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### **ABSTRACT**

We follow 822 applicants through the process of obtaining a driver's license in New Delhi, India. To understand how the bureaucracy responds to individual and social needs, participants were randomly assigned to one of three groups: bonus, lesson, and comparison groups. Participants in the bonus group were offered a financial reward if they could obtain their license fast; participants in the lesson group were offered free driving lessons. To gauge driving skills, we performed a surprise driving test after participants had obtained their licenses. Several interesting facts regarding corruption emerge. First, the bureaucracy responds to individual needs. Those who want their license faster (e.g. the bonus group), get it 40% faster and at a 20% higher rate. Second, the bureaucracy is insensitive to social needs. The bonus group does not learn to drive safely in order to obtain their license: in fact, 69% of them were rated as "failures" on the independent driving test. Those in the lesson group, despite superior driving skills, are only slightly more likely to obtain a license than the comparison group and far less likely (by 29 percentage points) than the bonus group. Detailed surveys allow us to document the mechanisms of corruption. We find that bureaucrats arbitrarily fail drivers at a high rate during the driving exam, irrespective of their ability to drive. To overcome this, individuals pay informal "agents" to bribe the bureaucrat and avoid taking the exam altogether. An audit study of agents further highlights the insensitivity of agents' pricing to driving skills. Together, these results suggest that bureaucrats raise red tape to extract bribes and that this corruption undermines the very purpose of regulation.

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## Introduction

The provision of public services in many developing countries is rife with corruption. Some argue that such corruption is socially beneficial (Leff, 1964; Huntington, 1968; Lui 1985). For example, Huntington (1968) remarks that “[I]n terms of economic growth, the only thing worse than a society with a rigid, overcentralized, dishonest bureaucracy is one with a rigid, overcentralized, and honest bureaucracy.” Others argue that corruption is harmful for society (Myrdal 1968; Rose-Ackerman, 1978; Klitgaard, 1991; Shleifer and Vishny, 1993; Djankov et al., 2002). This disagreement is linked to differing views on which parts of regulation corruption circumvents. Does it allow the circumvention of the privately noxious, but socially unimportant components of regulation? For example, bribes may serve as “speed money” when there are administrative delays, moving those citizens with the highest willingness-to-pay to the front of the queue. If so, then corruption merely “greases the wheels” of the bureaucracy by cutting through red tape. Or, does it allow the circumvention of the socially useful components of regulation? If so, corruption can be costly to society.<sup>2</sup>

This debate can be understood easily in the context of our study: obtaining a driving license. Individuals must go through various bureaucratic hurdles to obtain the license. Some are less important for society, such as having applications processed in the order they were received. Others are much more important and socially useful, such as passing a driving test. Which rules does corruption bend? Do bureaucrats simply allow some individuals to cut the queue and/or get a license despite not having some of the necessary (but, essentially unimportant) paperwork? Or do they allow some who are incapable of safe driving to get a license? More importantly, what are the magnitudes of these bureaucratic “responses”? Answers to these questions are central to the debate on the efficiency of corruption.<sup>3</sup> Beyond these questions, our understanding of the *process* of corruption is also limited. How do bribes actually take place? How does corruption affect the bureaucratic process? In particular, one strand of the theoretical literature has

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<sup>2</sup> We rely on two definitions of corruption. The first defines corruption as the mis-application or non-application of regulations by a bureaucrat. The second defines corruption as the use of public office for private gain. For the bulk of the paper, we focus on the regulatory definition of corruption, studying how regulations are being applied without articulating the bureaucrat’s private gain. Section V, however, suggests a private-gain interpretation of our results.

<sup>3</sup> Arguments about second-best, political economy or general equilibrium also determine corruption’s overall efficiency. The macro-empirical work has focused on these arguments using aggregate data (see for example Mauro, 1995).

emphasized that most bureaucratic rigidities are the *result* of rent-seeking by bureaucrats (for example, Myrdal, 1968; and Svensson, 2005). In these theories of “endogenous red tape,” bureaucrats may introduce socially unnecessary rigidities in order to extract bribes from citizens (see e.g. Shleifer and Vishny 1993, Banerjee 1997).

We collect detailed micro-data on a specific bureaucratic process—granting of drivers’ licenses in New Delhi, India—to answer these questions. Our methodology gives a detailed snapshot of how corruption operates, something that has usually been hard to quantify.<sup>4</sup> We use the resulting data to address five questions: Do people pay bribes to get a license? Can corruption be used to speed up the process of getting a license? Do bad drivers use bribes to get a license? Do bureaucrats raise hurdles to extract bribes? Finally, how does corruption take place?

Between October 2004 and April 2005, the International Finance Corporation (IFC) followed 822 individuals through the process of getting a driver’s license in New Delhi, India. Data were collected on each individual’s expenditures to obtain a license (if they were able to), each procedural step undertaken, tests taken, and time spent. At the end of the process, the IFC also administered a surprise road test to determine whether those individuals who were granted a license could drive safely. All participants were offered free driving lessons upon completion of the final survey and driving test.

Further, the IFC created exogenous variation in both the private incentives and the quality of each driving license candidate. Specifically, survey participants were randomly assigned to one of three groups. The IFC offered one group of participants (“the bonus group”) a large financial bonus if they were able to obtain a license in 31 days, one day longer than the statutory minimum time of 30 days. This group allows us to test the sensitivity of the bureaucracy to an individual’s desire to speed up the process. Another group of participants (“the lesson group”) was offered free driving lessons, to be taken up immediately after recruitment into the survey. This group allows us to test the sensitivity of the bureaucracy to an individual’s driving skills. The rest served as the comparison group, and were simply asked to participate in the survey.

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<sup>4</sup> Notable exceptions of micro-empirical approaches to corruption are Di Tella and Schargrodsky (2003) and Olken (2005).

Corruption was rampant. Participants paid on average more than twice the official fees to obtain a driving license. Consistent with the “grease the wheels” view, individuals who wanted to obtain a license faster did so. Those in the bonus group were about 20 percentage points more likely to obtain a license, and obtained it nearly 40% faster than those in the comparison group.<sup>5</sup> Corruption, however, allowed the circumvention of socially useful rules. Many unsafe drivers were given licenses. In fact, 69 percent of those in the bonus group failed the independently administered, surprise road test at the end of the project—where failing meant that the individual knew so little about the workings of the car that the test-giver refused to take him on the road.

Moreover, being a good driver barely increased one’s likelihood of obtaining a license. Despite a high take-up of the free driving lessons, those in the “lesson group” were not statistically more likely to obtain a license than those in the comparison group. These results suggest that corruption was used to bend the most socially useful aspect of regulation: the driving test. Corruption, therefore, undermines the very reason for the regulation: to ensure safe drivers. These results do not immediately imply that incompetent drivers will be on the road. They do mean that there is no longer effective regulation of who can drive. People will choose whatever level of driving skill is privately, not socially, optimal.<sup>6</sup>

The survey also reveals how corruption works. There are two main ways for people to obtain a license. The first route is the expected one, where an individual completes the bureaucratic process without outside help. The alternative is hiring an agent who guides you through the various steps of the bureaucratic process. This second route is the more popular choice in New Delhi, with close to 75% of the participants eventually using an agent to obtain a license. Correlations show a strong relationship between agent usage and speed of the process. Those with an agent take fewer trips to the Regional Transport Office (RTO), speak to far fewer bureaucrats and save two hours in total time at the RTO. Using an agent also allows one to circumvent the official driver’s test. Nearly all of those who never used an agent took the official driver’s test, as compared to only 12% of those who used an agent. This difference is not explained by better driving

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<sup>5</sup> Of course, it is also possible that the individuals who were given a greater incentive to get the license faster simply did so by exerting greater effort. Yet, the exact actions the bonus group undertook to procure a license are more suggestive of corruption.

<sup>6</sup> This is especially important since everyone obtains a license for the purpose of driving. Driving licenses in India are not used as a primary form of identification.

ability. Quite the opposite: hiring an agent is strongly correlated with failing the surprise driving test. These results suggest that corruption does not simply speed up the process. Instead, the agent helps one avoid taking the test of driving skills altogether.

Even more importantly, the data suggest that bureaucrats may create red-tape for private gains, consistent with Shleifer and Vishny (1992, 1993) and Svensson (2003). The bureaucrats appear to use the driving test not to screen unsafe from safe drivers, but to arbitrarily fail some people. Examining the subset of participants who begin the process by taking the driving test once, we find that a substantial percentage of them (about 35%) fail and must resort to retaking the test or hiring an agent. This percentage is *unrelated* to the actual ability to drive: it is constant across the lesson, bonus and control groups. It is also constant across scores on the ex-post driving test.<sup>7</sup>

We find no direct bribing. Most of the extra-legal expenditures individuals come from the hiring of agents. While a higher fraction of those in the bonus group than in the comparison group start the process without an agent, the eventual rate of agent usage is about the same across these two groups since as many in the comparison group end up using an agent. Not surprisingly then, participants in these two groups end up paying roughly the same amount (Rs1,130) to obtain their license. A higher fraction of those in the lesson group complete the process without an agent and therefore end up paying slightly less, on average, for their license. However, this only measures the financial costs and ignores other costs such as time and hassle costs. Our survey also allows some measurement of time costs. While these estimates are noisy, we find suggestive evidence that the bonus group incurs the lowest time cost (most likely because a higher fraction of them start the process with an agent rather than switching to one at a later date). In contrast, those in the lesson group interact with more RTO staff, spend more time at the RTO and take a longer time to obtain the license.

