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University of Pennsylvania

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Abstract

Does our perception of corruption affect our interactions? This question was answered through an experimental survey of 90 participants and the Corruption Perception Index (CPI) from Transparency International's 2017 Report. The survey revealed that those who were categorized as low-corrupt with an above average CPI exhibited altruism towards individuals from perceived high-corrupt regions but discriminated negatively against them when restrictions were placed on the interaction. In the experiment, participants were allowed to give any amount between zero and six dollars in both games. Altruism was measured through the dictator game and low-corrupt participants were found to give one dollar more, \$3.60, to those perceived to be high-corrupt than they gave to participants who were perceived to be low-corrupt, \$2.60. The ultimatum game was the measure for a restricted environment and low-corrupt participants gave sixty cents less, \$2.80, to those perceived to be high-corrupt than they gave to participants perceived to be low-corrupt, \$3.40. Other findings from the survey exhibited discriminatory behavior by categorized high-corrupt participants but were ultimately not statistically significant.

Keywords

corruption, discrimination, game theory

Disciplines

Behavioral Economics | Experimental Analysis of Behavior | Philosophy

Discrimination: Does Perception of Corruption Affect our Interactions?

Ramón Garcia Gomez

*Submitted to the Philosophy, Politics and Economics Program at the University of Pennsylvania
in partial fulfillment of the requirements for Honors.*

Thesis Advisor: Dr. Eugen Dimant

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DISCRIMINATION: DOES PERCEPTION OF CORRUPTION AFFECT OUR INTERACTIONS?

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ABSTRACT

Does our perception of corruption affect our interactions? This question was answered through an experimental survey of 90 participants and the Corruption Perception Index (CPI) from Transparency International's 2017 Report. The survey revealed that those who were categorized as low-corrupt with an above average CPI exhibited altruism towards individuals from perceived high-corrupt regions but discriminated negatively against them when restrictions were placed on the interaction. In the experiment, participants were allowed to give any amount between zero and six dollars in both games. Altruism was measured through the dictator game and low-corrupt participants were found to give one dollar more, \$3.60, to those perceived to be high-corrupt than they gave to participants who were perceived to be low-corrupt, \$2.60. The ultimatum game was the measure for a restricted environment and low-corrupt participants gave sixty cents less, \$2.80, to those perceived to be high-corrupt than they gave to participants perceived to be low-corrupt, \$3.40. Other findings from the survey exhibited discriminatory behavior by categorized high-corrupt participants but were ultimately not statistically significant.

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Section I – Introduction

Discrimination and corruption both benefit few while causing harm to many. For the purposes of this research, discrimination is formally defined as a preconceived opinion that is not based on reason or actual experience (Lang and Lehmann, 2012). Corruption, in accordance with much of the research on the topic, is formally defined as the abuse of public power for private benefit (Tanzi, 1998). Both of these negatively affect society in different ways and their study is important to comprehend their relationship on an individual's behavior.

Discrimination affects the way individuals interact with each other on a daily basis. Implicit biases generate automatic judgments and shape either negative or positive perceptions of the people around them. Studies have shown that people default to favor the in-group over the out group (Greenwald and Krieger, 2006). Although the decision to favor the in-group may not occur at all times, this natural inclination leads to segregation on several lines. One tool often used in research to measure these inclinations is the Implicit Association Test (IAT). One study linked the IAT with discriminatory behavior and found that white students who reported to have undesirable attitudes towards black students had negative interactions which then led to more prejudice (McConnell and Leibold, 2001).

The practice of discrimination also has detrimental effects on minorities who experience it on a daily basis. It is unfair to those being discriminated against as it creates an uneven playing field where people are unable to achieve their maximum potential. One study indicates that experience of continuous discrimination, even if benign, leads to a poorer adjustment of immigrant Latino/as in the United States (Huynh et. al, 2012). Another study found that black participants, exhibited an evaluative preference for white partners in a difficult task that only

increased the more that they accepted social inequalities existed (Ashburn-Nardo, Knowles and Monteith, 2003). In these cases, discrimination leads to decreased morale amongst those that are being discriminated against and can be damaging to the advancement of historically oppressed communities. One study corroborated this thought by finding that one important factor for why African Americans do worse in the labor market is due to their names (Bertrand and Mullainathan, 2004). When something as simple as a name puts one person at a disadvantage over another, it emphasizes the importance of studying discrimination.

Corruption on the other hand has slowed the economic development of several countries across the world and as a result has put large groups of people at a disadvantage. Some argue that corruption is actually good for a society as it leads to efficiency that works against bad policy and creates a system where the best entrepreneurs are the ones that are able to bribe the bureaucrats for favors (Leff, 1964; Huntington, 1968). The argument follows that those who are able to give the largest bribe are inherently more efficient and therefore more deserving of the benefits that corruption brings. While the argument sounds convincing, there is a volume of research that disproves efficient corruption theories. One study finds that those who are able to win the bidding wars with the highest bribes are not necessarily the most efficient (Tanzi, 1998). Other studies point to corruption as the cause of slower economic growth (Mauro, 1995; Mo, 2001). While corruption seems favorable in the short run, it has detrimental effects to governments and their citizens.

The problems of discrimination and corruption indicates that there is harm caused to people by both topics. These effects range from a decrease in morale, an inability to succeed, and stunted economic growth. One question, which has yet to be answered directly, is whether or not

there is a relationship between discrimination and perception of corruption separate from race and country of origin. In other words, does the perception of corruption affect individual interactions? This paper aims to explore the issue through an empirical survey and ultimately answer this question. This question serves as an extension to much of the work on discrimination and corruption and works to combine the two fields through an interesting perspective. Also, the study of the perception of corruption and discrimination is more important than ever before in a hostile global political climate undergoing a wave of nationalism (Eger and Valdez, 2015). In this context, politicians from across the world have been more discriminatory towards outside groups.

The paper aims to empirically measure interactions through strategic games and provide a quantifiable measure of discrimination against perceived high-corrupt and low-corrupt individuals. Through these findings, an important question can be answered that can then lay the foundation for research that questions why discrimination on the perception of corruption occurs.

The paper is comprised of eight sections including the introduction (Section I). Section II is a summary of the literature reviewed that provides a clear picture of the research surrounding the topic of interest. Section III contains the research questions as well as the hypotheses. Section IV explains the methodology for the survey and its justification. Section V presents the data of the survey, argues for its validity, and analyzes the results that will be used to test the hypotheses. Section VI discusses the results and its implications as well as limitations of the survey. Section VII has a general conclusion, the other remaining parts not divided into sections are the references and appendix.

Section II – Literature Review

This section contains five subsections, the first four subsections are a thorough and relevant review of the literature of four areas: corruption, discrimination, experimental games, and similar work to the questions posed in this paper. The final subsection summarizes the literature reviewed and offers justification for the topic in question and its uniqueness by further explaining the current gap in the research.

Subsection I – Corruption

Corruption is an ambiguous concept and much of the research surrounding the topic has only been developed since the 1960s. While the study of corruption has only been a recent development, the practice of corruption can be found throughout history dating back from the times of the old testament to the ancient Greek philosophers like Socrates, Plato, and Aristotle (Dimant and Schulte, 2016). As mentioned earlier, there are several theories that point to corruption as a force for good that improves economic efficiency (Leff 1964; Huntington 1968). These theories, one of the first in the field of study, rely on a level playing field where all players have an equal chance to succeed and bribe and are only differentiated by their abilities to prosper. Commonly known as “greasing the wheels,” these theories indicate that the attention of bureaucrats can be best determined by the number of bribes they receive and will as a result only focus on the work that is most important. This logic has been rebuked by several scholars as they have proven that corruption tends to decrease economic growth. (Mauro, 1995; Mo, 2001). While the negative effects it has on society have been proven empirically, the nature of corruption research is dynamic and diverse.

