

Experiment Instructions

Thank you for agreeing to participate in today's experiment. You are about to participate in a decision-making experiment and at the end of the session you will be paid in cash for your participation. Different participants may earn different amounts, depending upon their decisions. Although there are many people participating in today's experiment, everyone is working independently. This means that your earnings are based entirely on your decisions – what the others do has no effect on you. Now that the experiment has started, please do not talk or in any way communicate with other participants during this experiment. Please remember to turn off your cell phones. Also, please do not write on these instructions; use the notepad provided. If you have a question or problem at any point in today's experiment, please raise your hand and I will come to you.

Today's experiment will consist of a series of stages. Each stage has a total of 4 identical periods. The first 3 periods of each stage are for practice and do not count towards your earnings today. These practice periods give you an opportunity to make sure you understand the types of decisions you make and how these will affect your earnings. The total amount of money you will earn today will be based on your earnings in the last period of each stage.

There will be a total of 7 stages today. Each stage will have a slightly different variation of the experiment. During the instructions today, we will work together through 3 instruction periods to illustrate these variations. We will begin with the simplest variation and then add new features. These 3 instruction periods are for practice and the earnings do not count towards your cash payoff today.

In the experiment, we will use US dollars as our currency. At the end of the experiment, you will be paid your earnings in cash.

Period 1

All the elements in this first period are common throughout the experiment. In the later examples, we will add new features. In all versions of the experiment, you are responsible for making a production decision. When you produce, there is a chance that an accident will occur. Your production decision directly affects both your earnings and the probability of an accident. Reducing the probability of an accident is costly and will reduce your Production Earnings. Similarly, increasing the probability of an accident will increase your Production Earnings.

You will receive your Production Earnings regardless of whether an accident occurs. However, there is a chance that you will be audited. If you are audited and if an accident occurred, then you will incur a fine.

To summarize:

1. You will choose the probability of an accident and the corresponding Production Earnings.
2. The computer will randomly determine whether an accident occurred based on the probability that you have chosen.
3. In a separate random drawing, the computer will determine whether you will be audited. The computer monitor does not know whether an accident occurred unless you are audited. If you are randomly selected for an audit, then the computer monitor will discover whether an accident occurred. If you are audited and an accident occurred, then you will have to pay a fine that will be deducted from your Production Earnings. If you are not audited or if an accident did not occur, then you do not pay a fine.

Some things to keep in mind:

Note that there are two computerized random drawings: one to determine whether an accident occurred, and the other to determine whether you are audited. Each random drawing is independent. This means that:

- a. Your choice of Production Earnings and the accident probability has no effect on the chance that you will be audited.
- b. Whether you are audited in one period has no influence on whether you will be audited in another period.
- c. Whether an accident occurred in one period has no influence on whether an accident will occur in another period.

Are there any questions?

Now let's look at the computer screens for making your decisions. I will now unlock your computer screens and we will work through a practice example together. You should follow what I am doing on the overhead projector.

Please DO NOT do anything with your computer until specifically instructed to do so!!

On the overhead, you can see that the screen is divided into a set of boxes or frames. In the top left corner of your screen, you can see that we are in period 1 and that this is a practice period. In the top right corner, you can see that the probability that you will be audited is 60%, and there is a 40% chance you will not be audited.

Below the audit probability is another frame that contains the Earnings Table. This table presents the relationship between the Accident Probability and your Production Earnings. Total Earnings refers to the total Production Earnings associated with a given Accident Probability. Change in Earnings refers to the change in your Total Earnings as you move down the table and reduce the accident probability. The Change in Earnings is negative because reducing the accident probability reduces your Total Earnings.

Now, try scrolling up and down the earnings table as I am doing on the overhead.

Reading down the table, notice that as the accident probability decreases, your total earnings decrease. Similarly, reading up the table, as the accident probability increases, your total earnings increase.

Under the Earnings Table is the Fines Table. This table lists all of the possible outcomes and the fines associated with each. In this example, you will have to pay a \$2.50 fine if an accident occurs and if you are audited. Otherwise, you will not pay a fine.

Please look at the overhead for a moment. Notice that when I move the cursor over the cells in the Fines Table, a small window pops up showing the Net Earnings (how much cash you will earn) for that outcome. The Net Earnings equals your Production Earnings less any fines.

The top left cell, for example, refers to the case in which there is an accident and you are audited. With a 95% accident probability, for example, your Production Earnings would be \$3.16. After the \$2.50 fine is subtracted, you would have \$0.66 in Net Earnings.

