When Dictator Games Get Real: The Role of Intrinsic Characteristics*

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Abstract

We address the recently growing concern over what we can conclusively learn from dictator games, given the multitude of (laboratory and field) outcomes associated with them. We argue that dictator games are useful, for they are remarkably good predictors of actual market behavior. Even more interestingly, we find that the offers that dictators choose to make to the recipients, can be predicted by their real-life transaction behavior. Any participant in a dictator game frequently sees it as just a game, and not as a naturally occurring strategic interaction. We suitably modify a dictator game to draw parallels (from observations inside the lab) in the extra-lab world. Our subjects (three-wheeler taxi cab drivers in New Delhi) are put in a position of a proposer of a dictator game (by actors), without the knowledge that they are a part of an experiment. Additionally, we show that while a substantial proportion of drivers show a preference for the dictatorial outcome, social norms also play a strong role.

Keywords: dictator games, experiments, methodology

JEL classifications: C91, C70, D63, D64

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1. Introduction

The simplicity of dictator games captured the interests of many experimental researchers who wanted to test for selfishness as is predicted and often required by standard game theory. The generally observed outcome, that about 60% of the dictators appear to give a positive transfer, amounting to (on an average) approximately 30% of the pie sizes according to a meta study by Engel (2011), covering all dictator games between 1992 and 2009 (with over 40,000 observations), was contrary to the selfishness story, and consequently demanded new hypotheses that could explain observed behavior. Among these, while subject irrationality could immediately be ruled out due to the inherent simplicity of dictator games (Camerer and Thaler, 1995; Guala and Mittone, 2010), there are still others, such as *fairness considerations* (Andreoni and Bernheim, 2009; Rabin, 1993), *altruism* (Eckel and Grossman, 1996; Bahr and Requate, 2014), *warm-glow* effects (Korenok et al, 2013; Andreoni, 1990), and those of *social considerations* (Krupka and Weber, 2013; Rigdon et al, 2009) that are being widely debated (see the discussions in Bardsley et al, 2009; Chaudhuri, 2009; Smith, 2008; Henrich and Henrich, 2007; and Camerer 2003).

The varied results from addressing the above hypotheses have displayed remarkable sensitivity to contextual settings, thereby raising concerns over the generality of lab-based results. To take an example of *fairness considerations* mentioned above, it has been argued that experimenters may unwittingly induce subjects into behaving in a fair manner thereby making them appear more pro-social than they would otherwise be (that is, in the field) – a concern that we address in our study of dictator games in a real world context.[1] However, it has also been shown that behavior in the lab is not consistently pro-social (Hoffman et al, 1994), and that behavior in the field is not uniformly selfish (which has been explained in the context of charitable giving by DellaVigna et al, 2012). Similarly, research on each of the possible hypotheses listed in the previous paragraph (among still others), has witnessed varied results, suggesting that lab and field experiments should complement each other to aid our understanding of human behavior.

The observed variations in dictatorial outcomes across different experiments can be attributed, primarily, to factors *intrinsic* (or *candidate-specific*) and *extrinsic* (or *experiment-specific*) to the subjects. Intrinsic factors include subjects' *own gender* (we know that female dictators give more than male dictators when the stakes are substantial, due to Eckel and Grossman, 1998; and Andreoni and Vesterlund, 2001), *ethnicity* (see Holm and Danielson, 2005 for a study on differences between Sweden and Tanzania; and additionally see Henrich et al, 2004), *economic position* (see Cardenas and Carpenter, 2008, for differences in subject behavior between developing and developed countries), *age* (it is well established that pro-social behavior increases with age till about 24 and remains relatively unchanged thereafter,

[1] The general concern is that subjects often feel that they are being judged by the experimenters. The very fact that 'audience effects' tend to influence dictator game giving (as discussed later), confirms that such concerns are indeed valid, and therefore, need to be addressed in a systematic way in laboratory experiments. Field experiments seek to fill in that void.

as has been documented in Henrich and Henrich, 2007) among still others.[2] Extrinsic factors include experimental artefacts, such as *audience effects* (Andreoni and Bernheim, 2009), *choice set alterations* amounting the introduction of taking options (see Bardsley, 2008; and List, 2007), *status effects* (Liebe and Tutic, 2010) and *partners'/recipients' gender* (see Sutter et al, 2009; and Castillo et al, 2013) among many others.[3]

Both intrinsic (subject-type) and extrinsic (experimental artefacts) factors, listed above, that determine dictator behavior are frequently observable. In this paper, we focus on the role of unobservable intrinsic characteristics in the determination of dictator game outcomes. For instance, while Eckel and Grossman (1998), mentioned above, establish that female dictators give significantly more than their male counterparts, they also observe that the distribution of offers made by both the genders are double-peaked, with a common peak at the most selfish outcome, and another one at a 'fairer' outcome (consistent with the meta study of Engel, 2011).

We seek to explain why these two peaks (within any group) exist at the first place – an open question so far. We have been able to uniquely pinpoint one of the *unobserved* intrinsic characteristics that determine dictator game giving. We argue that those who prefer the dictatorial outcome (the selfish peak) are *intrinsically opportunistic*, and those who settle for the other outcomes are often not so. In this study of auto-rickshaw (three-wheeler) drivers in New Delhi, we come to the remarkable conclusion that drivers who choose the dictatorial outcome are also the ones who generally want to rip every customer off even in their regular transactions: in other words, dictator game prices are highly correlated with regular prices. Just by observing the prices that an auto driver charges for a given transaction, it is, in a large part, possible to predict his behavior in the dictator game.

Specifically, in our context, there is a social norm (anchored in a regulatory fare) that can conceivably moderate selfishness. While we too observe two peaks like in the literature, what distinguishes our study from the previous studies is that we are also able to examine whether behavior in dictator games also carry over to regular transactions. In other words, we see if regular transactions mirror the tug between selfishness and social norms. The striking finding is that each (regular transactions and dictator game behavior) has a significant predictive capacity for the other. We make a further contribution to the literature – dictator game settings, in the existing literature, are frequently contextualized as games that involve 'giving' in field experiments that deal with charity, and tipping etc. We introduce a field experiment with 'taking options' in a natural dictator game setting.

We do not use questionnaires as has been employed in several studies because of the concerns discussed in Henrich and Henrich (2007). Additionally, for a study of this nature, in a market, where fares frequently exceed what is legally prescribed (Banerjee, 2015), the auto

[2] Cardenas and Carpenter (2008), and Henrich and Henrich (2007) do a comparison of results in Carpenter et al. (2005); Ashraf et al. (2006); Holm and Danielson (2005); Ensminger (2000); Gowdy et al. (2003); and Henrich et al. (2006) among others.

[3] Partners' physical attractiveness is known to affect experimental outcomes (see Solnick and Schweitzer, 1999), and can therefore be thought of as an extrinsic factor.

drivers may want to respond to questions put forward (say in the guise of a 'casual passenger talk') according to the prices they quote. In other words, responses to the questionnaires may be biased since 'actions can *create* preferences' (Ariely and Norton, 2008). Doing surveys before recording outcomes, on the other hand, can lead to even more serious biases. Section 2 introduces the Auto-Rickshaw Market in Delhi. In Section 3, we describe the experiment and in Section 4, we discuss the results alongside the descriptive statistics. Section 5 concludes.

2. The auto-rickshaw market

While Banerjee (2015) provides a comprehensive account of the history, evolution and the current form and structure of the auto-rickshaw (auto hereafter) market in New Delhi, we provide a brief introduction here. Consumers are supposed to pay a regulated fare, which depends on the distance travelled, luggage and time of the day (night fares are higher). This fare is displayed on a taximeter (meter, hereafter) attached to the autos. The meter also shows the distance travelled and is supposed to be reset individually for every customer.[4] These meters, however, are seldom used by auto drivers and instead, the resultant fares paid by customers are pre-negotiated with these auto drivers before any journey.[5,6] While customers prefer travelling by the meter, they generally give in to the auto drivers' desire for a mark-up over the publicly known legal fare. It is this mark-up (and hence, effectively the total price) that the customers and drivers bargain over.

In a nutshell, although there exists a regulated legal fare, we observe bargaining in this market. It is interesting that although there are over 74,000 autos on Delhi roads everyday auto drivers hardly compete for customers. They are in fact, known to charge two customers differently for exactly the same journey – a given customer may also end up paying different amounts for the same journey on two different days because (say) on one of the days he may have to reach the given destination urgently. According to Banerjee (2015) customers, on an average, paid amounts, as high as, close to 20 per cent more than the legally accepted fare. This is consistent with the data we use in this paper. Overcharging is one of the more common complaints made by customers online at the National Consumer Complaint Forum of the Indian Complaint Board; and at the 'Complaints Against TSR' section in the online forum of the Delhi Traffic Police.[7] Other complaints include the refusal to go to a customer's destination (this is also the most frequently made complaint), misbehavior and harassment on

[4] This is since different customers have different starting points and destinations and accordingly travel different lengths of distance, they therefore, must pay different fares.

[5] This is a very common complaint against auto drivers. The official websites to register such complaints are: https://delhitrafficpolice.nic.in/complaint-against-tsr/, and http://www.complaintboard.in/complaints-reviews/autorickshaw-l1190475.html.