Bicchieri and Ganegonda's 2016 chapter explores what drives individuals to engage in corrupt behavior. Viewing corruption as a socio-psychological problem, they utilize the theory of planned behavior and theory of social norms to evaluate the social and cognitive mechanism that lead to corrupt behavior. Through their research they find that a mix of social, institutional, and psychological factors factor influence an individual to act corruptly (Bicchieri and Ganegonda, 2016). The conclusions of this research emphasizes that the reasoning as to why people act corruptly is not a simple concept to understand and that a multilayered approach is necessary to enact productive policy to help curb corruption.

Fisman and Miguel's 2007 paper uses data from diplomatic parking in Manhattan and correlates the frequency of violations to the level of corruption by country. In an environment where diplomats had the ability to park wherever they pleased due to immunity, actions were solely governed by cultural norms. The paper found that the number of parking violations by diplomats is strongly correlated with their countries measure of corruption (Fisman and Miguel, 2007). When enforcement was enacted through New York City's change of law that did not allow diplomats to invoke immunity, violations dropped dramatically by 98 percent. This research indicates that a culture of corruption affects the way that people act in outside environments, actor's willingness to follow the law is dependent from the culture they come from.

Hauk and Seaz-Marti's 2002 paper explored the cultural transmission of corruption and the effects that it has on generations. The research finds evidence that corruption is partly due to cultural elements and a generally corrupt environment often times serves as a justification for ones' own behavior (Hauk and Seaz-Marti, 2002). This indicates that corruption can never be

completely solved due to the influence of culture, but it also does demonstrate that corruption is influenced by generations. While the prospect of the inability to completely dissolve corruption may be disheartening, it also emphasizes the importance of educating youth to drive future generational change. This also has important implications for how the children of first generation immigrants interact in a non-corrupt country and how their behavior evolves as they grow older while being raised in a culture of corruption.

Shleifer and Vishny's 1993 paper explores why corruption affects economic development through the actions of government agents. These two reasons are due to a weakness of central government and the practice's demand for secrecy. In the paper, the authors assume the principal-agent problem to be true, meaning that they agree that the government actor has control over a desired good. Taking this as a given, they study the consequences of the actor's resource allocation. The study's model finds that a weak central government contains too many individual agencies to bribe and puts a burden on the investor that drives them away to a country where one only has to pay one or no bribe (Shleifer and Vishny, 1993). The difficulty of navigating the system for foreign people makes it too costly for them to seek investment, which results in less investment overall in the country as a whole. The study also finds that the secrecy of corruption pulls investment to less productive areas like construction while moving money away from areas that are beneficial to society but demand transparency, like health and education (Shleifer and Vishny, 1993). Research supporting this finding has found that corruption is never good for economic growth while also discovering that costs of corruption under regulation decrease but are never positive (Johnson et al., 2014). As is clear, corruption is harmful to a country as it deprives its citizens of access to vital services and pushes those resources towards less corrupt

countries, developing them further and increasing inequality throughout the world.

Several studies emphasize the importance of studying corruption as an interdisciplinary topic (Dimant and Schulte, 2016; Jain, 2001). Jain's 2001 paper stresses the need for future research and points to a focus on empirical observation centered on a general equilibrium framework (Jain 2001). Dimant and Schulte's 2016 paper introduces an interdisciplinary approach that combines different theories together to produce a three-tiered structural framework (internal, meso and external) for understanding corruption (Dimant and Schulte, 2016). The internal world encompasses two theories, rational choice theory and the behavioral perspective, that explain why individuals choose to engage in corrupt actions. Research suggests that internal factors alone are not enough to purely explain corrupt behavior and therefore one must consider the social environment to fully understand why individuals decide to engage (Dimant and Schulte, 2016). The meso world focuses on the social theories that create an environment in which individuals can act corruptly. The external world refers to outside factors such as laws and institutions that create ample opportunity for corrupt social settings to develop. In short, the reasons for why individuals decide to engage in corrupt activities are not solely due to individual decision making and are a mix of social and institutional rules that encourage certain actions.

Dimant and Tosato's 2017 survey paper describes various effects and causes of corruption that have been discovered through research. A condensed and comprehensive version of the research listed several effects for the causes of corruption which include a wide range of factors ranging from poverty to religion to governmental structure (Dimant and Tosato, 2017). A clear message to take away from this survey is that there are a series of factors that may cause corrupt societies to develop. In addition to the many effects, the causes of corruption are also

diverse and have been met with conflicting results (Dimant and Tosato, 2017). The survey paper concludes that conflicting findings with earlier and more recent work are a result of the increasingly empirical nature of the field that is now moving away from subjective inferences. (Dimant and Tosato, 2017). The paper's conclusions give an optimal view that the future of corruption research will lead to more robust results in light of a growing empirical foundation.

In sum, research on corruption is diverse and has developed significantly since the 1960s. Furthermore, it has long been established that corrupt practices negatively affect development in already underdeveloped countries and push resources to rich governments, exacerbating inequality. Whether influenced by familial education or a general culture of corruption, research is growing increasingly empirical with a focus on multilayered approaches that give a better understanding as to why individuals choose to engage in corrupt practices. One message that is clear is that corruption's effects and causes are complicated and a nuanced relationship between it and discrimination requires further study.

Subsection II – Discrimination

The study of discrimination has roots in the implicit bias that all individuals carry and it is a topic that has been researched extensively with specificity to race and gender. Everyone at some point in their life has experienced some sort of discrimination. If gone unchecked, it can lead to inequality against the victims while depriving the perpetrators of meaningful interactions.

Richards and Lucas' 1985 paper explores the topic of discrimination and the effects of how institutional discrimination warps common understanding of what one considers to be discriminatory behavior. Through a macro view of discrimination that takes into account how rules organize the basic organization of communities, one can better understand how individuals come to discriminate in favor of some groups over others. Though the paper's approach is not based on empirical research, its case-study on why women can't drive buses demonstrates how some discriminatory policy is created with incorrect inferences and ultimately makes the institution accountable, not the individual whose logic has been flawed by unfair rules (Richards and Lucas, 1985). Another finding from the paper also suggests that discriminatory individual actions are actually based on inherently biased rules. These findings are important as it offers a differing perspective on discriminatory behavior and creates a foundation for one to evaluate individual actions in a larger context.

Lang and Lehmann's 2012 paper provides a comprehensive survey of the research surrounding labor relations and discrimination against blacks. While there is no existing theory that is capable of assessing difference in wage and employment, the literature surrounding the topic has a solid foundation through which a theory can be created (Lang and Lehmann, 2012).

In light of the lack of a unifying theory, it is important to focus efforts on historically segregated communities because that is where differences are first created. When discussing how people interact and develop their judgements it is clear that most judgements are developed early on and are difficult to change later in life. While discrimination against blacks may not be solvable even if a unifying theory existed, the research provides an important lens into future of research on racial discrimination.

Research by Charles and Guryan aims to address the disadvantage in labor market outcomes that has persisted despite the removal of exclusionary policies over fifty years ago. Research finds that the opportunity to study discrimination empirically is at times not possible due to the subjectivity of observational data. Despite this, there is a growing volume of work analyzing unfair practices in the labor market empirically and discrimination theoretically (Charles and Guryan, 2011). While there may be an inability to be able to fully study the effects of inequitable practices in the labor market, a meta-analysis discovers that racial discrimination against Blacks and Latinos in hiring has not changed in the past twenty-five years (Quillian et al., 2017). These outcomes contradict the notion that discrimination has been declining in American society and further proves that no real progress has been made in labor market hiring practices. While the current state of academic research on labor market discrimination and the lack of change in hiring practices is disheartening, there is a general optimism for future creative work on the topic. Academic research on discrimination, while difficult, is important because it lays the groundwork to help find solutions to a problem that has seen little change historically.

