

A Corruption Dilemma

Supplementary Appendix

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A Experimental Instructions

A.1 Experiment 2, *Unknown Type/Quiz*

Overview

This is an experiment on individual decision-making. In addition to a \$7 participation fee, you will be paid any additional money you accumulate during the experiment at the conclusion of today's session.

All payoffs during the experiment are denominated in Experimental Currency Units (ECU). At the end of the experiment, ECU will be converted to cash at the following rate:

6 ECU = \$1

Upon completion of the experiment, you will be paid your earnings privately, in cash. The exact amount you receive will be determined during the experiment and will depend on your decisions and the decisions of others.

The identities of participants will remain confidential, meaning that at no point in time will we identify the role or actions of any individual to other participants. In other words, the actions that you take during this experiment will remain confidential.

If you have any questions during the experiment, please raise your hand and wait for an experimenter to come to you. Please do not talk, exclaim, or try to communicate with other participants during the experiment. Participants intentionally violating these rules or otherwise behaving in a disruptive fashion will be asked to leave the experiment and will not be paid.

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Blocks and Periods

The experiment is divided into 5 blocks. Each block will contain 5 periods, for a total of 25 periods over the session.

Quiz, Roles, and Types

All participants will take a ten-question quiz on Florida's road rules at the start of the experiment. When the quiz ends, each participant will be randomly assigned one of two roles: Licensing Official or Driver. This role will be fixed for the duration of the experiment. Drivers will then be assigned one of two types, Type 1 or Type 2, which will also be fixed throughout the experiment and will depend on quiz performance relative to other Drivers. Those with scores in the top one-third will be assigned Type 1, while the remaining two-third will be assigned Type 2. All ties in scores will be broken randomly.

A Driver's type will not be revealed until after the experiment ends. This means that Drivers will have no knowledge of their type while making decisions. The function of these types will be discussed in more detail later.

Groups

During all periods, participants are divided into groups of four. Therefore, you will be in a group with three other participants. The participants that are in your group will be the same during a block, but they may be different across blocks. Your group for a block will be determined by randomly matching you with three other participants at the start of the block. Each group will have one Licensing Official, one Type 1 Driver, and two Type 2 Drivers.

Phases Overview and First Block Task

Every block will consist of two phases: a beliefs phase and a decision phase. The beliefs phase will take place at the beginning of the block, before the periods have started. During the beliefs phase, you will provide your beliefs about certain aspects of the environment in which you will be making decisions.

Once the beliefs phase is complete, you will enter the decision phase. The decision phase begins when the first period of the block starts, and it lasts for all 5 periods of the block. In the first period, you will make decisions in your assigned role. This is the only period in

the block where you will make decisions. These decisions will be binding for all 5 periods of the block in which they were made and will affect only you and the other members of your group.

Each phase will be discussed in more detail shortly. While the beliefs phase will precede the decision phase in each block, the decision phase will be discussed first.

Prior to participating in the two phases in the first block, you will be asked to complete a simple task. Instructions for the task will be presented on your computer screen when the time comes. The task will be completed only once and you can earn ECU for completing it.

Decision Phase

In the first period of every block, Licensing Officials will receive 40 ECU as an initial endowment and Drivers will receive 50 ECU. Licensing Officials are in charge of granting driver's licenses to Drivers. Drivers can obtain a license in one of two ways: (1) they can take a driving exam administered by the Licensing Official or (2) they can offer a bribe to the Licensing Official and avoid taking the exam.

Licensing Officials and Drivers make their decisions simultaneously. Drivers must decide whether to offer a bribe and how much to offer. An offer can be any integer amount between 1 and 15 ECU, and is paid from the initial endowment. Licensing Officials decide, for each potential bribe amount between 1 and 15 ECU, whether they would accept or reject the offer. After both Drivers and Licensing Officials have made their decisions, any bribe offer from a Driver is automatically accepted or rejected, based on the choices made by the matched Licensing Official.

If a Driver's bribe offer is accepted by the Licensing Official, the Driver receives a payment of 12 ECU in the first period of the block as the value of obtaining a license without taking the driving exam. At the same time, the amount of their offered bribe is paid from their initial endowment to the Licensing Official.