[6] This is contrary to the idea of perfect competition, because of the existence of barriers to entry in the form of licenses. This works to our advantage since playing dictator games in a setting that is naturally competitive, is practically impossible as players may give up most of the surplus for the fear of available competition. This is explained in the experiment description.

[7] TSR stands for Three Seater (Auto) Rickshaw.

the part of the auto driver(s), intentionally taking longer routes, taking other passengers along the way, carrying more passengers than the capacity permitted and stopping at bus stands and thereby causing inconvenience in boarding of buses.[8] The webpage has an image of the most frequent complaints shown in Appendix B.

Auto drivers largely come from low income family groups primarily based in Uttar Pradesh and Bihar. Not many can afford to buy auto rickshaws and thus take them on rent (of over Rs. 300.00 per day, amounting to over 40% of their daily earnings) on a daily basis from their actual owners. They frequently overcharge in order to cover their daily rental and fuel costs (although the latter remains substantially low, since auto rickshaws are very light vehicles that run on cheaply available compressed natural gas). Further, the existence of entry barriers cushions them from competitive pressures – with permits only for just over 74,000 auto rickshaws (less than 1% of the population of New Delhi), auto drivers frequently do not feel threatened about losing customers to other drivers. This is advantageous to our study as will be discussed in the next section.

3. The experiment

3.1. An overview

Several pairs of origin and destination spots (interchangeably called A and B for our purposes) were used for this research. Points A and B are chosen such that they are similar (both metro-rail stations, or both colleges etc.) and approximately five kilometers apart. For this distance, the legal fare is approximately Rs. 50.00.[9] Appendix A provides a detailed list of all the places of origin and destination used and Figure 1 presents the distribution of the legal fares for these routes. The two treatments of our experiment are described below.

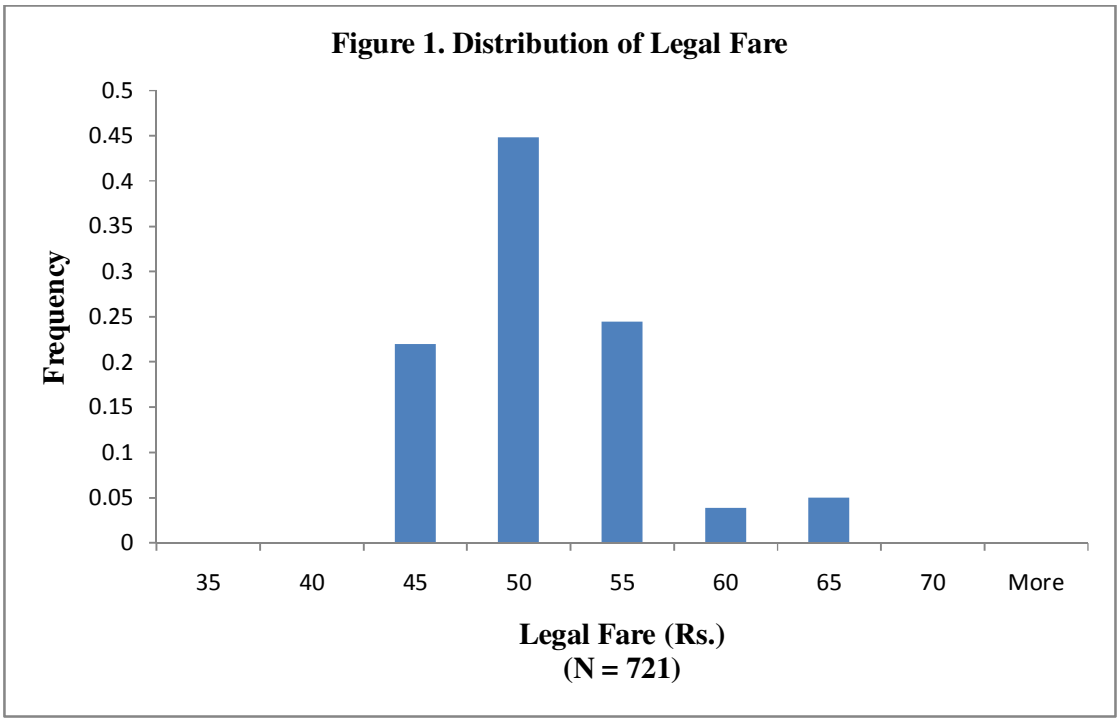
Dictator-First Treatment: The dictator game is played before a regular transaction is observed.

Regular-First Treatment: A regular transaction is observed before the dictator game is played.

In both the treatments, one of the actors hires an auto from A to B, and another actor of the same gender stationed at B, 'hires' the same auto back to A. Thus, each auto driver belongs to exactly one of the treatments above and provides us with exactly two prices – one under the dictator game, and the other as a regular transaction, which is used as a representative of his general behavior and approach to daily negotiations.

[8] More can be found/ seen at: http://customercare.tollfree-number.org/2015/04/auto-rickshaw-complaint-number.html#sthash.6fdilVc1.dpuf.

[9] The current legal fare is a down payment of Rs. 25.00, which is valid up to the first two kilometers and thereafter Rs. 8.00 for every subsequent kilometer travelled. This translates to Rs. 49.00 for a trip of five kilometers. Customers, almost all the time, pay Rs. 50.00 when they go by the legal fare for any distance of approximately five kilometers. Most often, nobody cares for a balance of less than Rs. 5.00.



3.2. The execution

Male and female undergraduate students from the University of Delhi acted as 'customers' for auto drivers, trained with two dialogues in Hindi – one for the dictator game and the other for the regular transaction.

The dialogue for the dictator game translates to "I want to go to place B. I can give up to Rs. 150. How much will you take?" Thus, the total surplus (over the legal fare) to be distributed between the auto driver and the customer is (approximately) Rs. 100.00. The auto driver's response (quote) to this question is secretly (audio) recorded (along with the dialogue) by our actor, alongside other details (secretly in a small notebook) pertaining to that transaction such as the time of the day, the day of the week, origin and destination points among still others, as the actor boards the auto.

The dialogue for the regular transaction broadly translates to "I want to go to place A. How much will you take?" The auto driver's response (quote) to this question is secretly (audio) recorded (along with the dialogue) by our actor, alongside other details (secretly in a small notebook) pertaining to that transaction such as the time of the day, the day of the week, origin and destination points among still others, as the actor boards the auto.[10]

Later, all these details are transcribed for the purpose of creating a data file. To summarize, in the *Dictator-First* treatment, our actor says the dialogue for the dictator game above and boards the auto from A to B. At B another actor of the same gender says the dialogue for the regular transaction and hires this auto driver to travel back to A. In the *Regular-First*

[10] The actors put on earphones connected to their mobile devises, pretending to listen to music.

treatment, our actor says the dialogue for the regular transaction and boards the auto from A to B. At B, another actor of the same gender says the dialogue for the dictator game and boards the same auto back to A.

These locations A and B were shortlisted using Google Maps. The exact spots at these locations were chosen so that the coordination between the actors at A and B was convenient enough to ensure that the auto drivers were not 'lost' to another customer. To avoid suspicion (by coordinating over the phone while driven by, and in the presence of an auto driver), these exact spots were surveyed and chosen beforehand to ease coordination. For instance, A would ensure that he (she) stopped the auto close enough to where B was standing, and yet sufficiently far enough from any other customer to maximize the chances that B (and not any other customer) would hire the auto next.[11] The distances reported in Appendix A, therefore, are slightly different from those that Google Maps would produce (specifically within a deviation/difference of half a kilometer).[12] Further, for the purposes of effective coordination, each actor in the first transaction of each treatment, sent a text message (while travelling) to the actor waiting at the destination, with the vehicle number of the auto he/she hired in order to ease the task (for the actor at the destination) of looking for the right auto to hire (back to the place of origin). Tracking vehicle numbers also ensured that no auto rickshaw/driver was hired more than once in our experiment.

3.3. A discussion

Our experiment is focused on a natural dictator game with taking options. While game-theoretic rigor in reasoning often requires strategic thinking on the part of the subjects/agents (which is also, often required in market transactions), there is frequently nothing strategic about artificial situations that do not otherwise matter. Consequently, one would expect subject responses/actions to be more casual than strategic in such settings. A novel aspect of our experiment is the introduction of a dictator game with taking options in a natural market (and hence strategic) setting. Further, tracking the quotes of unsuspecting auto drivers, in transactions following (in the *Dictator-First treatment*), and preceding (in the *Regular-First treatment*) the dictator game transaction allows us to study the auto drivers' general market behavior without using a questionnaire.

As discussed before, auto drivers frequently do not worry about losing customers to other drivers. This works to our advantage since the auto drivers do not feel compelled to quote competitive prices (in response to our actors' dialogues) with the belief of potential customer stealing which is often the case with taxi drivers, for example in Lima, Peru (Castillo et al, 2013). In fact, as we will show later, some drivers even quote over Rs. 150.00 in our dictator game.

[11] It will become evident in the next section (from a few differences in the sample sizes across different quotes under each treatment) that we have, in fact, lost some data due to this reason. The most stated reason (on the part of the auto driver) for disagreeing to take the customer (second actor), back to the place of origin, was that the drivers intended to head elsewhere (and not the actor's chosen destination).

