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**Entrepreneurship in Micro and Small Enterprises
—Empirical Findings from Resurveys in Northeastern Areas of
Delhi, India—**

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Entrepreneurship in Micro and Small Enterprises
—Empirical Findings from Resurveys in Northeastern Areas of Delhi, India—

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Abstract

To deepen our understanding of the urban informal sector and small enterprises in developing countries, we surveyed micro and small entrepreneurs in northeastern areas of Delhi, India. The baseline survey was conducted in November–December 2014, covering 506 sample entrepreneurs in both manufacturing and service sectors. Between June and August 2017, the endline survey was conducted to collect panel information on firm performance. As the demonetization policy in November 2016, in which high value banknotes were demonetized overnight, affected small and micro enterprises, specific questions on its impact were added in the endline survey. Between the two surveys, artefactual field experiments were also applied to the subsample to collect information on social, risk, and time preferences. In this paper, we present details of the resurveys implemented under this project and describe the key variables collected. Among 226 entrepreneurs who participated in the artefactual field experiments, many showed their tendency for present bias and high discount rates. On average, the participant entrepreneurs behaved in an altruistic manner, took substantial risk, and reduced their risk-taking when they were assigned the role of the leader. Out of 287 entrepreneurs who participated in the endline survey, 50% were unregistered with the government, implying that they were highly informal. During the period between baseline and endline surveys, innovations to expand the business were not very active, either. The majority of sample entrepreneurs were affected at least temporarily by the demonetization in 2016.

JEL Classification: O17, O14, L26

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1. Introduction

Considering the critical importance of micro, small, and medium enterprises (MSMEs) in economic growth and poverty reduction in developing countries in general, and the lack of grass-root evidence on microeconomics of micro firms in India, we conducted a survey of micro and small enterprises in northeastern areas of Delhi, India (Kurosaki et al. 2015). The questionnaire-based survey was implemented during November–December 2014, in which 506 entrepreneurs who ran enterprises in the manufacturing or service sector were surveyed. The sample was drawn from a business directory and they fell in the category of micro or small enterprises as defined in the MSME Development Act of 2006 (MSMED Act).

In the baseline dataset, out of 506 sample entrepreneurs, 97% businesses were owned by single individuals, and 46% were not registered with the government. The majority of them were established during the period between 1994 and 2005, and they hired very few employees (its median was four). To finance the initial investment, most of the entrepreneurs combined their own savings with informal credit. Formal credit from banks and government agencies was available only to approximately one-third of our sample firms. Looking at the period from their establishment to the time of the baseline survey, sample firms engaged in innovation despite difficult environments, especially in the domains of product, process, and marketing.¹ With intense competition from large domestic firms and Chinese products in the Indian market, firms are compelled to engage in some kind of innovation just to survive in the market. In addition to the standard list of questions in the baseline survey, we included trust questions in the General Social Survey (GSS) style. The level of trust in relatives and friends, neighbors, and business buyers/sellers was found to be significantly higher than the level of trust in government officials, the police, and law officers. Overall, finance and physical infrastructure were emerging as major bottlenecks for these micro and small enterprises, preventing them from growing further. Lack of skills and technology was also constraining these firms.

After the baseline survey, we conducted several resurveys of these micro and small firms. We first collected parameters characterizing entrepreneurs' risk, time, and social preferences through behavioral economics methods. Out of the 506 baseline sample entrepreneurs, 226 participated in the behavioral economics games. We then conducted an endline survey between June and August 2017 to collect panel information on firm performances. Out of the 506 baseline sample entrepreneurs, 287 participated in the endline survey. As the demonetization of high value banknotes in November 2016 affected small and

¹These are mostly low-cost types of innovation, which can be called “Jugaad” (see for example, Radjou et al. 2012).

micro firms,² we added a module on the impact of Demonetisation³ in the endline survey.

The performance of MSMEs in India is published every year by the concerned ministry and nation-wide survey results are available from All India Census of MSMEs, National Sample Survey (NSS), the World Bank Investment Climate Survey, and so on. However, detailed micro information on innovation, dynamics, and entrepreneurship with behavioral foundation is lacking. As a result, existing studies on Indian MSMEs are mostly cross-sectional analyses of enterprises, focusing on the manufacturing sector (Kathuria et al. 2010, 2012; Sato 2008; Iyer et al. 2013; Deshpande and Sharma 2013; Nikaido et al. 2015; Sasidharan and Raj 2014; Sharma 2014). In sharp contrast, our dataset is a panel of two periods with detailed information on innovation, dynamics, and entrepreneurs' preferences, covering various sectors, including services and different levels of formality. By describing this dataset, we hope to deepen our understanding of small enterprises in India. We also hope to shed light on the role of the informal sector in the economic development of developing economies (La Porta and Shleifer 2014).

The remainder of the paper is organized as follows. Section 2 explains institutional backgrounds and the design of surveys starting with the baseline. Section 3 describes the artefactual field experiments conducted between the baseline and endline surveys and discusses key variables in the dataset. Section 4 describes the endline survey and discusses key variables in the dataset. Section 5 concludes the paper.

2. Data and Backgrounds

2.1 Institutional Backgrounds

The MSME sector in India consists of enterprises engaged in the production of goods pertaining to any industry specified in the first schedule of the Industry Development and Regulation Act of 1951, and other enterprises engaged in the production of goods and rendering of services, subject to the limiting factor of investment in plant and machinery or equipment, as noted below. MSMEs are defined by the MSMED Act, based solely on their investment in plant and machinery for manufacturing enterprises, and on equipment for enterprises providing or rendering services.⁴ For manufacturing enterprises, a micro firm is that in which the investment in plant and machinery does not exceed INR 2.5 million, a small

²See for example, Dreze et al. (2016), Reddy (2017), and Ghosh et al. (2017).

³In this paper, the historical event of the Indian demonetization in November 2016 is denoted "Demonetisation" with capitalization, without the definite article, and in British spelling. To refer to similar events in general, the term "demonetization" is used without capitalization and in American spelling.

⁴The Gazette of India, Extraordinary, Para II, Section 3, Sub-section (ii), New Delhi, September 30, 2006, Government of India.

firm is where the investment in plant and machinery does not exceed INR 50 million, and a medium enterprise is where the investment in plant and machinery does not exceed INR 100 million. In case of services, a micro enterprise involves investment in equipment that does not exceed INR 1 million; a small enterprise where the investment does not exceed INR 20 million and a medium enterprise where the investment in equipment does not exceed INR 50 million.

Under the MSMED Act, MSMEs are encouraged to register under MSMED implementing agencies. Registered firms become eligible for availing various types of MSME promotion policies, such as indirect tax exemption, ISO support, government credit, and government procurement. Incentive measures lean more toward manufacturing, than toward services. In addition to these direct benefits, firms registered under the MSMED Act can expect indirect gains in credit access from private financial institutions. The Fourth All India Census of MSMEs, which collected information on MSMEs during 2006-07, covered all firms registered under the MSMED Act on a census basis, and conducted random sampling surveys of unregistered MSMEs.

If a firm belongs to the manufacturing sector, it is under restrictions imposed by the Factories Act of 1948. Under the Factories Act, manufacturing firms employing 10 or more workers (using power) or 20 or more workers (without using power) are required to register. Once registered under the Factories Act, firms are subject to labor and environment regulations. Manufacturing firms registered under the Factories Act are thus more formal than others. Registered factories comprise the so-called “Organised Manufacturing Sector.” Service firms in India are also classified similarly, depending on whether the firm is registered under the Companies Act of 2013, or not. Unlike the case of manufacturing firms, registration is not required for those firms employing workers above the given threshold. Thus, registration is voluntary.

Both manufacturing and service firms whose capital investment is below stipulated limits and factories employing fewer than the threshold number of workers as defined by the Factories Act of 1948 can register under the MSMED Act. Many micro and small firms that are not registered under the Factories Act or Companies Act are registered under the MSMED Act.

Furthermore, Goods and Services Tax (GST) was introduced in July 2017, which unified the myriad indirect taxes prevalent in India. As GST payments were made mostly through the internet, enterprises were required to register for GST payments online. MSMEs were also under this net, although micro enterprises and purely self-employed businesses were allowed to opt for simplified procedures in GST payments, or, they could go without paying GST. The GST Council, in its 13th meeting, decided to exempt small businesses from GST, with the threshold limit of annual turnover at INR 2 million (INR 1 million for special category

states).⁵

2.2 Design of Surveys

To collect unique information on MSMEs that is not available in government records, we designed the baseline survey to investigate (1) the characteristics of the enterprise such as investments made, operational details, financing, output, cost, profit/loss, etc., (2) the history of the enterprise, (3) the social, educational, and economic backgrounds of the enterprise head and the family including their migration status, (4) the infrastructural facilities and bottlenecks, including those relating to training and skills development, (5) the opinions of the entrepreneurs regarding public policies, and (6) the level of general or directed trust elicited from GSS-style trust questions.

