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Stakes and Social Distance in Deceptive Behavior: Experimental Evidence from Malawi

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Abstract

In a novel experimental setting, we study how stakes and the social distance of the opponent affect deceptive behavior. We run a field experiment using pre-trained actors of different ethnicities who serve as customers utilizing a common means of transport - the bicycle taxi service in Lilongwe, Malawi. The actors are instructed to elicit a price from the driver, and, in cases where the latter does not have change, ask him to get change for the excess money and return. This gives the driver two opportunities not to adhere to the social norm of honesty - by overcharging, or outright stealing. We find that while social distance matters per se, we cannot support the hypothesis that stakes impact fraudulent behavior. In our exploratory analysis, we find evidence that moral priming affects cheating, as routes that have destinations with moral connotations present significantly lower rates of fraud.

Keywords: Social distance, fraud, deceptive behavior, development, Malawi.

JEL: D90, D91, 012, 017

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Contents

1 Introduction

Honesty in human interactions can be seen as one of the main factors allowing individuals to cooperate. According to Bicchieri and Muldoon (2014), it helps societies to reach the most favorable equilibrium. Yet, there are examples of people failing to adhere to the social norm even though they feel obliged to so (see Azar et al. (2013), Farrington and Kidd (1977) or Yuchtman-Yaar and Rahav (1986)). Furthermore, basic economic theory predicts that deception takes place whenever it is gainful. However, we are regularly surprised by popular media reports on the truthful behavior of a poor person returning a lost wallet stacked with cash. From an economic point of view, such behavior makes no sense as a rational agent is expected not to care about the wellbeing of others, but wants to selfishly maximize own profit. Following the argument of Becker (1993), advocating for a rich set of attitudes, preferences, and calculations, to be incorporated into choice theory, we want to analyze additional determinants of honest behavior and provide some evidence for other types of attitudes than the ones considered by the utility-maximizing rational agent models. Therefore, in a novel field experiment, we want to contribute to this literature by our analysis of honesty and factors it may be contingent on.

The main goal of this paper is to provide fresh evidence on how the failure to adhere to the social norm of honesty is affected by two particular factors. First, we are interested in whether social distance, by itself, is one of the determinants of the willingness to cheat. Examples of social distance include differences in social class, race/ethnicity, or sexuality. Hence, in theory, this conception is based on the fact that people who we feel close to tend to be socially close to us and vice versa (Karakayali, 2009). In economic theory, it is commonly assumed that behavior is independent of the opponent, yet there might be important asymmetries in behavior towards different groups. In our setting, we are especially interested in the dimension of ethnicity, where stereotypes might be especially relevant. To this end, we let subjects interact with people from three different ethnicities, namely ethnical majority Malawians in Central Region (Chichewa), non-ethnically majority Malawians in Central Region (Tumbuka), and Caucasians. We are interested in whether the subjects behave differently as the social distance changes. Therefore, we intend to analyze whether the decision to deceive depends on whether the opponent shares a common ethnicity, or whether there exist different degrees of trust towards different groups of people. Previous literature shows that social distance does play a role in decision making processes; for example Bickman (1971) or Charness and Gneezy (2007) have studied this phenomenon - examining ethnic differences in offering assistance, and gender differences in investment. However, when it comes to the field of fraud in economic transactions, social distance is not considered a factor per se. Balafoutas et. al. (2013) - studying taxi drivers in Athens, argues that cheating increases as customers signal their lack of information. However, our research casts doubt on that result, arguing that Balafoutas et. al. could face an omitted variable bias, as, in his experimental set-up; signals of lack of information are also signals of social distance. In our experiment, where we isolate social distance from informational asymmetries, we find that social distance independently determines fraud.

Second, we ask the question whether the decision to remain honest depends on how high the stakes involved are. A 'rational' individual would account for the extra gain obtained when cheating and weigh it against the probability of being caught in the act and being punished. Hence, since the probability of being caught is kept constant, we expect the individuals to cheat more as the size of the stake increases, because eventually, the expected payoff from cheating should become larger

than the expected payoff from being caught and punished. In order to test for this assumption, we introduce three different stakes and we will observe whether the behavior of the subjects changes with respect to the different stake sizes. The literature with regards to this topic is not clear cut. For example, Yuchtman-Yaar and Rahav (1986) find that the probability of acting honestly increases as the stakes go up (at least for men), which is not in the line with the usual theory. On the other hand, Conrads et al. (2014) find the opposite result. Hence, our paper might serve as a valuable addition to this branch of literature.

For this analysis, we collect data in a field experiment situated in Lilongwe, the capital of Malawi. The low price level at the location of our experiment allows us to have a large number of subjects with relatively large stakes. In our experiment, we instruct actors of different ethnicities to play customers utilizing a bicycle taxi service where they first elicit a price from the drivers, and then pay for the service with a bill of a significantly larger face value than is the pre-agreed price. In case the driver does not have change, he is asked to come back to the location soon after changing the bill. This allows us to study cheating via two measures, a 'soft' cheating via price, and a 'hard' cheating via stealing the change. Using the taxonomy of deception from Gneezy (2005), this type of opportunity belongs to the category of situations where the subject gains something on the other player's behalf.

The contributions from this paper can be divided into two groups, the ones stemming from our experimental design, and the ones stemming from our results. We see two major contributions of our experimental design. First, it explores two rarely studied factors of deceptive behavior in a realistic field setting through meaningful (large enough) sample sizes. Second, it casts a spotlight on the behavior of poor people, in this case in Malawi, and explores their attitudes towards different stake sizes and different ethnic groups.

The key contribution from our results is that social distance is a key determinant, per se, of deceptive behavior in economic transactions, a result, that as we will discuss later on, clashes with the status quo of the literature. We do not find significant results in the analysis we run on stakes. However, in our exploratory analysis, we find that the moral character of the destination of the ride reduces the likelihood of fraud. We divide rides by destination - with clinic, schools, and churches being 'moral' ones, and businesses being standard ones, and find the 'moral' destinations present a lower rate of fraud. These results have implications beyond just behavioral economics, providing guidance on potential ways to avoid or reduce fraud at policy delivery end points, via having end point providers be of a similar ethnicity, or, when possible, using places with moral connotations for policy delivery.

This paper continues as follows: in Section 2 we provide a literature review placing our study in the existing work and we present background information on attitudes towards other ethnicities in Malawi. Section 3 describes our experimental setup and data collection. Consequently, the econometric and test specifications utilized for the analysis of the data are described in Section 4. Section 5 presents the results while Section 6 provides a discussion of the results and the possible limitations of the setup. Possible extensions of our experimental setup are presented in Section 7. Section 8 concludes.

2 Literature Review

The following section introduces the landmark papers for the topics of interest. More precisely, at first we present the literature which discusses the phenomenon of deceptive behavior itself, followed by the literature analyzing the effect of the size of stakes on the probability of not adhering to social norms. Finally, the literature on the relationship between social distance and deceptive behavior is examined and the most important results presented.

People coordinate and cooperate by using norms, which in turn help societies to end up at the most favorable equilibrium (Bicchieri and Muldoon, 2014). Hence, norms solve collective action problems and help societies to reach efficiency in multiple ways (Lewis, 1969; Ullmann-Margalit, 1978). Most of the literature within this area agrees that an individual's normative beliefs and behavior correlate (Bicchieri and Muldoon, 2014). However, this does not necessarily mean that individuals always act in line with the perceived norms. Honesty and truthfulness are usually seen as part of this set of norms.

Studies regarding deceptive behavior have shown that even though people feel obliged to be truthful and honest, they often choose not to be. For example, Azar et al. (2013) found that 66% of restaurant customers in Israel that received extra change did not return it and Farrington and Kidd (1977) found, when asking random people on the street whether they had dropped money on the ground, that 37% falsely claimed they did. A similar pattern has also been detected in other contexts such as students falsely claiming the amount of copies they made using a copy-machine (Yuchtman-Yaar and Rahav, 1986), or bus passengers keeping the excess return from bus drivers (Goldstone and Chin, 1993). An extensive review of 63 lab experiments by Rosenbaum et al. (2014) finds consistent evidence across studies for the presence of unconditional cheaters and non-cheaters, but also that truthful behavior can be influenced by monitoring and perceptions of lying costs.

This untruthful behavior is explained by Becker (1968) and Allingham and Sandmo (1972) among others by the fact that rational agents want to selfishly maximize their own utility by comparing the gain from deception against the likelihood of being caught while deceiving and the consequent punishment if caught. Legal sanctions such as imprisonment and fines are only a few of the potential forms of punishment. However, maintaining a positive image of oneself might be very important for the agents and this is something rational agent theory does not account for. Hence, according to this more expansive perspective, people will only deceive if the expected payoff also offsets the negative feeling of lowered self-worth caused by not being able to follow the social norm (Mazar et al., 2008).