Two main forms of discrimination are taste-based and statistical discrimination. Taste-based discrimination occurs when people consciously discriminate based on prior beliefs of the

victim's group membership. Research has found that taste-based discrimination often leads to statistical discrimination where a manager may have an added standard of beauty for women that is not present for men which then creates an environment where men perform better than women (Neilson and Ying, 2016). Statistical discrimination can then be justified under this artificially created environment. Aside from these two, there has been a growing body of research that references implicit discrimination, where the individual is not consciously aware of their actions. Research finds that this type of discrimination is malleable but persistent across all type of decision making (Bertrand, Chugh and Mullainathan, 2005). Solutions to this problem come at a low cost and can produce an environment where discriminatory behavior is mitigated through simple actions.

Bohren, Imas, and Rosenberg's 2017 paper explores the nuance in gender discrimination through an analyses of an online forum where individuals interact in a strictly academic setting. The research ultimately found that women with a "low" reputation were discriminated against by users. A reversal occurred and men then began to be discriminated against once a certain threshold of reputation points were received for women (Bohren, Imas and Rosenberg, 2017). These findings imply that discrimination is dynamic and changes based on reputation as people overestimate the competency of groups that have been historically discriminated but have achieved success regardless. This research is supported by a field experiment that concludes that male graduate students are more likely to receive the attention faculty members than female graduate students (Milkman, Akinola and Chugh, 2012). Female graduate students at this point have not achieved the adequate reputation to experience increased attention that warrant the increased attention found in other research.

In sum, the study of discrimination ranges from environments that encourage discriminatory practices to nuances in how genders are evaluated. While there may be a difficulty in empirically studying discrimination in the labor market against race, analysis can help provide solutions to a field that has seen little change in decades. Additionally, simple solutions to implicit discrimination can help even the playing field so that some genders are not unfairly discriminated earlier in their career. A link between corruption and discrimination provides an important insight to the field as it adds another layer to the understanding of people's actions.

Subsection III – Experimental Games

An accurate means to empirically measure discrimination is through the use of experimental decision games. Games like these create an environment where individuals are given a choice and are required to take attention. Different games are used to elicit and measure the extent of different emotions. This sections provides an overview of the research surrounding the games used in the survey.

The dictator game is a setting in which the actor is given a sum of money and decides how much money to keep for themselves. There are no consequences for the actor because their decision is final. This game is essentially a measure of altruism because people are put in an environment where their actions are dependent on their own beliefs and nothing else.

Fowler's 2006 paper explores altruism and the effects that it has on voting patterns through the use of the dictator game. The findings from the research on altruism are diverse but suggests that individuals in the dictator game frequently bear costs to make others better off

(Fowler, 2006). As the dictator game is an accurate measure for how people value the welfare of others, the researchers make the link that a subject's altruism correlates with their likelihood of turning out to vote. This paper is an important example of the use of the dictator game as an empirical measure of a subject's altruistic behavior and sets a precedent for future research involving the game.

Lesorog and Ensminger's 2014 paper also uses the dictator game as a measure of fairness and altruism to better understand cross-cultural variation between Africa and the United States. The researchers use the double blind and regular dictator game to test for differences in the effects of giving, the double blind dictator offers increased anonymity to the players to further measure their altruistic tendencies. The study finds that the results did not change significantly in the Kenyan sites while there was a major drop in the United States (Lesorog and Ensminger, 2014). The reason for these differences may be a result of cultural views of anonymity and while there was a drop in the United States, it was not a drastic shift from the actions of their Kenyan counterparts.

Whitt and Wilson's 2007 paper explore the tension between ethnic groups in post-war Bosnia through measuring fairness and giving in the dictator game. In their experiment, participants are paired with an anonymous but ethnically identifiable player. Researchers find that despite a bloody civil war, norms of reciprocity can emerge again and a norm of fairness, measured through giving, persists across ethnicities (Whitt and Wilson, 2007). The implications from this research are important as they point to the possibility of a social order following a major conflict that discriminated against different ethnicities. Additionally, the study's use of the dictator game as a measure of fairness adds to a growing body of research that find the method as

a valid way of receiving empirical data.

Schurter and Wilson's 2009 paper investigates the nuances between justice and fairness and utilizes the dictator game to deepen understanding in the differences between the two concepts. While it is found that approximately seventy percent of dictators give around twenty-five to the other player, the terms of justice and fairness are used interchangeably (Forsythe et al., 1994). Through a series of treatments, research shows that justice is what legitimizes property rights in the dictator game as participants do not respond to fairness in significant ways (Schurter and Wilson, 2009). Understanding these nuances are important as they expand one's grasp of the benefits and drawbacks that the dictator game has to offer. Other research finds a significant difference when presenting the terms of the game as taking rather than giving, signifying that the norms of an institution play a large factor in determining outcomes (List, 2007).

Another games used in the survey is the ultimatum game. In this setting, there is a shared pool of money and participants are either givers or receivers. The giver decides how much to keep for themselves and how much to give to the other person. The receiver can decide to either accept or reject the offer, if they accept then both get what the giver decided but if they reject than neither party receives anything.

Gaula's 2008 paper on the ultimatum game points to its versatility to measure differences in culture and habits among participants. The paper emphasizes that the ultimatum game can only be used a measurement tool if proper standardization has been achieved (Gaula, 2008). The tool has been used to measure generosity and cooperation in many different types of society's

across the world. One field experiment in Tanzania found that a low amount of sharing occurs when people are unable to be sanctioned for their actions (Marlowe, 2004). Another study done in the Ecuadorian Amazon forest points to in-group differences between indigenous people as the reason for why individuals from a less stable political structure share less on average (Patton, 2004). Ultimately, while the ultimatum game is not a perfect measure for measuring fairness and trust among others, it does provide a platform for such experiments to take place.

All in all, the ultimatum and dictator games offer an opportunity to empirically study discrimination as it presents users with an environment where a decision must be made that relies only on assumptions made by the participant. The dictator game, with a setup that allows the subject to make a decision with no repercussions, offers an accurate measure for the altruism towards different populations. The ultimatum game adds an additional caveat to the environment where individuals must make a decision with fear of rejection. This makes the interaction more complicated as it forces decision makers to actively think about the background of the person they are interacting with and evaluate how fair they perceive the interaction to be. This is especially difficult when the two partners in the game come from different cultural backgrounds.

Subsection IV – Similar Work

While the topic of corruption-based discrimination is niche, there is some existing literature in the field that deals with the perception of immigrants. One paper in particular that does hold some similarity to the topic of this thesis is Barr and Serra's 2010 experimental analysis on corruption and culture. In their two-part study, their findings from 2005 led them to be able to predict who would act corruptly with reference to the level of corruption in their home country among undergraduate students but not graduate students (Barr and Serra, 2010). While there may be various reasons for why this takes place, some of it can be explained as a result of selection pool and length of time in the country. These experiments were replicated in 2007 and the same outcome occurred, they could predict corrupt behavior among undergraduates but not graduate students. This study reveals that the propensity to engage in corruption comes in part from the culture that one was raised in. While there is some evidence for this, the inability to predict corrupt behavior in graduate students and the decrease in corrupt actions that come from an extended stay in the United Kingdom ultimately argue that it is not fair to judge immigrants solely on the basis of their home country (Barr and Serra, 2010).