The survey was conducted in northeastern areas of Delhi, centered round Shahdara. Until 2014, most areas where our sample enterprises were located belonged to the Northeast Delhi District. In 2014, the district was divided into the (new) Northeast Delhi District and the Shahdara District. Furthermore, after the sampling and the survey, several sample enterprises were found operating in the East Delhi District, bordering the Northeast and Shahdara Districts. For this reason, we call the location of our sample entrepreneurs/firms as “northeastern areas of Delhi.”

The survey was conducted by the Centre of Economic and Social Research (CESR). In the past, CESR has conducted informal sector surveys of waste pickers (Hayami et al. 2006) and cycle rickshaws (Kurosaki et al. 2007) in the same area. Due to this advantage, CESR was able to access micro and small entrepreneurs, which otherwise tend to be highly skeptical toward outsiders.

As there is no official list of unregistered firms, we designed our sampling in consultation with methodologies adopted by NSS’ unorganised sector surveys. First, we obtained a copy of the *Shahdara Industrial Directory* prepared by the Jhilmil Industrialists Association. With the cooperation of the association’s president, we randomly selected firms listed in the directory (2013 version) and conducted a questionnaire-based survey of 506 firms out of approximately 1,000 firms in November–December 2014. The directory contains firms located in the Jhilmil Industrial Area and surrounding areas. The sampled firms are spread over ten locations (clusters), with the Jhilmil Industrial Area being the largest. To obtain the representative sample, enterprises were surveyed in every industrial location proportionate to the number of firms in each location. The directory contains both manufacturing and service

⁵Source: <http://gstcouncil.gov.in/sites/default/files/gst-knowledge/PPT-on-GSTason01052017.pdf>.

sector firms, but does not include self-employed businesses without fixed offices/stores/workshops, or grocers or constructors or restaurants. In the sampling, firms whose investment levels were over the threshold for small enterprises under the MSMED Act were excluded.

The median number of employees among the 506 sample firms was 4. About two-thirds operated in manufacturing and one-third in services, both including various industries (see Subsections 3.2 and 4.2 for more details). Although the Jhilmil Industrial Area is characterized by copper and plastic industries, there are other industries as well, resulting in a diverse industrial composition in our sample.

After the baseline survey, we first collected parameters characterizing entrepreneurs' risk, time, and social preferences through behavioral economics methods. The session for this purpose was named "Business Management Diagnostic Test" (BMDT) and its details are given in Section 3. The first round of BMDT sessions targeted all the baseline entrepreneurs. It was conducted between March and September 2015 and 118 out of the 506 entrepreneurs participated in it.

Targeting those baseline entrepreneurs who did not participate in the first round, the second round of BMDT sessions was conducted between March and April 2016. Out of the 388 remaining baseline entrepreneurs, 108 participated in the second BMDT round. In the second round, business training was also provided at the end of the session, in which participants learned about the importance of setting business goals. The training was a simplified version of ILO training manuals and took about 20-30 minutes. Participants in the second BMDT round were randomly treated with reminders of the training. The design and impact of this randomized controlled trial (RCT) will be discussed in a different paper.

<Insert Table 1 >

Next, we conducted an endline survey between June and August 2017 to collect panel information on firm performances, targeting all the baseline entrepreneurs (see Section 4 for details). Since Demonetisation affected small and micro firms adversely, as reported by Dreze et al. (2016) for example, we added a special section on its impact in the endline survey. Out of the 506 baseline entrepreneurs, 287 participated in the endline survey. The distribution of our sample across these surveys is summarized in Table 1.

3. Artefactual Field Experiments

3.1 BMDT Sessions

We invited the baseline entrepreneurs to take part in the BMDT sessions, in which

participants were asked to respond to 35 behavioral games and two opinion surveys. The purpose of the behavioral games was to measure social, risk, and time preferences of the entrepreneurs. As our subjects were actual economic agents and the type of experiments was standardized and abstract, our experiments belong to the category of artefactual field experiments according to Levitt and List (2009). In the invitation letter, we told participants that they would receive Rs. 1,000⁶ as a fee for showing up, an additional bonus depending on their choices, a diagnostic note of their responses in comparison to other participants, and an opportunity to make friends with other participants after the session during the tea break. All participants were given the same set of games, in the same order. We conducted the sessions in public spaces, such as schools, and the number of participants ranged from 6 to 39 in each session. The whole session took 1.5 to 2 hours.

In each of the 35 behavioral games, Rs. 4,000 was the endowment to the participant, and there were five choices. To incentivize participants to take all the games seriously, we designed the bonus payment using the strategy method. In the beginning, participants were told that at the end of the session, 1 of the 35 games would be chosen for the bonus payment for all participants in the session. All participants would then throw a dice and if the result was 1, they would receive the bonus payment according to their choice, in that game. This implied that the expected value of the bonus payment was Rs. 667. The maximum bonus was Rs. 10,000, which would occur if the bonus game chosen was the individual risk game with the multiplier of 2.5, if the participant of dice-number 1 had decided to put all of Rs. 4,000 in the risky bet, and, if he won the coin toss. This did indeed occur in one case out of 226, in our experiment.

Each of the behavioral games is explained below. The number in brackets “[#]” denotes the order in which the games were placed, from which we asked participants to select one out of five. To simplify the text, we use the pronoun “him” to denote a participant, (although we had a few female participants), and “her” to denote the counterpart.

(1) Dictator games

The first five games were dictator games, aiming to measure altruism toward others. We set the following four hypothetical types of counterparts: [1] a randomly selected person in India; [2] a randomly selected person from each entrepreneur’s residential area; [3] a randomly selected person with whom they trade in their business as a buyer or a seller; and [4] a randomly selected person from among the entrepreneur’s relatives and friends. In each game,

⁶One Indian Rupee was equivalent to 13 to 15 cents of US Dollar, with some fluctuations depending on exchange-rate fluctuations. The amount of Rs. 1,000 was approximately equivalent to 2 days of unskilled male wage in Delhi.

an entrepreneur was given the endowment of Rs. 4,000 (four Rs. 1,000 notes) and had to choose how many notes he would give to the counterpart. If he was selfish and economically rational, he would send nothing to the counterpart. The amount given in game [1] showed the extent of pure altruism toward general persons, whereas the amount given in games [2]-[4] showed the extent of directed altruism. In all of these games, the sender was anonymous to the recipient.

Game [5] was a variant of game [2], in which the counterpart was a randomly selected person from each entrepreneur's residential area. The selected person would know that the money was from the entrepreneur. As the identity of the sender was revealed to the neighbor, (i.e., the recipient), the transfer amount under [5] was likely to be affected by the sender's concern for his reputation in his neighborhood. By comparing choices in game [2] (where the sender was anonymous) and [5] (where the identity of the sender was revealed), we could elicit the measure of reputation concern as discussed by Ligon and Schechter (2012).

(2) Risk and leadership games

We conducted two forms of risk games: individual and group risk games. First, we started from the simple individual risk game to measure individual risk attitudes. We asked participants to divide Rs. 4,000 (four notes of Rs. 1,000) into two boxes: Box I and Box II. The money put in Box I would change depending on the coin toss result. If the coin toss revealed heads, the bet in Box I was multiplied by a fixed number. If the coin toss revealed tails, the bet in Box I was lost. The bet in Box II was kept by the participant, regardless of the result of the coin toss. Individual risk games consisted of three choices: the multiplication factor of the bet in Box I was 1.5 (game [6]), 2 (game [7]), and 2.5 (game [8]).

Second, we conducted group risk games called "leadership games," as proposed by Ertac and Gurdal (2012). We informed each participant that he was a member of a five-person group, which consisted of other participants in the BMDT session room, and other similar businessmen. We also informed each participant that he could not know the identities of other group members, and no other members could know his identity, either. Then, we asked the participant to answer the above three games as a leader of the group, that is, his decision and the actual pay-off would apply to all the group members. The multiplication factor of the bet in Box I was varied as before: 1.5 (game [9]), 2 (game [10]), and 2.5 (game [11]). If he was selfish and economically rational, his choice in group risk games would be exactly the same as his choice in individual risk games.

