohibition of identifying themselves.</td>
</tr>
<tr>
<td>Group interaction</td>
<td>Participants interact in a virtual chat, without the possibility of identifying the other members of the group.</td>
</tr>
<tr>
<td>Decision Making</td>
<td>The participants individually report the result of the data entry, considering that the remuneration is tied to the number they inform and the group in which they are inserted.</td>
</tr>
</tbody>
</table>

**PART 2 OF THE EXPERIMENT**

<table>
<thead>
<tr>
<th>PHASES</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructions</td>
<td>Participants remain divided into the same group in which they responded to part 1 of the experiment, receive instructions on how to proceed in the next step and respond if they understood the task.</td>
</tr>
<tr>
<td>Audit Report</td>
<td>Half of the groups will be informed that they will be subject to an audit process: the system will randomly choose a participant to be audited. In case the group that suffer the audit had informed a value different from the one observed in the data entry, the participant (for the GroupNoPC) or the whole group (for the GroupPC) would receive 0 (zero) points.</td>
</tr>
<tr>
<td>PCEA Articles</td>
<td>The other half of the groups should read articles from the Professional Code of Ethics of the Accountant (CFC Resolution n. 803/1996). After the reading, the participants would answer a question in order to confirm that they had read the text.</td>
</tr>
<tr>
<td>Die-Rolling</td>
<td>Participants watch (individually) a video with the die-rolling. Members of the same group watch the same video. Also in this step, the video is the same for all participants, presenting the number 2 (two).</td>
</tr>
<tr>
<td>Instructions for group interaction</td>
<td>Participants received instructions about how the chat will work, such as the time they would have to talk and the prohibition of identifying themselves.</td>
</tr>
<tr>
<td>Group interaction</td>
<td>Participants interact in a virtual chat, without the possibility of identifying the other members of the group.</td>
</tr>
<tr>
<td>Decision making</td>
<td>The participants individually report the result of the data entry, considering that the remuneration is tied to the number they inform and the group in which it is inserted.</td>
</tr>
</tbody>
</table>

**FINAL PART**

<table>
<thead>
<tr>
<th>PHASES</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment</td>
<td>The participant is informed of the sum of points and the amount in <em>reais</em> received at the end of the experiment. The participant put these amounts on paper and delivers them to the Experimenter to receive their remuneration.</td>
</tr>
</tbody>
</table>
In this study, the use of the McNemar test makes it possible to verify if the use of inhibitory mechanisms were effective in decreasing or inhibiting dishonesty. This test should be used in paired samples and with categorical variables (in this case, honest or dishonest), so it is widely used in the medical field to verify the effect of the use of a drug that can be used in patients. Similarly, in this research, the data are tested in the two steps of the experiment, with and without the inhibitory mechanisms.

4 RESULTS

4.1 Presentation of the results

During the execution of the experiment, the system presented the same number for all participants: in the first stage, the dice showed the number 1 (one), and in the second, the number 2 (two). It means that, to be characterized as "honest", at the end of the experiment the participant should receive the amount of BRL 3.00 (three reais). In the experiment, the amount spent if everybody were honest would be BRL 612.00. However, the total expense in the experiment was BRL 880.00, BRL 268.00 more.

About 56% of the participants defined themselves as men and 44% women. In order to balance out the relation to the type of group and to the possible mechanism to inhibit dishonesty, the system was programmed as follows:

Table 3

<table>
<thead>
<tr>
<th>Group</th>
<th>Group Type</th>
<th>Inhibitory Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GroupNoPC</td>
<td>Code of Ethics</td>
</tr>
<tr>
<td>2</td>
<td>GroupPC</td>
<td>Code of Ethics</td>
</tr>
<tr>
<td>3</td>
<td>GroupNoPC</td>
<td>Audit</td>
</tr>
<tr>
<td>4</td>
<td>GroupPC</td>
<td>Audit</td>
</tr>
</tbody>
</table>

Sequentially and randomly, the type of group and the inhibitory mechanism were chosen by the system so that there was no imbalance of the participants. At the end, 53% of the respondents were allocated to the GroupNoPC, 39% of which were in the Audit and 61% in the Code of Ethics. The remaining 47% who remained in the GroupPC, 41% were informed of the Audit and 59% read the PCEA articles. In general, 40% of the participants participated in the inhibitory mechanism of Audit and 60% of the Code of Ethics.