Deception has also been seen to be common when individuals feel like their actions are not seen by others and there is thus no risk of detection and punishment. In lab environments, researchers have shown that when there does not exist an opportunity for the experimenter to link the deceptive behavior to a particular participant, people tend to cheat more frequently (Fischbacher and Föllmi-Heusi, 2013; Conrads et al., 2014; Zhong et al., 2010). This supports the explanation for deceiving behavior that Becker (1968) and Allingham and Sandmo (1972) theorize about. The form of deceptive behavior that will be in focus in this paper is when the act of the deceiving part increases his or hers payoff while the payoff of the counterpart decreases (Gneezy, 2005).

As for field experiments, a highly relevant study in our context comes from Alem et al. (2016) who show how stated and revealed behavior in a similar environment to ours (namely Tanzania) differ when asked about returning money which was accidentally received. They find that in actual behavior deception is more common, stating the importance of field experiments.

2.1 Social distance and deception

The extent to which people deceive has been shown to be dependent on whom the subject is interacting with (Bickman, 1971). Several studies have drawn the united conclusion that people tend to engage less frequently in deceptive behavior when there is a close proximity between the subject and the person who is disadvantaged by the behavior.

The studies of Ackert et al. (2011) and Charness and Gneezy (2007) tested the impact of social distance on deceptive behavior by changing the degrees of anonymity - for example the researchers controlled for whether the subjects were placed in the same or different rooms or they controlled for whether the subjects were given the name of the other person or not. Both studies found that when using the dictator game, people are more deceptive when the social distance between the subjects is higher. Furthermore and in a more realistic setting, DePaulo and Kashy (1998) conducted a field experiment in which people recorded the amount of lies they told during a day and to whom. The authors found that individuals tell less lies on average to people they feel close to and that they also feel more uncomfortable when lying to those people. The same conclusion was also drawn in another field experiment by Page and Moss (1976). They saw that people engage in less criminal behavior towards people in closer social proximity to them. Hence, according to these studies, proximity and social distance matter when it comes to the engagement in deceiving behavior.

One dimension of social distance that has received significant attention in the literature is linked to differences in wealth. This is also particularly important in the context of our experiment as subjects can deceive individuals that are likely to be perceived as much more wealthy. An important study here comes from Gneezy (2005) who argues that individuals are not only maximizing their own utility when engaging in untruthful behavior, but that they are also concerned about the harm they cause to others. Hence, when it comes to untruthful behavior regarding monetary amounts, the other person's wealth is considered by the potential deceiver. At the same time, perceived wealth is necessarily something subjective and hence, the perception of the other party's wealth impacts the engagement in deceiving behavior. Gneezy (2005) shows in his article that when there is a discrepancy between people's wealth in a relationship, the decision maker is more likely to lie to people who are wealthier. While it would be interesting to test for particularly this effect of perceived wealth in our study, we leave this question open for further research, but discuss it further in a later section.

The conclusion by Gneezy (2005) is supported by other papers such as Gino and Pierce (2009) who tested whether an individual's probability of engaging in unethical behavior increased if the individual was stimulated by the visible proximity of abundant monetary wealth. They found that overstatement in scores, after individually corrected scores for fulfilled tasks, was higher for those who were exposed to abundant wealth. This suggests that people lie when they are exposed to wealth compared to poverty.

Two other important dimensions of social distance are ethnicity and nationality. We did not find studies specifically on deception, let alone in the African context which is most relevant to us. There exist though numerous studies on social capital and ethnicity involving people of African and European descent that focus on post-apartheid South Africa or relations in the US. For example, Alesina and La Ferrara (2000) show that individuals from more ethnically diverse communities in the United States participate less in community action, hypothesizing that this is driven by a dislike of cooperation with people from another group. The opposite result is found in South

African schools, where students from more diverse schools on average send more to Black players in a trust game (Burns, 2012). Related evidence in another context comes from Koopmans and Veit (2014), who show that individuals from more ethnically diverse parts of Berlin are less likely to return 'lost letters'. Importantly though, they do not find evidence for discrimination of individuals with Turkish roots by native Germans, and the other way around. Overall, we found though that given the frequency of international and interracial interaction, surprisingly few studies look at behavioral biases arising from ethnicity and nationality.

This dimension of social distance regarding ethnicity and nationality is explicitly explored in our study of honest behavior, concerning the relation between Majority-Malawians (Chewa) and two other distinct groups, namely their compatriots, non-Majority-Malawians (Tumbuka), and Caucasians. The goal here is to test for the presence of differences in honest behavior towards specific groups, related to ranked 'radii of honesty' (comparable to 'radii of trust') (Fukuyama, 1999). This concept is intended to provide a measurement of the degree of social distance at which the trust relationship breaks down. While remaining an insightful case study, our research can be seen as one of the first contributions towards establishing such an 'honesty profile' for Malawi.

It is worth noting, that it is particularly confusing that Balafoutas et al. (2013) and therefore the literature most closely dealing with deceptive behavior has not considered the impact of social distance because of the wealth of literature in other fields of research noting the importance of social distance. This ranges from fields as wide ranging as corruption, of which studies such as Seleim and Bontis (2009) or Pena-Lopez and Sanchez-Santos (2014) find social distance is a determinant to research on trust where Binzel and Fehr (2013) find social distance has an impact as well, increasing trust. Given the wide range of fields in which social distance matters, it appears worthwhile to consider its effect on deceptive behavior.

2.2 Stakes and deception

If the decision to deceive counterparts is based on weighing the gain from cheating with the risk of detection and punishment, increasing stakes should then act as an incentive for cheating. There exists substantial literature that studies this phenomenon, yet the findings are mixed.

Fischbacher and Föllmi-Heusi (2013) run an experiment where participants rolled a die, and were rewarded for what they reported as the result of the roll. They find that the majority of participants over-report their rolls, but not as much as they could. While there is substantial heterogeneity in cheating behavior, this speaks for subjects experiencing a utility cost of lying, while also valuing the gain. Conrads et al. (2014) applied the Fischbacher and Föllmi-Heusi framework to a tournament setting where they varied the stakes and found that people in general lie more as stakes increase.

Yuchtman-Yaar and Rahav (1986) have bus drivers in Israel purposefully give back larger excess return than necessary. The results from the experiment show that higher stakes, as measured by larger excess change, reduce the frequency with which women return change, but increase the frequency with which men return change. Hence, the results of this paper suggests that men face an increased marginal cost of deception in contrast to women. This result, however, clashes with other papers in the field. For example, Childs (2012) did not find any gender difference in deception when increasing the stakes. Furthermore, other studies such as Azar et al. (2013) and Dreber and Johannesson (2008) have found that in general, men are more likely to deceive than women, which contradicts the findings of Yuchtman-Yaar and Rahav (1986) that men deceive less

when stakes increases. Hence, we see our paper as a valuable contribution to the literature since it can provide fresh evidence on the question about how changes in stakes affects the behavior among men. Unfortunately, we cannot address the role gender plays in this setting as explained further below, but we return to this in the discussion part of the paper. We leave this question open for future research.

Moreover, we are not aware of any experiments conducted on cheating and stakes in poor countries. On this aspect our paper thus ought to be entirely novel. Testing this in a very poor context could yield relevant results, as Herrman et al. (2008), testing cooperation in different settings, find a wide range of heterogeneity in cooperation in different societies, hinting that perhaps cheating also varies throughout societies.

Based on our literature review on deception in the context of rising stakes and social distance, we identify two important gaps in the existing literature:

1. How is the adherence to the social norm of honesty affected when stakes rise to relatively high levels, especially for poor people?

2. Is honest behavior towards others affected by the social distance of the opponent, and, can this be measured experimentally?

The following section thus provides some background to questions on identity and perception of foreigners in Malawi.