Ertac and Gurdal (2012) found that university students in Israel, on average, reduced the amount of bet in the risky box when they were given the role of the leader. They called this

phenomenon a “cautious shift.” After the participants finished games [9]-[11], we asked each participant whether he was willing to become the leader to choose for others.⁷ The extent of the cautious shift and the willingness to become the leader measure one aspect of leadership, namely, risk-taking decision-making as the leader.⁸

(3) Convex time budget (CTB) games

In this research, we focused on three aspects of time preferences: subjective discount rate, present bias, and intertemporal elasticity of substitution. If an entrepreneur has a high discount rate, his investment decision may become short-sighted, and he may miss good opportunities for long-term growth. Similarly, if an entrepreneur has a present-biased preference, that is, the tendency to over-value immediate rewards in spite of the fact that rewards in two different future points are to be valued in a balanced way, his enterprise may not grow smoothly. Furthermore, a businessman with low intertemporal elasticity of substitution may smoothen intertemporal flows of rewards far too much, and thereby sacrifice an opportunity to maximize the current value of future flows of rewards.

In standard time games in which participants choose either immediate (near future) or future (far future) rewards, we obtain information only on discount rates and present bias. In contrast, CTB, proposed by Andreoni and Sprenger (2012), allows participants to receive positive amounts in both periods. By this convex design, a set of CTB games allows researchers to measure the three pieces of information on time preferences, simultaneously. Table 2 shows the choice sets we used in BMDT, which are based on paper-based CTB experiments adopted by Sawada and Kuroishi (2015a, 2015b). For instance, in games [12]-[17] in Block 1, participants with high discount rates tend to choose options near A, while those with low discount rates are expected to choose options near E. Similarly, participants with low elasticity of intertemporal substitution are expected to choose options near C, avoiding corner solutions, whereas those with high elasticity of intertemporal substitution are expected to choose corner solutions (either A or E). Regarding present bias, we compare across blocks. For example, between Block 1 and Block 3, game [12] and game [24] have exactly the same interest rates and the same interval between two rewards. A time consistent person is expected to choose the same options in game [12] and [24], a present-biased person typically chooses option A in game [12] and chooses option E in game [24]. By checking the patterns of choices

⁷Ertac and Gurdal (2012) asked this question before making choices in group risk games. We changed the order as it would be better to ask this question after making choices in group risk games to assure that participants fully understand the implications of group risk games.

⁸Other aspects of leadership are potentially important for entrepreneurs, such as coordinating different opinions or taking care of followers. Measuring such aspects of leadership is left for further research.

across 35 games, we can characterize the time preferences of each participant in a qualitative manner.

<Insert Table 2 >

Furthermore, adopting an explicit form of the utility function of participants, as modeled by Andreoni and Sprenger (2012) and Andreoni et al. (2015), we can estimate three parameters characterizing their time preferences in a quantitative manner. The individual is assumed to have the following lifetime total utility function at time t with a quasi-hyperbolic discounting structure:

$$U_t = u(x_t) + \beta \sum_{k=1}^{\infty} \delta^k u(x_{t+k}), \quad (1)$$

where instantaneous utility function follows the constant relative risk aversion (CRRA) type: $u(x_t) = x_t^\alpha$. In this time-separable utility function, x_t generally represents the income or consumption level at period t . In the CTB experiment, it simply corresponds to the monetary reward given to a participant at period t . Parameter β gives us the information about *present biasness*, parameter δ represents the exponential *discount factor*, and parameter α gives us the *curvature* of the instantaneous utility and thus, the *intertemporal elasticity of substitution* ($1/(1-\alpha)$). The discount factor δ is a standard exponential one, which is constant across time. The present bias parameter or quasi-hyperbolic discounting factor, β , shows the extent to which the current income affects the value function. An individual with $\beta < 1$ is regarded as present-biased; one with $\beta > 1$ is regarded as future-biased; one with $\beta = 1$ has no present bias (i.e., entailing only the standard exponential discount factor in any periods including today).

In the CTB experiment, we asked the participants about the two-period intertemporal choices of total monetary income of Rs. 4,000 (in prices at period $t+k$) between period t and $t+k$ with an exogenous interest rate, r . Then, we can presume that the participants solve the optimization problem which maximizes:

$$U(x_t, x_{t+k}) = x_t^\alpha + 1_{t=0} \beta \delta^k x_{t+k}^\alpha + (1 - 1_{t=0}) \delta^k x_{t+k}^\alpha, \quad (2)$$

subject to the following budget constraint:

$$Px_t + x_{t+k} = 4000, \quad (3)$$

where $1_{t=0}$ is an indicator function and $P \equiv 1 + r$. Note that, from equation (2), we see that the present bias parameter does not matter when an individual faces the intertemporal resource allocation problem between two future periods. In the actual experiment, we asked the participants about intertemporal choices x_t and x_{t+k} with various situations by changing the values of t , $t+k$, and P .

From (2) and (3), we can obtain the following intertemporal Euler equation:

$$\text{MRS} = \frac{x_t^{\alpha-1}}{\beta^{1_{t=0}} \delta^k x_{t+k}^{\alpha-1}} = P. \quad (4)$$

By taking logarithm and rearranging, we get the following estimable linear form:

$$\ln\left(\frac{x_t}{x_{t+k}}\right) = \frac{\ln(\beta)}{\alpha-1} t_0 + \frac{\ln(\delta)}{\alpha-1} k + \frac{1}{\alpha-1} \ln(P). \quad (5)$$

Then, we can estimate the linear model of (5), augmented with an error term through the ordinary least square (OLS) method and then, solving for three parameters. As an alternative, we can solve from equations (3) and (4) to obtain the following demand function: $x_t = \frac{4,000(P\beta^{1_{t=0}}\delta^k)^{\frac{1}{\alpha-1}}}{1+P(P\beta^{1_{t=0}}\delta^k)^{\frac{1}{\alpha-1}}}$, which can be estimated by the non-linear least square (NLS) method when an error term is added.

3.2 Characteristics of Entrepreneurs/Firms Participating in BMDT

As already indicated in Table 1, we collected information on risk, time, and social preferences from 226 entrepreneurs out of the 506-baseline sample. All these sessions were implemented as designed, following the protocol strictly. Nevertheless, as the participation was voluntary, we need to examine what kind of micro and small entrepreneurs participated in BMDT. In other words, we need to characterize the subsample with preference information in the context of micro and small enterprises in the northeastern areas of Delhi, for which our baseline sample was representative, to some extent.

Firm characteristics of BMDT participants are summarized in Table 3, alongside a comparison with non-participants. The average of the years since establishment is 11.8, which is slightly shorter than non-BMDT samples, but the difference is not statistically significant. To

capture employment-creation by these micro and small enterprises, we asked respondents in the baseline survey to indicate the number of people who were working under them. As the managers themselves were also an important part of the labor force in micro and small enterprises, we calculated the total labor force as the sum of one (the manager), unpaid family members (males and females), and employees (males and females). The average number constituting the labor force, including the owner/manager, is 6.8, significantly lower than the average among non-BMDT firms. Out of the 226 BMDT firms, 108 were registered, indicating that they were more formal than the 118 unregistered firms. The registration rate was lower than in the non-BMDT sample, indicating that non-cooperation for BMDT was more frequent among registered firms.

The subsample of 226 firms belonged to ten locations in the northeastern areas of Delhi. The distribution of enterprises according to location shows that the three largest groups are from Mandoli & Saboli, Friends Colony, and Jhilmil. In Jhilmil and Friends Colony, industrial estates form the core of the cluster. These two locations had the largest samples in our baseline, but due to high rates of non-cooperation in BMDT, their shares declined. In contrast, micro entrepreneurs in Mandoli & Saboli were cooperative for BMDT, resulting in them ranking as the top among BMDT participants.

Regarding sectors and industries, the number of BMDT firms engaged in manufacturing is 140 (62%). Enterprises engaged in manufacturing of garments, followed by those manufacturing electrical wires accounted for the highest share. In comparison with the baseline sample, those in electrical wires and plastic goods reduced their shares substantially as they tended to be uninterested in BMDT. The total number of firms engaged in services is 86 (38%), for which auto/cycle repair had the highest share. Non-participation was more frequent among “Other services,” which includes photography, videography, recycling etc. Publishing services, including printing personal envelopes and business cards, also reduced their share due to frequent non-participation.