Despite the extra amount expended due to the dishonesty, the largest share of people who collaborated with the experiment were honest: 70% (142 people) reported that the sum of the dice, in two stages, was 3, compared to 30% (62 people) who mentioned a higher value.

In order to investigate whether the use of control mechanisms, such as audit, and moral reminders, such as the PCEA articles, would have some effect on the decision-making regarding the honesty of the participants, a separate analysis is necessary between the parts of the experiment. In the first part, in which respondents only had to play in groups, divided into their respective groups, 73% were honest. When the possible inhibitory mechanisms are inserted, the percentage of honest ones goes from 73% to 91%, and the dishonest ones, from 27% in the first part, to 9% with the inhibitors. This result corroborates the findings of previous research (Pruckner & Sausgruber, 2013; Ariely, 2012; Abeler, Becker & Falk, 2014; Santos, 2011) which bring evidence that moral reminders are capable of influencing the dishonest behavior of individuals. Table 4 shows the responses in each part of the experiment:
Table 4
Matrix of responses

<table>
<thead>
<tr>
<th></th>
<th>Honest – part 2</th>
<th>Dishonest – part 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honest – part 1</td>
<td>142</td>
<td>6</td>
</tr>
<tr>
<td>Dishonest – part 1</td>
<td>43</td>
<td>13</td>
</tr>
</tbody>
</table>

With the inclusion of possible inhibitory mechanisms (code of ethics and auditing), it was possible to verify a decrease in dishonesty of approximately 18%. To verify if this decrease is indeed significant, the non-parametric McNemar test was performed and the results can be seen in Table 5:

Table 5: McNemar statistics

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Without inhibitor</th>
<th>With inhibitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honest</td>
<td>72.5%</td>
<td>90.7%</td>
</tr>
<tr>
<td>Dishonest</td>
<td>27.5%</td>
<td>9.3%</td>
</tr>
<tr>
<td>Chi-Square</td>
<td>26.449</td>
<td></td>
</tr>
<tr>
<td>McNemar test</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>N of valid cases</td>
<td>204</td>
<td></td>
</tr>
</tbody>
</table>

Presenting a value of 0.000, the McNemar test rejected the null hypothesis and showed that there are differences between the percentages found, that is, when individuals were subjected to an audit process or read the articles of the PCEA, they were more honest in their decisions.

The McNemar test was also applied to the sample, in the categories gender, income and group type, PC or NoPC and the data are described in Figure 1:

Figure 1. McNemar statistics by category

With regard to the gender category, participants could opt for the masculine, feminine or other gender, therefore, the other gender was not chosen. Previous studies characterize aspects related to masculinity or femininity, not only for biological reasons but also for behavior, demonstrating that gender is a social construct and reproduces conditions developed and reinforced by institutions (Silveira, 2006). Similar to the findings of previous work (Allen, Fuller & Luckett, 1998; Azar, Yosef & Bar-Eli, 2013; Buckley, Wiese & Harvey, 1998; McCabe & Trevino, 1993; Muehlheusser, Roider & Wallmeier, 2015) that men are more likely to commit dishonest acts: 9.6% of men were dishonest compared to 9% of women, with inhibitory mechanisms.

Although previous studies (Lammers, Stoker & Stapel, 2010; Santos, 2011) found that people with higher incomes tend to be more dishonest, or believe that they should be excluded from certain standards applied to society in general or else the limit of their dishonesty is greater. However, in this research, individuals with larger incomes showed more honest behaviors: this may be explained because in this experiment specifically, the values obtained with dishonesty are not high enough to encourage people with high incomes to be dishonest.

As the group designations (PC and NoPC) were taken from Kocher, Schudy & Spantig’s paper (2017) it was expected that the results would be similar to the ones found in
this paper: despite the small difference, the participants of the GroupPC, where the results should be combined, presented more dishonest behaviors than the participants of the GroupNoPC. In this research, the same result was found: 11.5% of dishonest people in the GroupPC versus 7.4% in the GroupNoPC; this result can be explained by the communicability influencing the decisions of the individuals and the influence of the group component in the decision-making.