2.3 Background on attitudes towards other ethnic groups in Malawi and beyond

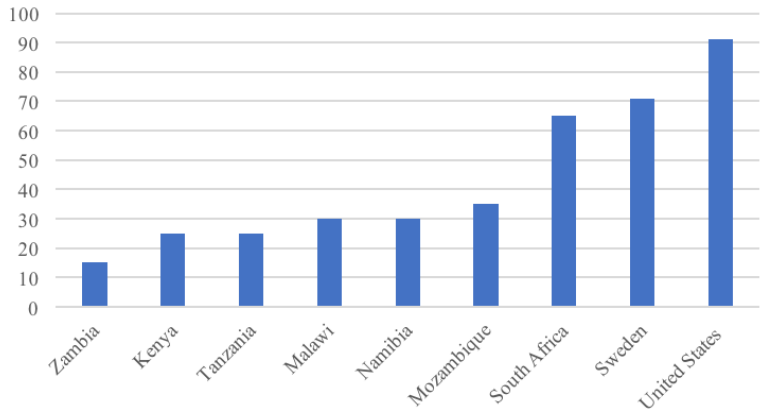
The analysis of the three particular groups we study, Chewa (Malawian-majority group), Tumbuka (Malawian-minority) and Caucasian, is interesting as - especially with respect to the Caucasian variable - it illustrates ongoing and past processes of internationalization on the African continent. While intra-African trade remains low compared to EU or NAFTA levels (The Economist, 2013), pockets of growth (e.g. in South Africa, Kenya or Ivory Coast) attract sizable numbers of migrants from different African nations (Shimeles, 2010). Indeed, it is not unreasonable to expect that the average Malawian does interact with foreigners. Permanent voluntary migration to Malawi is relatively rare, however, Malawi hosts large numbers of refugees from Mozambique, Burundi and the Democratic Republic of the Congo (International Organization for Migration, 2015). Furthermore, East-Asian (mostly Chinese) investment, development cooperation and realization of business opportunities increases the number of East-Asians across the continent. It is estimated that the number of Chinese nationals might be somewhere between 580,000 to 835,000 (Park, 2009). Indeed, news articles often depict a relationship of distrust (New York Times, 2013; Nassanga and Makara, 2016). While the presence of East-Asians is a fairly new phenomenon, the presence of Caucasians has long since affected African countries through such diverse channels as slavery, mission, development assistance or tourism. Finally, in a brief note on tribal relations, it is worth noting that Malawi has not had significant ethnic violence - although, as Robinson (2016b) finds, there are differences in trust based on ethnicity. Comparing the honest behavior towards varying groups will shed light on how Malawian minorities, and Caucasians are perceived today in an African country affected by the aforementioned phenomena.

While experimental and especially economic studies in the context outlined above are rare (and to our knowledge nonexistent with regard to deceptive behavior), there is a sizable body of research

from other disciplines such as anthropology, sociology and ethnography exploring these relations. In the following, we will present scientific and survey evidence to paint a picture of the relevant attitudes of Malawians towards the four reference groups.

2.3.1 Attitudes towards fellow Malawians

One of the few studies exploring identity specifically in a Malawian context is Robinson (2016b) who analyses differentiation of trust behavior in the border region of Malawi and Zambia. Her results indicate similar and robust premiums in experimentally measured trust towards individuals with the same nationality and/or ethnicity, vis-à-vis somebody from a different nationality or ethnicity (N=482 across three treatments). In her experiment, it seems that it matters whether an opponent only shares tribal affiliation, or also nationality. Indeed, when subjects are primed on the opponent's nationality, ethnicity does not seem a relevant reference category anymore. On the other hand, the same author (Robinson, 2016a) finds that the degree of ethnic diversity can explain maize price differences within Malawi, indicating the importance of ethnic reference categories. Further evidence for Malawi being a relatively tightly-knit society can be found in the Hofstede-index of cultural dimensions. Malawi here displays a relatively low 'individualism'-score (Figure 1), in line with its neighboring countries, but different from developed countries. This index on a scale from 0 to 100 can be taken as the relative importance of 'I' vs. 'we' in an individual's identity, where a high score represents a society consisting of people who identify themselves not via their group, but via their own personality.[1] We take this finding of group importance as an indication that there exists some social norm of cooperative trust, which likely involves honesty. Therefore, testing cheating against Chewa - the majority group in Central Region - versus Tumbuka - a northern ethnic group, linguistically identifiable, and a minority in Central Region- is a way of examining differences in fraud in a setting of moderate social distance.



Author rendering of data from Hoefstede et. al. (2001).

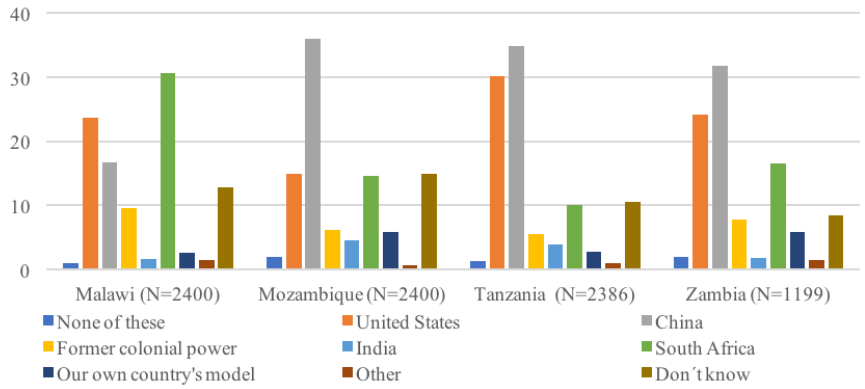
Figure 1: Individualism score for Malawi and other countries according to Hofstede-index.

[1] Hofstede et al. (2001) initially used value surveys among IBM employees to assess cultural dimensions across 60 countries worldwide. This was subsequently extended to include other countries where airline pilots and students were surveyed, including Malawi. While this evidence should not be taken as nationally representative and obviously entails methodological difficulties (Are students and IBM employees comparable? Do norms really change so slowly over time that data from the 1970s and the 1990s is comparable?), we use it as a reference point and allow tentative comparisons on an ordinal scale.

While this way of eliciting identity clearly has limitations, there seems to be strong evidence for the importance of the 'collective' - and salient, persistent ethnic differences, making ethnic groups a relevant category of comparison.

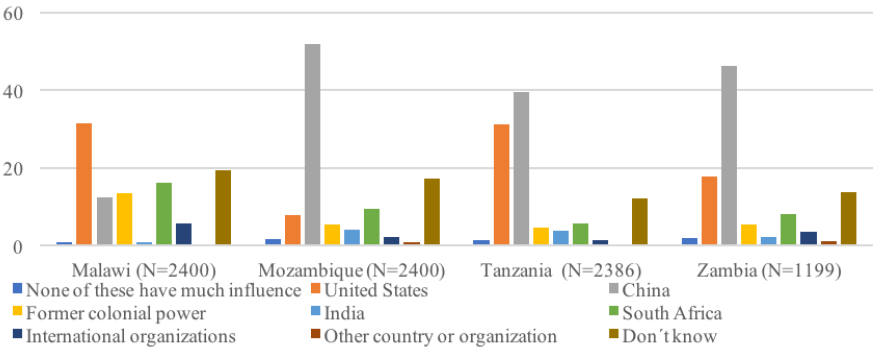
2.3.2 Attitudes towards Caucasians

Another dimension we can study within our setup is a comparison between honesty among Malawians and towards Caucasians as an out-group. The history of interactions between Malawi and Europe entails diverse experiences. Starting from the 16^{th} century, Arab and Portuguese slave traders raided the area and deported slaves to the harbors on the East African coast (McCracken, 2008). A study in this context is provided by Nunn and Wantchekon (2011), who show that the intensity of the slave trade in the 16^{th}-19^{th} century can predict mistrust among African populations today. In Malawi, the slave raids were eventually brought to an end with the strong support of British missionaries (McCracken, 2008). In the early 20^{th} century, animosity towards the British colonialists grew partly as a result of a failure to develop traditional agriculture, resulting in the declaration of independence in 1964 (Encyclopedica Brittanica, 2014). More recent forms of contact include tourism and a large number of aid workers in the areas of health, education and economic cooperation. From Figure 2, it appears though that the colonizers have not left the impression of being a role model for the development. Much more so, China, the US and, especially in Malawi, South Africa have economic, political and societal models that citizens of Malawi and its neighboring countries find attractive (Afrobarometer, 2017). Similarly, Figure 3 shows that not former colonial but the US and China are perceived to wield important influence on the respective country.



Author rendering of data from the 2017 Afrobarometer.

Figure 2: In your opinion, which of the following countries, if any, would be the best model for the future development of our country?



Author rendering of data from the 2017 Afrobarometer.

Figure 3: Which of the following do you think has the most influence on Malawi, or haven't you heard enough to say?

While there are numerous studies on the perception of Caucasians among African Americans, to the best of our knowledge, only one study experimentally addresses this study in Africa, namely in Sierra Leone. Cilliers et al. (2015) randomly vary the presence of a white person during a dictator game experiment. In a large sample, they find that subjects give 19% more on average when a white person is present, arguing that this is partially the result of wanting to make salient one's own poverty in expectation of aid in the future. The specific role assigned to the white person was to hand out money at the beginning of the experiment though. This may create a certain expectation later during the game, and does not resemble a common everyday interaction. Our study thus contributes to filling an important gap in the economic literature, as attitudes towards the opponent in inter-racial interactions, be it in trade, aid, or government cooperation, may strongly influence outcomes.