[12] These Google Map images can be made available on request.

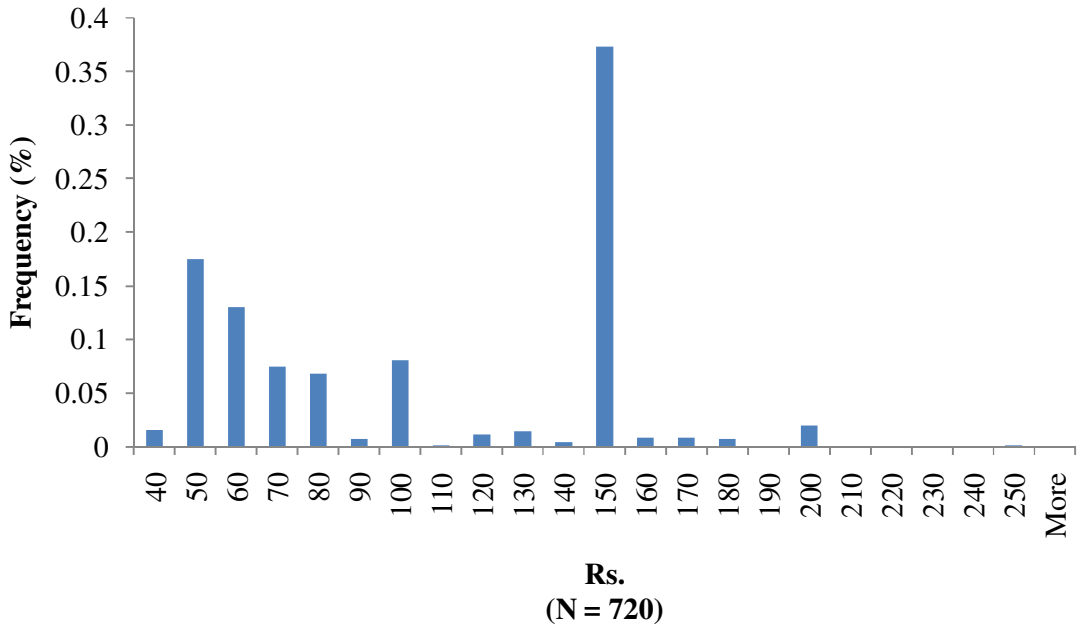
The experiment was conducted over two waves, the first of which happened in July 2014, and the second one in March 2015. Only the *Dictator-First* treatment was done in the first wave and both the treatments were done in the second wave. Data was collected between 8:00AM and 11:30AM on all the days of the week. Overall, 721 observations were collected of which 487 were from female actors and 234 from male actors. 574 observations were collected in the second wave. The average distance travelled per trip was 5.04 kilometers, and the legal fare for these observations averaged Rs. 49.29 kilometers.

4. Descriptive statistics and results

4.1. An analysis of dictator game offers

We first club the dictator game quotes for both the treatments and present the (combined) distribution of the same in Figure 2 (the individual distributions for each treatment are statistically identical to Figure 2 and therefore, deferred to Appendix B, alongside a similar discussion on the quotes observed in the regular transactions). Our variant of a dictator game is different from the rest in the literature, where dictators are known to receive their endowment exogenously from the *experimenters* (even if they have to earn the same), and are instructed to make an offer to their *partners*. In our variant, it is the *partners* who make the dictators' endowment available for the latter to choose how much they would want to keep. We continue to observe a two-peaked distribution, with one peak at the selfish outcome (Rs. 150), and the other at the legal fare(s). We immediately notice that there are a few quotes (those over Rs. 150.00) that correspond to choices out of the instructed set. However, they comprised a miniscule portion of the offers.

FIgure 2: Dictribution of Dictator Price Offers

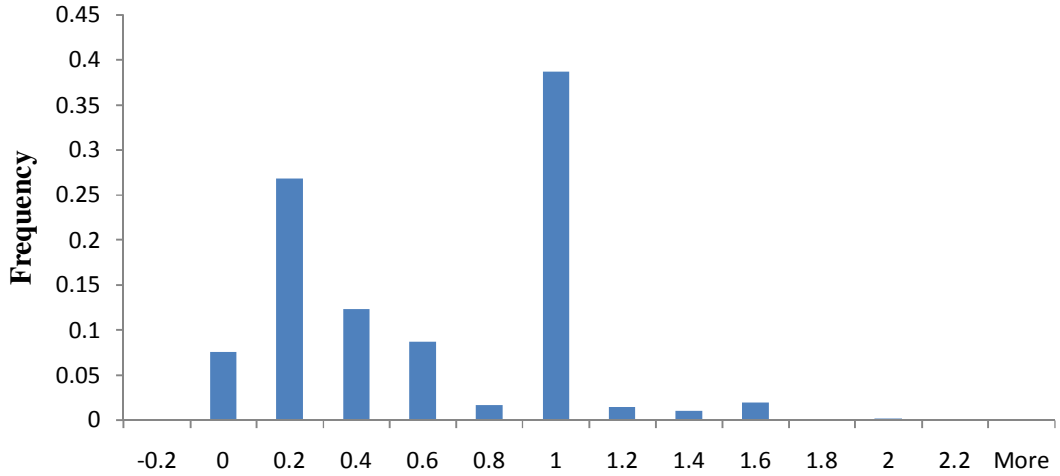


One may argue that the observed result is not completely in line with what has been so far, observed in the literature. We see that over 35% of the auto drivers settle for the entire surplus (Rs. 150.00). This corresponds to giving nothing in the lab dictator game, and is remarkably close to the finding of Engel's (2011) meta analysis (that 36.11% of the subjects give nothing to the recipient).

However, in Figure 2, we also observe a second peak at Rs. 50, the (average) legal fare, which corresponds to giving up the entire surplus in the laboratory dictator game, which according to Engel's (2011) meta study is a rare event. In other words, dictator games have observed two peaks: first is the completely selfish outcome and the second is somewhere between the completely selfish and the completely benevolent (i.e. corresponding to giving up the entire surplus) outcome, although oftenest farther from the former. This is contrary to our findings, since we observe the second peak *at* the completely benevolent outcome. A possible explanation can be found in Banerjee (2015), where it is argued that regulated legal fares in Delhi have always in fact, themselves been fair (and fairness considerations are important).[13] However, since Banerjee's (2015) analysis does not relate to the current legal fare, it will be important to look at the distribution of the 'fraction of surplus' over the *current* legal fare, which is calculated as shown below (Figure 3 shows this distribution).[14,15]

$$\text{Percentage Surplus over Legal Fare} = \frac{\text{Driver's Quote} - \text{Legal Fare}}{\text{Total Surplus}} = \frac{\text{Driver's Quote} - \text{Legal Fare}}{150 - \text{Legal Fare}} \quad (1)$$

Figure 3: Distribution of Relative Surplus Over Legal Fare (%)



[13] Here fairness is conceptualized in the spirit of Rabin (1993).

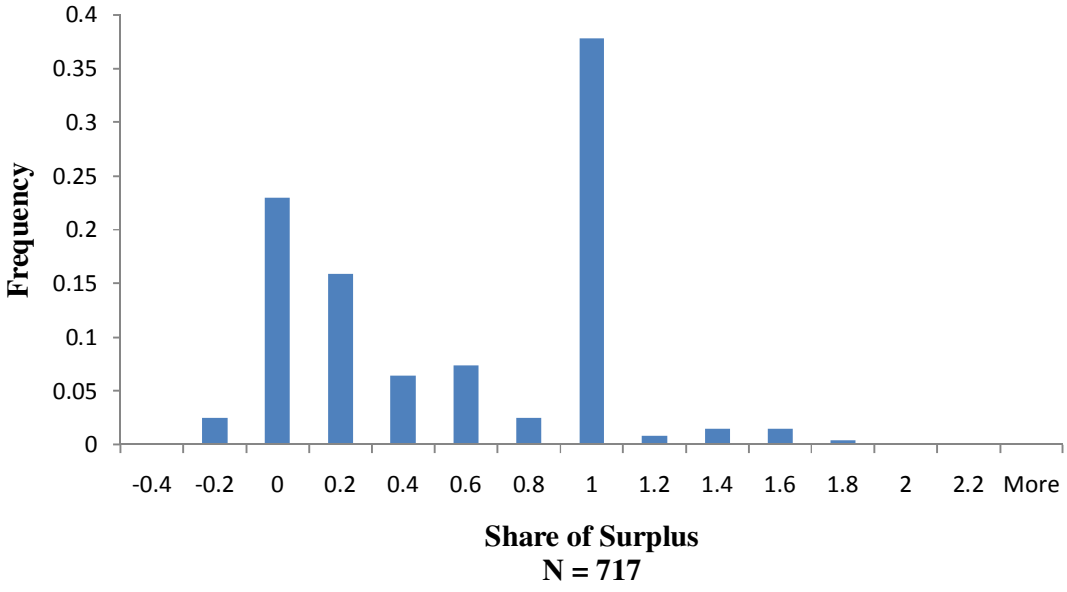
[14] Banerjee (2015) focuses on two of the most recent legal fares that prevailed immediately before this one.