About age, previous research has identified that younger people are more likely to commit dishonest acts (Allen, Fuller & Luckett, 1998; Taniguchi, 2011). However, this could not be identified in this research: the average age of participants was 24 years in all compositions, whether honest or dishonest, group or individual decision.

In all classifications there was an increase in honesty (hence a decrease in dishonesty) when the inhibitory mechanisms were inserted. The McNemar test shows that this increase in honesty is statistically significant, except for the individuals inserted in the GroupNoPC, in which the statistic was not significant. It is worth noting the GroupPC in which there was a decrease in dishonesty by 29.1%; in this group the participants should report the same amount to receive the remuneration, which demonstrates that the group effect, in this case, influenced the decisions.

4.2 Discussion of the results

Of the 60 people who were dishonest in the experiment as a whole (30% of the participants), 30 of them displayed maximum dishonesty in the first part of the experiment (number 6) and were honest in the second part (reporting 2) with the inhibitors.

The greatest increase in honesty between the first and the second stage of the experiment was perceived in the participants of the GroupPC: an increase of 6% for those who would be subject to an Audit and 8% for those who read the PCEA articles; a total increase of 14% in honesty. Since the members of GroupPC should inform the same number so that they would receive the remuneration, if at least one person reported a different number, everyone would earn 0 (zero). In GroupNoPC, there was an increase of 3% of honest who were notified about the Audit and 1% about the Code of Ethics.

Some reactions of the participants are important to be reported: a) 5 people did not accept receiving the money; 2 had been honest, 2 had placed 7 and 1 had placed 12; b) a girl who did not win anything, as a result of divergence in the group (she was in GroupPC) was extremely irritated and slammed the door of the laboratory; c) 4 people asked whose experiment money was it; after receiving the explanation that the money was from the Experimenter, everyone took the money; d) a boy questioned the Experimenter on a question regarding the experimental procedure and, after that, waited for the Experimenter to leave to put the number 6; e) a student had already left but ended up returning to inform that he rejoice the payment for the group, because now they would have money to buy a snack; f) one participant donated BRL 2.00 to another participant so that the Experimenter would not remain without change; g) many people were interested in reading the research; h) some people went to the Experimenter to find out what the experiment was; the main suspicions were about dishonesty; verify the errors that audit firms make; analyze whether in the absence of the audit, companies profit more; induce participants to make mistakes.

Through the extraction of the conversations in the chat, it was possible to elaborate wordclouds, separately, in the Groups PC and NoPC (Figure 2):
Through the wordclouds and analysis of the conversations carried out in the virtual environment, it was possible to perceive that there was not much distinction in relation to the groups, since the majority of the participants agreed among themselves about the number that they should put, even if they were inserted in the GroupNoPC, in which the group members could report divergent numbers since their compensation would be based on the reported number.

As can be seen in the extract of some dialogues, the presence of inhibitory mechanisms in the experiment left the participants confused about the number they should inform and also made them display a more honest behavior: a) "–Because the higher the number, the more you earn"; "–but you are acting in bad faith, the idea is not to make money"; "–but the problem is if it's something ethical"; b) "–Is this a dishonesty test?"; "–It was 1 for everyone, but we can bypass the rules saying it was 6 ″; "–Let's put 6, you can buy juice and a snack"; "–lol, corruption"; c) "The question is to be honest or to make money"; d) "–The idea here is not to make money but to leave with a clean conscience", "–I just understood now, I thought the game was about management, I was not expecting to act clean or dirty, I thought it was something about administration"; e) "Now you have the audit, right?!"; f) "–After that resolution there, I did not lie"; "–that little text gave us a reprimand"; "–a text takes effect"; g) "–the debate is about being honest or profitable"; "–I believe they want to test ethics"; "–they put everything to weigh the conscience and to do the right thing"; h) "–Our profession is governed by ethics, will we put 1 or 6 for money?"; i) "–Should we put credible information? Combine a false number? What should we do? We have to put the same thing to the Federal Police and the Revenue Service to think that we are all right"; "–Will everyone put 6 and win BRL 6.00? Or let's be honest"; j) "–With audit or without audit ... money matters little, what you do is to type what you saw"; "–Honesty above all else"; "–this is missing in Brazil"; k) "I put the truth in the first and also it in the second, because this time it will be audited"; l) "After seeing the code of ethics, the weight is greater".