3 Experimental setup

Our experiment follows a design novel to the literature on deception and is introduced in the following subsection. Thereafter, our treatment structure is presented, along with a discussion of a number of potential concerns.

3.1 Treatments and procedures

In its basic setup, the experiment resembles a real-life situation: instructed passengers take a ride with a transport operator, in our case a bicycle taxi operator in Lilongwe ('driver' hereafter). At the beginning of the ride, the passenger states the destination, and asks for a price for the trip. To minimize the possibility of measuring the effect of differential informational asymmetries, we select hyper-local destinations, that a typical outsider would be unfamiliar with, (e.g. tiny neighborhood churches, local subsistence level convenience/hardware stores). During the ride, all actors state that they are from another city, and no data is collected anywhere where actors might be recognized (e.g.their neighborhoods). At the end of the ride, the passenger pays the pre-agreed price with a large bill the driver is unlikely to have change for. The driver is then asked to get change for the bill and return with it to give it to the passenger. There are three steps at which this setup ensures that the driver has the chance to default on the social norm of honesty and escape with the substantial excess change at minimal risk of detection, or adhere to the norm and return the money. First, the driver could engage in 'subtle' fraud, via overcharging. Second, the driver could engage in 'stark' fraud, by taking the chance to leave without returning the excess change. Third, the driver could attempt to overcharge after setting the price, when given the change - which we leverage as a robustness check. Throughout the experiment, the subject is not aware of the participation in the experiment. For a more detailed explanation of the procedures, see Appendix A. For the purposes of this study, we focus on two dimensions discussed below, namely stakes and social distance. However, various other treatments can be incorporated into this setup and we discuss them at a larger detail in the Discussion part of the paper.

Our treatment structure is presented in Table 1: drivers are given the choice whether to return the excess change for stakes of varying size and different ethnicities of passengers. By stakes of varying size we mean that different passengers pay with bills with different face value so that the excess money in play for the driver varies. The difference in stakes is reflected by the two columns in Table 1. There are several possible channels that might explain the motivation to return the excess change. One of the channels discusses the possibility of maintaining self-esteem (Gneezy et al., 2012; Bénabou and Tirole, 2006; Mazar et al., 2008), another one discusses the presence of a strong intrinsic motivation for remaining honest (Abeler et al., 2014; Somanathan and Rubin, 2004). Here, we ask the following question:

- How is the willingness to remain honest affected by the amount at stake?

In the vertical dimension, we ask the following question:

- How is the willingness to remain honest affected by the social distance of the counterpart in the transaction?

To this end, we let actors from three different ethnic groups take the rides (Chewa (Malawian-majority), Tumbuka (Malawian minority), and Caucasians), while holding constant their outer

appearance in terms of clothing and accessories. We have two stakes, the 500, and the 2,000 Kwatcha bills.

Ethnicity / Stakes (MWK)	500	2,000
Malawian-Majority	68	66
Malawian Minority	68	66
Caucasians	68	66

Table 1: Treatments

Number of Rides	402
Number of Routes	134
Rides K2,000	198
Rides K500	204
Average Distance	1.17km

Table 2: Data Summary

At this stage, a number of comments on our experimental setup and procedures are in order. As further explained in the following subsection, we make actors take rides along previously determined routes of similar length and profile in urban areas in Central Region. The set of possible stakes is then obviously limited by the bills available in the country, giving us two possible stakes: 500, and 2,000 MWK. In June 2017, this was worth about 0.62€, and 2.48€ respectively. To put these numbers into context, one kilo of the local staple food maize is traded at about 250 MWK, or 0.31€. Therefore, the stakes are substantial even for the low-stake treatment.

We are not particularly interested in whether gender plays an important role within the scope of this particular experiment, although it obviously is an interesting research question by itself. We restrict ourselves to male-male interactions only, one of the reasons being that this occupation is almost exclusively run by men. Furthermore we let passengers be a man at all times so that gender differences do not play any role in the experiment. In this way we are able to obtain a representative large enough sample so that the results are representative for a male-male interaction.

Another key concern we grapple with, is excluding situations where the same driver is a subject multiple times. It may be that drivers change their behavior if they are faced with the unusual choice of returning excess change multiple times. However, we address this by mapping a unique route for each observation - our actors never take the same route twice. Given that in Malawi, drivers are licensed for a particular station, this insures us considerably against this issue.

We follow Balafoutas et al. (2013) in their methodology of letting groups of three actors (one Malawian-majority, one Malawian-minority, one Caucasian) walk to a taxi stand with one individual every five minutes. Throughout time we also randomize the order in which actors approach the taxi stand. In this way, the first driver does not see subsequent potentially unusual passengers. This procedure is repeated at every route, an average of almost 8 times per day of data gathering. One concern may be that drivers simply cannot find a place to change money in a reasonable time, and thus deceive not because of an a-priori preference for it, but rather a high inconvenience of being honest. We address this concern by carefully choosing destination points. These are more important than the location of the starting point (so it can be easily adjusted to fit the scenario), because they have to satisfy two requirements: the driver must be able to get the change from a

place close by but at the same time he has to exert at least some effort to get change.

As an aggregate test, we can also see whether behavior structurally changes over time, which would be an indication of information spreading. Finally, drivers are commonly organized in the aforementioned associations by area stops which maintain a rotation system (Lindström, 2014). This, combined with the length of the rides, and that the different actors approach the bicycle taxi stand with only 5 minutes difference, insures us from concerns about meeting the same driver twice.

It's worth reiterating, a key concern for this experiment is appropriately isolating social distance from information asymmetries. There are a number of steps undertaken to avoid this. First, we select destinations that are not frequented by tourists. Bicycle taxis serve a poor demographic, and are mainly found in places not at all frequented by tourists – namely, slums or slum-like areas. We select highly localised destinations, such as local small churches, schools, hospitals, or businesses, which a highly unfamiliar person would not choose. Second, we hire actors with a breadth of experience in Malawi. Our white actor has lived in Malawi for over a decade and is highly familiar with bicycle taxis, avoiding gestures of unfamiliarity with how this mode of transport operates, and thus sending subtle signals of high information. Third, and most importantly, our script has actors quote a price, which is either the market price, or a slightly under market price. This is done to signal familiarity with the mode of transport, and is the clearest signal that all of our actors have the same information.

A way we can test whether the mechanism outlined by Balafoutas et. al. is present in our analysis is as follows: We have our actors predict whether they think that on a given ride they have been overcharged, ranking the likelihood they have been overcharged from 1-5. If they were able to perfectly predict cheating, they would predict 1 every time they paid the fair price, and 5 every time that they were overcharged. If Balafoutas et. al. are correct, we would expect the white actor (presenting the higher social distance) be less aware of cheating.

There are two key concerns on the robustness of this measure. First, there is a concern that perhaps the white actor might be able to detect fraud better, because he gets cheated with more intensity (i.e. charged higher prices). However, if the mechanism outlined by Balafoutas et. al. is correct, this should not matter, as it is precisely because they are less informed that the actors with greater social distance get charged more. Another concern, which is more troublesome, is that if the white actor gets cheated more, he might have more chances to learn from being cheated. To dismiss this hypothesis, we calculate the frequencies of cheating, and see if they are significantly different - which we find are not significantly different.

Another key concern is that social distance might be proxying for economic distance. However, in our experimental design, we take pains to ensure that all our actors present a similar level of wealth. Our actors are all university educated, and middle class, for Malawian standards. They all dressed similarly for the experiment – and to track the distance of their rides, carried a relatively modern cell-phone, also signaling wealth. They all kept to high hygiene standards – something difficult to do in the slum circumstances of bicycle taxi drivers. All in all, they signaled being from starkly different socio-economic circumstances compared to the bicycle taxi drivers, and highly homogeneous social circumstances among the actors. Our actors were also all of the same age, and size, to avoid further omitted variable concerns.

Repeated interaction concerns could also be problematic, however, we take a number of steps to avoid, or control for it. Balafoutas et. al. dismiss repeated interaction concerns as a large issue, as there are many service providers, and the probability of meeting them again is very small. As

Balafoutas et. al., we also do not have bicycle taxi drivers attempt to give phone numbers or taken steps to make repeated contact with our actors. However, to insure that there is no asymmetry in the possibility of repeated interaction, our actors are instructed to also tell the bicycle drivers, that they are only in the city in which the experiment is being conducted 'for a couple of days'. Then we see if there are any differences in the price agreed upon before this information was volunteered, and the one charged at the end of the ride, when this information is available to the driver. As we shall see, this information has no effect on fraud.