[15] This is slightly different from the distribution displayed in Figure 2 (contrary to intuition), since the legal fares too vary with every observation. Had the legal fares been identical for all observations, then this distribution would have been identical (to Figure 2), since the transformed variable would just be a change of scale (division of surplus) followed by a change of origin (subtraction of the legal fare).

We now see that the second peak is at about 20% of the surplus (over the legal fare). This is consistent with the finding of Mazar et al. (2008) that, given the option to cheat, most people will, but only by a margin. We see that less than 10% of the auto drivers stick with the legal fare, when they have the opportunity to exploit the customer. Clearly, a preference for going by the legal fare (honesty!) does not explain the second peak. From the data on the regular fares in the *Regular-First* treatment, we find that, on an average, they are about 22% higher than the legal fare.[16] This is consistent with the findings of Banerjee (2015), who argues that both customers frequently settle their negotiation at prices about 20% higher than the legal fare with auto drivers without complaining, and the latter are used to it. Thus, the role of social norms must be examined. We thus look at the distribution of the *fraction of surplus over the social norms*, which is calculated as shown below (Figure 4 shows this distribution).[17]

$$\text{Percentage Surplus over Social Norms} = \frac{\text{Driver's Quote} - (1.22 \times \text{Legal Fare})}{150 - (1.22 \times \text{Legal Fare})} \qquad (2)$$

Figure 4: Distribution of Relative Surplus Over Social Norms



We immediately find the second peak at zero, suggesting a stickiness to social norms. Thus, while a substantial proportion of drivers show a preference for the dictatorial outcome, social norms also play a strong role. In the next subsection, we attempt to find which drivers stick to the social norms, and which ones stick to the selfish outcome.

[16] When we multiply the legal fare by 1.18 to 1.30 (i.e. inflate the legal fare by 18% to 30%), the results remain almost identical. We only consider this treatment for our calculation, because these quoted prices are not influenced by immediately preceding dictator game transactions as in the *Dictator-First* treatment. Thus, these prices can be thought of as representative of general market transactions. More on this will be discussed later.

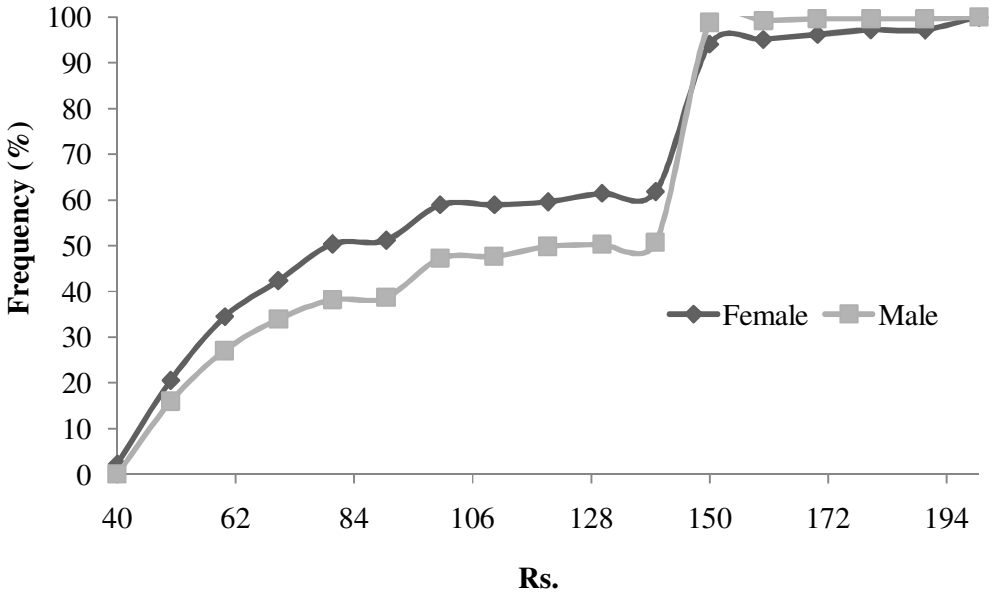
[17] Appendix B shows the distributions of the actual (absolute) deviations of dictator game quotes from both legal fares and social norms.

4.2. Observed determinants of dictator game quotes

Simple t-test shows that (results shown in Table C1 in Appendix C), the nature of treatment has an effect on the dictator game quotes. In the *Dictator-First* treatment, the average amount asked for in the dictator game is Rs. 106.42 which is marginally greater than the average (Rs. 101.20) asked in the *Regular-First Treatment* (p-value of 0.0686 with d.f. 718). We believe that this difference can be attributed to an *image-effect.* In the *Dictator-First Treatment,* the auto driver meets a teenager, who displays a lack of transacting-experience as is made evident in the dialogue, and therefore finds himself caught in the temptation of quoting a high amount. This effect is partially mitigated in the *Regular-First Treatment,* where the driver has settled on a 'regular fare' with a similar teenager in an immediately preceding transaction.

We now turn to gender differences in our dictator game. In Figure 5, we plot the cumulative distributions of dictator game offers made to our male and female actors and notice that, for any given amount less than Rs. 150.00, the proportion of female actors paying less than that amount exceeds that of males. In other words, auto drivers charge our male actors higher than female actors (p-value of 0.0686 with d.f. 718 – results shown in Table C1 in Appendix C).

Figure 5: Cumulative Distribution of Dictator Game Offers By Gender



The Kolmogorov-Smirnov (KS) test for the equality of the two (cumulative) densities above yields a p-value of 0.011, suggesting that the above densities are statistically not identical. Male actors are charged on an average Rs. 109.89 as against female actors who pay on an average Rs. 101.03. For robustness in the above results, we look at the following regression equation.

$$DictatorQuote_i = \alpha_0 + \alpha_1 Male_i + \alpha_2 RegularFirstTreat_i + \boldsymbol{X_i}\boldsymbol{\beta} + u_i \quad (3)$$

$DictatorOuote_i$ above, is the quote made to the actor for the *i*th observation on the dictator game. $Male_i$ is a gender dummy taking the value 1 if the actors for the *i*th observation are males and 0 otherwise. $RegularFirstTreat_i$ is a treatment dummy variable assuming the value 1 for the *Regular-First treatment* and 0 otherwise. $\boldsymbol{X_i}$ summarizes other determinants of dictator game offers (such as distance travelled, the day of the week, places of origin and destination etc.) with the coefficient vector $\boldsymbol{\beta}$. u_i is the unobserved transaction-specific stochastic error term. The linear regression results of the dictator game offers on experiment-type and gender (among other controls) in Table 1 confirm the *image-effect* alongside the preliminary finding that male actors are charged higher than female actors in the dictator-game transactions (see columns 1, 2 and 3). Further, since all auto drivers are males, the t-test results, together with the reported cumulative densities, are consistent with the story as in Sutter (2009) that female commuters are more likely than male commuters to be in an advantageous position when transacting with male drivers. The fact that second wave is significant can be attributed to inflation (see column 2). Variation in distances travelled unsurprisingly affect offers in the dictator game. Finally, the coefficients of all the weekday dummies (see column 3) are insignificant relative to Wednesday (the dummy variable for which is absent in the regression results in order to avoid perfect collinearity).

Table 1: Determinants of Dictator Game Offers

Dependent Variable: Dictator Prices	Full Sample Least Squares (1)	Full Sample Least Squares (2)	Full Sample Least Squares (3)
Gender	7.9291**	9.5339***	9.6265***
(Male = 1)	(3.5852)	(3.5904)	(3.6164)
Regular-First	-6.3785*	-11.1331***	-11.1759***
	(3.5045)	(3.7784)	(3.7638)
Distance	11.8592***	9.2266***	11.3397***
	(3.2605)	(3.3571)	(3.4297)
Second Wave		15.2858***	14.7815***
		(4.7259)	(4.7625)
Sunday			-1.6870
			(5.6980)
Monday			4.5710
			(6.4667)
Tuesday			-11.5336
			(5.9677)
Thursday			-8.3324
			(6.6130)
Friday			-8.7683
			(6.4897)
Saturday			-6.2015

			(5.9411)
Constant	44.6682***	47.1292***	41.4161**
	(16.3557)	(16.4095)	(16.6590)
R-Squared	0.0287	0.0425	0.0540
P Value for Joint Significance	0.0002	0.0000	0.0000
N	717	717	717

Notes: [a.] ***, **, * mark out coefficients that are significant at 1, 5 and 10 percent levels of significance respectively. The regression results remain unchanged with the inclusion of location dummies.
[b.] Robust standard errors reported in parentheses

4.3. Intrinsic determinants of dictator game quotes

In the previous subsection we just looked at the effects of the experiment-type on dictator game offers. In this subsection, we look at the effects of the actual realizations made in the different treatments. Specifically, we ask if it is possible to predict one's dictator game offer based on his regular behavior, or conversely. In order to address the first question, we just look at dictator game offers in the *Regular-First Treatment*. We look at the following regression equation (Table 2 presents the results).

$$DictatorQuote_i = \alpha_0 + \alpha_1 Male_i + \alpha_2 RegularQuote_i + \boldsymbol{X_i}\,\boldsymbol{\beta} + u_i \qquad (4)$$

$DictatorOuote_i$ above, is the quote made to the actor in the *i*th observation on the dictator game in the *Regular-First Treatment*. $Male_i$ is a gender dummy defined as before. $RegularQuote_i$ is the actual quote made by the auto driver to the actor of the *i*th observation. $\boldsymbol{X_i}$ summarizes other determinants of dictator game offers (such as distance travelled, the day of the week, places of origin and destination etc.) with the coefficient vector $\boldsymbol{\beta}$. u_i is the unobserved transaction-specific stochastic error term.