Below, a summary of the experiment:

a) Number of participants – 204;
b) Number of dishonest people – 62 (30%);
c) Average total amount received – BRL 4.31;
d) Average time taken to complete the experiment – 13 minutes and 48 seconds;
e) Average attempt to understand the experiment – 3;
f) Average age of participants – 24 years;
g) Total amount spent – BRL 880.00;
h) Extra amount spent due to dishonesty – BRL 268.00.
5 CONCLUSIONS

This research about dishonesty has as one of its bases the work of Ariely (2012) and states that the dishonest behavior of individuals is influenced by self-justifications, that is, individuals have pre-formulated concepts about their self-image and their honesty. In this way, all people are capable of committing dishonest acts as long as those acts do not exceed the limit of their ethical self-concept.

Aware of this theory, several studies have intended to verify the existence of possible control mechanisms that would be able to inhibit or decrease the dishonesty of individuals (Abeler, Becker & Falk, 2014; Ariely, 2012; Ganassini, 2016; Pruckner & Sausgruber, 2013; Ruffle & Tobol, 2014; Santos, 2011; Utikal & Fischbacher, 2013) such as religion or moral reminders. Thus, this research also verified if certain mechanisms would be able to influence the decision-making concerning dishonesty when these individuals are inserted in groups and not individually.

Regardless, the majority of the participants were honest (70% of the people) and the findings of the experiment corroborated not only the research hypothesis but also the previous studies, since it was possible to verify that the audit and the reading of some articles of the Professional Code of Ethics of the Accountant made the participants less dishonest: in the first part of the experiment, when the individuals were not subject to any control mechanism, 27% of the participants were dishonest; on the other hand, in the second part, when they would be subject to an audit process or after reading the PCEA articles, the percentage of dishonest ones went down to 9%.

As the participants' remuneration was paid in Brazilian currency, there was an extra financial expense caused by dishonesty in the amount of BRL 268.00.

In the face of increased dishonesty when individuals are inserted into a group, it becomes necessary to investigate mechanisms that decrease dishonesty. The data of this research verified that by communicating that the data can be audited, individuals tend to be more honest, possibly as a result of the supervision: when the individual has his answers checked by others and can suffer some kind of sanction if the dishonest act is discovered, he tends to be more honest in his decision-making.

Another mechanism also tested in this research was the moral reminders, here characterized by the articles of the PCEA: as also evidenced in previous research (Ariely, 2012; Pruckner & Sausgruber, 2013), moral reminders tend to decrease individuals' dishonesty. These moral reminders are not present in everyday life but a possible solution would be to intensify continuing education courses, already promoted by the class councils, on professional ethics. In addition, it is also necessary to study other mechanisms that can reduce dishonesty and seek a way to insert them into decision-making.

Thereby, this work reinforces the importance of the study of dishonesty, not only because of its ethical and moral impacts on society, but also because of its financial impact. In addition, it also emphasizes the relevance of a work that explores dishonesty in a group, which has not yet been studied, but is very present in the daily life of companies.

Although the data from this research demonstrated that auditing and reading the Code of Ethics have decrease the dishonesty of individuals, this does not mean that there are no other mechanisms that can influence, even more effectively, the inhibition of dishonesty. The mechanisms chosen here were an initial work proposal in order to understand their impacts on the dishonesty of individuals when they should make decisions collectively. Future researches should not only broaden the scope of work, such as checking other aspects of dishonesty (conducting the experiment with known individuals, using non-financial reward forms), but also introducing other mechanisms that may inhibit dishonesty, for example, the insertion of
cameras in the room where the experiment will be conducted or the automatic checking of the values received and a possible punishment.