<Insert Table 3 here>

Table 4 shows basic characteristics of 226 BMDT entrepreneurs. The average age was 39, which was slightly younger than the non-BMDT entrepreneurs with statistical significance at the 5% level. Female samples occupied 8 out of 226, whose share is significantly higher than non-BMDT businesspersons. The minority of female entrepreneurs runs its business in tailoring, beauty parlors, etc., and was more cooperative in participating in the BMDT sessions than males were. Jain and Muslim entrepreneurs were less cooperative, resulting in their share declining from 19% in the baseline to 11% in the BMDT. The majority

of BMDT entrepreneurs only had secondary education. The education distribution is significantly different between BMDT and non-BMDT entrepreneurs, due to higher non-participation of those who had low education (less than 10th grade) and the highly educated (with university degrees). As shown in the last rows of Table 4, BMDT participants showed higher trust in relatives and friends, neighbors and business buyers/sellers, than in public sector entities such as municipal corporations, police, etc. Their GSS trust levels were almost similar to those of non-BMDT participants, with the exception of trust in relatives and friends. Those indicating higher trust in friends and relatives were less cooperative. This could be due to lower interest in creating new business networks or obtaining new knowledge from BMDT among those who already had a strong network of relatives and friends. On the other hand, all other contrasts shown in Tables 3 and 4 can be interpreted to mean that entrepreneurs with higher opportunity cost of time were less likely to attend the BMDT sessions.

<Insert Table 4 here>

To examine whether each of the bivariate correlations shown in Tables 3 and 4 remains if we control for other characteristics, we ran multiple regression using OLS. The BMDT non-participant dummy is the dependent variable. As shown in column (1) of Table 5, the most important correlates of participation appear to be location and sector (industry). After controlling for these fixed effects, most of firm and entrepreneur characteristics lost their statistical significance. As shown in columns (2)-(9) of Table 5, more parsimonious specifications show the same result. These results are robust to non-linear specifications such as probit and logit.

<Insert Table 5 here>

3.3 Summary Statistics of Key Variables

Summary statistics of results regarding choices in dictator games, individual risk games, group risk games (leadership games), and CTB games are shown in Table 6. In dictator games, BMDT participants did not behave selfishly, but transferred about 30% to the counterpart on average when the counterpart was “general.” This is consistent with findings from other developing countries (Cardenas and Carpenter 2008). When the counterpart was more specified, the transfer amount increased, especially for relatives and friends. The change was very small for neighbors. This indicates that BMDT businesspersons had stronger altruism toward relatives and friends, followed by those with business concerns, but very little directed altruism toward neighbors. Combined with the results shown in GSS trust, it appears that

micro and small entrepreneurs in Delhi trust their neighbors, in the sense that they are not particularly harmful, but they do not have special altruistic feelings toward their neighbors. Reflecting such feelings, the transfer to neighbors increased when the identity of the sender was revealed.

<Insert Table 6 here>

In individual risk games, BMDT participants did not behave in a highly risk-averse manner. As shown in the row for game [6], about 46% of the endowment was put in the risky box on average, even when the expected value was less than unity. The amount in the risky bet increased when the multiplication factor improved, showing that about 52% was put in the risky box in game [8]. Not many participants (12%) behaved in a manner consistent with what the standard theory of expected utility maximization predicts. This could be due to behaviors such as loss aversion and non-linear transformation of objective probability into perceived probability, and/or miscalculation by participants.

In leadership games (group risk games), BMDT participants continued to put more than 40% of the endowment into the risky box, on average. However, in comparison with their choices in individual risk games, the amount in the risky box declined slightly, when they chose for the group as the group leader. This is consistent with the finding of “cautious shift” observed for students by Ertac and Gurdal (2012). But the extent of cautious shift was smaller among Indian entrepreneurs than among Israeli students. The amount in the risky bet increased when the multiplication factor improved, similar to the case of individual risk games and the percentage of those consistent with the expected utility maximization theory increased slightly to 13%. As many as 74% of BMDT participants responded that they would be willing to be the leader in this setting, than be the follower. The percentage is in the similar range to the one found by Ertac and Gurdal (2012). In combination with the results for the cautious shift, Indian entrepreneurs are similarly oriented toward leadership, but are less flexible when it comes to changing their risk-taking as the leader than Israeli students are. Whether this could be due to the difference between students and entrepreneurs or the difference between India and Israel is worth further research.

In CTB games, BMDT participants showed their preference for more immediate rewards as shown in the average of “qualitative indicator of discount factor” less than 3 (the midpoint). The tendency became stronger when the time interval grew longer, but the change was small. Comparing choices across blocks with the same interest rate and time intervals, we can check how many choices show present bias. The average of “qualitative indicator of present bias” is positive (0.248), indicating that BMDT participants were, on average, slightly

present-biased. However, the standard deviation of this indicator is large, suggesting that there is high heterogeneity (some are heavily future-biased, some are slightly future-biased, some are almost neutral, some are slightly present-biased, and others are highly present-biased). Regarding the intertemporal elasticity of substitution (IES), BMDT participants, on average, chose interior solutions in 44% of the 35 games. This suggests that BMDT participants had a finite value of IES. If IES is infinite (i.e., the intertemporal rewards are aggregated linearly), participants should choose corner solutions all the time. This did not happen in our sample.

Qualitative inference regarding time preferences derived from CTB games in Table 6 was confirmed quantitatively using the econometric method. Following the parametric model explained in Subsection 3.1, we estimated the NLS model pooling all participants' decisions. The parameter estimates are: $\beta = 0.965$ (0.022), $\delta = 0.993$ (0.001), and $\alpha = 0.639$ (0.021) (robust standard errors are shown in the parenthesis using individuals as the cluster).⁹ As the null hypothesis of $\beta = 0$ is statistically rejected in favor of $\beta < 1$, our sample entrepreneurs are present-biased on average. As the null hypothesis of $\delta = 1$ is statistically rejected in favor of $\delta < 1$, our sample entrepreneurs discount future rewards. As the null hypothesis of $\alpha = 1$ is statistically rejected in favor of $\alpha < 1$, our sample entrepreneurs have finite values of IES.

4. Endline Survey

4.1 Endline Survey with a Module on the Demonetisation Impact

Between June and August 2017, the endline survey was conducted with the target of resurveying all 506 firms in the baseline. The questionnaire comprised two parts. The first part was on firm operation and the second part was on the impact of Demonetisation.

In the first part, we asked about (1) changes in firm structure, innovations introduced, and investments made since the baseline survey, (2) operational details in the preceding month, and (3) network for business information, sales/procurement, and credit. In the second part, we asked about (1) impact of Demonetisation on sales, employment, purchase of input/raw material, business hours, and product/services lineups, (2) modes of transactions before, during, and after Demonetisation, (3) bank accounts used for business and the disposal of demonetized notes, and (4) income tax payment.

A team of investigators led by the chief investigator, who also conducted the baseline survey, visited each of the baseline enterprises and asked for the cooperation on the endline

⁹Our results for β are in the range that is consistent with the results found in Andreoni et al. (2015), and Sawada and Kuroishi (2015b). We have lower estimates of δ and α than those, but Sawada and Kuroishi (2015a), which is an only previous research applying CTB to a developing country context, get closer results to ours. Note that estimate of δ at 0.9947 implies an exponential discount rate of 17% per month.

survey. When the owner changed, we interviewed the new owner. When the firm moved within northeastern areas of Delhi, we traced the firm for resurvey.

4.2 Characteristics of Entrepreneurs/Firms Participating in the Endline Survey

Out of the 506 baseline firms, we were able to resurvey 287. The attrition rate was higher than we expected, with major reasons for attrition being non-cooperation, business closure, and moving without contact information. The frequent cases of non-cooperation reflected firms' rising concerns against disclosing business details to outsiders against the backdrop of a policy environment comprising formalization drives by the government, including Demonetisation in November 2016 and the introduction of GST in July 2017.

Firm characteristics of endline participants are summarized in Table 7, with a comparison with non-participants. The average of years since establishment was 11, which is significantly shorter than that of the attrition samples. The average labor force including the owner/manager was 5.6, significantly lower than the average among attrition samples. Out of the 287 endline firms, 109 were registered at the baseline. The registration rate was much lower than that of attrition samples, indicating that non-cooperation for the endline survey was more frequent among registered firms.

The subsample of 287 firms belonged to ten locations in northeastern areas of Delhi, with Jhilmil, Mandoli & Saboli, and Friends Colony being the top three locations. Attrition was more frequent in Jhilmil and Friends Colony, where industrial clusters existed, than in Mandoli & Saboli, where local micro entrepreneurs were cooperative.

When it came to sectors and industries, the number of BMDT firms engaged in manufacturing was 172 (60%). The highest share was accounted for by those enterprises engaged in manufacturing garments. The other two important industries in the baseline, that is, electrical wires and plastic goods, decreased their shares substantially as they did not much participate in the endline survey. The total number of firms engaged in services is 115 (40%), for which auto/cycle repair and "Other services" had the highest shares.