	Audited (60 % chance)	Not Audited (40 % chance)
Accident (95 % chance)	\$ 2.50	\$ 0
No Accident (5 % chance)	\$ 0	\$ 0

The pop-up window also shows you the chance that a particular outcome will happen. In our example, there is a 57% chance that an accident will happen and that you will be audited. With a 95% accident probability and a 60% audit probability, we get $95\% \times 60\% = 57\%$. As you change the accident probability, both these percentages and the Net Earnings in the pop-up window are automatically updated.

Choose Production Earnings and Accident Probability

The frame on the left is where you make your decisions. Moving the scroll bar at the bottom adjusts both the probabilities and your earnings. Notice that as you move the scroll bar, the “Earnings Table” on the right also adjusts. Your current decision is always highlighted in yellow. The accident and no accident probabilities in the Fines Table are updated. The information in the pop-up windows in each cell of the Fines Tables is also updated.

Now, try changing your probability and earnings decision by moving the scroll bar. Do NOT click on the green “Start Production” button yet. Notice how the Earnings Table and Fines Table are continually updated to match your current decision.

Now move your cursor over the different cells in the Fines Table to see what your Net Earnings would be for each outcome and the chances of this happening.

Are there any questions?

Please move the scroll bar to show an Accident Probability of 65%, a No Accident Probability of 35%, and Total Production Earnings of \$3.02.

In the Fines Table, notice that if an accident occurs and if you are audited, your Net Earnings will be \$0.52 (39% chance). Otherwise, you will earn \$3.02 (61% chance).

Does everyone have this?

Please click on the green “Start Production” button.

Results Window

Period 1 is now over and the Results Window pops up. On the left side, we can see a summary of what happened. We discover that an accident occurred, but we were not audited. Because we were not audited, we do not pay a fine. On the right, we see the accounting for our earnings. The Fines Table is also updated to highlight the cell that matches the final outcome. You can move the Results Window around as I am doing now.

Please click on the green “Previous Results” button. Do NOT click on the “Start New Period” button.

Previous Results

The Previous Results window summarizes all your decisions, the outcomes and your earnings for each period. Practice periods such as this do not count towards your cash earnings; these are shown in white. The non-practice periods, which do count towards your final cash earnings, will be highlighted in yellow.

This window is also available during the period by clicking on the “Previous Results” button as shown on the overhead. During a period, the information for the current period gets updated as soon as each decision is finalized (that is, when you click “Start Production”).

In some periods, you may notice that some columns do not have a heading and that there is “n/a” in some cells. This simply means that there is an experiment feature that you have not encountered. If you see “n/a,” simply ignore the cell because it is “not applicable” in that period.

If you want, you can move the Previous Window around as I am doing now.

Please review this window and compare it to what happened in our practice example. Are there any questions?

Please close the Previous Results window. Then, please click “Start New Period” on the Results window.

Period 2

This period is the same as Period 1, except that we introduce a new feature. You now have the option of voluntarily reporting an accident. In doing so, you will still pay a fine, but at a reduced rate. The fine for voluntarily reporting an accident will always be lower than the fine for an accident that is discovered through an audit.

Before you discover whether an accident has occurred, you must commit to a decision about whether to report an accident if one occurs. You have two options:

1. You can choose to report an accident if one occurs. Because you reported the accident, there is no need for an audit. You will automatically incur a reduced fine of \$1.00.

OR

2. You can choose NOT to report an accident if one occurs. In this case, the experiment will proceed as in the first example. There is a chance that you will be audited. If you are audited, then you will have to pay a \$2.50 fine. If you are not audited, then you will not pay a fine.

If an accident does not occur, then you will not pay a fine regardless of whether you committed to reporting an accident.

Now let's work through an example.

Choose Production Earnings and Accident Probability

As in Period 1, choose Production Earnings and the probability of an accident.

Please move the scroll bar to show an Accident Probability of 15%, a No Accident Probability of 85%, and Total Production Earnings of \$2.38.

Does everyone have this?

Choose whether to report accident

The new feature in this version of the experiment is the decision about whether to report an accident if one occurs.

Click on the top option: “I choose to report whether an accident occurs,” but do not click Start Production.

In the Fines Table, notice that only the two cells under “Do report an accident” are highlighted. In the Fines Table, move your cursor to the cell for Accident and No Need to Audit. You can see that the reduced fine for reporting an accident is \$1.00 and there is a 15% chance of this happening if you choose to report. (The 15% is the accident probability). Your Net Earnings in this case would be \$1.38.

Click on the bottom option: “I choose NOT to report whether an accident occurs,” but do not click Start Production.

In the Fines Table, notice that only the four cells under “Do not report an accident” are highlighted. In the Fines Table, move your cursor to the cell for Accident and Audited in the top left corner. You can see that the fine for this outcome is \$2.50. The pop-up window shows that your Net Earnings would be negative: you would lose \$0.12 and there is a 9% chance of this happening if you choose not to report. For No Accident and Not Audited, there is no fine. The pop-up window shows that your Net Earnings would be \$2.38 (exactly the same as your Production Earnings) and there is a 34% chance of this happening.