Appendix – Experiments Informations

The Appendix includes information about the experiments (in Portuguese). Initially, participants received instructions for the experiment on the computer screen

INSTRUÇÕES GERAIS:
Bem-vindo a esse experimento e obrigado por participar!
Por favor, a partir de agora, NÃO FALE com nenhum outro participante!

Procedimentos Gerais:
Nesse experimento, estamos estudando tomadas de decisões econômicas. Você pode ganhar dinheiro participando. O que você irá ganhar será pago ao final do experimento, de forma individual e privada, e em dinheiro. O experimento consiste em duas partes no qual você deve tomar decisões independentes. No começo de cada etapa, você receberá instruções detalhadas de como proceder. Se você tiver qualquer dúvida durante o experimento, por favor, levante a sua mão. Um instrutor irá até você e responderá a sua dúvida, em particular.

Durante o experimento, você e os outros participantes terão que tomar decisões e, possivelmente, você terá que interagir (através do chat) com outros participantes também. O seu pagamento será determinado por suas decisões e pelas decisões dos outros participantes.

Pagamento:
Em algumas partes do experimento, não será mencionado sobre “Reais”, mas sim sobre “pontos”. Seus ganhos serão calculados em pontos. No final do experimento, os pontos serão convertidos em Reais, com uma taxa de conversão de:

1 ponto = 1 Real

O seu pagamento acontecerá no final do experimento. Cada participante será chamado pelo seu código de identificação, para pagamentos individuais. Nenhum outro participante saberá sobre o seu pagamento e você também não saberá sobre o pagamento de nenhum outro participante.

Anonimato:
A análise do experimento será feita anonimamente. NÃO SERÁ REALIZADO NENHUM LINK ENTRE O SEU NOME E OS DADOS GERADOS NO EXPERIMENTO! Você não saberá a identidade de nenhum participante, nem antes nem após o término do experimento. Também os outros participantes não saberão a sua identidade. Durante todo o experimento, sua única forma de identificação será através do código de identificação que você receberá no início do experimento. Ao teclar em “OK”, você está concordando em participar do experimento:

On screen instructions: Instructions for Part 1 - GroupNoPC
PARTE 1 – INSTRUÇÕES

Lançamento dos dados:
Na parte 1 do experimento, você assistirá a um vídeo com o lançamento de um dado.

O vídeo que você verá será selecionado aleatoriamente pelo computador e cada um dos seis números possui igual probabilidade de aparecer na tela. A sua decisão de qual número registrar será tomada em grupo: o sistema escolherá, aleatoriamente, outros dois participantes que farão com você um grupo de três pessoas. Todos os membros do seu grupo verão o mesmo vídeo do lançamento do dado.

Sua tarefa:
Sua tarefa será memorizar o resultado do lançamento do dado e digitar na tela seguinte.

Seus pontos para essa tarefa:
O número do dado que você digitar determinará o seu pagamento, por exemplo:

<table>
<thead>
<tr>
<th>NÚMERO DO DADO INSERIDO</th>
<th>PONTOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 Ponto</td>
</tr>
<tr>
<td>2</td>
<td>2 Ponto</td>
</tr>
<tr>
<td>3</td>
<td>3 Ponto</td>
</tr>
<tr>
<td>4</td>
<td>4 Ponto</td>
</tr>
<tr>
<td>5</td>
<td>5 Ponto</td>
</tr>
<tr>
<td>6</td>
<td>6 Ponto</td>
</tr>
</tbody>
</table>

ATENÇÃO: Os números informados pelos outros membros do grupo não afetarão os seus pontos e o número que você informar, também não afetará os pontos dos outros participantes. Antes de informar o número, você terá a possibilidade de interagir com os demais membros do grupo.

Compreendendo a tarefa:
Suponha que você veja o número 6 e você digite o número 4. Quais pontos você irá receber se...

Os membros do seu grupo informarem o número 4?

Pelo menos um membro do grupo informar o número 1?