3.2 Sample description

Our sample consists of male operators of informal modes of transport in urban areas of Central Region in Malawi. Most rides come from the capital city of Malawi, Lilongwe, but some come from mid-size cities such as Salima, and Mchinji. Specifically, we want to study the behavior of bicycle taxi ('Kabaza' in Chichewa) drivers. As in other African countries and cities, they provide Lilongweans with low-cost transport over short distances, with the passenger being seated on the cushioned rack of a standard men's bicycle (for a discussion of their role in Kenyan cities, see Mutiso and Behrens (2011)).

This group lends itself to scientific study for a number of reasons: first and foremost, the service they provide is commonly used in Malawi and thus provides a valid example of a real-life interaction. This is mirrored in a study by Dupas and Robinson (2013), where taxi bicycle operators are chosen as one treatment group in a financial savings experiment in Kenya. Second and as opposed to other modes of transport, usually no third party, such as co-passengers or conductors, participates in the interaction. This allows us to concentrate on the personal interaction between the driver and the passenger. Third, drivers operate in a competitive business as signified by the common groups of drivers waiting by important crossroads and roaming streets waiting to be hailed down. The relatively large number of bicycle drivers opposed to, say, motor taxi drivers in Lilongwe, allows us to design the experiment in such a way, that the risk of inter-subject communication is minimized. Finally, prices for a representative ride of 1 km are low by Western standards, with drivers readily agreeing to an offered price of 150 MWK (about 0.19€ at the time). This allows us to collect large samples at a relatively low aggregate cost.

Operating bicycles is a common activity for households to diversify their income sources: out of 12,509 households surveyed in the most recent (2010/11) round of the Malawi Integrated Household Survey IHS3 (National Statistical Office, 2012) 20.5 % (2,572) of households reported at least operating one non-farm business. Out of these, 2% (53) were working as bicycle taxi drivers as their main occupation. This number is likely to be a lower bound for the actual number of households involved in operating this mode of transport as anecdotal evidence suggests that drivers in Lilongwe work as bicycle drivers after their shift in a different job (a night guard for example) to earn more income. Their services can be found all over the country and are commonly used by villagers and urban residents for shorter distances when motorized transport is unavailable. It is worth noting that 52 out of 53 operations in the IHS3 were conducted by men. We can therefore with minimal loss of representativeness restrict our analysis to male drivers.[2] The IHS3 data does not allow us though to estimate the number of drivers in Lilongwe due to limited observations there and the limited overall sample size of this national survey. On average, these 53 drivers report a daily

[2]As already mentioned, many studies found some evidence for gender differences (Yuchtman-Yaar and Rahav, 1986; Dreber and Johannesson, 2008; Azar et al., 2013) in a experiment setup, a difference our study cannot further address and examine.

income of 324 MWK (1.51€ at the time of the survey), with a mean income of 180 MWK (0.84€). However these rates might over-represent rural areas where prices tend to be lower.[3] Interestingly, the sampled households operating bicycles disproportionately fall into the upper two quintiles of the consumption distribution (47%), indicating the relative profitability of the business (authors' calculations based on IHS3).

3.3 Location of the experiment

Lilongwe lends itself as an adequate location for the purposes of this study. The city is organized into numerous 'Areas' (numbered from 1 to 57) of different sizes and degrees of self-containedness. These areas have been numbered consecutively in the early days of Lilongwe's growth, but this has later been changed, resulting in, for example, Area 37 lying between Area 1 and 3. While some areas, especially in the city center, have the character of an urban agglomeration, others are purely residential or contain government buildings. Within several areas, there is no other form of regular public transport than bicycle taxis. The areas are connected by major roads radiating out from the city center. For our study, we identified stretches of road of approximately 1 km length and flat profiles, leading from crossroads in residential areas to public points like major crossroads, markets or other residential houses. While 76% of our observations come from Lilongwe, under the impossibility of reaching our sample size objectives merely with observations from Lilongwe, we have also collected data in other Central Region urban areas: Mchinji, Salima, and Mponela. These are roughly the size of one to three Lilongwe districts, and share their self-containedness, lending themselves well to the experimental set up. Using data from different cities should not affect the results of the experiment, as the level of randomization is at stakes, and ethnicity, and the experimental set-up where the actors take the same routes at the same times, guarantee minimal time and place effects on the data.

[3]It is worth noting inflation in Malawi has averaged at 20.4% between 2011 and 2015 (World Development Indicators, 2017), explaining the differences in Euro value.

4 Econometric method

In order to investigate the relationship between cheating, stakes and social distance, we formulate two primary hypotheses, and a secondary one. In this section, we specify these hypotheses and describe the econometric methods used to test them. As we have previously discussed, we have two measures of cheating, a 'subtle' and a 'stark' one. We use both measures in testing for each hypothesis, in the measure that this is possible.

4.1 Primary analysis

Primary Hypothesis 1: Cheating increases with social distance.

To test this hypothesis we specify the following regression:

$$Y_{ij} = \gamma_0 + \gamma_1 Mmin_i + \gamma_2 Cau_i + \rho Num_i + \tau Ord_i + \delta Day + \lambda Lil + \epsilon_i, \quad (1)$$

where Yij stands for the probability that the passenger i in area j is being cheated on, γ_0 is a constant that is equal to the probability of a bicycle driver cheating when the actor is of a Malawian ethnicity. $Mmin_i$, Cau_i and are dummy variables that take the value one when the individual is Malawian-minority or white, respectively. We have the following control variables. The variable Num_i, orders the observations as they are collected throughout the day takes the value one for the first ride on a given day, two for the second, and so on, allows us to control for intra-location contamination e.g. drivers talking about the unusual encounter of being paid by a fairly large bill to each other during a day, which could affect our results if their behavior changed. Ord_i orders the observation according to the order an actor takes for a given ride, one for the first actor to approach the bicycle taxi stand, two for the second, three for the third. This variable allows us to see if drivers are able to figure out the experiment, or actors act differently depending on order. *Day* controls for the day the ride is taken, allowing us to see if there is inter-temporal contamination. Finally *Lil* is a dummy variable controlling for whether rides take place in the capital city, Lilongwe. Because this is a linear probability model (LPM) estimation which suffers from the heteroskedasticity of the error terms when the usual OLS method is used, we estimate the model using robust standard errors. We control for the number of day, allowing us to test for contamination, whether the ride was in Lilongwe, the order of actors, and ride number of the day - another test for contamination.

We are interested whether any of the estimated parameters significantly differs from 0. In order to examine this, we run two sided t-tests again for every of the coefficients separately at 5% significance level, with the nulls being $\gamma_1 = 0$, $\gamma_2 = 0$ and against the alternatives $\gamma_1 \neq 0$, and $\gamma_2 \neq 0$, respectively. If we reject the null in favor of the alternative, that provides further evidence that the particular ethnicity for which we are rejecting the null is cheated significantly more or less than a Malawian. Moreover, if we are able to reject the null in favor of the alternative being defined as $\gamma_l > 0$ for any of $l \in \{1, 2\}$, that provides some evidence for the claim that the probability of being cheated on is linked to the increasing social distance. Hence, that implies that the majority-Malawians (so the group with the smallest social distance in our sample) are cheated on with a different probability than our other ethnicities in the sample. This hypotheses in this paper can also be illustrated formally, by examining agent's utility functions. Assume agents with utility functions $u(m, c, d)$ which are increasing in financial means m, and where cheating has a cost associated to it, c; and which also depends on social distance, d. We can conceptualize d,

as a continuous [0,1] variable indicating social distance, 0 being 'full' social distance, and 1 being no social distance. d would thus multiply the cost of cheating in the utility function, reducing it the greater the social distance. Our hypothesis that social distance matters, can be understood as testing for the existence of this variable d, that attenuates the cost of cheating the greater the social distance. Mathematically, this can be understood as testing whether $u(m, c, d)$ or $u(m, c)$.

Secondary hypothesis: In absolute terms, social distance matters more as stakes increase.

We specify the following regressions:

$$Y_{ij} = \beta_0 + \beta_1 s2000 + \gamma_1 nM_i + \theta_1 nM_i s2000 + \rho Num_i + \tau Ord_i + \delta Day + \lambda Lil + \epsilon_i, \quad (2)$$

$$Y_{ij} = \beta_0 + \beta_1 s500 + \gamma_1 nM_i + \theta_1 nM_i s500 + \rho Num_i + \tau Ord_i + \delta Day + \lambda Lil + \epsilon_i, \quad (3)$$

where the interpretation of the dependent variable is the same as before. These equations are very similar. Indeed the only change between equation (2) and (3) is that in equation (2) the baseline group are Malawians paying with a 500 MWK bill, and in equation (3) the baseline group are Malawian-majority paying with a 2,000 MWK bill. The only new variable introduced in this equation is nM_i which is a variable that groups all Non-Malawian-majority ethnic groups, which we then interact with the aforementioned *s2000* variable. We also include the same set of controls as before.