Subsection V – The Gap in Research

While the literature reviewed is extensive, discrimination on the basis of corruption has not been directly studied by any of the work that has been assessed. The area of corruption has undergone tremendous change in the past 60 years. While the notion that corruption negatively affects economic development has been confirmed, the field is growing increasingly more empirical with a larger focus on objective results. The best way study corruption is through a

multilayered approach coming from an interdisciplinary perspective. Research on discrimination has long focused on unfair hiring practices in the labor market with a specific focus on its effects on race and gender. The field has been historically difficult to analyze empirically, but research on racial discrimination can better influence policy decisions to an issue that has seen no change in the past 25 years. Additionally, research on gender finds discrimination early on in one's career with an overcompensation once someone has achieved success. Lastly, experimental games have been used as an empirical measure of altruism and fairness by a large volume of work as it creates an ideal environment where a participant makes a decision with limited information. Experimental games allow researchers to isolate variables where one is able to measure under specific outcomes.

As can be seen, there is a gap in the research when combining the fields of corruption and discrimination. The field of corruption has long studied its causes and effects while emphasizing its complex nature but has yet to directly investigate the effects of the perception of corruption. The field of discrimination has extensively researched the effects of prejudiced behavior on race and gender but has yet to directly link how an individual's perception of corruption affects the way they interact with others. Also, the topic of this paper is similar in design to the work of Barr and Serra's 2010 research, it does not aim to predict if individuals will engage in corrupt behavior. The purposes of this study are to establish if discrimination solely on the basis of corruption exists. While the work is also done in a university setting, the goals of the research are different.

Section III – Research Questions & Hypotheses

Following a thorough review of the literature, a further inquiry into the relationship between the perception of corruption and discrimination would be beneficial to the existing literature as it examines the nuanced relationship of people's beliefs and the impacts it may have on everyday interactions. Through two experimental tools, the dictator and ultimatum game, I aim to explore if one's perception of corruption actually does affect interactions. In order to better understand this discrimination, the following hypotheses have been created to further explore the topic.

H1 – *Individuals from perceived low-corrupt countries will discriminate negatively against people from perceived high-corrupt countries.*

The following hypothesis is motivated by the fact that many people carry an implicit bias with them. Previous research has demonstrated that all individuals carry some sort of bias where people make assumptions depending on beliefs of the overall group that may not always be fair (Ashburn-Nardo, Knowles, and Monteith, 2003; Bertrand, Chugh, and Mullainathan, 2005). In a setting where people are unable to know anything about the person except for the type of corruption prevalent in the region of the world that they come from, I predict that participants will use the only information available to them to make a negative judgement and give less money.

The claims for the sub-hypotheses are made in relativity to how much perceived low-corrupt individuals give to individuals from perceived low-corrupt regions.

H1_a – *Individuals from perceived low-corrupt countries will give less in the dictator game to individuals from perceived high-corrupt countries.*

Previous research cited finds that even among major differences and a bloody civil war, people still tend to give equally to the other group (Whitt and Wilson, 2007). Despite this, I predict that the participants in the experiment will share no relationship whatsoever with the individuals they are interacting with. The findings by Whitt and Wilson, while valid, study the effects of giving in the dictator game with people from the same country. Having a shared past, however violent it may have been, creates a common experience that makes you more likely to give. Additionally, the setting in which participants are put in has no sanctions for allowing them to keep more of the money (Marlowe, 2004). It is expected that there will be some giving as no one follows the complete rational model of keeping it all (Forsythe et al., 1994).

H1_b – *Individuals from perceived low-corrupt countries will offer less in the ultimatum game to individuals from perceived high-corrupt countries.*

Building off the reasoning for the past sub-hypothesis, if individuals are already offering less in an environment with no restrictions, then they are less likely to give more in a setting where their offer has a chance of rejection. Additionally, research has stated that corruption is a complex topic and factors that push an individual to act corruptly are a mix of social, psychological, and institutional factors (Bicchieri and Ganegonda, 2016). With this research in mind, it is unreasonable to assume that all participants of this experiment will come in with a deep understanding and instead will purely make a judgement on the region that they come from. As such, one can expect that we will see less giving in the ultimatum setting as well.

H2 – *Individuals from perceived high-corrupt countries will discriminate negatively against people from perceived high-corrupt countries.*

The following hypothesis is motivated by research that indicates that people from the same in-group will discriminate against their own in favor of the group that is perceived as more desirable, especially if they are made more aware of the social inequalities (Ashburn-Nardo, Knowles and Monteith, 2003). Another reason as to why people from perceived high corrupt countries will discriminate against each other is because there is not a strong sense of an in-group. The only information that participants are given are the type of corruption that exists in region of the world that the other person comes from. This is not enough to foster reciprocity.

As in the last hypothesis, the claims for the sub-hypotheses are made in relativity to how much perceived high-corrupt individuals give to individuals from perceived low-corrupt regions.

H2_a – *Individuals from perceived high-corrupt countries will give less in the dictator game to individuals from perceived high-corrupt countries*

Much of the same reasoning that was made for the last hypothesis also applies here, even people that are perceived as corrupt because of their country of origin will make the same assumptions when deciding how to allocate money and what to keep for themselves. As was discussed earlier, even people who grew up in a culture of corruption are likely to have the same views towards perceived corrupt individuals.

H2_b – *Individuals from perceived high-corrupt countries will offer less in the ultimatum game to individuals from perceived high-corrupt countries*

As was argued previously for **H1_b**, the reasoning that holds for the ultimatum game remains. If a participant is already expected to give less under the dictator game with no restrictions placed, they will give less in a setting that has a possibility for rejection.

H3 – *In a dice game where people self-report their outcome, high-corrupt individuals are more likely to cheat.*

While this hypothesis is not the main topic of this paper, it will be interesting to see if previous research on a culture of corruption holds true. Past research states that a culture of corruption is learned early in one's life and will continue to affect one's actions in the future even if it is slightly mitigated by living in a perceived non-corrupt country (Barr and Serra, 2010; Fisman and Miguel, 2007; Hauk and Seaz-Marti, 2002). Additionally, research has found that 20% of people participating in a dice experiment will cheat to the fullest extent possible (Fischbacher and Föllmi-Heusi, 2013). In this model, one should expect to see a higher percentage of those who are categorized as corrupt cheat and report a higher dice roll than was actually rolled.

Section IV – Methodology

The following section will provide an explanation of the design of the experiment and will be organized into the following subsections: reasoning to use the Transparency International Corruption Perceptions Index, categorization of participants, and survey design.

Subsection I – Why Transparency International’s CPI?

The list of indexes used to measure corruptions are vast, they are well summarized in Jain’s 2001 paper which lists some of the most influential as: the index provided by *International Country Risk Guide* in their annual report, the World Economic Forum’s *World Competitiveness Report*, and Transparency International’s *Corruption Perception Index* (Jain, 2001). While neither is perfect, each index has been widely used in research and each presents their benefits and flaws. The *World Competitiveness Report* while having been measured since 1989, is not the main focus for the World Economic Forum as it is part of a larger attitudinal survey and thus cannot be guaranteed to have the same amount of care required to be used for academic research (Jain 2001). The *International Country Risk Guide* is an excellent measure for looking at corruption across time because it has been available since 1984 (Dimant, Kreiger and Mierreiks, 2013). On the other hand, Transparency International’s *Corruption Perception Index* (CPI) is unable to be measured across time as the tools for measurement change year over year (Stephenson, 2014). While it may be difficult to look at results across time, the CPI’s analysis of 13 data sources includes the PRS Group’s *ICRG*, the African Development Bank’s *Country Policy and Institutional Assessment*, and the World Economic Forum’s *Executive Opinion Survey* among many others (Corruption Perceptions Index 2017: Full Source Description, 2017).

Their comprehensive analysis from sources across the world help capture a unique global snapshot of the perception of corruption in the present day. Additionally, this research is only concerned with the most recent perception of corruption and does not need to analyze a country's past CPI.