In each of the 5 periods of the block, there is a chance that a Driver causes an accident. When this occurs, both the Driver and one of the other Drivers in their group, selected at random, lose 16 ECU. Drivers can lose no more than 16 ECU in a period. So, for instance, if a Driver is randomly selected multiple times in a period to be involved in an accident, only 16 ECU will be lost for the period. Likewise, this is true if a Driver causes an accident and is also randomly selected to be involved in one that is caused by another Driver. While a Driver can lose no more than 16 ECU in a period, note that it is possible for a Driver to lose 16 ECU in each period of the block.

If no bribe is offered, or if a bribe is offered but rejected, the probability that a Driver causes an accident, regardless of their type, is 2% in each of the 5 periods of the block.

However, if a bribe is offered and accepted, the probability of causing an accident in each of the 5 periods of the block depends on the Driver's type: Type 1 Drivers still have a 2% chance of causing an accident, but Type 2 Drivers now have a 12% chance of causing an accident.

To summarize, in the first period of every block, Drivers decide whether to offer a bribe to a Licensing Official in exchange for a driver's license and Licensing Officials decide what bribe offers they are willing to accept, if any. Once decisions have been made and all offers have been either accepted or rejected, it is determined for each period whether a Driver causes an accident. The probability with which a Driver causes an accident depends on their type and whether a bribe offer was made and accepted.

Determining if an Accident Occurs

To determine whether a Driver causes an accident, a random number between 0 and 100 will be drawn from a uniform distribution in each period by the computer. This means that each number between 0 and 100 is equally likely to be drawn. If the probability of causing an accident is 2%, then the drawn number will have to be less than or equal to 2 for a driver to cause an accident. Similarly, if the probability is 12%, the drawn number will have to be less than or equal to 12.

Results and Feedback

If you are in the role of Licensing Official, in all periods you will receive feedback about the number of offers made and accepted; the members of your group who were involved in an accident; your earnings for the period; and your total earnings for the block up to that point.

If you are in the role of Driver, in all periods you will receive feedback about whether your bribe offer (if one was made) was accepted; the number of bribe offers made by other Drivers in your group and how many of those were accepted; whether you were involved in an accident; how many members of your group were involved in an accident; your earnings for the period; and your total earnings for the block up to that point.

Payment for Decision Phase

At the end of the experiment, you will be paid for your earnings in one randomly selected block. The computer will randomly choose one of the five blocks and your earnings for the decision phase will be equal to your earnings for the selected block.

Payoffs

Driver

If a Driver does not offer a bribe at the beginning of a block, or offers a bribe and has it rejected by the Licensing Official, then the Driver's earnings in ECU for that block will be equal to

$$50 - (\text{any losses incurred during the block})$$

If a Driver offers a bribe and the Licensing Official accepts it, then the Driver's earnings in ECU for that block will be equal to

$$50 + 12 - (\text{the bribe offer}) - (\text{any losses incurred during the block})$$

Licensing Official

A Licensing Official's earnings in ECU for each block will be equal to

$$40 + (\text{accepted bribe offers})$$

Now we will take a look at two examples of how payoffs will be calculated.

1. Suppose that, at the beginning of a block of 5 periods and in a group of four, Driver 1 offers a bribe of 4 ECU to the Licensing Official, Driver 2 offers a bribe of 6 ECU, and Driver 3 decides not to offer a bribe. If based on the Licensing Official's decisions all bribes that are greater than 5 ECU are accepted, only Driver 2 has their bribe accepted. In the second period, Driver 3 causes an accident and Driver 1 is randomly selected as the other member involved. No accidents occur in the other 4 periods. At the end of the block, Driver 1's earnings are $(50-16) = 34$ ECU; Driver 2's earnings are $(50+12-6) = 56$ ECU; and Driver 3's earnings are $(50-16) = 34$ ECU. The Licensing Official's earnings are $(40+6) = 46$ ECU