<Insert Table 7 here>

Table 8 shows basic characteristics of 287 BMDT entrepreneurs. The average age was 39, significantly younger than attrition samples. Female samples occupied only 5 out of 287, and gender difference in endline participation was insignificant. Jain entrepreneurs were less cooperative for the endline, resulting in their share declining to 3% from 19% in the baseline. When it came to education, the majority of BMDT entrepreneurs had only secondary education. Those with tertiary education were more likely to drop out in the endline survey

than those with secondary education or lesser. An interesting contrast in the GSS trust was found. The endline samples had lower level of trust in relatives/friends and neighbors, while they had a higher level of trust in the municipal corporation, police, and law officers. The latter pattern is consistent with the view that those entrepreneurs who are more cautious against public sector entities do not tend to be cooperative with external researchers. The former pattern indicates low interest in connections with outsiders, among those who already had a strong network of relatives/friends and neighbors. Overall, the contrasts shown in Tables 7 and 8 can be interpreted to mean that those entrepreneurs with more cautious attitudes toward outsiders were less likely to cooperate for the endline survey.

<Insert Table 8 here>

To examine whether each of the bivariate correlations shown in Tables 7 and 8 remains if we control for other characteristics, we ran multiple regression using OLS. The endline attrition dummy is the dependent variable. As shown in column (1) of Table 9, even after we control for location and sector (industry) fixed effects, the positive effect on attrition probability of Jain dummy, tertiary education, and GSS trust for relatives and friends remained significant. Registration dummy (positive) and Muslim dummy (negative) also had significant coefficients in more parsimonious specifications (see columns (2)-(8) of Table 9). These results are robust to non-linear specifications, such as probit and logit.

<Insert Table 9 here>

4.3 Summary Statistics of Key Variables

Regarding changes in firm structure, almost no change was observed in the ownership structure of the firm. The majority remained sole proprietorships. In terms of registration, transition was more frequent than we expected. As shown in Table 10, 77% of the endline firms had the same registration status as in the baseline. The rest (23%) changed their status. The change occurred in both directions. Fifty-one firms, which were previously unregistered, registered themselves by the endline survey. The most important reason for registration was the preparation for GST, which was particularly strong among entrepreneurs who bought from large enterprises and wanted to avail themselves of input tax credit. Similar tendencies were reported by the Government of India (2008) for all of India. Sixteen firms, which were previously registered, had unregistered by the time the endline survey took place. The most important reason for this was failure in renewing registration.

<Insert Table 10 here>

Summary statistics of innovation, labor force, and financial indicators are given in Table 11. Overall, firm growth was minimal or negative. Innovation was adopted only among 15% of the endline sample. The labor force shrank by 1.9 persons, and the average employment was only 3.7 persons per enterprise. Micro and small enterprises appeared to lose their potential in job creation. However, the change shown in Table 11 not only reflected the recession faced by these enterprises, but also the structural change in Indian labor markets toward the use of contract labor (Goldar and Agarwal 2010). Many of our sample enterprises contracted out a whole operation to the contractor, without knowing how many workers were involved in the operation. This enabled enterprises to avoid the cost of labor management and allowed them to manage their firms flexibly.

<Insert Table 11 here>

Reflecting the reduction of direct employment, the sales declined, as well, on average. However, profit increased slightly, on average. This also supports the view that the shrinking of labor force may have enhanced the profitability of small and micro enterprises in Delhi during the period of the study. The profit sales ratios at 33.4% among all reporting samples and 49.3% among those with positive profits are similar to, or slightly higher than, those observed at the baseline. Out of 195 enterprises with the sales/profit information, 90.3% had positive profits.

To examine the impact of Demonetisation on small and micro enterprises, we asked their owners what the levels of sales, employment, and input purchases were, during and after Demonetisation with the pre-Demonetisation level being at 100. The “during” Demonetisation period is defined as the one from November 9, 2016 (the first day after the demonetization of banknotes) to December 30, 2016 (the last day for depositing old notes in bank accounts). This is a subjective assessment whose answer tends to be round numbers such as 50, 75, 90, and 100, but still informative of the raw perception of entrepreneurs. The summary statistics of these answers are reported in Table 12. During Demonetisation, firm sales declined to half on average, and recovered only to the level of 70% or so, during the post Demonetisation period. Employment also declined substantially but the decline was not as large as it was in sales. It appears that informal sector firms employ workers based on networks (for example, hiring relatives) so that they are not able to adjust employment flexibly in the face of adverse shocks. The change in the purchase of raw materials and input followed the change in sales closely.

<Insert Table 12 here>

Did Demonetisation drive informal entrepreneurs to change their business mode from cash-based to bank-based? In India, commercial banks offer savings accounts to individuals and current accounts to enterprises. Both accounts allow the account holder to deposit savings, remit, draw and deposit checks, etc., but current accounts allow more generous use of checks and bank transfers. Therefore, among large and medium firms in India, using current accounts for business is the norm. Table 13 summarizes the information of bank accounts used by our sample entrepreneurs for their businesses before Demonetisation. Only 39% of our sample had current accounts for their business. Among our sample, 7.6% had no bank accounts for their businesses before Demonetisation. Therefore, they were not able to use bank-based transactions at all when Demonetization was announced. The post-Demonetisation status is the same as shown in Table 13, except for one case, in which a businessman who did not use his savings account for business started to use it for business after Demonetisation. But this stickiness may hide changes in intensive margins of bank-based transactions.

<Insert Table 13 here>

Therefore, in Tables 14-17, we summarize the modes of transactions used for receiving sales revenues, paying wages, and paying for input and raw materials. In terms of percentages (Table 14), bank-based transactions occupied about 25% in sales receipts before Demonetisation and the share marginally increased by 5 percentage points or so during Demonetisation, mostly reflecting the shortage of cash, and then remained at similar levels after Demonetisation. The importance of bank transactions in wage payment was lower than sales receipt, both before and after Demonetisation. In paying for raw materials and input, the bank share was higher than the wage payment, but slightly lower than sales receipt.

<Insert Table 14 here>

Using the information in Table 14, we classified the transaction modes into “Cash only”, “Cash and banks”, and “Banks only”, and then prepared transition matrices. In case of sales receipt (Table 15), there were 15 firms who moved from “Cash only” to “Cash and banks” during Demonetisation. Interestingly, 5 out of the 15 movers turned back to “Cash only” after Demonetisation. The transition table shows that the transition from “Cash only” to bank-based transactions was not permanent, and was reversed in some cases. The informal firms’ dependence on cash transactions was indeed strong and sticky.

<Insert Table 15 here>

As shown in Table 16, the mode of wage payment is stickier than the mode of sales

receipt. Looking at the bottom panel, we see that there were only 3 cases out of 198, which changed the mode at all. They all started to pay wages using checks. There is no case of de-banking (i.e., transition from “Cash and banks” or “Banks only” to “Cash only”) for wage payments, in contrast to the case of sales receipts. In case of wage payment, workers need to have bank accounts in order for the entrepreneur to change his mode of payment from cash to check (or bank transfer). But many low-income workers employed by these micro firms do not own any bank accounts.

<Insert Table 16 here>

The transition in modes of transactions in paying for raw materials and input was more frequent than wage payment, but stickier than sales receipts. Comparing pre- and post-Demonetisation, nine out of 206 “Cash only” firms started using bank transactions in response to the Demonetisation shock (last panel, Table 17).

<Insert Table 17 here>

One reason for the stickiness in transaction modes could be a business network. Most of our sample firms conduct their business through informal networks. To move from “Cash only” to bank-based transactions, all members of the network may need to change simultaneously. This is not an easy task due to high coordination costs. It appears that the Demonetisation shock was not strong enough to achieve this coordination.

5. Conclusion

To deepen our understanding of the urban informal sector and small enterprises in developing countries, we surveyed micro and small entrepreneurs in northeastern areas of Delhi, India. The baseline survey was conducted in November–December 2014, covering 506 sample entrepreneurs in both manufacturing and service sectors. In the survey, not only characteristics of the entrepreneurs and firms, but also trust questions in the GSS style were addressed. In the baseline, 46% of our samples were unregistered with the government. In June–August 2017, the endline survey was conducted to collect panel information on firm performance. As Demonetisation in November 2016, in which high value banknotes were demonetized overnight, affected small and micro enterprises substantially, specific questions on its impact were added in the endline survey. Attrition was frequent and we were able to resurvey 287 out of 506 enterprises in the endline. Between the two surveys, artefactual field experiments were applied to the subsample to collect information on social, risk, and time preferences.

In this paper, we presented details of the resurveys implemented under this project and described the key variables collected. Among 226 entrepreneurs who participated in the artefactual field experiments, many showed their tendency for present bias and high discount rates. On average, the participant entrepreneurs behaved in an altruistic manner, took substantial risk, and reduced their risk-taking when they were assigned the role of the leader. Out of 287 entrepreneurs who participated in the endline survey, 50% were unregistered with the government, implying that they were highly informal. During the period between baseline and endline surveys, innovations to expand the business were not very active, either. The majority of entrepreneurs severely suffered from Demonetisation.