Table 2: Dictator Game Offers in the *Regular-First Treatment*

Dependent Variable: Dictator Prices	Sample: *Regular-First* Least Squares (1)	Sample: *Regular-First* Least Squares (2)	Sample: *Regular-First* Least Squares (3)
Regular Offer	0.4593***	0.4415**	0.4378**
	(0.1766)	(0.1834)	(0.1808)
Distance	12.5058***	12.5590***	15.5052***
	(4.8503)	(4.8671)	(5.0363)
Gender (Male = 1)		15.1060***	16.0334***
		(5.8149)	(5.7530)
Sunday			6.4293
			(8.5941)

Monday			21.7770
			(9.9382)
Tuesday			-6.9274
			(9.2804)
Thursday			-2.5750
			(10.1478)
Friday			7.9551
			(10.6340)
Saturday			-0.1286
			(9.2821)
Constant	7.6691	4.1687	-13.7620
	(25.3652)	(25.5457)	(25.7652)
R-Squared	0.0607	0.0834	0.1135
P Value for Joint Significance	0.0002	0.0001	0.0002
N	283	283	283

Notes: [a.] ***, **, * mark out coefficients that are significant at 1, 5 and 10 percent levels of significance respectively. The regression results remain unchanged with the inclusion of location dummies.
[b.] Robust standard errors reported in parentheses.

We could not have used the prices quoted in the regular transactions of the *Dictator-First* treatment as explanatory variables in the full sample regressions of Table 1, since they themselves followed (and were hence potentially determined by) the dictator game. The regressions shown in Table 2 are free from this problem: we see that regular prices are strong determinants of dictator game quotes. This suggests that how an auto driver behaves in a dictator game can be predicted by how he behaves in a regular transaction. The positive coefficient in fact, confirms that those drivers who tend to overcharge their customers in general, would not spare a chance to grab a huge chunk of the surplus in dictator games. We now focus on the sample of dictator game offers in the *Dictator-First* treatment, to show that the converse is also true using the following regression equation (Table 3 reports these regression results).

$$RegularQuote_i = \alpha_0 + \alpha_1 Male_i + \alpha_2 DictatorQuote_i + \boldsymbol{X_i}\boldsymbol{\beta} + u_i \quad (5)$$

$RegularQuote_i$ is the actual quote made by the auto driver to the actor of the ith observation. $DictatorOuote_i$ above, is the quote made to the actor in the ith observation on the dictator game in the *Dictator-First Treatment.* $Male_i$ is a gender dummy defined as before. $\boldsymbol{X_i}$ summarizes other determinants of dictator game offers (such as distance travelled, the day of the week, places of origin and destination etc.) with the coefficient vector $\boldsymbol{\beta}$. u_i is the unobserved transaction-specific stochastic error term.

We see that dictator game quotes predict regular fares well. In other words, an auto driver's regular transactional habits can be predicted remarkably well by the quotes he makes in the dictator games. Our interpretation of these results is that the drivers who take advantage of

the customer in the dictator games are *intrinsically opportunistic*, and therefore, do not shy away from regularly overcharging their customers on their daily transactions. That we can learn about actual market behavior from dictator game offers actually hints on the usefulness of dictator games. Our results are not consistent with the *statistical discrimination hypothesis* as in Castillo et al (2013), since, in regular transactions, drivers do not charge male passengers any more than female passengers.[18]

Table 3: Dictator Game Offers in the *Dictator-First Treatment*

Dependent Variable: 'Regular' Prices	Sample: *Dictator-First* Least Squares (1)	Sample: *Dictator-First* Least Squares (2)	Sample: *Dictator-First* Least Squares (3)
Dictator Game Offer	0.1655***	0.1649***	0.1617***
	(0.0212)	(0 .0213)	(0.0214)
Distance	6.2020***	6.2466***	6.3262***
	(1.9808)	(1.9972)	(1.9948)
Gender (Male = 1)		1.7276	1.8050
		(1.9158)	(1.9336)
Sunday			-0.7443
			(3.2323)
Monday			0.5520
			(3.8092)
Tuesday			-6.1650
			(3.1645)
Thursday			3.4258
			(3.8222)
Friday			-3.0144
			(3.4055)
Saturday			-0.9359
			(3.4545)
Constant	20.3336**	19.5792*	20.5863*
	(10.1865)	(10.3329)	(10.6623)
R-Squared	0.1687	0.1703	0.1868
P Value for Joint Significance	0.0000	0.0000	0.0000
N	431	431	431

Notes: [a.] ***, **, * mark out coefficients that are significant at 1, 5 and 10 percent levels of significance respectively. The regression results remain unchanged with the inclusion of location dummies.

[18] The descriptive details of the quotes made in the 'regular transactions' for each treatment are deferred to Appendix B.

[b.] Robust standard errors reported in parentheses.

5. Conclusion

We have shown that dictator games are remarkably good predictors of market behavior and that market behavior do in turn determine dictator game offers. Both the stories can be put together in the following conclusion: that those who stick to the selfish dictator game outcome are *intrinsically opportunistic* and are consequently expected to capitalize on every opportunity to overcharge customers in a market (and conversely). With other intrinsic characteristics, such as *altruistic* and *warm glow* considerations of the subjects, the evidence on dictator game giving is mixed. For example, while in DellaVigna et al (2012) and Eckel and Grossman (1996), argue that altruism (or warm-glow) is a motivating factor in situations akin to dictator game giving (say, a charity), Winking and Mizer (2013) suggest otherwise. It seems to us that the effect of unobserved intrinsic factors such as warm-glow or altruism are often context-specific (Conlin et al, 2003), although immune to (laboratory) framing effects (Dreber et al, 2012).

The question of external validity crops up given the reasons why artificial laboratory experiments may affect human behavior (Levitt and List, 2007), although a strong association between the laboratory and real-world behavior in the context of dictator games is reported in Franzen and Pointner (2012).[19] In our study, we focus on the role of intrinsic subject-specific factors to conclude that opportunists are opportunists everywhere.

[19] Additionally see Hill and Gurven (2010).