2. Suppose that, at the beginning of a block of 5 periods and in a group of four, Driver 1 offers a bribe of 9 ECU to the Licensing Official, Driver 2 offers a bribe of 3 ECU, and Driver 3 offers a bribe of 7 ECU. If the Licensing Official chooses to reject all bribes, then every Driver has to take the exam. In the first period, Driver 1 causes an accident and Driver 2 is randomly selected to be involved. In period 5, Driver 3 causes an accident and Driver 1 is randomly selected to be involved. Driver 2 also causes an accident and Driver 1 is again randomly selected to be involved. Despite being randomly selected twice, Driver 1 only loses 16 ECU in this period, since no Driver can lose more than 16 ECU per period. No accidents occur in any of the other 3 periods. At the end of the block, Driver 1's earnings are $(50-16-16) = 18$ ECU; Driver 2's earnings are $(50-16-16) = 18$ ECU; and Driver 3's earnings are $(50-16) = 34$ ECU. The Licensing Official's earnings are just the initial endowment of 40 ECU.

Beliefs Phase

As mentioned before, in the beliefs phase you will be asked to provide your beliefs about certain aspects of the environment discussed in the decision phase section.

If you are in the role of Licensing Official, you will be asked how many of the Drivers in your group you expect to offer a bribe, and how many of those offered bribes you expect to accept, if any.

If you are in the role of Driver, you will be asked how many of the Drivers in your group you expect to offer a bribe to the Licensing Official; how many of those offered bribes you expect to be accepted; what you believe the probability of your being Type 1 is; what you believe the probability of experiencing at least one loss due to an accident is during the block if you bribe; and what you believe the probability of experiencing at least one loss due to an accident is during the block if you take the exam.

Payment for the Beliefs Phase

At the end of the experiment, both Licensing Officials and Drivers will be paid for one of their beliefs from the same block that was selected for the decision phase payment. The belief that a participant is paid for will be randomly selected and, in the case of Drivers, may depend on whether they bribed or took the exam. You can earn additional ECU for this

task, depending on the accuracy of your responses, so think carefully before answering.

Payoffs

If you are being paid for your belief about the number of Drivers in your group who will offer a bribe, or your belief about the number of offered bribes that will be accepted, your payment will be determined by the following equation, regardless of your role:

$$6 - 1/2 * (\text{reported belief} - \text{actual number})^2$$

So, for example, if the actual number of Drivers in your group who offered a bribe in the selected block is 2 and you reported 1, then you would earn $6 - 1/2 * (1 - 2)^2 = 5.5$ ECU. If you had reported 2, however, then you would have earned $6 - 1/2 * (2 - 2)^2 = 6$ ECU. Under this equation, your earnings are higher the more accurate your reported belief, so please submit your best guess.

If you are a Driver and are being paid for your belief about the probability of being Type 1, your payment will be determined by the following two equations:

$$6 - 6 * ((\text{reported belief})/100 - 1)^2 \text{ if you are Type 1}$$
$$6 - 6 * ((\text{reported belief})/100 - 0)^2 \text{ if you are Type 2}$$

And if you are a Driver and are being paid for the decision-relevant belief regarding the probability of experiencing at least one loss due to an accident, your payment will be determined by the following two equations:

$$6 - 6 * ((\text{reported belief})/100 - 1)^2 \text{ if you experienced at least one loss}$$
$$6 - 6 * ((\text{reported belief})/100 - 0)^2 \text{ if you experienced no losses}$$

Within the experiment, you will report all probability beliefs as an integer between 0 and 100. So, for example, if you believe that when you take the exam, the probability of experiencing at least one loss due to an accident in a particular block is 25%, you would simply enter 25. If you decided to take the exam in this block and experienced at least one loss, you would earn $6 - 6 * (25/100 - 1)^2 = 2.6$ ECU if the belief is chosen for payment. If, however, you suffered no losses, you would earn $6 - 6 * (25/100 - 0)^2 = 5.6$ ECU.

The equations for the Type belief and loss belief ensure that your expected earnings are highest when you submit your actual beliefs. You cannot increase your expected earnings by reporting beliefs that are either higher or lower than your actual beliefs. While the proof of this will not be presented in the instructions, if you are interested in seeing it, please ask the experimenter at the end of the session.

Payment for the Session

Your earnings for the session will be the sum of your participation fee, your earnings for the first block task, your earnings for the decision phase, and your earnings for the beliefs phase.