You can make your decisions in any order. For example, this means that after clicking a button for a reporting decision, you can go back and change the accident probability and production earnings. None of your decisions are finalized until you click the green Start Production button.

Please change the accident probability to 35% (Production Earnings=\$2.75), then select “I choose NOT to report an accident if one occurs,” and then click Start Production.

Are there any questions?

Results Window

Period 2 is now over and the results window pops up. As in Period 1, the left side provides a summary of what happened. We discover that an accident did occur, but we did not report it. Because we were audited, we must pay a \$2.50 fine. On the right, we see the accounting for our earnings. The Fines Table is also updated to highlight the cell that matches the final outcome. Are there any questions?

Please click “Start New Period” on the Results Window.

Period 3

Period 3 is the same as Period 2, except that we introduce another new feature. In Period 2, you had the option to report an accident. Discovering whether an accident occurred was costless. Now, you will have to pay to discover whether an accident occurred.

Choose Probabilities and Production Earnings

As in Periods 1 and 2, choose Production Earnings and the probability of an accident.

Please move the scroll bar to show an Accident Probability of 25%, a No Accident Probability of 75%, and Total Production Earnings of \$2.60.

Does everyone have this?

Choose whether to discover outcome and whether to report an accident

You can spend \$0.20 to discover whether an accident occurs. If an accident does occur, then you have the option to report the accident. As in Period 2, you must commit to your decisions before you discover whether an accident occurs. You have two options:

1. You can choose to pay \$0.20 to discover whether an accident occurs and report an accident if one occurs.

OR

2. You can choose NOT to pay to discover whether an accident occurs. In this case, since you did not discover, you cannot report an accident.

Click on the bottom line “I choose NOT to pay to discover...”. Do not click Start Production.

Notice that the four cells on the left side of the Fines Table are highlighted to reflect this choice. There is a 60% chance you will be audited. If you are audited and an accident occurs, then you will pay a \$2.50 fine. Otherwise, you will not pay a fine.

Click on the top line “I choose to pay...I choose to report...”. Do not click Start Production.

Notice that the two cells on the right side of the Fines Table are highlighted to reflect this choice. If you pay \$0.20 to discover and choose to report an accident, then there is no need to audit you. If an accident occurs, then you pay the reduced fine of \$0.60. Your Net Earnings would be \$1.80. If an accident does not occur, then you still pay the \$0.20 discovery cost, but you do not pay a fine. Your Net Earnings would be \$2.40.

Remember that you can make your decisions in any order. Your decisions are not finalized until you click the green Start Production button.

Change the accident probability to 45% (Production Earnings=\$2.87).

Click on the top line “I choose to pay...I choose to report...” and then click Start Production.

4. Results

Period 3 is now over and the results window pops up. As in the previous periods, the left side provides a summary of what happened and the right side gives an accounting of our earnings. We chose to pay \$0.20 to discover whether an accident occurred, and we committed to reporting the outcome. We must pay the \$0.20 cost of discovering the outcome, but we do not pay a fine because an accident did not occur. The Fines Table is also updated to highlight the cell that matches the final outcome. Are there any questions?

Begin the experiment

In a moment, we will begin the experiment. Remember that the experiment will consist of a series of 7 “stages.” Each stage consists of 3 practice periods, followed by 1 period in which your earnings will count towards how much you will be paid today. The purpose of the practice periods is for you to familiarize yourself with the different decisions you can make and the consequences of these decisions. Each stage will be slightly different from the previous stage. At the start of each stage, the computer will announce the key changes. It will also remind you when the practice periods are over and when you will be making real decisions that count towards your cash earnings today.

Some things to remember:

- The pop-up windows in the Fines Table show your Net Earnings for each possible outcome and the chances of it occurring.
- You can review the results from earlier periods by clicking on the Previous Results button.
- You can make your decisions in any order. Your decisions are not finalized until you click the “Start Production” button.
- You can move the Results and Previous Results Windows around your screen.
- Within a particular stage, the choices you can make and the fines for an accident are the same in both the practice and the real money periods. However, when you proceed to a new stage, some of these may change.
- At the start of each period, the “Start Production” will not be visible until one minute has passed. Please use the minute to think carefully about your decision. You can take more than one minute if you need.

Are there any questions before we begin? The next page summarizes the sequence of periods and stages.

Stage	Practice Periods	Real Money Periods
Instructions	1 – 3	
1	4 – 6	7
2	8 – 10	11
3	12 – 14	15
4	16 – 18	19
5	20 – 22	23
6	24 – 26	27
7	28 – 30	31