Appendix A: Origin and Destination Places

Figure A1: The choice of locations

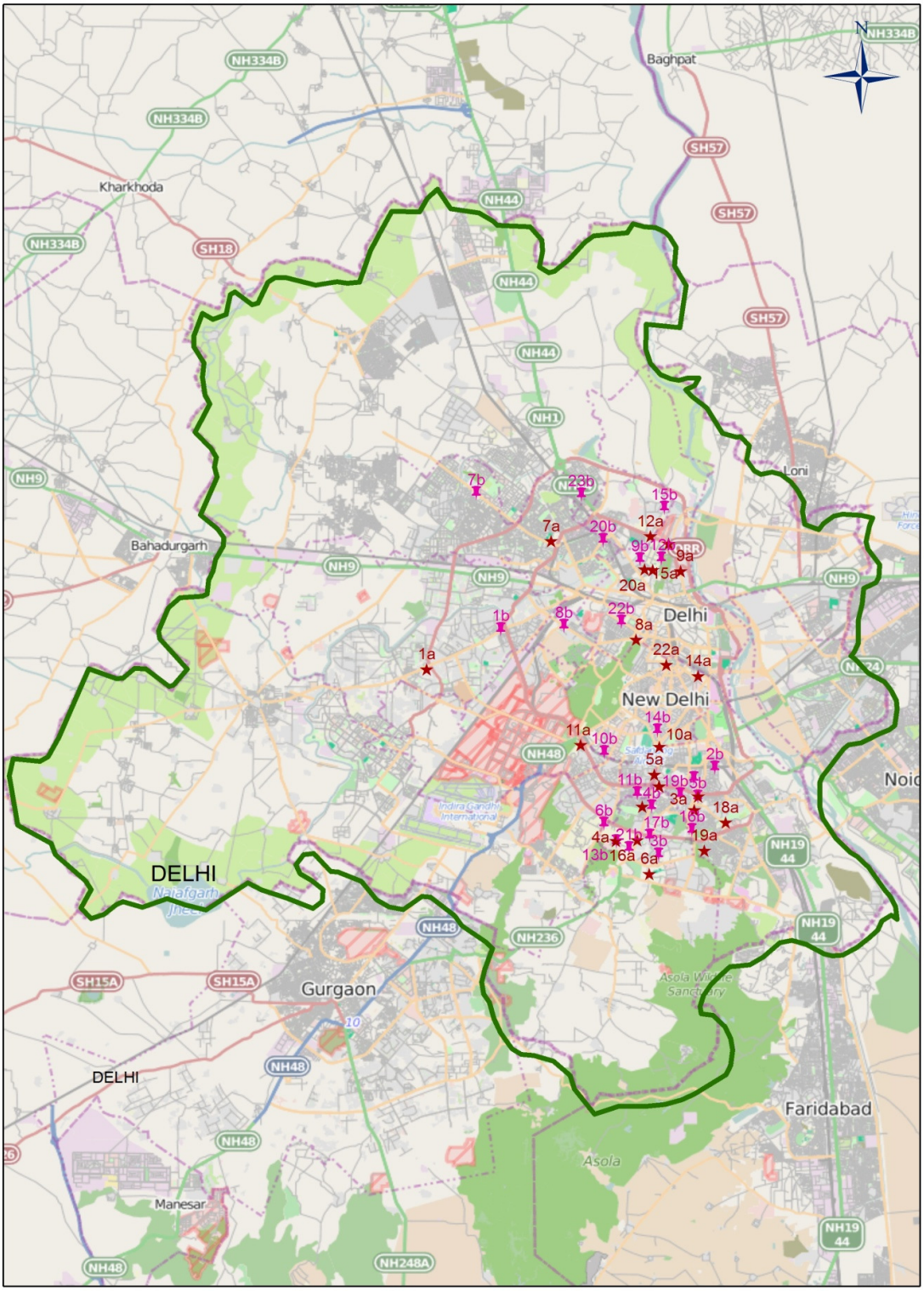


Table A1: List of places of origin and destination

Sl. No.	Origin	Destination	Legal Fare (Rs.)	Distance (Kilometers)
1.	INA Metro Station	Moolchand Metro Station	48.20	4.9
2.	Janak Puri Metro Station	Rajori Garden Metro Station	46.60	4.7
3.	Lajpat Nagar Bus Stop	AIIMS Bus Stop	51.40	5.3
4.	N Block Market (GK I)	Malvia Nagar Market	49.80	5.1
5.	Katwaria Sarai	Yousuf Sarai	49.80	5.1
6.	Ber Sarai	PVR Anupam	51.40	5.3
7.	NSP	Rithala	61.00	6.5
8.	Jhandewalan Metro Station	Shadipur Metro Station	47.40	4.8
9.	IP	Roop Nagar	45.80	4.6
10.	Venkateshwara	Safdarjung Enclave	61.80	6.6
11.	Safdarjung Tomb (Tourist Spot)	Railway Museum (Tourist Spot)	52.20	5.4
12.	GTB Nagar	St. Stephen's	49.00	5.0
13.	Green Park	Katwaria Sarai	44.20	4.4
14.	Race Course	Mandi House	49.00	5.0
15.	Kamla Nagar	Batra Cinema	47.40	4.8
16.	Mother's International School	GK II (Apeejay Education Society)	51.40	5.3
17.	Moolchand Metro Station	Hauz Khas Metro Station	43.40	4.3
18.	Nehru Place	Defence Colony Market	52.20	5.4
19.	Kohinoor (GK II)	Ansal Plaza	54.60	5.7
20.	Hans Raj College	Satyawati College	45.00	4.5
21.	Adhchini Crossing	AIIMS Crossing	44.20	4.4
22.	Connaught Place	Karol Bagh	43.40	4.3
23.	Vishwavidalaya Metro Station	Adarsh Nagar Metro Station	57.00	6.0

Notes: [a.] These locations were shortlisted using Google Maps. The exact spots at these locations were chosen so that the coordination between the actors at A and B was convenient enough to ensure that the auto drivers were not 'lost' to another customer. To avoid suspicion (by coordinating over the phone while driven by, and in the presence of an auto driver), these exact spots were surveyed and chosen beforehand to ease coordination. For instance, A would ensure that he (she) stopped the auto close enough to where B was standing, and yet sufficiently far enough from any other customer to maximize the chances that B (and not any other customer) would hire the auto next. The distances reported above, therefore, are slightly different from those that Google Maps would produce (specifically within a deviation/difference of half a kilometer).

Appendix B.

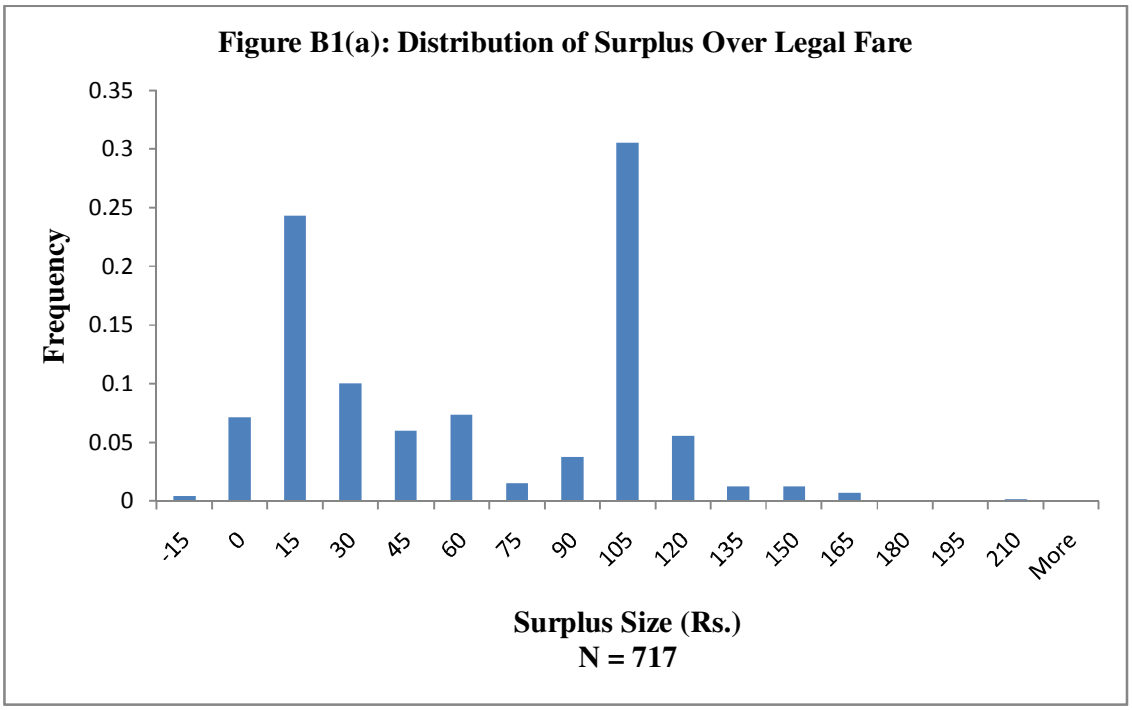


Figure B1(a): Distribution of Surplus Over Legal Fare
Frequency
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-15
0
15
30
45
60
75
90
105
120
135
150
165
180
195
210
More
Surplus Size (Rs.)
N = 717

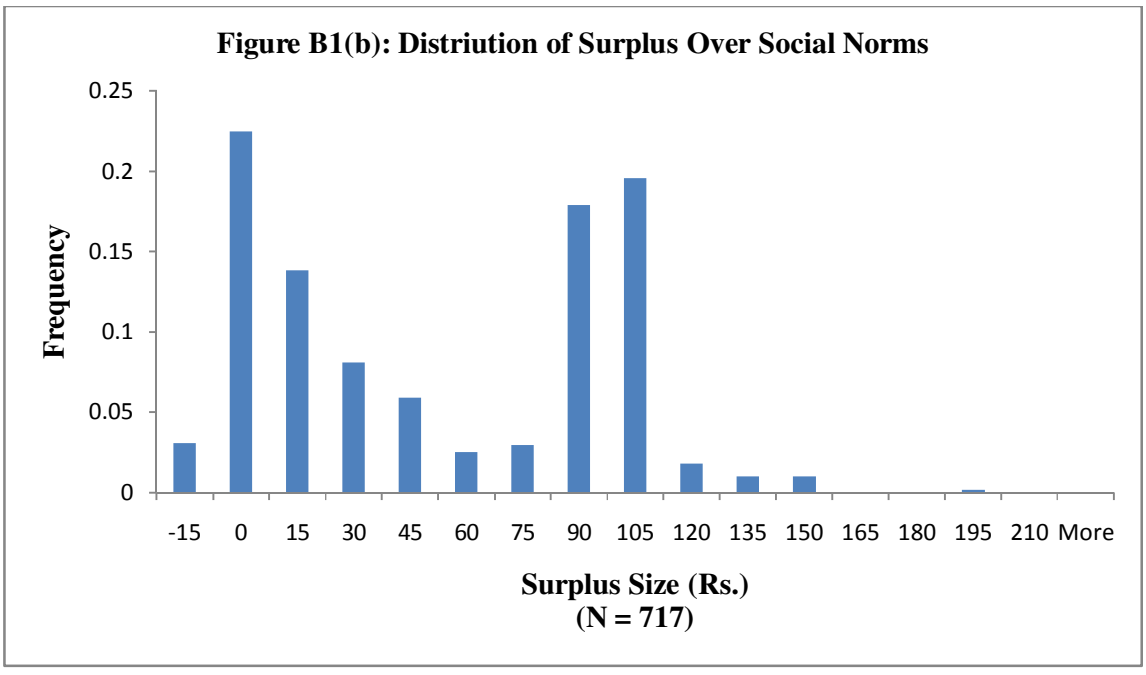


Figure B1(b): Distriution of Surplus Over Social Norms
Frequency
0.25
0.2
0.15
0.1
0.05
0
-15
0
15
30
45
60
75
90
105
120
135
150
165
180
195
210
More
Surplus Size (Rs.)
(N = 717)