Based on the description of the dataset provided in this paper, interactions of government policies, entrepreneurs' preferences, firms' endowments, and technology can be quantitatively analyzed. Such analysis will contribute to a better understanding of productivity enhancement of MSMEs in India and accelerating poverty reduction in urban areas. This is left for forthcoming research papers.

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Table 1. Survey timing and data distribution

	Baseline/BMDT survey			Endline survey (2017/6/28-8/23)	
	Number of obs.	Start of the survey	End of the survey	Number of obs.	% attrition
Baseline sample	506	2014/11/4	2014/12/7	287	43.3
of which:					
BMDT, 1st round	118	2015/3/4	2015/9/19	94	20.3
BMDT, 2nd round w/ goal setting ¹	108	2016/3/20	2016/4/24	67	38.0

Notes:

1. The 2nd round of BMDT covered 109 entrepreneurs. However, as two belonged to the same firm, only the original owner is included in the analysis of this paper.

Table 2. Intertemporal choice sets in the convex time budget (CTB) experiment

Block	Date	Option A	Option B	Option C	Option D	Option E	Price Ratios (P)	Game #
1	today	3800	2850	1900	950	0	1.05	[12]
	5 weeks later	0	1000	2000	3000	4000		
	today	3600	2700	1800	900	0	1.11	[13]
	5 weeks later	0	1000	2000	3000	4000		
	today	3400	2550	1700	850	0	1.18	[14]
	5 weeks later	0	1000	2000	3000	4000		
	today	3200	2400	1600	800	0	1.25	[15]
	5 weeks later	0	1000	2000	3000	4000		
	today	2800	2100	1400	700	0	1.43	[16]
	5 weeks later	0	1000	2000	3000	4000		
	today	2200	1650	1100	550	0	1.82	[17]
	5 weeks later	0	1000	2000	3000	4000		
2	today	4000	3000	2000	1000	0	1	[18]
	9 weeks later	0	1000	2000	3000	4000		
	today	3800	2850	1900	950	0	1.05	[19]
	9 weeks later	0	1000	2000	3000	4000		
	today	3400	2550	1700	850	0	1.18	[20]
	9 weeks later	0	1000	2000	3000	4000		
	today	3000	2250	1500	750	0	1.33	[21]
	9 weeks later	0	1000	2000	3000	4000		
	today	2400	1800	1200	600	0	1.67	[22]
	9 weeks later	0	1000	2000	3000	4000		
	today	1800	1350	900	450	0	2.22	[23]
	9 weeks later	0	1000	2000	3000	4000		
3	5 weeks later	3800	2850	1900	950	0	1.05	[24]
	10 weeks later	0	1000	2000	3000	4000		
	5 weeks later	3600	2700	1800	900	0	1.11	[25]
	10 weeks later	0	1000	2000	3000	4000		
	5 weeks later	3400	2550	1700	850	0	1.18	[26]
	10 weeks later	0	1000	2000	3000	4000		
	5 weeks later	3200	2400	1600	800	0	1.25	[27]
	10 weeks later	0	1000	2000	3000	4000		
	5 weeks later	2800	2100	1400	700	0	1.43	[28]
	10 weeks later	0	1000	2000	3000	4000		
	5 weeks later	2200	1650	1100	550	0	1.82	[29]
	10 weeks later	0	1000	2000	3000	4000		
4	9 weeks later	4000	3000	2000	1000	0	1	[30]
	18 weeks later	0	1000	2000	3000	4000		
	9 weeks later	3800	2850	1900	950	0	1.05	[31]
	18 weeks later	0	1000	2000	3000	4000		
	9 weeks later	3400	2550	1700	850	0	1.18	[32]
	18 weeks later	0	1000	2000	3000	4000		
	9 weeks later	3000	2250	1500	750	0	1.33	[33]
	18 weeks later	0	1000	2000	3000	4000		
	9 weeks later	2400	1800	1200	600	0	1.67	[34]
	18 weeks later	0	1000	2000	3000	4000		
	9 weeks later	1800	1350	900	450	0	2.22	[35]
	18 weeks later	0	1000	2000	3000	4000		

Notes: For each game, the date in the upper row represents t and that in the lower row represents $t+k$. The monetary amounts in the upper row represent x_t and those in the lower row represent x_{t+k} .

**Table 3. Firm characteristics and BMDT participation
(Bivariate comparison)**

Baseline characteristics	Baseline sample (n=506)	BMDT sample (n=226)	Non-BMDT sample (n=280)	p-value
Firm age, average in years	12.37	11.81	12.82	0.150
Labor force ¹	7.87	6.76	8.77	0.003
Distribution of registration status				0.008
Registered	275	108	167	
Unregistered	231	118	113	
Distribution of business location				0.000
Friends Colony	115	46	69	
Gokalpur	16	6	10	
Jhilmil	121	45	76	
Johripur	15	3	12	
Karawal Nagar	35	23	12	
Mandoli & Saboli	58	49	9	
Maujpur	17	10	7	
Nandnagri	36	18	18	
Seelampur	30	1	29	
Vishwash Nagar	63	25	38	
Distribution of industry				0.012
Manufacturing sector				
Auto parts	12	5	7	
Electrical wires	73	27	46	
Electronics	6	1	5	
Food products	23	15	8	
Garments	68	33	35	
Metal and steel	36	15	21	
Plastic goods	62	21	41	
Wood products	15	4	11	
Other manufacturing	48	19	29	
(Manufacturing, sub-total)	(343)	(140)	(203)	
Service sector				
Auto/cycle repair	36	26	10	
Electric/electronics repair & service	22	14	8	
Garments stitching/embroidery/tailoring	13	6	7	
Publishing service	39	17	22	
Metal/steel related service	11	6	5	
Other services	42	17	25	
(Service, sub-total)	(163)	(86)	(77)	

Notes: The *p*-value allows for unequal variance in the case of continuous variable. For distribution, the *p*-value is for the chi2 test for the independence.

1. The labor force is defined as the entrepreneur him/her-self, employees, and unpaid family members.

Table 4. Entrepreneur characteristics and BMDT participation (Bivariate comparison)

Baseline characteristics	Baseline sample (<i>n</i> =506)	BMDT sample (<i>n</i> =226)	Non-BMDT sample (<i>n</i> =280)	<i>p</i> -value
Average age	40.23	39.34	40.95	0.049
Distribution of sex				0.023
Male	496	218	278	
Female	10	8	2	
Religion				0.000
Hindu & others	411	202	209	
Jain	31	8	23	
Muslim	64	16	48	
Distribution of birthplace				0.809
Migrants	19	9	10	
Delhi areas	487	217	270	
Distribution of education level				0.000
Lower than 10th grade	19	5	14	
10th grade or equivalent	84	53	31	
12th grade or equivalent technical diploma	196	97	99	
Bachelor's degree	203	71	132	
Master's degree or more	4	0	4	
Average of GSS trust indicators ¹				
General	0.374	0.354	0.389	0.418
Relatives and friends	0.787	0.717	0.843	0.001
Neighbors	0.796	0.788	0.804	0.668
Business buyers/sellers	0.850	0.836	0.861	0.460
Municipal Corporation	0.488	0.500	0.479	0.664
Govt officials for services (water, electricity, etc.)	0.320	0.354	0.293	0.193
Police	0.275	0.305	0.250	0.241
Law officers	0.354	0.345	0.361	0.726

Notes: The *p*-value allows for unequal variance in the case of continuous variable. For distribution, the *p*-value is for the chi2 test for the independence.

1. Each of the trust indicator takes the value +1 (most people can be trusted), 0 (some; no opinion), -1 (most people cannot be trusted).