Subsection II – Categorization of Participants

The field survey had a total of 90 respondents that ranged in age and cultural background. Each participant was affiliated with the University of Pennsylvania, either as an undergraduate student, graduate student, staff or faculty. Subjects were given an average CPI that took the average CPI scores of the country in which they, their parents, and grandparents were born in. If either two of their parents or grandparents were from different countries, the scores would then be averaged for that generation which would then produce a single CPI for that generation. The three CPIs are then averaged out to give one average CPI for the participant. Support for this methodology stems from existing literature of the effects that a culture of corruption has on an individual (Hauk and Seaz-Marti, 2002). Those with an average CPI greater than 50 were categorized as low-corrupt individuals and those with an average score lower than 50 were categorized as high-corrupt individuals. The categorization does not take into account their age or affiliation with the university.

Subsection III – Survey Design

The survey was prepared using Qualtrics software and took participants an average time of three minutes to finish. All surveys were administered in person and the link to the survey was never publicized online. It was composed of three separate tasks: pink, purple and blue. The decision to color code the tasks was made after receiving guidance from my advisor so that it would mitigate any confusion of having numbered tasks. The pink task is the dictator game, the purple task is the ultimatum game and the blue task is the dice game. Participants were incentivized to take the survey seriously through the possibility of winning \$25. This was done purposefully as individually paying each participant any amount of money over a dollar would have cost significantly more and the prospect of winning a larger amount of money for a relatively easy task as opposed to being guaranteed a small amount has been found to improve performance (Camerer and Hogarth, 1999). The monetary incentive is persistent throughout the experiment by design. The amount of money the individual decides to keep in the pink task directly translates to the amount of raffle tickets they will receive. In the purple task, the amount of money they decide to keep also directly translates to the number of raffle tickets they will receive. In the blue task, the number they report on the dice roll will give them that many raffle tickets times 10. For example, if someone reports a 3, they will get 30 raffle tickets. The task that will be selected to determine the amount of raffle tickets a participant will receive will be selected randomly and then the winner of the raffle will be determined through a randomized process.

The first screen participants see is purely information regarding the layout of the

experiment. Respondents were assured that all of their answers were anonymous and that researchers had no way of connecting their responses to the individual. The next part of the survey randomly assigns them to be placed with either a corrupt or non-corrupt individual, they are told that they are either paired with someone from a red or dark red region, meaning corrupt, or someone from an orange or yellow region, meaning not-corrupt. They are also shown a map of the world with countries shaded on a scale from light yellow to dark red. Dark red indicates that a country is highly corrupt and light yellow indicates that a country is very clean, any shade between those two colors corresponds to the country's CPI score.

In both the pink and purple task they are given the options to give any amount between one and six dollars, participants are only allowed to give whole dollars. This range was determined by the number of sides in a die. This allows for randomization of which task will be selected for the raffle and incentivizes participants to put a genuine effort into each section. Participants are also reminded of who they were paired with, either individuals from perceived corrupt or non-corrupt countries during both tasks. At the bottom of each screen is also the same map of the world that is shown in the informational screen. In the pink task they are shown the rules for the dictator game where they are allowed to keep any amount between one and six dollars. In the purple task they are shown the rules for the ultimatum game where participants are put in the environment to make a decision on how much money, between one and six dollars, to keep for themselves. While the original version of the game divides people up into givers and receivers, there is no benefit to having participants act as receivers because there is no measurable action on their part other than having them accept or reject the offer. As a result, all participants are givers in this experiment. In the blue task they are given a physical die by the

administrator of the survey and area asked to roll it. The decision to give a physical die instead of an online randomization tool was done purposefully to mitigate any subconscious concerns of the fairness of the roll. Once they roll, they report the number, between one and six, on the survey. Lastly, respondents answer a couple of demographic questions that include gender, age, level of education and where they, their parents and grandparents are from. They also have the opportunity to enter an email if they wish to be entered in the raffle.

Section V – Results

The following section will consist of four subsections where the first subsection will be an overview of the data in general and the next three subsections will organize the findings relevant to each hypothesis. For validation, I chose to use to conduct a Mann-Whitney U Test for a one-tailed hypothesis at a significance level of .05. The reasoning for using a one-tailed hypothesis was mainly due to the fact that each one of my hypotheses predicts a movement in one direction. After receiving guidance from my research advisor, I chose to use the non-parametric Mann-Whitney U Test primarily because it is normally used with experimental data and does not make assumptions about its distribution.

Subsection I – General Overview

Table 1.1 – Breakdown of Data by Gender

	Corrupt	Non-Corrupt	Total
Females	25	19	44
Males	20	26	46
Total	45	45	90

Table 1.2 – Breakdown of Randomized Pairings

	Paired with Corrupt	Paired with Non-Corrupt	Total
Females	24	20	44
Males	22	24	46
Total	46	44	90

Table 1.3 – Breakdown of CPI Averages by Gender

	Corrupt	Non-Corrupt	Average
Females	43	63	53
Males	41	67	54
Average	42	65	53.5

The three tables above provide a general understanding of the participants of the survey and their pairings, Table 1.1 shows fairly even breakdown of genders with 44 females and 46 males participating. Table 1.2 presents approximately equal randomized pairings, with 46 participants paired with someone from a perceived-corrupt region and 44 paired with someone from a perceived low-corrupt region. The average CPI for males and females was similar, 53 and 54 respectively. The difference in average CPI between corrupt and non-corrupt males (26) was slightly higher than it was for females (20). With the total difference between categorized corrupt and non-corrupt participants in between the difference of the two genders (23).

Subsection II – Findings Relevant to Hypothesis 1

Chart 2.1 – Giving from Low-Corrupt Individuals in the Dictator Game

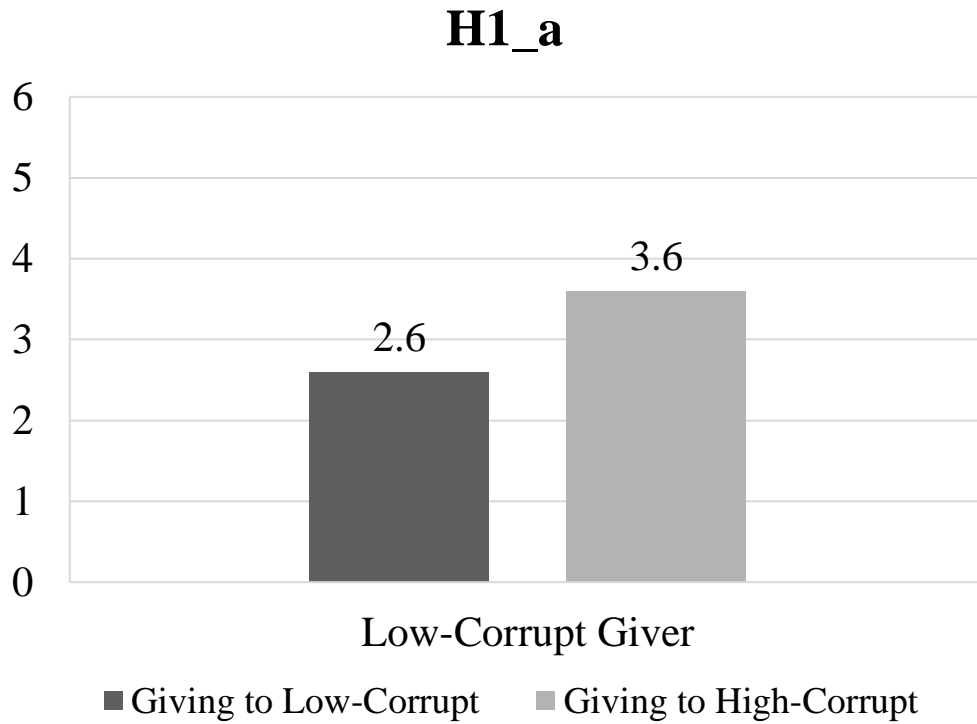


Chart 1 illustrates that individuals who were categorized as low-corrupt gave \$1 more on average to individuals from perceived high-corrupt countries. This finding goes against the original hypothesis for **H1_a**. The Mann-Whitney U test on a one-tailed hypothesis at $p < .05$ produced a Z-Score of 1.72906, a U-Value of 175.5 and a p-value of .04182 meaning that the result is significant.