Finally, to better understand how corruption works, the IFC performed a simple audit of agents. Specifically, we sent trained actors to agents to elicit the prices and feasibility of obtaining a license under

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<sup>7</sup> This finding of endogenous red tape is interesting because red tape here is a public good. Every bureaucrat benefits from another bureaucrat's willingness to fail applicants at random. This suggests some form of collusion or other-regarding preferences. The potential for collusion or other-regarding preferences is implicit in previous empirical work on corruption (Wade, 1982).

different pretexts. These pretexts corresponded to bending various official rules of the licensing process. In this way, we could learn in greater detail which constraints corruption can loosen up and which ones it cannot. Confirming the results from the main study, agents were able to procure a license despite lack of driving skills. All actors who said they did not have the time to learn how to drive were told by the agent that he could get them a license. In fact, the prices quoted were no different from a control set of actors who did not mention inability to drive.

Yet, it also appeared from the audit that there are constraints in the system that corruption cannot circumvent. Agents were much more likely to turn away individuals that could not provide proof of age or residence. Almost no agent could assist an actor who needed their permanent license in less than 30 days of getting their temporary license (30 days being the official minimum limit). Conditional on being able to provide assistance in these cases, the price quotes actors received were much higher than under the control script. These results suggest that bureaucrats do not have the ability to distort all rules. It is possible that verifiability determines which rules can be bent. While those monitoring the bureaucrats can cross-check certain things (e.g. age or residential proof), they are not be able to cross-check the ability to drive, at least before a road accident occurs.

As a whole, while corruption does “grease the wheels” by being responsive to individual needs, it does so at a large social cost. In this particular context, the single key feature of the licensing process (verifying that license applicants know how to drive) is being circumvented.<sup>8</sup> The audit study hints at the generalizability of these results. Other bureaucratic processes could show similar results depending on the verifiability of the socially important components of regulation.

The rest of the paper proceeds as follows. Section I discusses the process of obtaining a driving license in India, while Section II describes the data collection effort and lays out the experimental design. The results are presented in Section III. Section IV describes the audit results and Section V discusses interpretation of the results. Section VI concludes.

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<sup>8</sup> These results do not show that corruption is inefficient *per se*. Such a statement does not make sense without some notion of what exact tools would be used to reduce corruption and what distortions they might cause in turn. Several authors have argued alternatives to corruption may create enough distortion that corruption is a second-best (e.g. Tirole 1997 or Acemoglu and Verdier 2000).

## **I. Getting a Driver's License in New Delhi, India**

The Motor Vehicle Act of 1988 and its subsequent amendments stipulate the official licensing process in India. State governments are responsible for administering this national transport policy. In New Delhi, the setting for this project, licenses are issued at nine Regional Transport Offices (RTOs). The jurisdiction of each office coincides with the corresponding police district, and an individual can only obtain a license from his or her particular RTO. Between December 2001 and December 2002, the New Delhi Motor Vehicle Department authorized 313,690 licenses.

To be eligible for a license, an individual must be at least 18 years of age. He or she must first obtain a learner's (or temporary) license, which grants the right to practice driving under the supervision of a licensed individual. To obtain the learner's license, proof of residence, proof of age, a passport size photo and a medical certificate must be submitted to the RTO along with an application form. There is an application fee of Rs360 (\$8). After this paperwork is submitted, the applicant must take a color blindness test and a written exam with 20 multiple choice questions on road signs, traffic rules, and traffic regulations. Upon passing these, the learner's license is processed on the same day. If the applicant fails the exam, he or she can reapply after a 7-day waiting period.

After 30 days (and within 180 days) of the issuance of the learner's license, the individual may apply for a permanent license. The applicant must submit proof of age, proof of residence, a recent passport size photo, and his or her learner's license. The applicant must also pass a driving road test at the RTO. A Rs90 fee is charged for the photograph and lamination of the license. If the applicant fails the road test, he or she can reapply only after a 7-day waiting period.

## **II. Survey and experimental design**

The IFC recruited and observed individuals through the process of applying for a four-wheeler license. Survey participants were randomly allocated to one of three experimental groups in order to create exogenous variation in the willingness to pay for a license and the quality of their driving. One group was offered a bonus for getting the license as fast as is legally possible. A second group was offered free driving



lessons to improve the quality of their driving skills. The remaining group was told to simply obtain a license. At the end of the project, all participants were offered free driving lessons and a financial reward for their time. The three project phases—recruitment, randomization and follow-up—are described below (see also Figure 1).

### *Recruitment*

Recruitment began in June 2004, and continued through November 2004. Recruiting occurred on a two-week cycle. During each cycle, recruiters intercepted individuals who were entering one of the following four Regional Transport Offices (RTOs) in New Delhi: Southwest, Northwest, South or New Delhi.<sup>9</sup> The IFC gave recruiters guidelines regarding the type of person to approach for the project. First, to reduce attrition, recruiters were instructed to approach only men (in a pilot study, 60% of men remained in the project, while 100% of the women dropped out). Second, they were asked to identify individuals that had not previously had a driving license, but wanted to obtain one. Finally, and in order to comply with government regulations, only individuals over age 18 were allowed to participate.

The recruiters provided each potential participant with a short explanation of the project, offered an information sheet outlining the time frame and payment structure for the project, and invited interested people to attend an information session to learn more about the project. Over the course of each two week cycle, the recruiters collectively spoke with about 150 potential participants.

### *Initial Session and Randomization*

An initial session was held at the end of each two-week recruiting cycle, near the RTO from which the subjects were recruited. On average, 36 individuals participated in each of the 23 sessions, for a total of 822 project participants (see Figure 1). Participation was restricted to individuals who had been officially recruited and up to one of their friends. To further limit attrition, the project team undertook several steps: first, they rejected any individual whose phone number could not be verified prior to the session; second,

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<sup>9</sup> Recruiting people directly standing in the line to obtain a temporary license is the simplest method to identify such individuals. However, in order to comply with government regulation, recruiters were instructed to stand outside the RTO compound.

they required formal identification (student identification, ration card, etc); third, they turned away a few individuals who were rude to surveyors or who acted rowdy during the session.

To begin, the survey team administered an introduction survey. The first section of the survey collected demographic information on the participants while the second section detailed their previous driving experiences (Can you drive a 2-wheeler vehicle? Have you driven without a license?). The third section focused on the participants' previous experiences in obtaining government services, and the fourth section documented the participants' beliefs on the necessary steps to obtain a driving license (How much will it cost? How long will it take?). The survey concluded with a series of questions regarding driving laws and practices; these questions were drawn from a sample of practice test questions published by the New Delhi RTO.<sup>10</sup>

After the survey was completed, the team randomly allocated each participant to one of the following three groups: a comparison group, a bonus group and a lesson group. Individuals in the comparison group were simply asked to return for a second survey—documenting their experiences—upon acquiring a permanent license. As an inducement to return, each subject was offered Rs800 (roughly \$17) upon completion of the final survey.<sup>11</sup>

Individuals in the bonus group were given the same information and set of instructions as those in the comparison group. However, in order to generate a higher incentive for obtaining a license, participants in this group were also offered a bonus of Rs2,000 (on top of Rs800 for completing the surveys) if they could obtain their permanent license within 31 days of obtaining their temporary license (one day over the official minimum wait time). Rs2,000 was chosen to ensure a large enough treatment effect. The monthly gross salary for the 380 employed individuals in our sample is Rs5,446, and thus, the bonus is roughly equivalent to one-third of an individual's monthly income.

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<sup>10</sup> For example: You are driving in heavy rain. Your steering suddenly becomes very light. You should: (1) Steer towards the side of the road, (2) Brake firmly to reduce speed, (3) Apply gentle acceleration, (4) Ease off the acceleration, (5) Do not know.

<sup>11</sup> Since all subjects in the control group received a cash payment, they may not be representative of how the population as a whole would behave. Specifically, the control group may spend more on acquiring a license in the presence of the payment than they otherwise would. Still, this does not compromise the internal validity of the difference between treatment and control.

Finally, in addition to being given the same set of instructions as the comparison group, individuals in the lesson group were provided with access to free driving lessons, to be taken immediately. Accredited driving schools were hired to provide up to 15 lessons (half an hour each).<sup>12</sup> Individuals in this group were also promised a payment of Rs800 upon completion of the surveys.

At the end of this initial session, the project team paid all participants Rs200 (\$4.25). This was done to help alleviate possible credit constraints in acquiring a license. This upfront payment was also made in order to increase the credibility of the final payment. Unlike in the United States, behavioral studies of this type are not typical in India. Participants in the pilot (who did not receive this upfront payment) harbored suspicions about whether the final payment would be made.

While the project team tried to isolate the three groups from each other, we cannot rule out the possibility that individuals in different groups communicated with each other during this process. To increase transparency, each of them was informed that several groups existed in the study, and that some participants were randomly chosen to win additional payments.

### *Follow-up*

It may take as little as 30 days or as many as 180 days to obtain a license.<sup>13</sup> During this period, the project team kept in close contact with each participant to remind them about the project and maintain the credibility of the final payments. Extensive phone calls were made (and logged) to ensure that people understood the instructions and payments schemes, to arrange lessons for subjects in the lesson group, and to remind subjects in the bonus group about the bonus scheme and deadlines.

Upon obtaining a learner's license (temporary license), the survey team administered a short phone survey regarding the subject's experiences in the bureaucratic process so far: number of trips made to the RTO, breakdown of the payments made so far, questions regarding the written exam, etc. As shown in Figure 1 (and, in more detail, in Appendix 1A), 73% of the sample tried to obtain a temporary license.

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<sup>12</sup> We picked a number of reputable driving schools to provide *only* training to the participants. These schools did not include the school that administered the final road test.

<sup>13</sup> The 180 day cutoff was designed to have a finite end to the experiment. By that point, it was felt that all who were going to get the license had gotten it.

Upon earning a permanent license, each subject was invited to a final session. Half of the original set of participants both obtained a final license and returned for the final survey. At the final session, the survey team questioned each individual regarding his experiences with the bureaucratic process, tested his driving skills, made the final payment and, for those in the comparison and bonus groups, offered free driving lessons.<sup>14</sup> Attrition was low, as only 4% of those who obtained a permanent or temporary license did not return for the final survey (Appendix 1A).<sup>15</sup>

Under the supervision of the project team, an accredited driving school administered the practical driving test. It was designed to test the skills required to obtain a license under the Motor Vehicle Act of 1988. The driving test came as a surprise to all participants. To preserve the integrity of the test, the test-givers did not know which experimental group a given test-taker belonged to.