What these regressions allow us to do is to test whether

$$E[(nM_i s2000) - (M_i 2000)] \neq E[(nM_i 500) - (M_i 500)]$$

by doing a t-test at the 5% significance level with the null that γ_1 from regression (3) and γ_1 from regression (2) are the same against the alternative that the aforementioned $\gamma_1(reg6) \neq \gamma_1(reg5)$. If we reject the null, then this means that in absolute terms social distance has a different salience as stakes increase. It is further interesting to see whether the ratio $\frac{\gamma_1 reg6}{\gamma_1 reg5}$ of cheating on Non-Malawians for high stakes over low stakes, grows faster than the ratio $\frac{\beta_0 reg5}{\beta_0 reg6}$ of cheating on Malawians for high stakes over low stakes. However, this is in a qualitative sense, and not part of our secondary hypothesis.

Robustness Check: Actors can predict whether they will be cheated or not.

$$Y_{ij} = \beta_0 + \beta_1 Cheat + \rho Num_i + \tau Ord_i + \delta Day + \lambda Lil + \epsilon_i \quad (4)$$

To test this hypothesis, we will run two regressions, one with the 'stark' cheating measure, and one with the 'subtle' cheating measure. First, we will regress a variable where the actors had ranked on a 1-5 scale whether they thought the driver was going to come back (5 indicating highest likelihood of cheating, 1 lowest) or whether the driver actually comes back with change. Second we will regress a similar variable where actors had ranked on a 1-5 scale whether they thought they were paying a fair price, on whether they were overcharged. We run a t-test on β_1 at 0.05 significance, the null being $\beta_1 = 0$ that actors can't predict whether they will get cheated, or overcharged. Rejecting the null $\beta_1 \neq 0$ would mean actors can predict cheating. We will also run these regressions broken down by ethnicity to see whether there are any differences in predictive ability by actor. If in our experiment, we find that it is indeed not the case that predictive ability is

correlated with social distance, it would imply that the mechanism of Balafoutas et. al. by which cheating happens to those who have less information, is absent here, and strengthen the case that we have successfully isolated social distance.

Primary Hypothesis 2: Cheating increases with stakes.

To test this hypothesis, we run the following regression:

$$Y_{ij} = \beta_0 + \beta_2 s2000_i + \epsilon_i, \tag{5}$$

where Y_{ij} is again the probability that an individual is being cheated on. β_0 is a constant, which represents the expected proportion of bicycle drivers cheating when the stake is equal to 500 MWK, that is our baseline group. $s2000_i$ is a dummy variable that takes on the value one when drivers are paid with a 2,000 MWK bill. We run a two-sided t-test at 5% significance level to see whether β_2 differs significantly from 0. Moreover, with respect to our hypothesis, we expect to reject the null in favor of $\beta_2 > 0$, which would then be evidence that the probability of being cheated on depends on the size of stake. Moreover, it should be noted that if β_2 is rejected, that provides evidence that no matter the ethnicity, the individuals are being cheated on more often as the stake increases. This hypothesis can also be illustrated formally. Coming back to out agents with utility functions $u(m, c, d)$ which are increasing in financial means m, and where cheating has a cost associated to it, c; and which also depends on social distance, d. If we do indeed observe that cheating is increasing with stakes, that would mean that either c is not dependent on the amount defrauded, or that if it is, the disutility associated with cheating an extra unit of m, is lesser than the utility derived from that unit of m. This can be formalized as:

$$\frac{\partial u}{\partial m} > \left| \frac{\partial u}{\partial c} \right| \tag{6}$$

As a check for the robustness of our results, we specify the following regressions,

$$Y_{ij} = \beta_0 + \beta_2 s2000_i + \epsilon_i, \ \forall \text{ Malawian-majority} \tag{7}$$

$$Y_{ij} = \beta_0 + \beta_2 s2000_i + \epsilon_i, \ \forall \text{ Non-Malawian-majority} \tag{8}$$

In regression (7), Y_{ij} again stands for the probability that the actor is being cheated on. β_0 is a constant, which represents the expected proportion of bicycle drivers cheating on Malawians when the stake is equal to 500 MWK, that is again our baseline group. $s2000_i$ is a dummy variable that takes on the value one when drivers are paid with a 2,000 MWK bill, respectively.

To check for the robustness of our result, we at first perform an t-test at the 5% significance level with the null hypothesis being $\beta_2 = 0$ against the alternative that at least one of them differs from 0. If we reject the null in favor of the alternative, this would be evidence for the claim that the behavior of the drivers depends on the size of the stake, when the passengers are Malawians.

In regression (9), Y_{ij} again stands for the probability that the passenger is being cheated on. β_0 is a constant, which represents the expected proportion of bicycle drivers cheating on Non-Malawians when the stake is equal to 500 MWK, the baseline group in this case. $s2000_i$ is a dummy variable defined as before and we use the same controls.

To check for the robustness of our result, we run a two sided t-test at 5% significance level on the coefficient β_2, with the null being $\beta_2 = 0$ against the alternatives $\beta_2 \neq 0$. If we reject the null in favor of the alternative, that would be evidence for the claim that the behavior of the drivers depends on the size of the stake, when the passengers are Non-Malawians.

4.2 Exploratory Hypothesis

While not central to our research question, we have been able to collect data on possible moral priming, and this might be of interest for further research.

Exploratory Hypothesis: The moral character of the destination affects the likelihood of cheating.

$$Y_{ij} = \beta_0 + \beta_1 Moral + \rho Num_i + \tau Ord_i + \delta Day + \lambda Lil + \epsilon_i \tag{9}$$

To test this hypothesis, we again run two regressions, one with a 'stark' cheating measure, and one with a 'subtle' cheating measure. First, we regress a dummy variable coded 1 in case the driver comes back with the change, 0 if not, on whether the ride has a 'moral' character (i.e. the destination is a school, church or hospital, as opposed to a business). Second, we regress a dummy variable coded 1 in case there was overcharging in a given route, 0 if not, on whether the ride has a 'moral' character. We run a t-test on β_1 at 0.05 significance, the null being $\beta_1 = 0$ that the moral character of a route has no effect on fraud. Rejecting the null would mean that the moral context of a transaction can affect the propensity of agents towards economic fraud.

4.3 Testing for contamination

Our robustness checks, concern the Num_i- Ord_i, and Day-variables. If contamination during the day and over time is not an issue, we would expect the coefficients to be insignificant. These will be evident from the output of the regression and can be tested in a simple t-test. We will report the results of both tests for each regression at the 5% significance level.

5 Results

Primary Hypothesis 1: Cheating increases with social distance.

Table 3: Estimated effect of ethnicity on deceptive behavior

	(1) Agreed Price Subtle Measure 1	(2) Fare Charged Subtle Measure 2	(3) Change Returned Stark Measure
White	19.05893**	20.2522**	-.0148148
	(6.999412)	(7.077868)	(.010528)
Malawian Minority	4.43006	3.738125	-.0074627
	(7.00711)	(7.085653)	(.0105475)
Actor Order	-.5748702	-1.156059	
	(3.499517)	(3.538742)	
Ride of the Day	-.8515383	-.8345029	
	(1.053564)	(1.065373)	
Experiment Day	-1.227549	-1.556313	
	(.8529558)	(.8625165)	
Ride in Lilongwe	39.89123***	37.94545***	
	(10.08424)	(10.19727)	
_cons	172.4551***	178.9845***	1***
	(17.5026)	(17.69878)	(.0074722)
N	402	402	402

* indicates that the estimate is significant at a 5% significance level. ** indicates that the estimate is significant at a 1% significance level. *** indicates that the estimate is significant at a 0.1% significance level. Standard errors are provided in parenthesis.

We find that there is strong evidence that cheating does increase with social distance. Formally, this means that agents have utility functions $u(m, c, d)$ not $u(m, c)$ - so the social distance of their counterpart affects the disutility associated with cheating.

These results, show that there is evidence for the hypothesis that social distance matters by itself, as whites are charged significantly more. Using our 'stark' cheating measure, we do not find significant differences in cheating. However, it is worth noting, that we only had 3 instances of drivers not coming back with change out of 402 - over 99% of drivers came back with change. This makes inference less straightforward, as the sample where fraud occurs is very small.