Table 5. Correlates of BMDT participation
(OLS regression results with non-BMDT dummy as the dependent variable)

Baseline characteristics	(1) Full specification	(2) Entrepreneur's age	(3) Entrepreneur's sex	(4) Entrepreneur's religion	(5) Entrepreneur's migration	(6) Entrepreneur's education	(7) Entrepreneur's GSS trust	(8) Firm's labor force	(9) Firm's registration status
Entrepreneur characteristics									
Age	0.001 (0.004)	0.001 (0.002)							
Female dummy	-0.246 (0.191)		-0.257 (0.181)						
Jain dummy	0.132 (0.082)			0.143 (0.094)					
Muslim dummy	0.158 (0.162)			0.146 (0.174)					
Migrant dummy	-0.157 *** (0.040)				-0.100 (0.063)				
Education less than 10th grade	0.160 * (0.075)					0.148 (0.104)			
Education at 10th grade	-0.092 (0.092)					-0.076 (0.085)			
Education at the degree level or more	0.125 (0.081)					0.106 (0.088)			
GSS trust for relatives and friends	0.042 (0.059)						0.023 (0.062)		
Firm characteristics									
Firm age	0.001 (0.005)								
Labor force	0.000 (0.002)							0.002 (0.003)	
Registration dummy (ref=unregistered)	-0.087 (0.071)								-0.041 (0.069)
Location fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.205	0.172	0.177	0.180	0.173	0.185	0.172	0.173	0.172
F -stat for zero slopes except for location & industry fixed effects	14.96 ***	0.60	2.01	1.38	2.48	0.90	0.14	0.47	0.31
Number of observations	506	506	506	506	506	506	506	506	506

Notes: Robust standard errors are reported in parentheses using location as the cluster. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6. Choices in BMDT

Number in [] shows the test number out of 35 BMDT tests	<i>n</i>	Mean	Std.Dev.	Minimum	Maximum
Dictator games					
General altruism (transfer, Rs.) [1]	225	1240	1128	0	4000
Altruism to relatives & friends [4]	224	1580	1077	0	4000
Altruism to residence neighbors [2]	223	1305	1138	0	4000
Altruism to business sellers/buyers [3]	224	1496	1148	0	4000
Transfer to neighbors when identity revealed [5]	225	1502	1065	0	4000
Additional transfer to relatives & friends ([4]-[1])	223	327	1210	-4000	4000
Additional transfer to neighbors ([2]-[1])	222	59	1021	-2000	4000
Additional transfer to business ([3]-[1])	223	247	1173	-2000	4000
Additional transfer due to reputation ([5]-[2])	222	203	1133	-4000	3000
Risk games, individual					
Rs.in risky bet, factor of 1.5 [6]	225	1844	999	0	4000
Rs.in risky bet, factor of 2 [7]	226	2049	972	0	4000
Rs.in risky bet, factor of 2.5 [8]	226	2093	969	0	4000
Change in response to increased return (Rs.in risky bet, [8]-[6])	225	249	1106	-4000	3000
EU maximizer dummy ¹	226	0.120		0	1
Leadership games (group risk games)					
Rs.in risky bet, factor of 1.5 [9]	226	1695	1050	0	4000
Rs.in risky bet, factor of 2 [10]	226	1881	993	0	4000
Rs.in risky bet, factor of 2.5 [11]	226	2053	1094	0	4000
Change in response to increased return (Rs.in risky bet, [11]-[9])	226	358	1236	-4000	4000
EU maximizer dummy ¹	226	0.128		0	1
Change as a leader (avg of [11]-[8], [10]-[7], [9]-[6])	225	-121	804	-3667	2667
Dummy for willingness to become the leader	226	0.735		0	1
CTB (convex time budget) games					
Qualitative indicator of discount factor ²					
Now vs. 5 weeks (avg from [12] to [17])	224	2.598	1.273	1	5
Now vs. 9 weeks (avg from [18] to [23])	224	2.451	1.108	1	5
5 vs. 10 weeks (avg from [24] to [29])	226	2.613	1.195	1	5
9 vs. 18 weeks (avg from [30] to [35])	226	2.499	1.111	1	5
Qualitative indicator of present bias ³	226	0.248	3.941	-9	12
Frequency of choosing interior solutions (avg from [12] to [35])	226	0.436	0.348	0	1

Notes: The number of observations (*n*) is less than 226 for some games as participants skipped some of the games.

1. When all the choices in [6][7][8] ([9][10][11]) are consistent with the predicted response for an expected-utility-maximizer (with either risk-loving, risk-neutral, or risk-averse preference), the dummy takes the value of 1.

2. The indicator = 1*(choice=A)+2*(choice=B)+3*(choice=C)+4*(choice=D)+5*(choice=E). Theoretically, min=1 (most impatient), max=5 (most patient).

3. The indicator = count(indicator2, 0 vs. 5 weeks < indicator2, 5 vs. 10 weeks) + count(indicator2, 0 vs. 9 weeks < indicator2, 9 vs. 18 weeks) - count(indicator2, 0 vs. 5 weeks > indicator2, 5 vs. 10 weeks) - count(indicator2, 0 vs. 9 weeks > indicator2, 9 vs. 18 weeks). Theoretically, min=-12 (highly future biased), max=12 (highly present biased).

**Table 7. Firm characteristics and endline survey participation
(Bivariate comparison)**

Baseline characteristics	Baseline sample (<i>n</i> =506)	Endline sample (<i>n</i> =287)	Attrition sample (<i>n</i> =219)	<i>p</i> -value
Firm age, average in years	12.37	11.05	14.10	0.000
Labor force	7.87	5.62	10.82	0.000
Distribution of registration status				0.000
Registered	275	109	166	
Unregistered	231	178	53	
Distribution of business location				0.000
Friends Colony	115	39	76	
Gokalpur	16	16	0	
Jhilmil	121	48	73	
Johripur	15	12	3	
Karawal Nagar	35	31	4	
Mandoli & Saboli	58	43	15	
Maujpur	17	15	2	
Nandnagri	36	32	4	
Seelampur	30	18	12	
Vishwash Nagar	63	33	30	
Distribution of industry				0.000
Manufacturing sector				
Auto parts	12	5	7	
Electrical wires	73	24	49	
Electronics	6	5	1	
Food products	23	19	4	
Garments	68	47	21	
Metal and steel	36	16	20	
Plastic goods	62	26	36	
Wood products	15	9	6	
Other manufacturing	48	21	27	
(Manufacturing, sub-total)	(343)	(172)	(171)	
Service sector				
Auto/cycle repair	36	29	7	
Electric/electronics repair & service	22	16	6	
Garments stitching/embroidery/tailoring	13	11	2	
Publishing service	39	22	17	
Metal/steel related service	11	7	4	
Other service	42	30	12	
(Service, sub-total)	(163)	(115)	(48)	

Notes: See Table 3.

**Table 8. Entrepreneur characteristics and endline survey participation
(Bivariate comparison)**

Baseline characteristics	Baseline sample (<i>n</i> =506)	Endline sample (<i>n</i> =287)	Attrition sample (<i>n</i> =219)	<i>p</i> -value
Average age	40.23	38.66	42.29	0.000
Distribution of sex				0.665
Male	496	282	214	
Female	10	5	5	
Religion				0.000
Hindu & others	411	230	181	
Jain	31	9	22	
Muslim	64	48	16	
Distribution of birthplace				0.294
Migrants	19	13	6	
Delhi areas	487	274	213	
Distribution of education level				0.000
Lower than 10th grade	19	11	8	
10th grade or equivalent	84	64	20	
12th grade or equivalent technical diploma	196	138	58	
Bachelor's degree	203	73	130	
Master's degree or more	4	1	3	
Average of GSS trust indicators				
General	0.374	0.366	0.384	0.688
Relatives and friends	0.787	0.679	0.927	0.000
Neighbors	0.796	0.763	0.840	0.038
Business buyers/sellers	0.850	0.847	0.854	0.827
Municipal Corporation	0.488	0.540	0.420	0.016
Govt officials for services (water, electricity, etc.)	0.320	0.338	0.297	0.387
Police	0.275	0.324	0.210	0.016
Law officers	0.354	0.404	0.288	0.008

Notes: See Table 4.

**Table 9. Correlates of attrition in the endline survey
(OLS regression results with Endline-attrition dummy as the dependent variable)**

Baseline characteristics	(1) Full specification	(2) Entrepreneur's age	(3) Entrepreneur's religion	(4) Entrepreneur's education	(5) Entrepreneur's GSS trust	(6) Firm age	(7) Firm's labor force	(8) Firm's registration status
Entrepreneur characteristics								
Age	0.002 (0.003)	0.002 (0.002)						
Female dummy	0.250 (0.148)							
Jain dummy	0.221 *** (0.049)		0.233 *** (0.056)					
Muslim dummy	-0.083 (0.062)		-0.141 ** (0.046)					
Migrant dummy	0.063 (0.080)							
Education less than 10th grade	0.083 (0.100)			0.066 (0.095)				
Education at 10th grade	-0.011 (0.033)			-0.023 (0.039)				
Education at the degree level or more	0.152 ** (0.048)			0.181 *** (0.053)				
GSS trust for relatives and friends	0.093 ** (0.032)				0.120 *** (0.026)			
GSS trust for law officers	-0.038 (0.057)				-0.045 (0.051)			
Firm characteristics								
Firm age	0.003 (0.004)					0.005 (0.003)		
Labor force	0.007 *** (0.002)						0.010 *** (0.003)	
Registration dummy (ref=unregistered)	0.045 (0.030)							0.108 *** (0.030)
Location fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.292	0.236	0.251	0.255	0.241	0.239	0.251	0.239
F-stat for zero slopes except for location & industry fixed effects	103.20 ***	1.27	27.38 ***	6.97 **	10.95 ***	2.79	13.33 ***	13.12 ***
Number of observations	506	506	506	506	506	506	506	506

Notes: Robust standard errors are reported in parentheses using location as the cluster. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 10. Transition of registration status

	Endline survey, 2017		
	Registered	Unregistered	Total
Baseline survey, 2014			
Registered	93 (85.3)	16 (14.7)	109 (100.0)
Unregistered	51 (28.7)	127 (71.3)	178 (100.0)
Total	144 (50.2)	143 (49.8)	287 (100.0)

Notes: chi-2 stat for the independence is 86.84***. Transition probability is shown in the parenthesis.