The driving exam consisted of two parts. First, the test-giver administered an oral exam intended to judge whether a subject could safely operate a car. This included distinguishing between the accelerator and the brake, showing the location of the clutch, and describing the gears. If a subject was unable to answer each of these questions correctly, he was deemed incapable of taking the practical driving test and automatically failed. If the subject adequately answered all questions, the test-giver administered a road test. The test-giver awarded subjects a series of points for satisfactorily illustrating that they could properly start a car, change gears, use indicators, complete turns, and park.

Finally, to understand why some individuals were unable to obtain a license, we administered a series of dropout surveys. The first survey was targeted at participants who had not obtained a temporary license by the end of the project. The survey team found 235 of the 325 participants who did not receive a temporary license (Appendix 1A).<sup>16</sup> A second survey was targeted to individuals that had obtained, by the

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<sup>14</sup> Upon earning a permanent license, an individual is required to relinquish his temporary license back to the RTO. As proof of date, subjects in the bonus group were required to bring a photocopy of their temporary license. It is possible that this “proof” could be faked, i.e. it took 40 days for the participant to obtain a license, but he paid the bureaucrat extra to make it appear as if it took 30 days. However, this behavior would not change the central results of the paper.

<sup>15</sup> Appendix 1B studies differences between attritors and non-attritors in terms of socio-economic characteristics, driving experiences, past bribing experience and beliefs regarding procedures (as collected in the initial survey). While there does not appear to be large differences overall, a few characteristics (mainly marital status, wealth, minority status and beliefs regarding procedures) do not appear balanced between attritors and non-attritors. All the results reported below are robust to controlling for these characteristics.

<sup>16</sup> There are no systematic differences between attritors and non-attritors among those that did not obtain a temporary license except for: religion, government connection, and past experience driving a 2-wheeler.

end of the project, a temporary license but no permanent license. These individuals were asked to come to a final survey session and to take the practical driving exam at that session. As an inducement to come for the final session, they were paid Rs500. Twenty-six of the 71 individuals who got a temporary license but no final license returned for that session.

### **III. Empirical results**

We begin by presenting basic correlations in the data. Next we present the main experimental results with regard to outcomes: the likelihood of obtaining a license and driving skills conditional on obtaining a license. The section concludes by documenting the process participants faced in order to obtain their license.

#### *Descriptive Statistics*

Table 1 provides an overview of the licensing process for individuals in the comparison group. Surprisingly few individuals—37 percent—were able to obtain a license (Panel A). This low success rate cannot solely be attributed to the difficulty of getting a license. The project team lost track of some of the original participants and another subset of participants reported not having tried to get a license (see Appendix 1A). Excluding these 2 subsets, the fraction that obtained a permanent license was 59%.

Panel B summarizes the main features of the bureaucratic process for the individuals in the comparison group who obtained a license. On average, it took 48 days to obtain the license. In the initial survey, individuals tended to overestimate what the bureaucratic process would entail: they thought, for example, that the entire process would take over 6 ½ trips to the RTO (not reported in the table).<sup>17</sup> In practice, they only spent 3 ½ hours (206 minutes) over 2 ½ trips to complete the bureaucratic process. Individuals interacted with 5 different bureaucrats, and waited in 2.5 lines. Most importantly, the participants' experience indicates that the actual process differed from the official process. Specifically, 70% of the participants reported obtaining a permanent license without taking the mandatory practical test at the

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<sup>17</sup> There is no significant difference in the predicted number of trips and predicted time it takes to obtain a license between those who obtained a license and those who did not.

RTO. Finally, while the official cost of a license is Rs450 in total, the average participant in the comparison group spent Rs1,127 to complete the process, or more than twice the official amount.

Table 2 explores the relationship between total expenditures to get a license, driving knowledge prior to starting the licensing process, and various procedural outcomes for the comparison group. Each cell in Table 2 presents the coefficient estimate from a separate regression where the dependent variable is the one listed in that column and the independent variable is the one listed in that row. For example, Row 1, Column 2 models the relationship between individual  $i$ 's total expenditures (in logs) to get a license and the number of days it took individual  $i$  to obtain a license:

$$Days_i = \beta_0 + \beta_1 \text{Log}(Expenditures)_i + \beta_2 \text{Session}_i + \beta_3 X_i + e_i$$

Indicator variables for the initial session the individual attended ( $Session_i$ ) are included to absorb the unobserved heterogeneity in the procedural outcome across initial sessions. This is important for two reasons. First, we ended the study three months after the last initial session. Thus, individuals who attended the first initial session in July 2004 had more time to obtain a license than those who attended the last initial session in November 2004. Second, because individuals were recruited geographically for each session, everyone at a given initial session was required to obtain a license from the same RTO. Controlling for initial session fixed effects, therefore, also nets out any differences in outcomes between RTOs. Finally, we include demographic controls ( $X_i$ ) to account for differences in outcomes that could be attributed to religion, minority status, employment status, education, income, age, marital status, and wealth.<sup>18</sup>

Overall, higher payments to get a license are associated with fewer delays (Row 1). Individuals who paid more took fewer trips to the RTO, spoke with fewer officials and spent less time at the RTO. For example, a 10% increase in payment is associated with 16 fewer minutes at the RTO. Paying more is also correlated with a higher avoidance of the (legally required) practical licensing test. A 10% increase in payment results in a 7.5-percentage point decrease in the probability of taking the test; this is statistically significant at the 1% level.<sup>19</sup>

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<sup>18</sup> The basic findings from these regressions are robust to the exclusion of all controls.

<sup>19</sup> Participants' salaries are uncorrelated with their expenditures on obtaining a license.

While paying more is associated with an easier process, having a better knowledge of driving prior to starting the licensing process (as measured by a series of questions on road signs and rules that were asked at the initial session) is not.<sup>20</sup> First, better prior knowledge does not increase one's ability to obtain a license (Row 2, Column 1). Also, conditional on obtaining a license, the better the prior knowledge, the longer it takes to get a license (Column 2) and the more trips are required (Column 3).

In summary, Table 2 provides evidence on how corruption may operate. The fact that higher payments are associated with a lower likelihood to take the required test *could* mean that paying more is a way to get a license without knowing how to drive. However, it is also possible that the individuals who make higher payments are tested through some alternative, quicker and cheaper means. We address these interpretational issues next by turning to the experimental results.

### *Experimental Results*

Table 3 describes the main characteristics of the participants in this study. Besides providing background on the average participant's characteristics, the table also reports whether any systematic differences exist across participants in the three experimental groups and serves as a check of the randomization design. Column 1 presents the mean for the full sample, while Columns 2 through 4 present means at the group-level. The stars indicate whether a given group's mean is significantly different from the two other groups', after controlling for session fixed effects.

Panel A and B document the participants' socioeconomic background and their past driving experience. Individuals tend to be young (24 years of age) and many are high school or college students (48%). Seventy-nine percent are Hindu, while 18% are Muslim; 36% have minority status (Other Backward Castes, Scheduled Caste, or Scheduled Tribe). Many have driven a two-wheeler at least once (88%), yet only 3% report having a two-wheeler license. Close to a quarter reports having driven a four-wheeler at least once while, by sample construction, none of them have a four-wheeler license. As Delhi is the capital city, it

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<sup>20</sup> In the initial survey, all participants were asked 9 questions on driving procedures. The "pre-experiment driving knowledge score" measures the percentage of questions answered correctly.

is unsurprising that a fair number of individuals have government connections: 41% have at least one family member (usually a parent) employed by the government.

The characteristics summarized in Panel A and B appear well-balanced across the three groups. There are no significant differences across groups in age, education levels (as measured by percentage of people with less than a primary school education), employment status, wealth (as measured by the number of durable goods owned by the family), income, or likelihood to have driven a two-wheeler or have a two-wheeler license. There are some exceptions. First, individuals in the comparison group are less likely to be married and more likely to be Hindu. Second, a larger fraction of those in the bonus group and a lower fraction of those in lesson group report having driven a four-wheeler at least once in the past. However, conditional on having driven a four-wheeler, there are no systematic differences across groups in the tenure of driving a four-wheeler.

Survey participants talk openly about bribes. First, to capture attitudes toward bribing, the project team posed the following hypothetical scenario to individuals: “You are driving without a license, and are pulled over by a policeman. The policeman offers you a choice of paying a Rs500 fine or a Rs300 bribe.” Sixty-one percent of the sample indicates that they would pay the bribe, and there are no significant differences in the propensity to bribe across the three groups (Panel C). Participants have some distaste for paying bribes, as evidenced by the fact that when the cost of the fine relative to the bribe increases, more individuals are willing to pay the bribe (for example, 83% of the sample stated that they would pay the bribe if the fine was Rs3000 and the bribe remained Rs300). Second, the project team asked individuals whether they had paid a bribe in the past (Panel D). Conditional on having obtained a service, 20% of individuals paid a bribe.<sup>21</sup> There are no systematic differences in past bribing behavior across the three groups.

The last panel explores the participants’ beliefs regarding the process they will face. Individuals think that the entire licensing process will take on average 6.8 trips. This is more trips than what it will take the average participant in practice. There are no systematic differences in beliefs across the three experimental groups.

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<sup>21</sup> The list of services covered in the initial survey was: ration card, passport, land title, building permit, electricity, water, voter’s card, personal account number (which is equivalent to a social security number). Highest likelihood of bribe payment was with regard to ration cards, followed by land titles and building permits.



In summary, the pre-characteristics are well-balanced across the three groups. We have, however, uncovered some systematic differences, and therefore, in the analysis that follows, we will directly control for those characteristics (marital status, religion fixed effects, and having driven a 4 wheeler in the past).