However, using our subtle measure, we find that social distance does have a significant, and substantial impact on the price drivers ask for, with the group with the greatest social distance being charged 11% more than the group with the least social distance. We also find no significant differences in our 'Agreed Price' versus 'Fare Charged' regressions, indicating that offering information leveling the perceived probability of repeated interaction, has no effect on the results.

The extremely small percentage of drivers cheating in the 'stark' measure, makes testing whether social distance matters more as stakes increase not feasible.

Robustness Check: Actors and Predictions.

Table 4: Estimated effect of deceptive behavior on predictions of deceptive behavior

	(1) Prediction on Change Back Stark Measure	(2) Prediction on Fair Price Subtle Measure
Received Change Back	-.7991402*	
	(.3930771)	
Overcharged		.918298***
		(.0936795)
Actor Order	-.0605825	-.0188649
	(.05952)	(.0529859)
Ride of the Day	-.0104832	-.0180583
	(.0194382)	(.0159571)
Experiment Day	-.0120029	-.034839**
	(.0137655)	(.0130226)
Ride in Liliongwe	-.0536637	-.0111665
	(.1629469)	(.1532356)
_cons	2.38298***	1.686162***
	(.4933996)	(.2606566)
N	197	399

* indicates that the estimate is significant at a 5% significance level. ** indicates that the estimate is significant at a 1% significance level. *** indicates that the estimate is significant at a 0.1% significance level. Standard errors are provided in parenthesis.

We find extremely strong evidence that actors can, indeed, predict whether they will be cheated, with significant results in both our stark and our subtle measure.

We are also able to break these results down by ethnicity:

Table 5: Estimated effect of deceptive behavior on predictions of deceptive behavior by ethnicity

	(1) Prediction on Fair Price Malawian Majority	(2) Prediction on Fair Price Malawian Minority	(3) Prediction on Fair Price White
Overcharged	.6093744***	.4825219***	1.460721***
	(.1536464)	(.0962869)	(.1849291)
Actor Order	.0295853	.0367603	-.1350068
	(.0871518)	(.055149)	(.1026777)
Ride of the Day	-.0023437	-.0125592	-.0369917
	(.0253924)	(.0159887)	(.0321815)
Experiment Day	-.0421417*	.0087684	-.0579881*
	(.0207941)	(.013382)	(.0262316)
Ride in Lilonwe	-.0091599	.2328384	-.1417444
	(.2468216)	(.1544295)	(.3056065)
_cons	1.616219***	.8075442**	2.485078***
	(.4346363)	(.2540212)	(.5236723)
N	133	133	134

* indicates that the estimate is significant at a 5% significance level. ** indicates that the estimate is significant at a 1% significance level. *** indicates that the estimate is significant at a 0.1% significance level. Standard errors are provided in parenthesis.

We are highly confident in the quality of this measure. For the actors' predictions on whether the driver will come back with the change, there is some potential for them not noting the prediction at the adequate time - between the handing of the change, and before the driver comes back. However, the main measure of whether the price is fair, is circled before the drivers know what the others have been charged, and therefore, is highly robust.

We find that actors can predict to a large extent whether they are cheated, and that the white actor tends to be best at predicting (significantly better than the Malawian Minority). We also find he is more suspicious - assigning the highest probability of unfair prices in rides where he is actually not overcharged. That he is most suspicious can be shown by the following regression, where, controlling for cheating, we find the white actor is the most suspicious:

Table 6: Estimated effect of ethnicity on predictions of deception

	(1)	(2)
	Prediction on Fair Price	Prediction on Fair Price
Overcharged	.8911627***	.8971161***
	(.0904896)	(.089213)
Malawian Minority	-.2547298*	-.2494749*
	(.1028947)	(.101109)
White	.3989519***	.4074664***
	(.1028091)	(.1010917)
Actor Order		-.0252412
		(.050488)
Ride of the Day		-.0177748
		(.0151777)
Experiment Day		-.0351125**
		(.0123867)
Ride in Lilongwe		-.0081506
		(.1457516)
_cons	1.205574***	1.650655***
	(.0773985)	(.2532372)
N	399	399

* indicates that the estimate is significant at a 5% significance level. ** indicates that the estimate is significant at a 1% significance level. *** indicates that the estimate is significant at a 0.1% significance level. Standard errors are provided in parenthesis.

This is important evidence against the notion of Balafoutas et. al. that it is informational asymmetries that explain why groups suffer more or less fraud. Indeed, in this case, the white actor - the one with the greatest social distance, is most able to tell whether he is being cheated. This seems to point towards the fact our result is driven by differences in social distance and not by the actor being in possession of less information. Balafoutas et. al. specifically mention that "conveying to an expert seller the impression of possessing relevant information" might alleviate cheating. However, in our paper, neither doing so, or actually having more or better information and awareness of the situation, eliminates fraud.

Table 7: Estimated frequency of cheating

	(1) Frequency Overcharged Subtle Measure
White	.0554048
	(.0570254)
Malawian Minority	.0203919
	(.0571316)
_cons	.2878788***
	(.0404743)
N	399

* indicates that the estimate is significant at a 5% significance level. ** indicates that the estimate is significant at a 1% significance level. *** indicates that the estimate is significant at a 0.1% significance level. Standard errors are provided in parenthesis.

We can furthermore refute the idea that it is different opportunities to learn that explain the higher ability for the Caucasian actor to predict cheating. As Table 7 shows, he does not get cheated significantly more often than the other actors. This strengthens the idea that it is not, in fact that asymmetries in information are unlikely in this case.

Primary Hypothesis 2: Cheating increases with stakes.

We do not find strong evidence that cheating increases with stakes. As specified by the experimental design, we test for this hypothesis using only our stark measure - there is no clear way to use the 'subtle' measure when addressing this hypothesis - and the fact that only three drivers cheated out of four hundred and two makes inference difficult, even if those three cases occurred all in the s2000 treatment. The results of our regression are as follows:

Table 8: Estimated effect of high stakes on deceptive behavior

	(1) Received Change Back All	(2) Received Change Back Non Malawian-majority
Stake 2000	-.0151515	-.0225564
	(.0085739)	(.0128275)
_cons	1***	1***
	(.0060173)	(.0090365)
N	402	268

* indicates that the estimate is significant at a 5% significance level. ** indicates that the estimate is significant at a 1% significance level. *** indicates that the estimate is significant at a 0.1% significance level. Standard errors are provided in parenthesis.

Going back to our formal model, this would imply that we cannot say that the following - i.e. that the utility associated with an extra unit of m is greater than the disutility of cheating an extra unit c - is the case:

$$\frac{\partial u}{\partial m} > \left|\frac{\partial u}{\partial c}\right| \tag{10}$$

Given negative results, the robustness check becomes less useful, but we can also see that results are not significant for any subset.

Exploratory Hypothesis : The moral character of the destination affects the likelihood of cheating.

We find evidence that there is a 'priming' of sorts at work:

Table 9: Estimated effect of moral destinations on deception

	(1)
	Fraud in a Given Ride
Moral Destination	-.1807526*
	(.0879034)
Ride in Lilongwe	.2226598
	(.1463326)
Ride of Day	.0086349
	(.0150913)
Experiment Day	.015956
	(.0124835)
_cons	.3616728
	(.2317618)
N	132

* indicates that the estimate is significant at a 5% significance level. ** indicates that the estimate is significant at a 1% significance level. *** indicates that the estimate is significant at a 0.1% significance level. Standard errors are provided in parenthesis.

Indeed, using the 'ride-cheat' measure, a dummy variable that takes the value 1 if a driver is overcharged in a given ride, we find that destinations with a 'moral' character (schools, churches, or hospitals) - have a markedly lower rate of fraud than rides that do not have said character - indeed the expected probability of fraud occurring is reduced by 18 percentage points. This is a large effect, accounting for a drop in half from the frequency of cheating in non 'moral' routes. If this is true, then this would imply that it may be wise to deliver programs from places with moral associations, as this may reduce fraud.

On our contamination measures, it is worth noting that in no cases where we are studying the behavior of drivers, the order of actors, the ride number of the day, or the day of the experiment, have a significant effect - indeed the coefficient of these is invariably quite strongly zero, suggesting contamination was unlikely during the experiment.