Chart 2.2 – Giving from Low-Corrupt Individuals in the Ultimatum Game

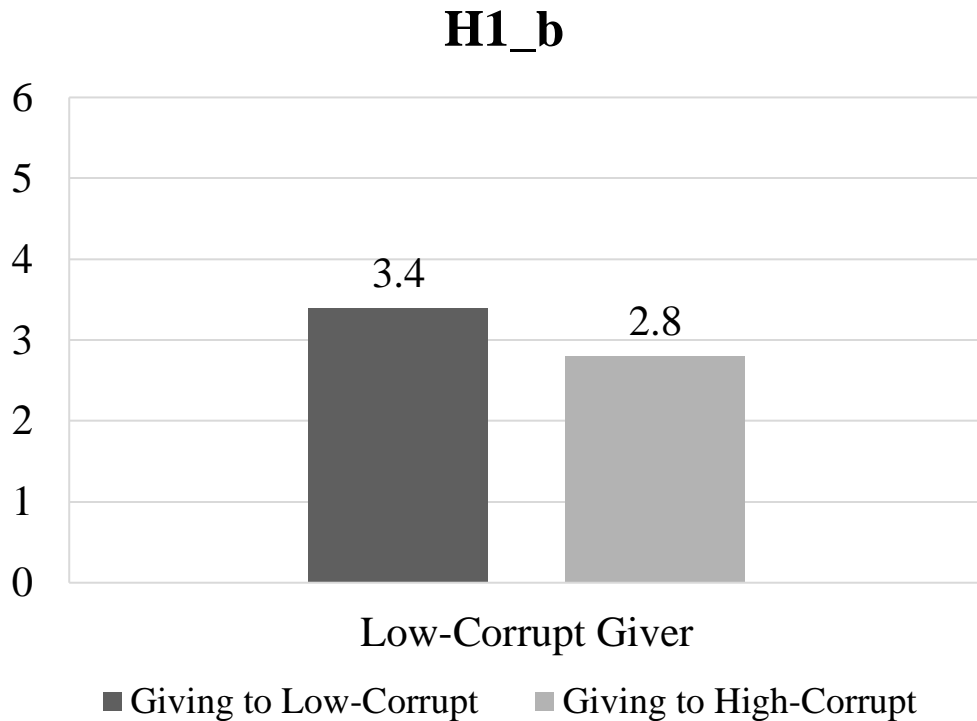


Chart 2.2 confirms **H1_b** and finds that low-corrupt participants give less to individuals from perceived-high corrupt countries in ultimatum game. They give around \$0.60 less to someone from a perceived high-corrupt country relative to the amount given to individuals from perceived low-corrupt countries. The Mann-Whitney U test on a one-tailed hypothesis at $p < .05$ produced a Z-Score of -2.1841, a U-Value of 155.5 and a p-value of .01463 meaning that the result is significant.

Subsection III – Findings Relevant to Hypothesis 2

Chart 3.1 – Giving from High-Corrupt Individuals in the Dictator Game

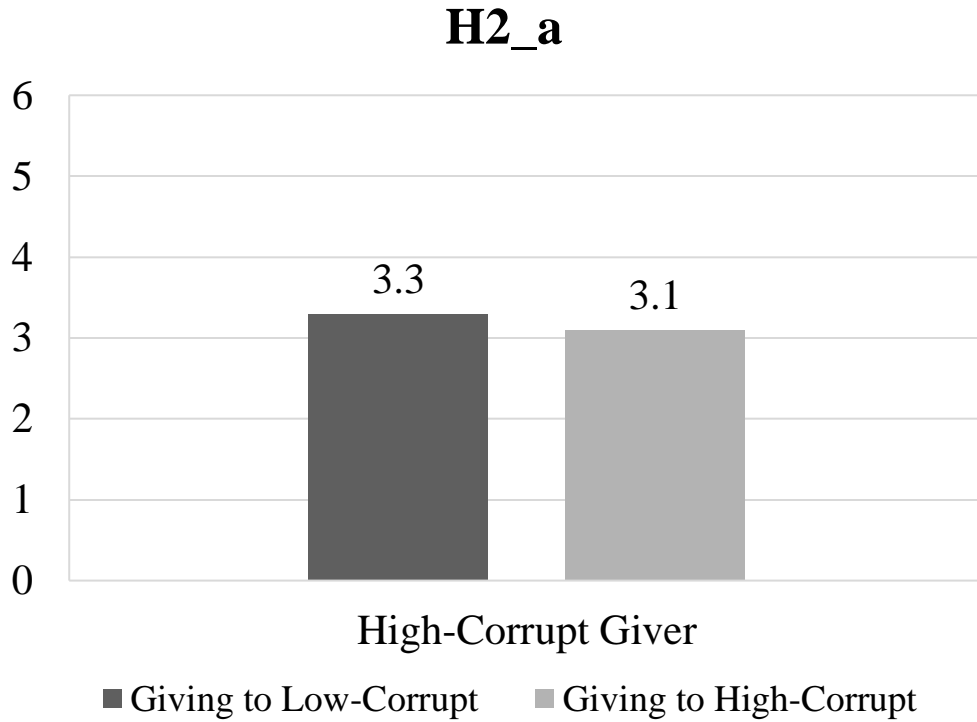


Chart 3.1 confirms **H2_a** and finds that high-corrupt will give more to individuals from perceived low-corrupt countries in the dictator game. They give \$0.20 more on average relative to how much is given to perceived high-corrupt individuals. The Mann-Whitney U test on a one-tailed hypothesis at $p < .05$ produced a Z-Score of 0.42006, a U-Value of 234 and a p-value of .33724 meaning that the result is not significant.

Chart 3.2 – Giving from High-Corrupt Individuals in the Ultimatum Game

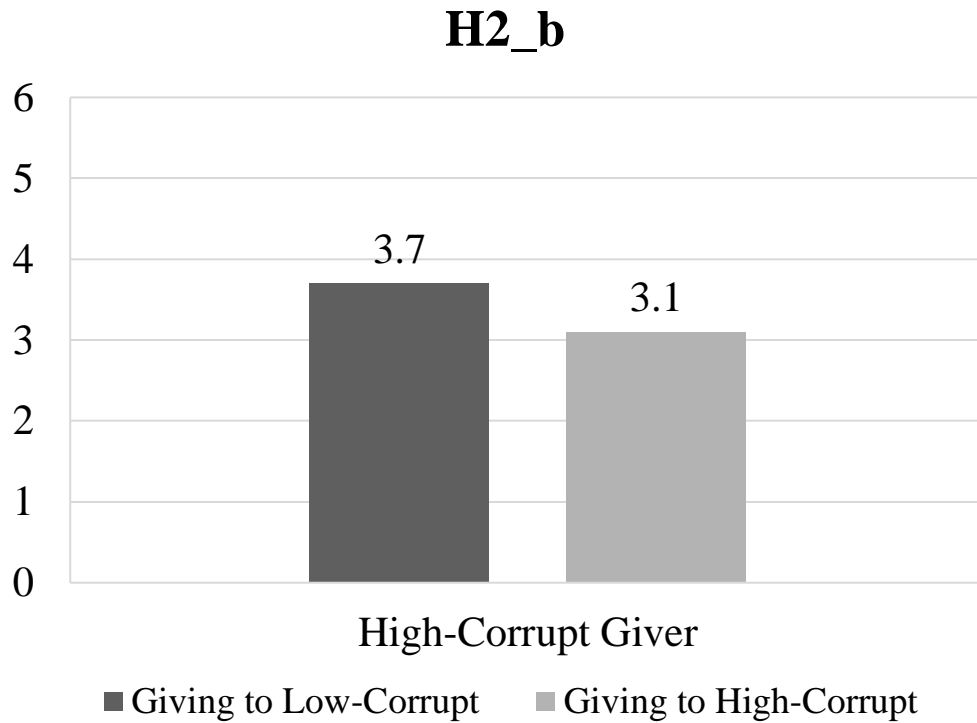


Chart 3.2 confirms **H2_b** and finds that high-corrupt participants will give more to individuals from perceived low-corrupt countries in the ultimatum. They give \$0.60 more on average relative to how much is given to perceived high-corrupt individuals. The Mann-Whitney U test on a one-tailed hypothesis at $p < .05$ produced a Z-Score of 1.23747, a U-Value of 198 and a p-value of .10749 meaning that the result is not significant.