*Who gets a license?*

We begin by focusing on the two final outcomes for our survey participants: their ability to get a license and, conditional on getting a license, their ability to drive. With respect to these, the questions we address relate to allocative efficiency: are those with a higher willingness-to-pay able to get their license faster and at a higher rate? And if yes, how does this affect their ability to drive? Also, are better drivers able to get their license at a higher rate?

Table 4 provides answers to these three questions. Each column reports, for the dependent variable listed in that column, the coefficient estimates on dummy variables for the bonus group and the lesson group:

$$Outcomes_i = \beta_0 + \beta_1 Bonus_i + \beta_2 Lesson_i + \beta_3 Session_i + \beta_4 X_i + e_i$$

We include session fixed effects as controls in each regression. Demographic variables—marital status, religion fixed effects, and a dummy variable for having driven a four-wheeler prior to the experiment—are used to control for differences in pre-experimental characteristics (see Table 3). Standard errors are reported in parentheses under each estimated coefficient. Below the coefficient estimates, the F-statistic and p-value for the joint significance of  $\beta_1$  and  $\beta_2$  are listed. For ease of interpretation, the mean of the dependent variable for the comparison group is listed in the first row of each column.

Consistent with the view that the bureaucracy is responsive to individual needs, we find that those participants who have a higher willingness-to-pay for a license (the bonus group) are more likely to obtain their final license and also obtain it faster. Individuals in the bonus group were 28 percentage points more likely to obtain a permanent license than those in the comparison group, and this difference is significant at the 1% level (Column 1). While it is true that individuals in the bonus group are also more likely to have *tried* to obtain a license (see Figure 1), their higher success rate stays large (17 percentage points) and statistically significant at the 1% level even after limiting the sample to individuals who reported having tried

to obtain a license (Column 2). In addition to having a higher success rate in terms of obtaining a license, the bonus group was also able to obtain the license 18 days faster than the comparison group (Column 3).

These differences do not imply that the bonus group resorted to corrupt measures to obtain a license; it is possible that they simply exerted more effort or practiced more to become better drivers. However, the evidence that we collected from the survey and driving test conducted at the final session does not support this view. First, among those that obtained a license, 77 percent in the bonus group, compared to 49 percent in the comparison group, report not having been taught how to drive by anybody (e.g. neither by a driving school, nor by a friend, relative or other driver; Column 6). Column 8 shows that, among those who obtained a license, 39 percent in the bonus group report not being confident in their driving skills, compared to 23 percent in the comparison group. These differences are also reflected in the bonus group's relative performance on the surprise driving test performed at the end of the project. They are worse drivers than the comparison group (although this is not significant at conventional levels): they are 8 percentage points (69% vs 61%) more likely to fail the independent driving test. They also score 0.17 standard deviations less than the comparison group on the driving test (Columns 9 and 10).<sup>22</sup> In other words, individuals with higher private needs for a license get their license at a higher rate but this is not because they put more effort in learning to become good drivers: willingness-to-pay and driving ability are not complements.

A study of outcomes for the lesson group also shows that driving ability is at best a weak substitute for willingness-to-pay in order to get a license. Specifically, we find that individuals who were given free driving lessons upfront were only slightly more likely (5%; Column 2) to obtain a license relative to the comparison group (conditional on having attempted to get a license). Yet, 60% of those in the lesson group who obtained a license took the free lessons. Conditional on take-up, they attended, on average, 12 classes. The independent driving test results also confirm the lesson group's superior driving skills and the fact there is a treatment: conditional on obtaining a license, only 11% of the individuals in the lesson group automatically failed the driving test (compared to 61% and 69% in the comparison and bonus groups,

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<sup>22</sup> The score is comprised of the individuals' score on the 5 oral questions and on 23 aspects of driving. Thus, the highest possible score is 28. We subtracted the mean score from the comparison group, and divided by the standard deviation of the comparison group.

respectively; Column 9).<sup>23</sup> Individuals in the lesson group scored over one standard deviation more than the comparison group on the surprise driving test (Column 10).

In summary, the evidence reported in Table 4 suggests that corruption allows individuals who are in a hurry to get a license faster. But most importantly, the evidence suggests that it comes at a social cost. First, many unsafe drivers get licenses. As a result, learning how to drive is not the way to get a license if in a hurry. Corruption appears to substitute for actual driving skill. Second, and conversely, knowing how to drive does not help to obtain a license. This suggests a particularly perverse form of corruption in which the socially useful part of the regulation is completely ignored.

### *Processes*

What is the bureaucratic process that generated these outcomes? To address this question, we turn to the information collected on the experiences of all the participants, including the number of trips they had to make and lines they had to wait in, the number of bureaucrats they had to speak with, the amount of paperwork they had to fill in, the number of times they had to take the legally required test, etc. Such an in-depth look into processes is of interest in itself since few existing studies give us detailed information on the actual mechanisms of corruption. Moreover, it also helps us examine the extent of endogenous red tape. Specifically, we ask whether there is any evidence that the bureaucrats are using their discretion over the implementation of the bureaucratic process in order to extract higher bribes.

Our first finding is that there are two routes by which people obtain their license. In the first route (the one we had anticipated), individuals directly go to the local RTO and deal with the bureaucrats there. In the second (and most common) route, individuals hire an agent to help them navigate the bureaucracy. More than 70% of the participants in our study who obtained a license hired an agent. The existence of agents has been documented before in other settings.<sup>24</sup> Yet, there is little understanding on exactly how agents interact with the bureaucracy. Although agents are technically illegal in India, the fact that so many participants in

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<sup>23</sup> We also tested driving ability among the set of participants that had only obtained a temporary license but agreed to come back for a final survey. As expected, even in that group, driving ability was higher in the lesson group than in the comparison and bonus group. Only 26% of the lesson group automatically failed the test, compared to 40% and 50% in the comparison and bonus groups, respectively.

<sup>24</sup> Rosenn (1984) describes the role of facilitators ("despachantes") in obtaining various public services in Brazil.

our study hire agents to assist them in the process of getting a license confirm that they are a well-established institution.<sup>25</sup> In fact, from a set of questions asked in the initial survey, we learned that agent usage is also quite prevalent in the procurement of many other government services in India. For example, of the 155 participants who obtained a ration card, 54% reported being helped by an agent in that process. Similarly, 47% of the 47 individuals who obtained a land title, 15% of the 104 who obtained a passport, and 20% of the 58 who obtained a personal account number reported hiring an agent in those instances. For driving licenses, it was quite easy for participants to find an agent. As reported in the final survey, agents approached 86% of the participants who eventually obtained a license and, on average, individuals were approached by 2.7 agents.

How does hiring an agent affect a participant's experience with the bureaucracy? Are agents simply a time-saving device, for example hired to stand in line and pick up documents on behalf of their "client?" Or do they play a more central role in driving some of the outcomes reported in Table 4? We address these questions in Table 5 through simple OLS regressions. Specifically, we report the means of a set of process-related variables for individuals not using an agent, and the difference in means for those using an agent. We find that hiring an agent leads to a much shorter process. To complete the licensing process, those that did not use an agent spent on average 306 minutes at the RTO, took more than 3 trips to the RTO and spoke with close to 8 bureaucrats (Columns 5, 2, and 3, respectively). Hiring an agent reduces the total length of the bureaucratic process by about 130 minutes; on average, it also reduces the number of trips to the RTO by nearly one, and the number of bureaucrats one faces in half (4 instead of 8).

However, besides making the process less time-consuming, hiring an agent also affects the level of testing at the RTO. While 94% of those that do not hire an agent took the legally required RTO practical test at least once, only 12% of those that hired an agent took that test (Column 6). While this is consistent with the hypothesis that hiring an agent is the main channel through which bad drivers can end up with a license, it is also theoretically possible that only the best drivers, for which testing would be unessential, hire agents.

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<sup>25</sup> During a fact-finding trip in a mid-scale Indian city, one of the co-authors instructed a rickshaw-driver to take her to the "place to get a driving license." Rather than take her to the RTO, the rickshaw-driver took her directly to an agent.

This alternative hypothesis is hard to sustain in light of Columns 8 and 9 of Table 5. Individuals that hire an agent to get their license are about 38 percentage points more likely to fail the surprise driving test.

In summary, the role of agents in this process is more than simply “standing in line” for their client. Instead, agents appear to be the main channel through which unsafe drivers obtain a license and the means through which corruption occurs. This intuition is confirmed in Column 7 of Table 5, where we compare the average expenditures to obtain a license for those that hired agents and those that did not. For those without agents, the total expenditures were Rs580. In contrast, those hiring an agent paid about Rs720 more to obtain their license. The main driver of this higher level of expenditures is the fee paid to the agent.

We next study differences in processes across the three experimental groups (Table 6). The first finding that emerges is that about the same fraction of participants in the bonus and comparison group end up using an agent to obtain their license (about 78%). A lower, but still quite substantial, fraction of those in the lesson group (59%) also relied on an agent to complete the licensing process (Column 1).

Even more interesting are differences across experimental groups in how they *ended up* using agents (Column 2). While two-thirds of those in the bonus group that ended using an agent started the process with an agent, a much higher fraction of those in the comparison and lesson groups started the process without an agent but ended up using an agent. Specifically, between 55% and 60% of those that ended up using an agent in the comparison and bonus groups tried to complete the process without an agent. In other words, many participants went to the RTO on their own discovered or learned something that made them decide to switch to using an agent. Of course, it could be that they discovered that they would have to learn how to drive to pass the practical test, decided that this was too costly for them, and hence switched to using an agent. However, this interpretation does not seem fully satisfactory given the high level of switching even among those that we know to be better drivers (e.g. the lesson group). This suggests that something beyond having to learn how to drive explains the switching behavior.

One possibility is that those individuals that go to the RTO on their own are faced with various “pressures” (or red tape) from the bureaucrats that lead them to eventually switch to using an agent. One specific source of red tape that our data allow us to examine relates to the behavior of the bureaucrats with regard to the determinants of whether someone has passed or not passed the official practical driving test.