Figure B2(a): Distribution of Dictator Price Offers in the *Dictator-First* Treatment

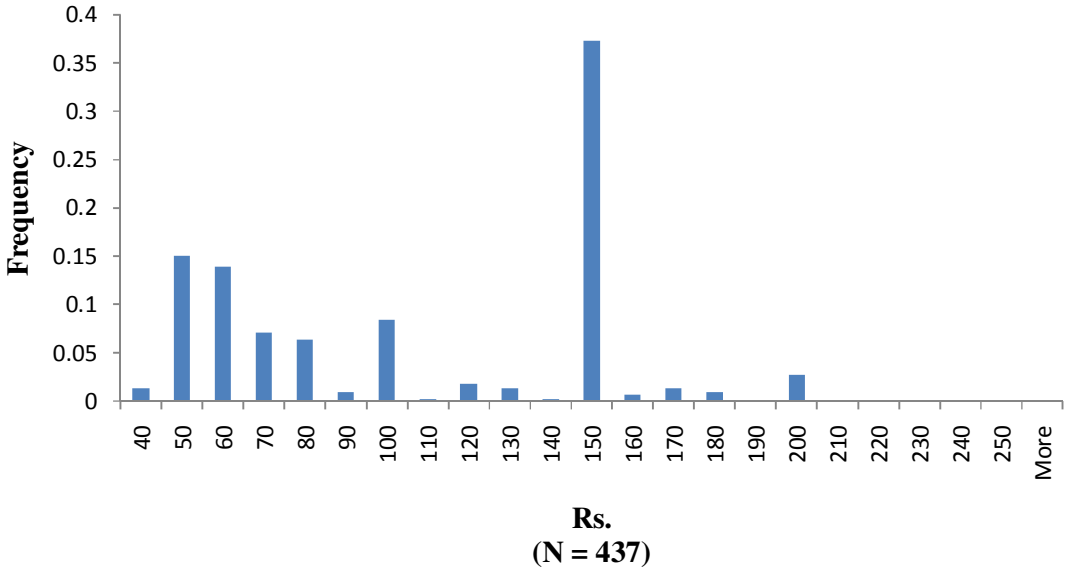
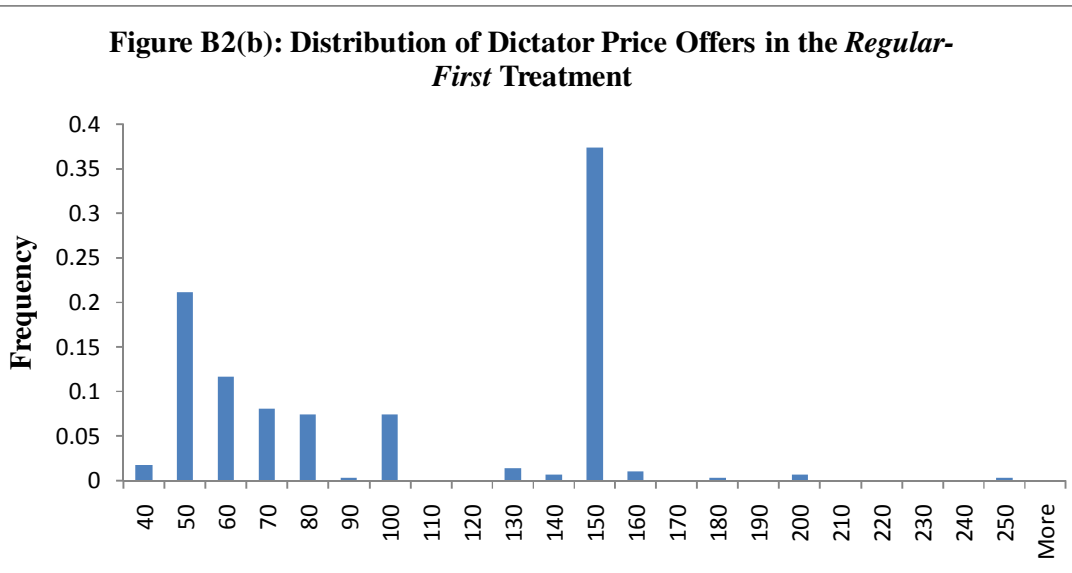
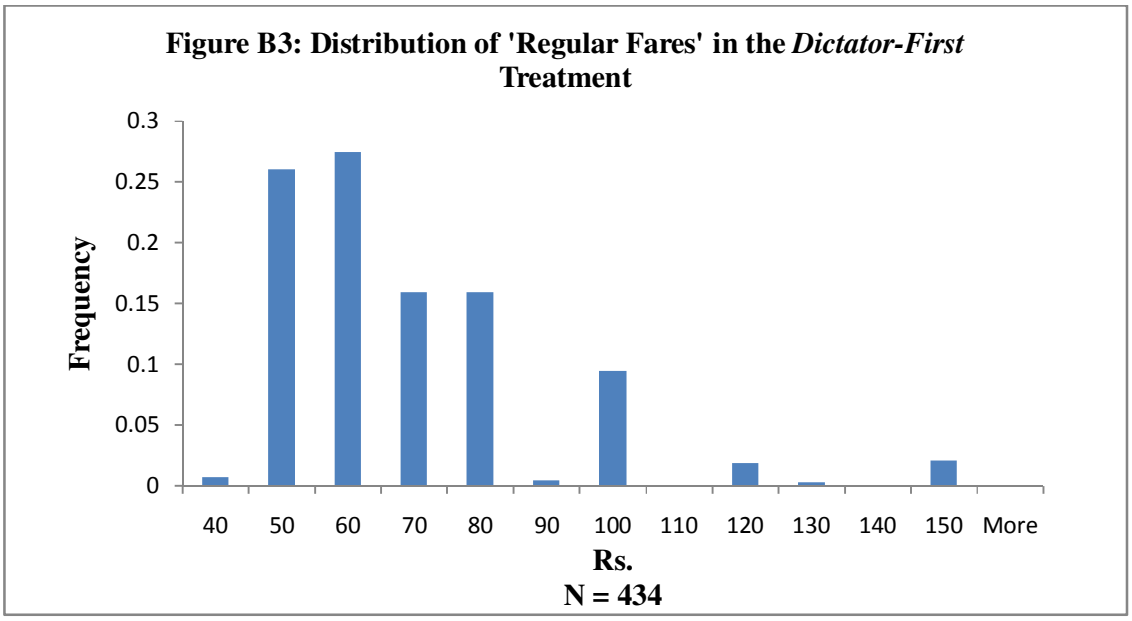
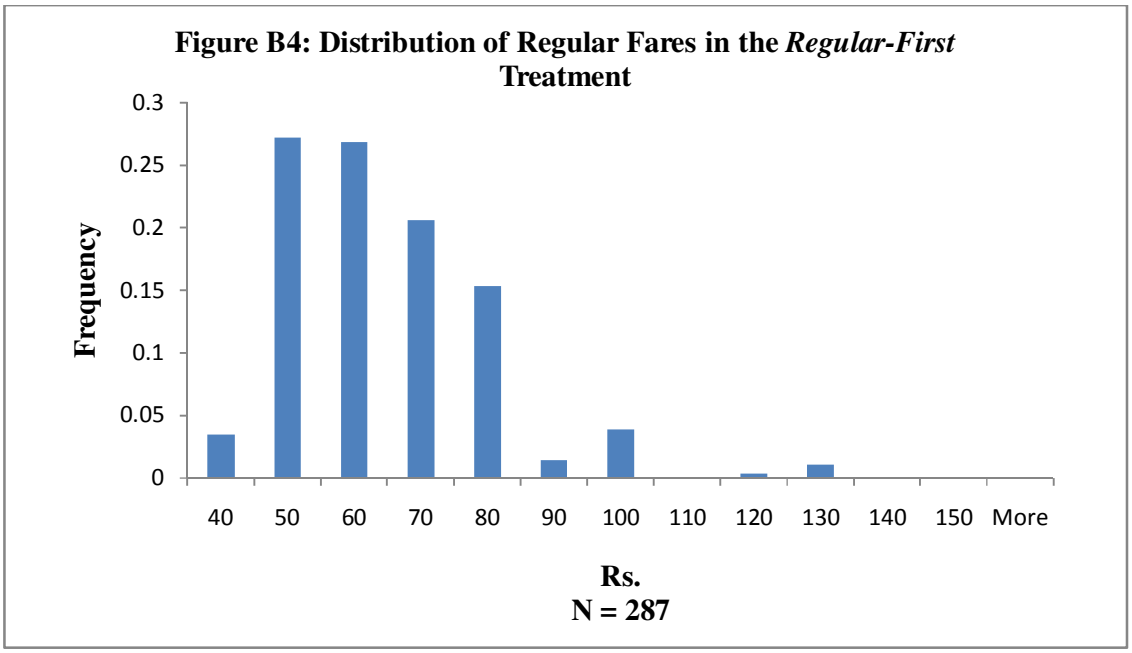


Figure B2(b): Distribution of Dictator Price Offers in the *Regular-First* Treatment



The Kolmogorov-Smirnov (KS) test for the equality of the above distribution functions (i.e. the distribution of dictator game quotes in the *Dictator-First* treatment against that in the *Regular-First* treatment) gives a p-value of 0.427, suggesting that the above distributions are statistically identical to each other (and hence to the combined distribution shown in Figure 2).