Subsection IV – Findings Relevant to Hypothesis 3

Table 4.1 – Frequency of Reported Die

Number on Die	Number of Times Reported
1	8
2	10
3	16
4	18
5	18
6	20
Total	90

Chart 4.2 – Average CPI for each number rolled in the Dice Game

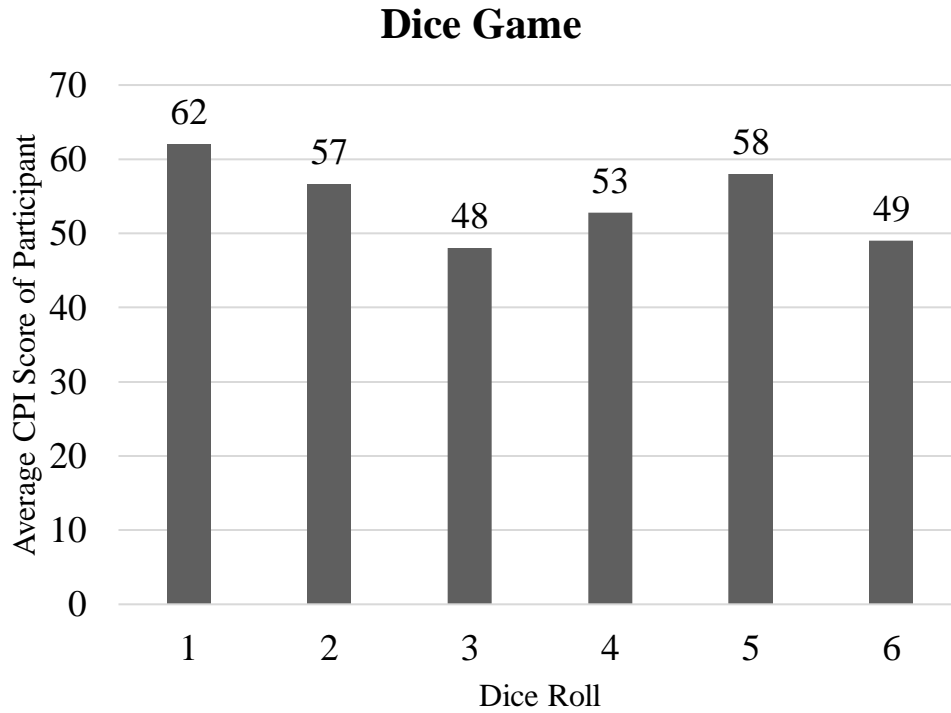


Table 4.1 shows the frequency that each number was reported by participants. The average should have been fifteen but numbers four, five, and six exceed that by at least three. Additionally, number six is reported twenty times which is five more than the average. Chart 4.2 illustrates the average CPI score per participant for each dice roll. As each dice roll was completely random, we should expect the average to be even for each number and around the total average CPI of 53.5. In short, Table 4.1 demonstrates that people reported more than the average for half of the rolls that would generate more raffle tickets and Chart 4.2 that the average CPI of the reporter is lower for numbers three and six. No Mann-Whitney U Test was done to test this hypothesis as it was just a simple observation that was not the main focus of the experiment. Regardless, it is interesting to see behavior on this type of experiment and see the differences in average CPI for each number.

Section VI – Discussion & Limitations

Subsection I – Discussion of Results

One can say definitively say that some discrimination occurs based on perception of corruption among those that are categorized as low-corrupt. **H1_a** is disproven and actually sees that low-corrupt participants give on average one dollar more to people from perceived high-corrupt countries in the dictator game. In hindsight, this outcome does have reason as the dictator game is ultimately a measure of altruism (Fowler, 2006; Lessorog and Ensminger, 2014). One explanation is that this interaction is seen as a case of charity and participants associated high-corrupt regions with the developing world. This notion is supported by research that has shown that corruption does negatively affect development and leads to slower economic growth (Mauro, 1995; Mo, 2001). Therefore, it makes sense that low-corrupt individuals are more likely to give to those with worse circumstances in a setting that faces no repercussions for actions. **H1_b** is also proven as low-corrupt givers gave \$0.60 more to those from perceived low-corrupt regions relative to the amount they gave to those from perceived high-corrupt regions. Future research should focus on why we see this reverse in giving from low-corrupt individuals when the environment is changed slightly between the dictator and ultimatum games.

While the predictions for both **H2_a** and **H2_b** were correct, no conclusive statements can be made as neither result was statistically significant. Despite this, one can say that it is interesting to see that high-corrupt individuals did discriminate against perceived high-corrupt people and chose to give more to perceived low-corrupt people. Future research should focus on this question with a larger sample size to determine if any discrimination can be found to be

statistically significant.

H3 was not the main focus of the paper and cannot be proven to be statistically significant but it is interesting to see that there is some over reporting done in order to get more raffle tickets. Future research with a larger sample size should dive further into this phenomenon to determine if this behavior persists and if there is some link between this and a culture of corruption.

The results of this experiment confirm that there is some discrimination based on one's perception of corruption. One finding indicated that discriminatory behavior changes when presented in the setting of dictator versus an ultimatum game. A setting like the dictator game with no consequences evokes altruism and encourages people to give more. A setting like the ultimatum game creates a risk of rejection and causes low-corrupt individuals to reverse their behavior and give less to those from a perceived high-corrupt country. Now that this has been established, the next question to investigate is why this discrimination happens.

Subsection II – Limitations

Throughout the course of the research there were several limitations that should be taken into account when analyzing the results. The first is that each survey was administered in person which may have negatively affected the way people approached some of the tasks. While I maintained a consistent demeanor across all participants, there was a differences in age and the dynamics of the relationship between the participants and I. Some of the survey respondents were my close friends and others were complete strangers and this may have led people to answer dishonestly.

When categorizing participants as corrupt and non-corrupt, averaging the CPI for three generations assumed an equal influence of parents and grandparents when this may not necessarily always be the case. Additionally, averaging out the CPI for one generation in the case where people had parents or grandparents from different countries also assumed equal influence of both the paternal and maternal figures during childrearing which may not always be the case.

Section VII – Conclusion

A survey of 90 respondents affiliated with the University of Pennsylvania was conducted and determined that low-corrupt individuals are altruistic towards people from perceived high-corrupt countries in the dictator game by giving them a dollar more, \$3.60, than they gave to people from perceived-low corrupt countries, \$2.60. However, these same participants discriminate negatively against perceived high-corrupt individuals in the ultimatum game by giving them sixty cents less, \$2.80, than they gave to perceived low-corrupt individuals, \$3.40. Other findings that ultimately were not statistically significant found that that high-corrupt individuals discriminated negatively against other perceived high-corrupt individuals in the dictator and ultimatum games and end up giving more money to perceived low-corrupt individuals. There was a third experiment that observed a below average CPI score among those that reported a roll of six. While there cannot be final conclusion from this experiment as it was not statistically proven nor the main focus of the study, it does present a noteworthy link between a culture of corruption and cheating that can be explored in further research.