Consider an individual going to the RTO and being asked to take the test. What affects the likelihood that this individual will succeed and be awarded a driving license? One clear determinant of success ought to be one's ability to drive. However, bureaucrats may strategically manipulate the passing rule in order to extract higher bribe payments. At the extreme, bureaucrats may fail all test takers independently of how well they perform on the test, thereby forcing them to pay extra to obtain their license. The fact that a fraction of the participants in our study did manage to obtain their license without hiring an agent (Column 1 of Table 6) already indicates that such extreme behavior is not taking place. However, the bureaucrats may still be able to manipulate the passing rule in such a way that would discourage even good drivers from attempting to get their license without an agent. This is the possibility that we consider in the remaining columns of Table 6.

In Columns 3-9, we restrict the sample in each experimental group to the subset of individuals who started the process without an agent and either completed it without an agent or eventually switched to using an agent. In other words, we exclude from each experimental group the subset of individuals that hired an agent from the start. We then compute, for each experimental group, the fraction of those who, conditional on taking the official test once, did not have to retake it and did not have to revert to hiring an agent to obtain their license. This roughly corresponds to individuals that went to the RTO, took the test and successfully got their license. The findings in Column 4 indicate that this success rate does not differ across the three experimental groups. Sixty-eight percent of those in the lesson group succeed, compared to 67% in the bonus group and 65% in the comparison group. Of course, we are considering for this analysis non-random sub-samples of the three experimental groups. Maybe there are no systematic differences in driving ability across the three experimental groups in these sub-samples of the data. Columns 5 and 6 suggest otherwise. In column 6, we report the rate of failure in our surprise driving test among those that did not start the process with an agent. There is a clear ranking across the 3 experimental groups: in the lesson group, only 13% failed the surprise driving test, compared to 54% in the comparison group and 58% in the bonus group. In Column 7, we further restrict the sub-samples to those that did not start the process with an agent *and* took the official test at least once (e.g. the denominators for the fractions computed in Column 4). Again, we find a clear ranking across the three experimental groups: only 12% automatically failed the surprise driving test, compared to 35% in the comparison group and 44% in the bonus group.

In Panel B of Table 6, we replicate the same exercise on additional cuts of the data. First, we look only at those participants that took the free driving lessons: this is the sub-sample of the lesson group where we expect driving ability to be even higher than for the average individual in the lesson group (and indeed, only 5% of these failed the surprise driving test). Strikingly, these individuals are only slightly more successful on the official test (70% versus 65% in the comparison group). Following a similar logic, in the last two rows of Panel B, we break the *full* data set into two subgroups: those that failed our surprise test and those that did not. Again, we find that success on the official exam does not greatly differ across these two groups. In fact, the point estimates indicate a slightly higher chance of passing among those that failed our surprise test (74%) than among those that passed our surprise test (65%). In summary, whether or not one knows how to drive does not affect the likelihood that one will pass the official RTO test. Because failing is costly (among other things, one has to wait 7 days before being able to retake the exam), this apparent arbitrariness in the system may force even some of the good drivers to hire agents (red tape creation) and may also discourage people from learning how to drive.

In the remaining columns of Table 6 we show systematic differences between the 3 experimental groups in how much persistent there are in trying to obtain a license without an agent. Specifically, a higher fraction of those in the lesson group persist in completing the process without an agent. Fifty-eight percent of those in the lesson group persist in completing the process without an agent. Fifty-eight percent of those in the comparison group, compared to 49% in the bonus group and 39% in the lesson group switch to hiring an agent even before taking the RTO exam (Column 7). More than half of those in the lesson group take the official test once before switching to an agent (compared to 38% in the comparison group; Column 8). About 10% of those in the lesson group take the official test more than once before switching to an agent (compared to less than 5% in the comparison group; Column 9).

Complementing the evidence above, Figure 2 documents the various reasons participants reported for switching to an agent. Across the entire sample, the two most commonly cited reasons for switching to an agent were confusion and failure on a test. Confusion was mentioned by about 30% of all the switchers. A higher fraction of individuals in the lesson group (42%) and bonus group (33%) than in the comparison group (13%) reported switching because of failing the temporary or final license test at the RTO. These differences are statistically significant at the 5-percent level. Speeding up the process was less likely to be

mentioned as a reason for switching in the lesson group than in the comparison group. None of the other differences across groups reported in Figure 2 are statistically significant.

### *Monetary and Time Costs*

What are the implications of these differences in processes across the three experimental groups in terms of costs? The participants were asked to report their financial expenses throughout the process and to break them down into specific items. We can also measure, although less precisely, some of the time cost associated with obtaining a license (such as total time spent at the RTO, etc). We report the financial and time costs in Tables 7 and 8, respectively. The format of both tables is identical to Table 4.

The evidence in Table 7 confirms what we had already inferred from Table 5: there is little direct bribing of bureaucrats and all the extra payments are due to the hiring of agents. Only 7 individuals (2% of those that obtained a license) paid a bribe directly to an RTO official to obtain their license, and these were equally distributed across the three experimental groups (Column 1). Overall, direct bribe payments are small (Column 5).

Next, we turn to studying the differences in payment across the three experimental groups. We find that there are no systematic differences in payment between the bonus group and the comparison group. On average, individuals in the comparison group paid Rs1,127 to obtain their final license, or about Rs650 more than the official cost. Individuals in the bonus group only paid slightly more than those in the comparison group to complete the licensing process. Specifically, they spent about Rs16 more to obtain a license during the process, but this difference is not statistically significant (Column 2). This similarity is as expected given that these two groups do not differ in their *eventual* rate of agent usage and given that all the extra payments in this process are linked to hiring agents. They are inconsistent however with a common assumption in many theoretical models of corruption that bureaucrats are able to price-discriminate and offer a differential speed of service based on the applicants' valuations of time (see e.g. Liu 1985). In contrast, higher quality drivers—the lesson group—paid on average Rs180 (about 15%) less to obtain a license.

Table 8 considers differences in delays across the 3 groups. Based on our discussion of processes above, we would expect time costs to be the lowest for the bonus group, given that they are more likely to



hire an agent from the start and, therefore, are less exposed to the bureaucracy. We would also expect time costs to be highest for the lesson group since more of them stick to not using an agent. The evidence reported in this table is qualitatively consistent with these expectations, even though the differences across groups are not as striking as one might have expected. Those with a higher willingness to pay—the bonus group—faced a somewhat easier and hence shorter process: for example, they spoke with slightly less officials than the comparison group (Column 3), waited in 0.2 less lines (Column 4), and spent 14 minutes less in total at the RTO (Column 5). None of these differences are statistically significant. The only dimension over which the bonus group had an easier time than the comparison group is with respect to how helpful they found the RTO staff. While 62% of the comparison group found the RTO staff unhelpful, only 50% of the bonus group shared this view (Column 1). Combining the evidence of Table 7 and Table 8, individuals in the comparison group do not pay less to get their license than the bonus group and in fact may spend more overall if one accounts for the opportunity cost of their time.

In contrast, the lesson group faced a slightly longer and more difficult process than the comparison group. They interacted with one more bureaucrat than the comparison group (Column 3), and were significantly more likely to take the formal test at the RTO (Column 6). They spent more time at the RTO than the comparison group but the difference is not economically large and is statistically insignificant (Column 5).

#### **IV. What (else) do agents do?**

The motivation for the random assignment in the initial study was to understand which elements of individual abilities (e.g. lesson group) and needs (e.g. bonus group) a corrupt bureaucracy responds to. Based on our gained understanding of the central role of agents in the process of corruption, it became apparent that a direct study of agents could provide additional insights. Hence, the IFC performed an audit study of agents involved in the provision of driving licenses in New Delhi. This audit study took place after the main project was completed. The structure of the audit is simple. Trained actors were sent to talk to agents under different pretexts. For example, an actor would be sent to an agent saying that he would like to obtain a license but did not know how to drive and did not have the time to learn how to drive. The actor would then record whether

the agent said a license could be obtained under this pretext and if so, at what price. The actors were college-aged, Hindu men. They were required to be of similar height and weight, and to wear similar types of clothing. In total, 224 agents were approached by 6 different actors.

Each day, a given actor was randomly given one of 6 scripted pretexts to approach the agents with. For the first script, the actor had to learn what the agent could do for him if he had all the right paperwork and could drive (comparison group). The second and third scripts focused on what would happen if the actors were missing residential proof or age proof respectively, two of the required documents to obtain a license. The fourth script focused on whether the actor could obtain a license if he could not drive (and did not have time to learn how to drive). The fifth script focused on what would happen if the agent could not come back to the RTO to obtain a license. Finally, the last script focused on what would happen if the actor needed a license in less than 30 days, in other words less than the officially required time between the temporary license and the final license.

The results, reported in Table 9, confirm the previous analysis. To start, the prices quoted by the agents were of similar magnitude to those in the main experiment. In the comparison group (Row 1), agents asked for Rs1,330 in total to complete the process, but reduced the price to Rs1,280 after bargaining. The variance of quoted prices was relatively low, with the final price ranging from Rs1,000 to Rs1,700 in the comparison group. Also, agents saw no problem in helping actors who stated they did not know how to drive and did not have time to learn how to drive. One hundred percent of actors that approached an agent with a “cannot drive” pretext were told that the agents could help them in getting their license (Row 4). Strikingly, the prices quoted under that script are only Rs60 larger than those quoted to the comparison group. In other words, there was no pricing of driving (in)ability.

In contrast, there are some constraints in the system that corruption cannot circumvent. For example, only 50% of agents reported that they could procure a license if the actor lacked residential proof (Row 2) and only 80% if the actor lacked age proof (Row 3). Only 5% of agents could procure a license if the actor stated that he could not come back to hand in forms and take the picture at the RTO (Row 5). Also, in the cases of missing residential proof or age proof, the prices quoted by the agents conditional on being able to help were statistically significantly larger than in the comparison group. Finally, only 8% of agents said they

could assist someone that needed a license in less than the official 30-day minimum, and conditional on being to assist, quoted a much higher price for rendering this service.