6 Discussion and limitations

6.1 Social distance

When varying the ethnicities of the passengers during the ride, we observe an increase in the frequency of being dishonest when the social distance between the driver and the passenger is larger. This is in line with the previously mentioned studies that have found a decreased frequency for anti-social behavior when there is a closer proximity between the subject and the person who is disadvantaged from that behavior. Hence, we expected to find that a larger proportion of drivers will act honestly and return the change when an ethnic Malawian is the passenger compared to when a person of another ethnicity is a passenger. This clashes with the previous literature on fraud Balafoutas et al. (2013) that argues that informational asymmetries are key. Indeed, in this case, we find that social distance matters per se, a case strengthened by the fact that the actor that gets cheated the most, is also best able to identify cheating. Thus Balafoutas et al. (2013) has a problematic paper, as it likely suffers from omitted variable bias, by not accounting for the independent role of social distance. Overall, this paper makes the case that social distance ought to be examined further in topics of behavioral economics, as the status quo is unsatisfactory.

We are confident as to the external validity of the implications of this paper in the field of behavioral economics. Nothing, to our knowledge, would point out that there is a reason why bicycle taxi drivers should be specially susceptible to social distance vis-à-vis others.

However, we also believe that our results have implications in development economics. Our finding that prices are 11% higher for Caucasians than Malawian-majority passengers, and therefore that fraud is easier to commit towards someone who is seen as more socially distant, could mean that when delivering services, be it by a NGO, or perhaps an aid program, it could be advisable to have the end-point deliver be of minimal social distance. Curiously, this need not be only about policy delivery in the developing world; there is no reason to think this mechanism might not be at play in the developed world.

The key caveat, with these development, and policy delivery implications, is that the external validity of this experiment might be more limited than for a strictly behavioral reading of the results. Indeed, we are only testing bicycle drivers in Malawi - one profession, in one country. Furthermore, we are testing interactions only between two men. Therefore, we recommend further study of this potential mechanism. Not only by academics - testing whether social distance has an effect could, and ought also to be done by agencies piloting programs. This would have two key benefits. First, agencies might be optimizing their resources better taking social distance into account, and would have very high validity of results for their purpose. Second, this would generate a wealth of evidence that could shed further light on this question.

6.2 Stakes

When varying the stakes, that is the face value of the bill that the driver is supposed to get change for, we expected to observe increasing frequency of deceiving behavior as the face value increases. This would have been in line with the previously mentioned research that people evaluate the expected gains stemming from deception and the likelihood of being caught together with the punishment and decide for the more profitable option. Hence, as the stakes are higher, the frequency of acting dishonestly is likely to increase since the gains from deception increase, while the probability of being caught does not change. However, we did not find evidence under our set

up for stakes having an impact at the 0.05 significance level. However, this is only as we found a rate of fraud of under 1% for our 'stark' cheating measure, under which this hypothesis would be tested.

6.3 Possible extensions

An idea worth exploring would be to engage drivers in a treatment group in conversation and explore how communication affects deceptive behavior. Specifically, such communication could be used to collect information on the driver's family status, migration history and other jobs, for example. Throughout the analysis above, such personal characteristics can not be controlled for. It would be interesting to run a regression where personal traits, such as family size or age, are included to see if they matter when it comes to the engagement in deceiving behavior.

7 Conclusion

We have undertaken a research design on deceptive behavior that is novel to the literature. While several aspects could be incorporated, in this study we focus on stakes and social distance as two relevant dimensions affecting deception. To ascertain the effect of these variables, we run a field experiment in Malawi where trained actors provide an opportunity to bicycle taxi drivers to commit fraud. Our study finds social distance, per se, increases fraudulent behavior, and, in our exploratory analysis, that moral priming can reduce the incidence of said fraudulent behavior.

In the context of the existing economics literature, this paper can be understood as incorporating the idea of social distance into the literature on fraud or deceptive behavior. We find that the current omission of this concept in the literature is highly problematic. This is so, as the current literature, as exemplified by Balafoutas et al. (2013) explains fraudulent behavior as a function of informational asymmetries. This is an issue, as signals of informational asymmetries proxy for social distance. Given that social distance has been found to be a significant explanatory factor in literatures ranging from corruption to research on trust, there was little reason to suppose it would not be a contributor to fraud, which indeed it is. Our contribution, implies that it is important to disentangle the effect of information, and social distance in this field - something we encourage further research on, and more generally, that researchers ought to be careful to account for social distance in future economic research.

The practical implications for this research mainly lie in the field of developmental economics. Seeing that social distance affects fraud in economic transactions, implies that when engaging in policy-delivery, particularly at end-points, where services are actually being provided, it would be beneficial to reduce as much as possible the social distance between the provider, and the person receiving the service. Indeed, we encourage further research on the importance of the identity of the person delivering a service, to the success of the policy being delivered.

Furthermore, in our exploratory analysis, we have found that the moral character of the destination of the ride, has a significant, and large negative effect on the likelihood the driver will overcharge. The implication of this, is that when possible, policy delivery should occur from locations with moral connotations (e.g. it may be beneficial to have a given NGO based in a church, instead of in a standard office). However, we encourage caution, as this is indeed an exploratory result, so more research is necessary to see if this mechanism is actually present, and to ascertain its importance.

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Appendix A

Detailed Procedures

The storyline of one observation is as follows: our actor approaches the taxi stand, explains where he wants to go (as discussed, the routes are predetermined by the experimenters such that the length and the effort the drivers have to exert suffer from as small variation as possible) and he is instructed to quote the market price for the ride, usually 150 MKW (Chichewa uses the English numbers for counting, therefore translation is not an issue here). During the ride, the actor avoids talking to the driver. If a driver starts a conversation, our actor is instructed to keep the interaction to the necessary minimum to rule out effects of amicability between the driver and the passenger. The key exception is the actor must state that he is only in town for a couple of days, and is not from there. Upon arriving at the final destination, our actor thanks for the ride and prepares to pay. The actor takes a banknote (its face value depends on the treatment, and their sequence having been randomized) out of the pocket and gives it to the driver saying that he does not have change. Obviously, it is necessary that passengers can convince drivers that they do not have change. We make sure that passengers are instructed not to show a wallet, but only pull a note out of the pocket. If the driver has the change, then the passenger takes the excess money, wishes a nice day and leaves.

If the driver says that he does not have change to return, our actor asks the driver if it possible for him to go to a nearby place to get the change and return back afterwards. After this being said, our actor waits at the destination point for 10 minutes to see whether the driver returns. If the driver does not return within 10 minutes, our actor leaves and such an encounter will be counted as a deceit. In the end, we are interested in the proportion of 'deceits'.

The data was be recorded by the actors in small cards illustrated in Figure 4. The actors would fill the central part of the card with the sections 'Date' through to 'RA Order' before going to the bicycle taxi station. Before leaving, they would introduce the card in their pocket so it would not be visible to the drivers. The sections 'Come back?' and 'Left Bike?' - asking for the prediction of whether the driver will come back with the change, and whether he leaves the bike while he is doing so, are filled as the driver is getting change, with care being taken to do so out of sight of the driver. The third section of the card 'Paid' through to 'Distance' is completed after the interaction is over, and the RA has rejoined the team.

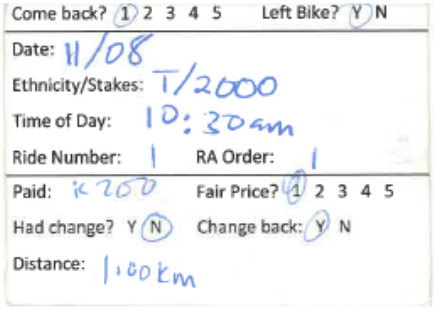

Figure 4: Example of a card used during the experiment

As for the trained actors, all of them are young men aged between 27 - 28 recruited locally to control costs. We look for suitable Malawian actors recommended from the economics department at Chancellor College, part of the University of Malawi. As for the physical appearance of the passengers, the actors wear a white long-sleeved shirt with a pair of long trousers. Malawian-minority actors are identified by their distinctive accent when speaking Chichewa.

Appendix B

Script

'Hello, I'd like a ride to (location) for (amount) MKW ' The actor must the accept the price given to him in response by the cab driver.

After the price is agreed on, the actor *must* state: 'I'm visiting (location) for two days.'

To keep the idea that the actor is only visiting briefly, if asked where they're from, the actor will state 'I'm from Kasungu (central region city-chewa)/Mzeze/Salima'

The driver is instructed to keep communication at an absolute minimum during the ride. This should be easy for non-native speakers as drivers often have limited English.

Answers to any questions should be minimalistic:

Examples:

Where do you study? 'City of origin'

What are you doing in Malawi/Lilongwe? 'Just visiting'

I've been/I like SA/Mzeze/Kasungu. 'It's very nice'

What have you visited? 'Just the city'

You're not very talkative? 'Not terribly'

At the end of the ride, the driver must hand the bill (from the pocket, without showing a wallet or other bills) to the Malawian and say:

'Please take this bill, get change somewhere and come back here as soon as you can'.

Figure 5: Example of a bycicle taxi commonly used in Malawi.