The Kolmogorov-Smirnov (KS) test for the equality of the above distribution functions (i.e. the distribution of regular fares in the *Dictator-First* treatment against that in the *Regular-First* treatment) gives a p-value of 0.154, suggesting that the above distributions are statistically identical to each other (and hence to the combined distribution which is shown below in Figure B5).

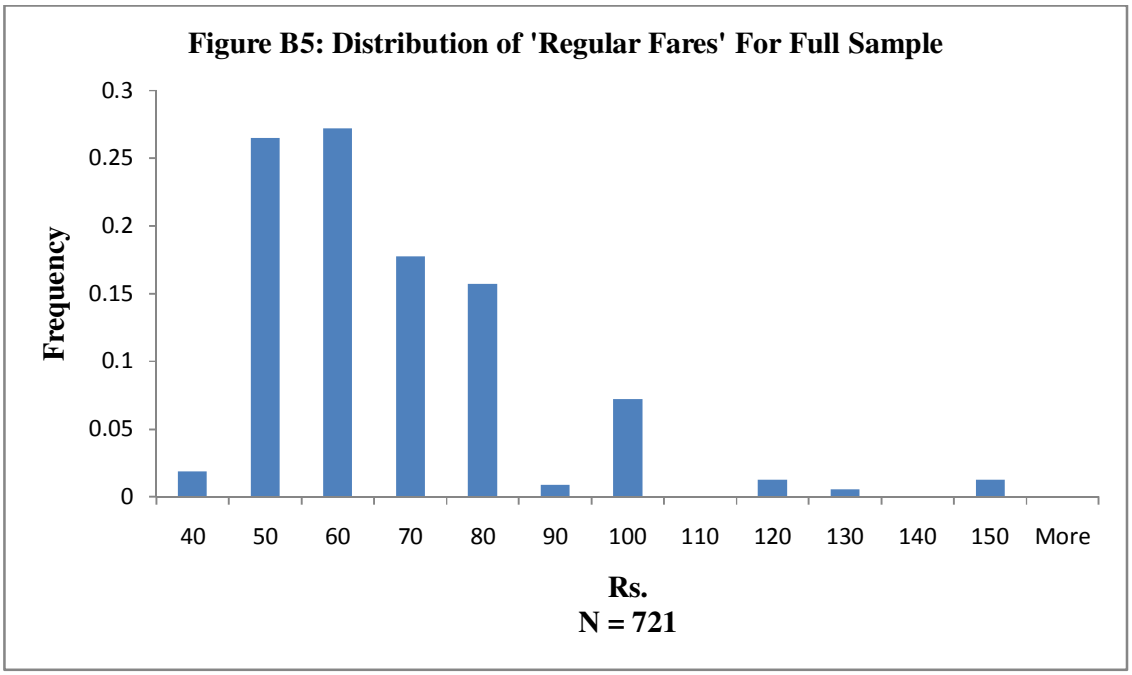


Figure B6: Dictator game offers can be predicted by regular transactions

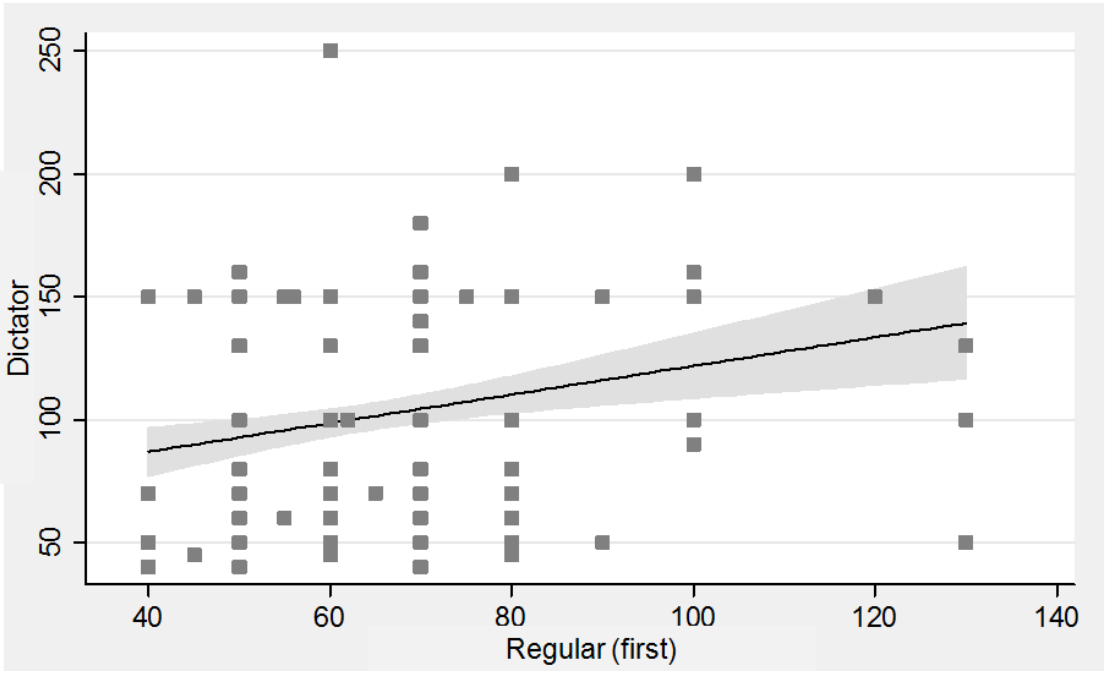


Figure B7: Regular transactions can be predicted by dictator game offers

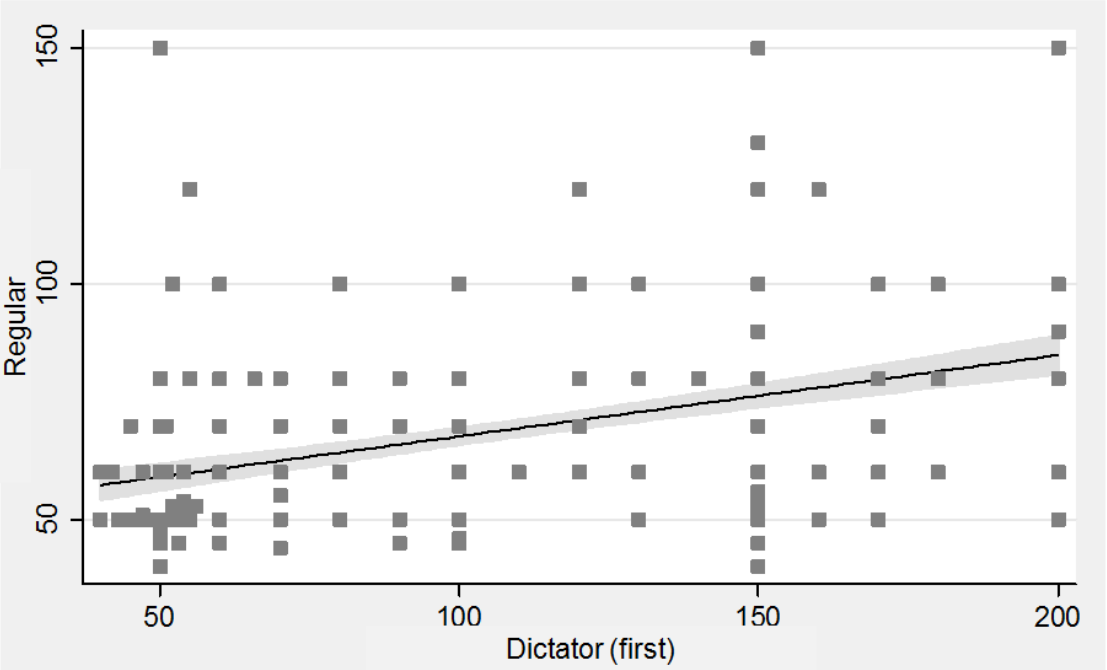


Figure B8(a): Online Complaint Forum

Source: https://delhitrafficpolice.nic.in/complaint-against-tsr/

Figure B8(b): Online complaint forum (Image magnified)

Source: https://delhitrafficpolice.nic.in/complaint-against-tsr/

Appendix C

Table C1: T-test of Dictator Game Prices by Experiment Type and Gender

Experiment Type	Dictator Game N (1)	Dictator Game Mean (2)	Gender Type	Dictator Game N (3)	Dictator Game Mean (4)
Dictator-First (DF) Treatment	437	106.4229 (2.2091)	*Male*	233	109.8927 (2.8689)
Regular-First (RF) Treatment	283	101.2085 (2.7052)	*Female*	487	101.7326 (2.1194)
Combined	720	104.3733 (1.7127)		720	104.3733 (1.7127)
Difference		5.2144 (3.5035)			8.1601 (3.6506)
P Value against *DF > RF*; *M>F*		0.0686			0.0129
T Statistic (d. f.)		1.4883 (718)			2.2352 (718)

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