These results indicate that bureaucrats do not have the ability to distort all rules. The patterns we observe suggest that verifiability might be an important determinant of which rules can or cannot be bent.<sup>26</sup> While it might be easy for the bureaucrats' superiors to cross-check whether a valid proof of age and proof of residence were submitted by a license candidate, and to monitor the dates at which these documents were submitted, it might be harder to cross-check whether the candidate took a test and how well he did. Corruption circumvents rules that are harder to verify.

## **V. Interpretation**

The results so far support a simple model. Bureaucrats make it hard for individuals to pass the driving exam by failing individuals arbitrarily, irrespective of their skill. This "red tape" in turn implies that applicants often turn to an agent to facilitate the process. Because of the connections between the bureaucrat and the agent, the applicant that hires an agent can avoid taking the test. Working through the agent system might reduce the bureaucrat's chance of being caught extracting bribes. Perhaps bribery on-site is too visible or perhaps the possibility of being reported by an irate applicant is too high. By relying on agents, these risks are minimized. As a whole, this arrangement produces a system which circumvents the primary motive for the regulation: producing good drivers.

Should we call this corruption? We do not observe any direct transfers between individuals and bureaucrats, although we have some evidence from the audit study that agents do transfer payments to the bureaucrats.<sup>27</sup> One alternative interpretation is that the money paid to the agent is merely to provide a time-saving service much like one might use a travel agent to book tickets that could otherwise be booked directly. Several findings speak against this interpretation. First, recall that those who use an agent hardly ever take the driving test. Thus, while there may be some time saving, there is another important form of saving: not taking the test. Second, if the agent is providing only a time-saving service, he is doing so at a very high cost.

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<sup>26</sup> Reinikka and Svensson (2005) illustrate this in the context of Uganda, where a newspaper campaign aimed at reducing corruption in schools by providing parents with information to monitor local officials was highly successful.

<sup>27</sup>In the audit study, agents told the actors they would handle all bribes to the bureaucrats in 81% of the interactions.

Our data suggest that the agent saves about two hours of time for the applicants. Given an average hourly wage of about 40 Rupees in our sample, this would suggest the agents' time-saving service is worth only about 80 Rupees. In contrast, people spend about 600 Rupees on hiring an agent.<sup>28</sup> These calculations also imply that the money extracted by the agent could not simply account for his time costs if he does little more than wait in line for an applicant. Thus, while we do not have direct evidence of private gains for the bureaucrats, this indirect evidence suggests money is changing hands between bureaucrats and agents. Our evidence is therefore supportive of regulatory corruption—non-application or mis-application of regulation—and of private gain corruption—the use of public office for private gain.

Given the existence of corruption, are we sure that the bureaucrats are raising red tape—failing applicants randomly—to extract greater bribes? Alternatively, are they simply lazy and the bribes are used to get them to work? The most salient evidence against this interpretation is that absent intervention by the agent, the bureaucrats actually work *more*, not less: absent agents, the bureaucrat actually puts forth effort to administer the test. A related alternative interpretation is that the random passage on the exam we have observed is also simply “laziness” on the part of the bureaucrat. This interpretation does not fit well the qualitative aspects of the situation. Once a person is being tested, the additional “effort” required to pass the correct person is minimal. The bureaucrat is sitting in the car, and even paying a small amount of attention to the applicant would allow far greater differentiation of good and bad drivers than we are finding. These facts suggest that random failures are likely red tape creation by the bureaucrat.

Finally, could our results be driven by selective attrition? As we see in Table 1A, the attrition rate (defined as those participants we are unable to track and whose final license status we are thus unsure of) is 15.4% in the lesson group and 13.4% in the comparison group, while it is only 4.4% in the bonus group. Given that participants in the bonus group had a higher incentive to stay in the study, perhaps many with a license in the comparison and lesson groups simply did not return for the follow-up surveys. This could affect one of our results: the higher license-getting rate in the bonus group. To quantify the magnitude of this concern, assume conservatively that the license-getting rate amongst those we cannot track in the lesson and

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<sup>28</sup> Contrast this with the cost of learning how to drive. Driving lessons take roughly 20 hours and cost Rs800 in time, not to mention the Rs1000 in fees. This suggests that an agent is preferred to learning how to drive within the rules, assuming no private benefit of being a better driver.

comparison groups is the same as the license getting rate in the bonus group as a whole (65%) and assume further that none of those we were unable to track in the bonus group obtained a license. This would imply a license getting rate of 45% in the comparison group and 54% in the lesson group, both of which are still lower than the 65% in the bonus group. This suggests that the attrition is not quantitatively large enough to affect this result. Furthermore, attrition cannot affect our other core results, such as the arbitrary failure policy by the bureaucrats and the use of agents to circumvent the legally required exam.

## **VI. Conclusion**

Corruption in this setting undercuts the primary social purpose of regulation. Moreover, as the bureaucracy is quite unresponsive to actual driving skills, individuals have little incentives to learn how to drive. Hence, the overall cost of corruption is larger than simply allowing some unsafe drivers through. The findings also suggest an interesting mechanism for red tape and bribery. The agent system allows bureaucrats to avoid direct bribery, and the bureaucrats use arbitrary failures on the driving exam to entice individuals to use agents. This industrial organization of corruption is intriguing and is largely ignored by the theoretical literature.

The audit study speaks to the generalizability of the findings. One interpretation of the audit results is that the verifiability of a particular regulatory requirement determines the ease with which corruption can overcome it. This suggests that the social inefficiency results would generalize most readily to other contexts where the socially useful part of the regulation is non-verifiable by the bureaucrats' principals. Of course, it is possible that even verifiable elements of a regulation could be overcome through collusion between the principals and the bureaucrats. While we do not have a direct measure of the extent of collusion between the bureaucrats and higher-up officials, the audit results suggest that there was not complete collusion in this setting.

The central role of agents suggests the need for more theoretical and empirical work. How do agents manage to develop their contacts with the bureaucrats? How do bureaucrats maintain their relationship with agents? Why is the provision of agents apparently so plentiful, rather than having their numbers be

restricted? Does the agent system limit the ability of the bureaucrat to more finely price discriminate between time-rushed and non-rushed individuals, as seems to be the case here?

While corruption is much discussed, little empirical work exists on how it works. Our paper offers the promise that such work might deliver powerful insights. The experimental designs developed here are highly portable. Both the detailed surveys of individuals' experiences through a bureaucratic system and the agent audit study can be performed at low cost in different areas of the world and can easily be extended to the provision of other goods or services. Reproducing these experimental designs in other contexts could lead to a deeper understanding of the nature of corruption and enable more empirically grounded theories of corruption.

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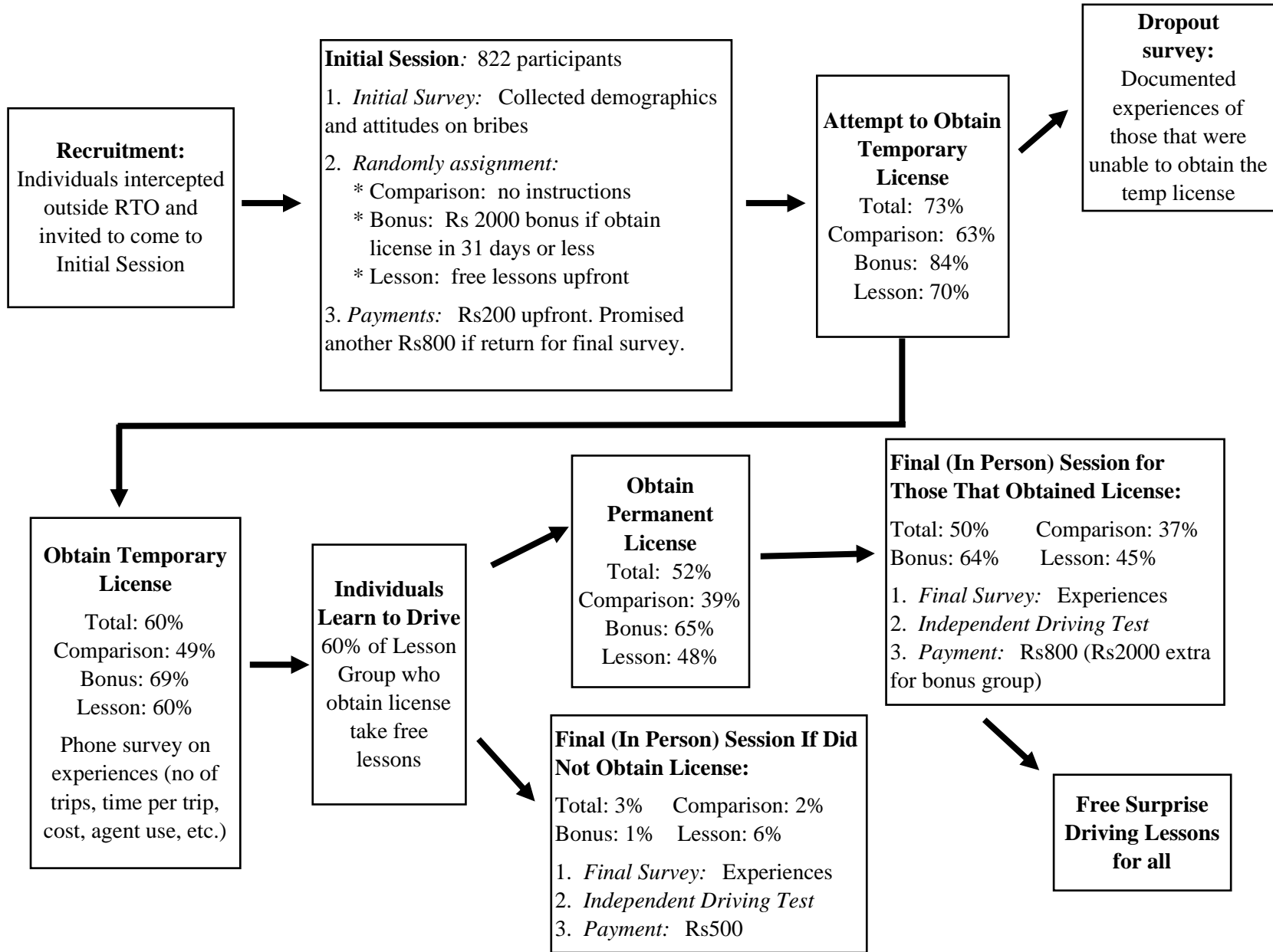
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**Figure 1: Project Summary**