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Appendix - Survey

Screen 1 – Instructions

The survey will take approximately 5 minutes to complete and will consist of three separate parts (pink, purple, and blue). All responses are anonymous and the researcher will have no way to identify your responses with you.

We will be randomly choosing one of the three parts to be selected as entries into a raffle for a \$25 Amazon Gift Card.

Please click the next button to begin.

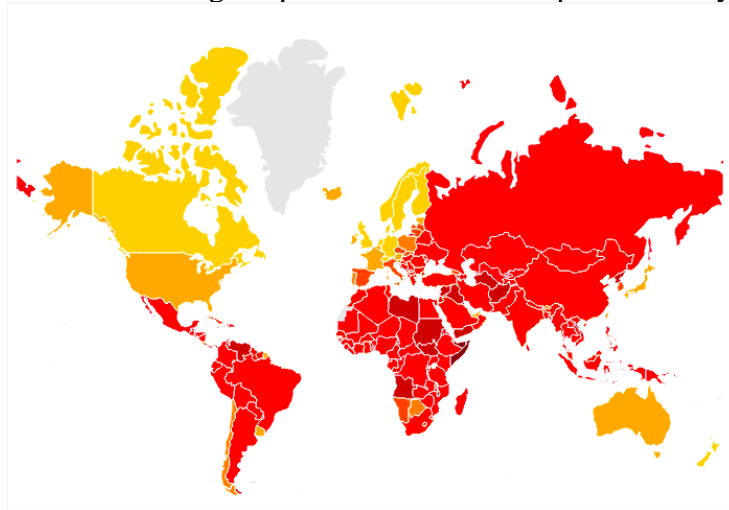
Screen 2 – Informational

You will be interacting with another participant through several exercises. To provide some background on your participant, they are originally from a country that is marked either orange or yellow on the map and are currently living in the United States. Examples of orange or yellow regions include North America and Continental Europe.

[If paired with corrupt it would state:

You will be interacting with another participant through several exercises. To provide some background on your participant, they are originally from a country that is marked either red or dark red on the map and are currently living in the United States. Examples of red or dark red regions include Latin America, Africa, and Asia.]

This map measures the perceived misuse of public power for private benefit and was put together by Transparency International through expert assessment and opinion surveys on each country.



Screen 3 – Pink Task



You are now in the pink task.

You have been given \$6. In this situation you have been paired with another person from a country that is either red or dark red on the map below who has \$0. Examples of orange or yellow regions include North America and Continental Europe.

[If paired with corrupt it would state:

You have been given \$6. In this situation you have been paired with another person from a country that is either red or dark red on the map below who has \$0. Examples of red or dark red regions include Latin America, Africa, and Asia.]

You can keep money or give money to this person, all or any portion of \$6. You will have no interaction with this person in the future.

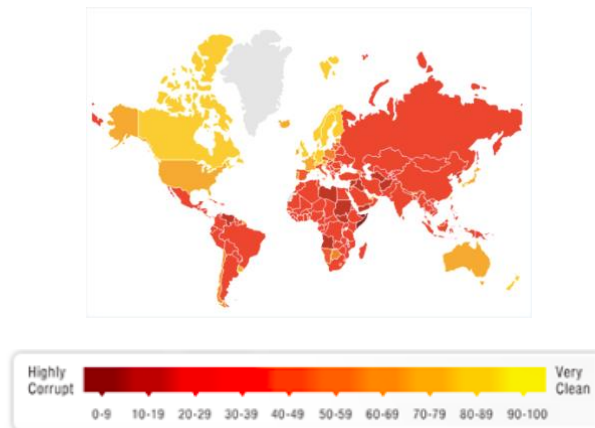
You may give money only in increments of \$1. You may give away an amount ranging from \$0 to \$6. The decision of how much to give is entirely yours. Please carefully decide on the amount corresponding to what you would do in this situation.

All of your answers are entirely anonymous and the researchers have no way of linking them to you or to anybody else in this experiment.

This task may be one of three randomly selected to be entered as tickets into the raffle for an \$25 Amazon Gift Card.

How much will you give?

Slider with choices between \$1 - \$6



Screen 4 – Purple Task



You are now in the purple task.

In this situation you have been paired with another person from a country that is either orange or yellow on the map below. Examples of orange or yellow regions include North America and Continental Europe.

[If paired with corrupt it would state:

In this situation you have been paired with another person from a country that is either red or dark red on the map below. Examples of red or dark red regions include Latin America, Africa, and Asia.]

Both of you have been given a pool of \$6 and you have been randomly assigned the role of giver.

You decide how you will to split the \$6 with the other person, the other person will then have the opportunity to accept or reject your offer. If they accept then both of you will receive the money agreed upon, if they reject then neither of you will be given any money.

The slider below measures the money you will keep. You may keep only in increments of \$1. You may keep an amount ranging from \$0 to \$6. The decision of how much to keep is entirely yours. Whatever you do not keep will be given to the other participant. Please carefully decide on the amount corresponding to what you would do in this situation. (For Example: If you decide to keep \$2, the other person will get \$4)

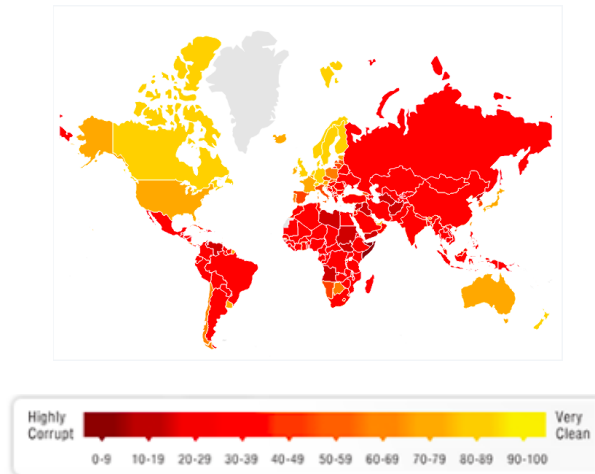
All of your answers are entirely anonymous and the researchers have no way of linking them to you or to anybody else in this experiment.

This task may be one of three randomly selected to be entered as tickets into the raffle for an \$25 Amazon Gift Card.

This slider measures the amount of money you are deciding to keep for yourself and the number of extra raffle tickets.

How much money will you keep for yourself?

Slider with choices between \$1 - \$6



Screen 5 – Blue Task



You are now in the blue task.

The dice you roll will determine the number of raffle tickets you will receive times 10. For example, if you roll a 4 you will receive 40 entries into the raffle.

All of your answers are entirely anonymous and the researchers have no way of linking them to you or to anybody else in this experiment.

This task may be one of three randomly selected to be entered as tickets into the raffle for an \$25 Amazon Gift Card.

Please click next when you have finished reading these instructions.

Screen 6 – Instruction

Please now direct the experimenter to give you a cup and a die, test the die to determine if its fair and then click next.

Screen 7 – Dice Roll

Report your dice roll.

- 1 [10 Extra Raffle Tickets]
- 2 [20 Extra Raffle Tickets]
- 3 [30 Extra Raffle Tickets]
- 4 [40 Extra Raffle Tickets]
- 5 [50 Extra Raffle Tickets]
- 6 [60 Extra Raffle Tickets]

Screen 8 – Demographic Information

- What is your gender?
 - Male
 - Female
 - Other _____
- Which category below includes your age?
 - 21 or younger
 - 22 – 35
 - 35 or older
- What is your highest level of education obtained?
 - Middle School or less
 - High school
 - Higher Education (College and Above)
- What country were you born in?
 - _____
- What country were your parents born?
 - _____
- What country were your grandparents born?
 - _____
- If you wish to be entered into the raffle for a \$25 Amazon Gift Card, please enter your email below.
 - _____