VERIFICAR RESPOSTA

[for GroupPC, instructions were identical except for part called “Attention”. In GroupPC, the text was: “ATTENTION: You must enter the same number as the other participants in your group. All members of the group must report the same number: if at least one participant reports a different number, all members of the group will receive 0 (zero) points. Before informing the number, you will have the possibility to interact with the other members of the group”]

In the second experiment, the instructions for the leaders contained this: “Your task: You have been randomly selected to be the leader of your group, which will consist of two other members. Your role will be to guide the conversations with the other members of the group. Because of your leadership role in this task, your pay will be doubled at this stage of the experiment. The other members of the group do not know that your remuneration will be doubled: it is up to you to comment or not. You must memorize the result of the dice roll and enter the next screen”]
Decision Screen Part 1 (displayed after individuals observed the video)

PARTE 1 – TOMADA DE DECISÃO

Agora, digite o resultado do lançamento do dado.
Número visto: 

O resultado do lançamento do dado que você informou determinará o seu pagamento, como abaixo:

<table>
<thead>
<tr>
<th>NÚMERO DO DADO INSERIDO</th>
<th>1</th>
<th>2</th>
<th>2</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>PONTOS</td>
<td>1 Ponto</td>
<td>2 Pontos</td>
<td>2 Ponto</td>
<td>4 Ponto</td>
<td>5 Ponto</td>
<td>6 Ponto</td>
</tr>
</tbody>
</table>

[SALVAR]

Instructions for Part 2: with audit
[for GroupPC, instructions were identical except the fact that participants were informed that all the members must put on the same number, otherwise all the members would receive a 0]

A parte 2 do experimento é similar a parte 1, sendo que agora, o seu grupo estará sujeito a passar por um processo de auditoria.

A todo momento, o seu grupo estará sujeito a passar por um processo de auditoria que o sistema realiza de forma aleatória, o sistema escolhe um participante do grupo, dentre todos que estão participando, e fiscaliza se o número informado no vídeo do lançamento do dado é igual ao informado pelo grupo. Caso seja diferente, o participante receberá 0 (zero) pontos nessa etapa do experimento.

ATENÇÃO: Você permanecerá com o mesmo grupo da parte 1. Logo, Os números informados pelos outros membros do grupo não afetarão os seus pontos e o número que você informar, também não afetará os pontos dos outros participantes. Antes de informar o número, você terá a possibilidade de conversar com os demais membros do grupo.

Na parte 2 do experimento, você assistirá a outro vídeo com o lançamento de um dado. O vídeo que você verá será selecionado aleatoriamente pelo computador e cada um dos seis números possui igual probabilidade de aparecer na tela. A sua decisão de qual número registrar será tomada em grupo: o sistema escolherá, aleatoriamente, outros dois participantes que ficarão com você um grupo de três pessoas. Todos os membros do seu grupo verão o mesmo vídeo do lançamento do dado.

Sua tarefa: Sua tarefa será memorizar o resultado do lançamento do dado e digitar na tela seguinte.

Seus pontos para essa tarefa:

<table>
<thead>
<tr>
<th>NÚMERO DO DADO INSERIDO</th>
<th>PONTOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 Ponto</td>
</tr>
<tr>
<td>2</td>
<td>2 Ponto</td>
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<tr>
<td>3</td>
<td>3 Ponto</td>
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<td>4</td>
<td>4 Ponto</td>
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<tr>
<td>5</td>
<td>5 Ponto</td>
</tr>
<tr>
<td>6</td>
<td>6 Ponto</td>
</tr>
</tbody>
</table>
Abaixo, serão mostrados alguns trechos do Código de Ética Profissional do Contador (CEPC), conforme Resolução CFC nº 803/1996:

Art. 2º São deveres do Profissional de Contabilidade:

I – exercer a profissão com zelo, diligência, honestidade e capacidade técnica, observando toda a legislação vigente, em especial aos Princípios de Contabilidade e às Normas Brasileiras de Contabilidade, e resguardar os interesses de seus clientes e/ou empregadores, sem prejuízo da dignidade e independência profissionais;

Art. 3º No desempenho de suas funções, é vedado ao Profissional de Contabilidade:

III – auferir qualquer provento em função do exercício profissional que não decorra exclusivamente de sua prática ilícita;

Art. 9º A conduta do Profissional de Contabilidade com relação aos colegas deve ser baseada nos princípios de consideração, respeito, apreço e solidariedade, em consonância com os postulados de harmonia de classe.