**Table 1: Summary Statistics on the Bureaucratic Process for the Comparison Group**

Variable	Mean
<i>A. Final License Status</i>	
Obtained a final license	37%
Obtained a final license conditional on both having tried to obtain a license and having not left the study	59%
<i>B. The Process</i>	
Number of days between temporary and final license	48.0 (29.1)
Number of trips	2.5 (0.7)
Minutes spent at RTO (across all trips)	206 (112)
Number of officials spoke with	4.7 (2.9)
Lines waited (final license)	2.5 (1.1)
Took RTO licensing exam	0.30 (0.46)
Total expenditures in Indian Rs.	1127 (378)

Notes:

1. This table describes the licensing process for the comparison group.
2. Panel A includes all individuals in the comparison group, while Panel B includes all individuals in the comparison group who obtained a final license.
3. Standard errors are in parenthesis.

**Table 2: OLS Estimation of Licensing Status and Procedures**

	Obtained License (1)	Days (2)	No of Trips (3)	No of Officials Spoke With (4)	Lines (5)	Total Minutes Spent (6)	Took RTO Licensing Exam (7)
Log(Expenditures)		6.41 (10.87)	-0.59 (0.23)**	-4.34 (0.91)***	-0.76 (0.32)**	-164.14 (35.47)***	-0.75 (0.14)***
Pre-Experiment Driving Knowledge Score	0.00 (0.00)	0.48 (0.23)**	0.01 (0.01)**	0.02 (0.02)	0.01 (0.01)*	0.81 (0.94)	0.01 (0.00)

Notes:

1. Each cell gives the results of a separate OLS regression where the independent variable is listed in the row and the dependent variable is listed in each column. All regressions include session fixed effects and controls for demographics (age, marital status, minority status, religion fixed effects, education status, employment status, salary if employed, and number of durable goods owned).
2. The sample in Column 1 includes all individuals who were assigned to the comparison group. The sample in columns 2-7 is restricted to the individuals in the comparison group who obtained a permanent license.
3. "Log(Expenditures)" measures the total expenditures (both official and unofficial) the subject made during the licensing process. "Pre-Experiment Driving Knowledge Score" measures the percentage of 9 questions on driving procedures that the subject answered correctly in the introduction survey.
4. Significance at 10% level is represented by a \*, at the 5% level by a \*\* and at the 1% level by \*\*\*.

**Table 3: Socioeconomic Characteristics, Past Driving Experiences, and Beliefs on Process**

	Full Sample (1)	Comparison (2)	Bonus (3)	Driving Lesson (4)
<i>A. Socioeconomic Characteristics</i>				
Age	24.23	23.57	24.61	24.31
Married	0.25	0.18 **	0.27	0.28
Students	0.48	0.50	0.46	0.49
Employed	0.47	0.44	0.50	0.47
Less than primary education	0.08	0.07	0.07	0.09
Number of items owned by household	3.31	3.19	3.44	3.27
Minority	0.36	0.44	0.32	0.34
Hindu religion	0.79	0.85 **	0.78	0.77
Muslim religion	0.18	0.15	0.19	0.20
Salary (if employed)	5447	5643	5601	5184
Know someone in government (including self)	0.41	0.39	0.44	0.41
<i>B. Driving Experiences</i>				
Have 2 wheeler license	0.03	0.03	0.03	0.02
Have driven a two wheeler	0.88	0.86	0.92	0.86
Have driven a 4 wheeler	0.23	0.25	0.35 ***	0.11 ***
Months known how to drive a 4 wheeler (given drive)	3.56	3.36	3.88	2.94
<i>C. You are caught driving without a license. Would you bribe.....</i>				
If the fine is 500 and bribe is 300?	0.61	0.63	0.61	0.60
If the fine is 3000 and bribe is 300?	0.83	0.86	0.81	0.82
<i>D. Ever Bribe in the Past (conditional on having tried to obtain a public service)</i>				
Paid Bribe	0.20	0.22	0.23	0.17
<i>E. Beliefs Regarding Procedures</i>				
Total trips to obtain license	6.82	7.27	6.77	6.59
Total time at RTO	1119	1180	1147	1154

Notes:

1. This table reports the mean demographics, driving experiences and beliefs regarding the license process for the 822 individuals that completed the introduction survey.

2. Column 1 presents the means for the full sample, while columns 2 - 4 report the means by the three experimental groups: comparison, bonus, and lesson.

3. Stars indicate a significant difference from other two groups, after controlling for session fixed effects.

4. Significance at 10% level is represented by a \*, at the 5% level by a \*\* and at the 1% level by \*\*\*.

**Table 4: Experimental Evidence on Outcomes**

	Final License Status			Learning to Drive				Independent Exam		
	Obtained Final License (1)	Obtained a final license/trying to obtain a license (2)	Days (3)	Driving School taught me (4)	Relatives, Friends, Family Driver Taught me (5)	No one Taught me (6)	Took time off from work/school to practice (7)	Not confident with driving skills (8)	Automatic Failure (9)	Score (10)
Comp. Group Mean	0.37	0.59	48	0.05	0.45	0.49	0.20	0.23	0.61	0.00
Bonus Group	0.28 (0.04)***	0.17 (0.05)***	-17.88 (3.05)***	0.01 (0.05)	-0.29 (0.06)***	0.28 (0.06)***	-0.03 (0.06)	0.16 (0.06)***	0.08 (0.06)	-0.17 (0.13)
Lesson Group	0.08 (0.04)*	0.05 (0.05)	5.42 (3.20)*	0.55 (0.05)***	-0.24 (0.06)***	-0.29 (0.06)***	-0.03 (0.06)	-0.07 (0.06)	-0.5 (0.06)***	1.14 (0.13)***
Fstat	23.03	6.77	46.80	110.95	13.08	67.70	0.14	11.72	77.53	84.64
P-value	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.00	0.00	0.00

Notes:

1. This table reports on the subjects' ability to obtain a license and their driving ability, by experimental group. Each column gives the results of an OLS regression of the dependent variable listed in that column on indicator variables for belonging to the bonus and lesson group. All regressions include session fixed effects, religion fixed effects, an indicator variable for marital status, and a dummy variable for whether the individual had ever driven a four-wheeler prior to the project. For ease of interpretation, the comparison group mean of the dependent variable is listed in the first row. The last two rows report the Fstat and p-value for a test of the joint significance of the bonus and lesson group indicator variables.

2. The sample in Column 1 includes all individuals at the Initial Session. Column 2 includes all individuals who tried to obtain a license and could be tracked by the program staff. Column 3-10 includes all individuals who obtained a license and returned for the final survey.

3. Significance at 10% level is represented by a \*, at the 5% level by a \*\* and at the 1% level by \*\*\*.

**Table 5: OLS Estimation of Agent Use on Outcomes for Comparison Group**

	Procedures					Independent Exam			
	Days (1)	No of Trips (2)	No Officials Spoke With (3)	Lines (4)	Total Minutes Spent (5)	Took RTO Licensing Exam (6)	Total Expenditures (7)	Automatic Failure (8)	Driving Score (9)
Constant	54.44 (7.28)	3.19 (0.15)	7.69 (0.61)	2.88 (0.27)	306.06 (24.81)	0.94 (0.08)	563.13 (58.84)	0.31 (0.12)	15.44 (2.50)
Hired Agent	-8.23 (8.23)	-0.85 (0.17)***	-3.77 (0.69)***	-0.46 (0.30)	-127.58 (28.03)***	-0.82 (0.09)***	719.46 (66.47)***	0.38 (0.13)***	-8.83 (2.82)***

Notes:

1. Each column reports the result of an OLS regression of the dependent variable listed in that column on an indicator for agent use.
2. The sample is restricted to the individuals in the comparison group that obtained a permanent license.
3. Significance at 10% level is represented by a \*, at the 5% level by a \*\* and at the 1% level by \*\*\*.