Table 11. Firm performance in the endline survey

	<i>n</i>	Mean	Std.Dev.	Min	Max
Innovation dummy since the baseline survey					
Any innovation	282	0.149		0	1
Process innovation	282	0.092		0	1
Product innovation	282	0.117		0	1
Marketing innovation	282	0.067		0	1
Labor force					
Number at the endline survey (the owner is included)	287	3.686	4.007	1	41
Change since the baseline survey	287	-1.934	10.530	-51	30
Current profit in the last month ¹					
Profit indicators among all firms					
Sales (Rs. million)	197	0.186	1.090	0.004	15
Change in sales (Rs. million) ²	196	-0.035	1.044	-1.780	13.870
Current profit (Rs. million)	195	0.123	1.010	-0.113	14
Change in profit (Rs. million) ²	194	0.082	1.139	-1.942	13.739
Profit/Sales Ratio ³	195	0.334	0.723	-5.625	0.965
Dummy for firms with positive current profit	195	0.903		0	1
Profit indicators among firms with positive current profit					
Sales (Rs. million)	176	0.204	1.152	0.004	15
Increase in sales (Rs. million) ²	175	-0.023	1.102	-1.780	13.870
Current profit (Rs. million)	176	0.138	1.062	0.001	14
Increase in profit (Rs. million) ²	175	0.102	1.197	-1.942	13.739
Profit/Sales Ratio ³	176	0.493	0.209	0.033	0.965

Notes:

1. Current profit is defined as Sales - (intermediate input costs + fuel costs + labor costs + repair expenditure + transport expenditure + license fee + indirect tax + rental fee + contract expenditure + administration cost + other expenditure). The sample sizes reported in the same row indicates the sample size of the firms where profits can be
2. The endline survey value minus the baseline survey value.
3. Profit/Sales Ratio is defined as the current profit divided by sales.

Table 12. Impact of the demonetisation (subjective assessment)

	Index with the Pre-Demonetisation level as 100				
	<i>n</i>	Mean ¹	Std.Dev. ¹	Min	Max
A. Sales					
During (2016/11/9-2016/12/30)	282	51.0	30.7	0	100
Post (2016/12/31-endline)	281	72.2	29.6	0	170
B1. Number of workers					
During (2016/11/9-2016/12/30)	204	84.5	29.6	0	166
Post (2016/12/31-endline)	204	95.2	18.6	0	120
B2. Working hours per worker					
During (2016/11/9-2016/12/30)	187	90.7	25.9	0	100
Post (2016/12/31-endline)	199	95.4	20.1	0	100
B3. Total wage payment to workers					
During (2016/11/9-2016/12/30)	201	83.9	34.3	0	100
Post (2016/12/31-endline)	201	97.6	68.6	0	100
C. Purchase of raw materials and inputs					
During (2016/11/9-2016/12/30)	279	51.1	30.6	0	100
Post (2016/12/31-endline)	281	71.2	29.5	0	160

Notes: The number of responses is than 287, as several respondents did not answer the demonetisation part. Furthermore, when the respondent refused to answer the specific question or the question was not applicable to the respondent, the number of responses declined further. For example, the question "Working hours per worker" does not apply to the firm if the umber of workers during (or post) demonetisation was zero. The "workers" here is broader than the one adopted in Table 11, including contract workers as well.

1. Simple average (Std.Dev.) over the sample, without weighting.

Table 13. Use of bank accounts for the business (Pre-Demonetisation)

Category	Number	(Share)
1. No bank account used for the business	21	(7.6)
2. Saving account in the name of the owner	146	(53.1)
3. Current account in the name of the business	15	(5.5)
4. Use both saving account and current account	93	(33.8)
Total	275	(100.0)

Notes: Due to missing information, the total number of observations is less than 287. Post-demonetisation status is the same as this table, except for 1 case in which the category 1 businessman moved to category 2 (i.e., he started to use his saving account for his business after the demonetisation). The chi2 stat for independence is 130.8 ***.

Table 14. Demonetisation and bank-based transactions

	Share of bank-based transactions (%)				
	<i>n</i>	Mean ¹	Std.Dev. ¹	Min	Max
A. Share of bank-based transactions in total sales					
Pre (-2016/11/8)	281	24.6	39.0	0.0	100.0
During (2016/11/9-2016/12/30)	276	29.3	41.1	0.0	100.0
Post (2016/12/31-endline)	281	28.5	40.7	0.0	100.0
B1. Share of bank transfers in total wage payment					
Pre (-2016/11/8)	203	2.0	13.9	0.0	100.0
During (2016/11/9-2016/12/30)	188	2.2	14.5	0.0	100.0
Post (2016/12/31-endline)	198	2.3	14.5	0.0	100.0
B2. Share of checks in total wage payment					
Pre (-2016/11/8)	203	1.9	10.2	0.0	100.0
During (2016/11/9-2016/12/30)	188	4.1	18.0	0.0	100.0
Post (2016/12/31-endline)	198	3.0	14.5	0.0	100.0
C. Share of bank-based transactions in payment for raw materials and input					
Pre (-2016/11/8)	271	21.7	38.2	0.0	100.0
During (2016/11/9-2016/12/30)	267	25.0	40.4	0.0	100.0
Post (2016/12/31-endline)	271	25.2	40.1	0.0	100.0

Notes: The number of responses is less than 287 due to response refusal or question non-applicability (for example, if the sales were zero during the demonetisation, the share of bank-based transactions cannot be defined). The other category of transactions not listed in this table is "Cash".

1. Simple average (Std.Dev.) over the sample, without weighting.

Table 15. Demonetisation and transition in transaction modes for sales receipt

	During (2016/11/9-2016/12/30)		
	Cash only	Cash & bank	Banks only
Pre (-2016/11/8)			
Cash only	167	15	0
Cash & bank	2	44	2
Banks only	0	1	45
	Post (2016/12/31-endline)		
	Cash only	Cash & bank	Banks only
During (2016/11/9-2016/12/30)			
Cash only	168	1	0
Cash & bank	5	54	2
Banks only	0	1	45
	Post (2016/12/31-endline)		
	Cash only	Cash & bank	Banks only
Pre (-2016/11/8)			
Cash only	172	11	0
Cash & bank	2	48	2
Banks only	0	1	45

Notes: The number of responses is less than 287 due to response refusal or question non-applicability.

Table 16. Demonetisation and transition in transaction modes for wage payment

	During (2016/11/9-2016/12/30)		
	Cash only	Cash & bank	Banks only
Pre (-2016/11/8)			
Cash only	171	0	3
Cash & bank	0	8	1
Banks only	0	0	5
	Post (2016/12/31-endline)		
	Cash only	Cash & bank	Banks only
During (2016/11/9-2016/12/30)			
Cash only	170	0	0
Cash & bank	0	8	0
Banks only	0	2	7
	Post (2016/12/31-endline)		
	Cash only	Cash & bank	Banks only
Pre (-2016/11/8)			
Cash only	181	1	2
Cash & bank	0	9	0
Banks only	0	0	5

Notes: The number of responses is less than 287 due to response refusal or question non-applicability.

Table 17. Demonetisation and transition in transaction modes for input/raw material payment

	During (2016/11/9-2016/12/30)		
	Cash only	Cash & bank	Banks only
Pre (-2016/11/8)			
Cash only	197	8	0
Cash & bank	1	27	5
Banks only	0	0	41
Post (2016/12/31-endline)			
	Cash only	Cash & bank	Banks only
During (2016/11/9-2016/12/30)			
Cash only	195	3	0
Cash & bank	1	32	2
Banks only	0	3	43
Post (2016/12/31-endline)			
	Cash only	Cash & bank	Banks only
Pre (-2016/11/8)			
Cash only	197	8	1
Cash & bank	0	32	3
Banks only	0	0	41

Notes: The number of responses is less than 287 due to response refusal or question non-applicability.