Art. 12º A transgressão de preceito deste Código constitui infração ética, sancionada, segundo a gravidade, com a aplicação de uma das seguintes penalias:

I – advertência reservada;

II – censura reservada;

III – censura pública.

Instructions for Part 2: articles in the Professional Code of Ethics of the Accountant
Instructions for chat (displayed after Instructions and the video in Part 2)

PARTE 2 – INSTRUÇÕES PARA A INTERAÇÃO EM GRUPO

Você terá a possibilidade de conversar com os outros membros do grupo via chat, para clarificar qual número cada membro do grupo irá informar.

Você terá 2 minutos para trocar informações. A discussão em grupo terminará ao final de 2 minutos. Cada mensagem enviada será lida por todos os membros do grupo, não sendo possível o envio de mensagens individuais.

Os temas abordados na conversa são livres, contudo, não será permitido mencionar qualquer identificação pessoal. Isso inclui nome, idade, gênero, materiais que estudou (incluindo nome de professores) ou tópicos similares que levem a sua identificação. Além disso, não será permitido que você acesse qualquer pagamento de outros membros do grupo. Se essas regras não forem seguidas, você será excluído do experimento e não receberá o pagamento.

Após a discussão em grupo, cada membro deverá informar um número na tela do computador.
Chat Screens

Final Part – last screen with identification code, sum of points and amount to receive

PARTE FINAL – PAGAMENTO

De acordo com as regras do experimento, você irá receber o valor de:

<table>
<thead>
<tr>
<th>Código de Identificação</th>
<th>Somatório de portos</th>
<th>Valor a receber</th>
</tr>
</thead>
<tbody>
<tr>
<td>43228</td>
<td>3</td>
<td>R$ 3</td>
</tr>
</tbody>
</table>

Por favor, preencha a ficha sobre a mesa com os dados desta tela (somatório dos pontos e valor a receber) e entregue ao fiscal do experimento para receber o seu pagamento.

FINALIZAR
REFERENCES


Inhibitory Mechanisms on Dishonesty of Groups and Individuals

2016. 81 f. Dissertation (Master Degree in Accounting) – Programa Multiinstitucional e Inter-Regional de Pós-Graduação em Ciências Contábeis da Universidade de Brasília, Universidade Federal da Paraíba e Universidade Federal do Rio Grande do Norte.


RESUMO

**Objetivo:** O objetivo deste estudo é apresentar como a inserção de mecanismos de controle, como normas de auditoria e ética profissional, influenciaria o comportamento desonesto de indivíduos em particular, e em grupo.

**Método:** um experimento foi realizado com 204 participantes, no qual eles assistiam a um jogo rolante e relatavam o número mostrado pelos dados. No entanto, o pagamento foi vinculado ao número que eles relataram e não ao número visto, tornando-os desonestos.

**Originalidade/Relevância:** é o primeiro estudo no Brasil que busca verificar componentes de desonestidade grupal: trabalhos anteriores apenas analisaram a desonestidade individual. Além disso, tanto nacional como internacionalmente, é a primeira pesquisa em que os mecanismos capazes de inibir a desonestidade coletiva são analisados.

**Resultados:** foi possível verificar que a auditoria e a leitura de alguns dos Códigos de Ética Profissional do Contador tornaram os participantes menos desonestos: quando os indivíduos não estavam sujeitos a nenhum mecanismo de controle, 27% dos participantes eram desonestos; Já quando eles estariam sujeitos a um processo de auditoria ou depois de ler os artigos da PCEA, o percentual de desonestidade era de 9%.

**Restrições teórico-metodológicas:** no experimento foi possível corroborar a hipótese da pesquisa: os mecanismos de controle apresentados (auditoria e leitura de artigos no PCEA) fizeram com que eles tomassem decisões mais honestas.

**Contriuições Sociais/Gerenciais:** este trabalho questiona a pesquisa sobre desonestidade, não apenas seus aspectos éticos e morais, mas também seus impactos financeiros.

**Palavras-chave:** Desonestidade; Experimentos; Mecanismos de Controle; Grupos; Finanças Comportamentais.