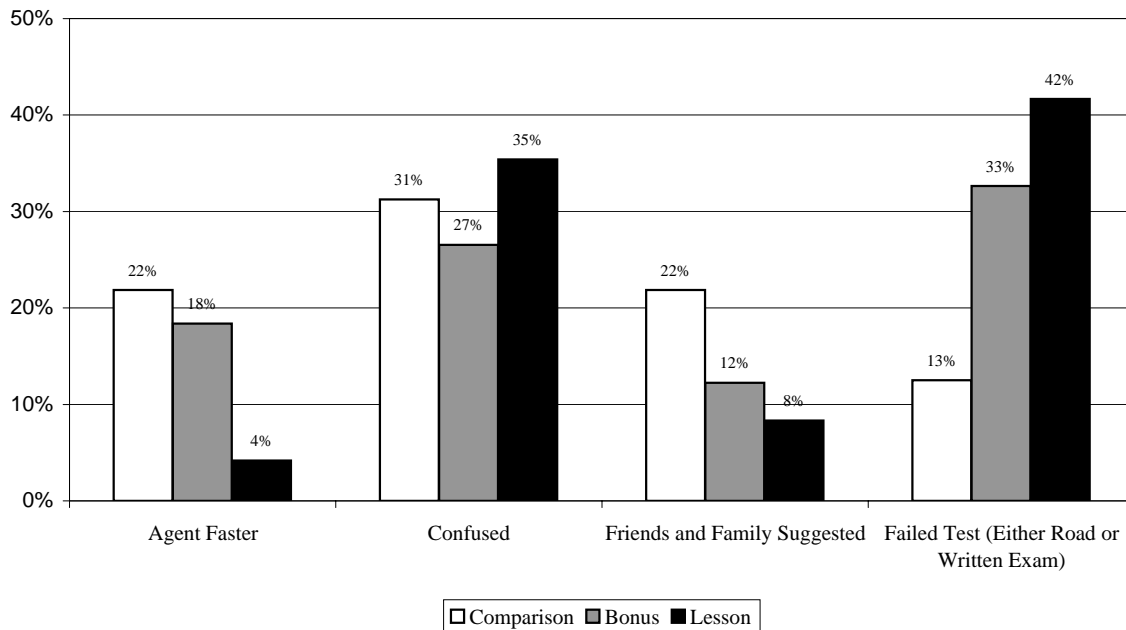
**Table 6: Agent Usage and Exam Outcomes**

	Full Sample	Of those who used an agent	Of those that do not start with an agent						
	Hire Agent (1)	Use Agent From Start (2)	Percent of those that end up hiring agent (3)	Success conditional on taking exam once (4)	Auto Failure (5)	Auto Failure Conditional on Taking Exam Once (6)	Did not take RTO Exam (7)	Took RTO Exam Once (8)	Took RTO Exam > than Once (9)
<i>A. Experimental Groups</i>									
Comp Group	0.78	0.45	0.67	0.65	0.54	0.35	0.58	0.38	0.04
Bonus Group	0.78	0.67	0.54	0.67	0.58	0.44	0.49	0.47	0.04
Lesson Group	0.59	0.41	0.44	0.68	0.13	0.12	0.39	0.52	0.09
<i>B. Other Groups</i>									
Took Lessons	0.60	0.41	0.45	0.70	0.05	0.06	0.39	0.54	0.07
Passed Exam	0.61	0.48	0.43	0.65	0.00	0.00	0.37	0.53	0.10
Failed Exam	0.84	0.60	0.67	0.74	1.00	1.00	0.62	0.37	0.01

Notes:

1. This table reports on mean agent usage. Panel A presents the data for the three experimental groups. The first row of Panel B presents the data for individuals in the lesson group who took the initial driving lessons. The last two rows of Panel B present the data by whether or not the individual passed the independently administered driving exam.
2. The sample in Column 1 includes all individuals who obtained a license. Sample in Column 2 includes all individuals who used an agent. Sample in Column 3-9 includes individuals who did not start with an agent, i.e. those who never used an agent or who did not use an agent at the start of the process.
3. "Success" (Column 4) implies that the individual only took the RTO exam once and did not hire an agent. "Auto Failure" (Columns 5 and 6) implies the individual automatically failed the independently administered driving exam.

**Figure 2: Reasons for Switching**



Notes: Sample includes individuals who started without an agent, and then hired an agent during the process.

**Table 7: Experimental Evidence on Expenditures for the Permanent License**

	Expenditure Breakdown					
	Bribe (1)	Total Expenditures (2)	Official Fees (3)	Payment to agent above official fees (4)	Bribe (5)	Other Payments (6)
Comp. Group Mean	0.02	1127.03	460.61	658.24	0.00	1.35
Bonus Group	0.01 (0.02)	15.98 (59.16)	3.91 (13.82)	-52.32 (63.03)	40.65 (30.54)	11.71 (9.09)
Lesson Group	0.00 (0.02)	-180.17 (62.26)***	-5.26 (14.54)	-252.05 (66.34)***	49.27 (32.14)	3.72 (9.56)
Fstat	0.34	8.76	0.32	10.01	1.25	1.04
P-value	0.71	0.00	0.72	0.00	0.29	0.35

**Table 8: Experimental Outcomes on Procedures**

	Thought RTO was unhelpful (1)	No of Trips (2)	No Officials Spoke With (3)	Lines waited (Only for Final License) (4)	Minutes Spent at RTO (5)	Took RTO Licensing Exam (6)
Comp. Group Mean	0.62	2.49	4.73	2.51	206	0.30
Bonus Group	-0.13 (0.07)*	-0.01 (0.11)	-0.38 (0.41)	-0.23 (0.20)	-13.12 (13.89)	0.06 (0.07)
Lesson Group	-0.04 (0.07)	0.1 (0.12)	0.99 (0.43)**	0.11 (0.22)	7.83 (14.62)	0.21 (0.07)***
Fstat	2.07	0.76	8.38	2.14	1.72	5.61
P-value	0.13	0.47	0.00	0.12	0.18	0.00

Notes:

1. In both Tables 7 and 8, each column gives the results of an OLS regression of the dependent variable listed in that column on indicator variables for bonus and lesson group. All regressions include session fixed effects, religion fixed effects, an indicator variable for marital status, and a dummy variable for whether the individual had ever driven a four-wheeler prior to the project. For ease of interpretation, the comparison group mean of the dependent variable is listed in the first row. The last two rows report the Fstat and p-value for a test of the joint significance of the bonus and lesson group indicator variables.

2. The sample includes all 409 individuals who obtained a license.

3. In Table 7, a zero is included if the individual did not make a particular type of payment.

4. Significance at 10% level is represented by a \*, at the 5% level by a \*\* and at the 1% level by \*\*\*.



**Table 9: Payments in Audit Study**

Group	Original Price Quote Before Script (1)	Able to Get License Despite Hardship (2)	Final Price Quote if Can Get License (3)
Comparison	1327.84 (136.53)		1277.89 (116.83)
No Residential Proof	1417.10 (306.35)**	0.50***	2563.16 (756.61)***
No Age Proof	1327.03 (140.73)	0.81***	1606.90 (232.89)***
Cannot Drive	1286.22 (135.57)	1.00	1340.54 (241.42)
Cannot Come Back	1351.05 (176.42)	0.05***	1595.00 (134.35)
Need License Quick	1386.22 (193.24)	0.08***	1975.00 (607.59)***

## Notes:

1. This table reports the audit study results. Column 1 reports the mean and standard deviation for the first price quoted by the agent. Column 2 reports the percentage of cases where the agent stated that he was able to obtain the license for the individual, despite the listed hardship. Column 3 reports the mean and standard deviation for the final price quoted by the agent.
2. Stars indicate a significant difference from the comparison group.
3. Significance at 10% level is represented by a \*, at the 5% level by a \*\* and at the 1% level by \*\*\*.

**Appendix 1A: Final Project Summary, by Group**

	Total	Comparison	Bonus	Lesson
	(1)	(2)	(3)	(4)
Individuals in Initial Session	822	202	295	325
Obtained Permanent License, Completed Survey	409	74	189	146
Obtained Permanent License, Did Not Complete Survey	17	5	3	9
Obtained Temp License, Completed Final Survey	26	5	2	19
Obtained Temp License, Did Not Complete Final Survey	45	14	10	21
Tried to Get Temp License, but failed	105	29	44	32
Did Not Try to Get Temp License	130	48	34	48
Unable to Track	90	27	13	50

Notes:

1. This table reports the final project status for the original 822 individuals present at Initial Session. Column 1 presents the data for the full sample, while Columns 2-4 present the data by experimental group.

**Appendix 1B: Difference in Pre-Characteristics of Attritors vs. Non-Attritors**

	Those who obtained a final or temporary license			Those who did not obtain a temporary license		
	Comp. (1)	Bonus (2)	Lesson (3)	Comp. (4)	Bonus (5)	Lesson (6)
<i>A. Socioeconomic Characteristics</i>						
Age	-1.36	-1.03	-0.83	0.11	0.17	2.17
Married	-0.19 **	0.06	0.10 *	0.01	0.03	0.21
Students	-0.01	0.03	0.02	-0.12	0.10	-0.02
Employed	-0.04	0.02	-0.07	0.08	-0.12	0.01
Less than primary education	0.03	0.04	-0.08	0.02	-0.02	0.06
Number of items owned by household	0.66 *	0.34	-0.58 **	0.13	0.31	-0.10
Minority	0.18 **	0.10	-0.16 ***	0.01	0.04	0.04
Hindu religion	0.05	0.14	0.14	0.17	-0.05 **	0.18
Muslim religion	-0.05	-0.12	-0.12	-0.14	0.07 **	-0.14
Salary (if employed)	2367 *	-1468	-194	-1869	443	444
Know someone in government (including self)	0.15	-0.12	0.06	-0.23 **	-0.03	-0.03 **
<i>B. Driving Experiences</i>						
Have 2 wheeler license	0.00	0.05	-0.01	-0.02 **	-0.07	0.01
Have driven a two wheeler	0.08	0.10	0.03	0.04	0.00	-0.04
Have driven a 4 wheeler	0.09	0.17	-0.01	0.17	-0.06	-0.05
Months known how to drive a 4 wheeler (given drive)	-0.37	-0.41	0.19	0.39	-0.29	1.70
<i>C. You are caught driving without a license. Would you bribe.....</i>						
If the fine is 500 and bribe is 300?	-0.12	0.07	-0.03	-0.12	-0.08	-0.04
If the fine is 3000 and bribe is 300?	-0.07	0.12	0.01	-0.02	0.08	0.06
<i>D. Ever Bribe in the Past (conditional on having tried to obtain a public service)</i>						
Paid Bribe	0.11	-0.04	0.06	0.05	-0.01	-0.06
<i>E. Beliefs Regarding Procedures</i>						
Total trips to obtain license	4.10 **	-1.07	-1.16 *	-0.14	2.10	2.14
Total time at RTO	595 **	-364	-121	57	55	383

Notes:

1. The sample includes all 822 individuals present at Initial Session.

2. Stars indicate a significant difference from other two groups, after controlling for session fixed effects. Significance at 10% level is represented by a \*, at the 5% level by a \*\* and at the 1% level by \*\*\*.