# Appendix A

**Proof of Lemma 1.**

To show that $\overline{g}(v)$ is increasing in $v$, note by eq. (4) that

$$\overline{g}'(v) = -\overline{g}(v)\frac{R'(v)}{1+R(v)} \tag{A-1}$$

Moreover, since $\beta_i \sim Exp(1/\lambda)$, $R(v) = \frac{1-e^{-\beta_1(v)/\lambda}}{e^{-\beta_2(v)/\lambda}}$. Therefore, differentiating $R(v)$ with respect to $v$ yields

$$\begin{aligned} R'(v) &= \frac{1}{\lambda}\beta_2'(v)e^{\beta_2(v)/\lambda} - \frac{1}{\lambda}\left[\beta_2'(v)-\beta_1'(v)\right]e^{(\beta_2(v)-\beta_1(v))/\lambda} = \\ &= -\frac{N(N-1)}{(Nv-1)^2}\frac{1}{\lambda}\left[e^{\beta_2(v)/\lambda}+\gamma R(v)\right] < 0 \end{aligned} \tag{A-2}$$

where the last equality takes into account that $\beta_1'(v) = -\frac{N(N-1)}{(Nv-1)^2} < 0$ and $\beta_2'(v) = -\frac{N(N-1)}{(Nv-1)^2}(1+\gamma) < 0$. Given $R'(v) < 0$, eq. (A-1) implies that $\overline{g}'(v) > 0$.

To show that $\lim_{v\to\frac{1}{N}} \overline{g}(v) = 0$, we need to show that $\lim_{v\to\frac{1}{N}} R(v) = \infty$. Note that $\lim_{v\to\frac{1}{N}} \beta_1(v) = \lim_{v\to\frac{1}{N}} \beta_2(v) = \infty$. Therefore, $\lim_{v\to\frac{1}{N}} e^{-\beta_2(v)/\lambda} = \lim_{v\to\frac{1}{N}} e^{-\beta_1(v)/\lambda} = 0$, resulting in $\lim_{v\to\frac{1}{N}} R(v) = \infty$. To see that $\lim_{v\to 1}\overline{g}(v) = W$ note that $\lim_{v\to 1}\beta_1(v) = 0$ and $\lim_{v\to 1}\beta_2(v) = \gamma$. This implies that $\lim_{v\to 1} R(v) = 0$ and $\lim_{v\to 1}\overline{g}(v) = W$.

To establish the existence and uniqueness of $\tilde{v}(\lambda)$ and its corresponding properties, we first derive $\overline{g}''(v)$ by differentiating $\overline{g}'(v)$ with respect to $v$, yielding

$$\overline{g}''(v) = \frac{\overline{g}(v)}{(1+R(v))}\left[2\frac{[R'(v)]^2}{1+R(v)} - R''(v)\right] \tag{A-3}$$

Differentiating eq. (A-2) with respect to $v$ and simplifying yields

$$R''(v) = \frac{N^2(N-1)^2}{\lambda^2(Nv-1)^4}\left[(e^{\beta_2(v)/\lambda}+\gamma R(v))\left(\frac{2\lambda(Nv-1)}{(N-1)}+\gamma\right)+(1+\gamma)e^{\beta_2(v)/\lambda}\right] \tag{A-4}$$

Subsituting for $R'(v)$ and $R''(v)$ in eq. (A-3) and simplifying results in

$$\begin{aligned} \overline{g}''(v) &= \frac{\overline{g}(v)}{(1+R(v))}\frac{N^2(N-1)^2}{\lambda^2(Nv-1)^4}[e^{\beta_2(v)/\lambda}+\gamma R(v)] \times \\ &\left[2\frac{e^{\beta_2(v)/\lambda}+\gamma R(v)}{1+R(v)} - \frac{(1+\gamma)e^{\beta_2(v)/\lambda}}{e^{\beta_2(v)/\lambda}+\gamma R(v)} - \frac{2\lambda(Nv-1)}{(N-1)} - \gamma\right] \end{aligned}$$

Note that

$$g''(v) \overset{sign}{=} \left[2\frac{e^{\beta_2(v)/\lambda}+\gamma R(v)}{1+R(v)} - \frac{(1+\gamma)e^{\beta_2(v)/\lambda}}{e^{\beta_2(v)/\lambda}+\gamma R(v)} - \frac{2\lambda(Nv-1)}{(N-1)} - \gamma\right] = \Omega(v,\lambda).$$

To show the uniqueness of $\tilde{v}(\lambda)$, we first show that $\Omega(v, \lambda)$ is strictly decreasing in $v$, implying that there is at most one solution to $\overline{g}''(v) = 0$. Substituting for $R(v)$ in the above expression and further simplifying yields

$$\Omega(v, \lambda) = 2\frac{1+\gamma(1-e^{-\beta_1(v)/\lambda})}{1+e^{-[\beta_1(v)+\beta_2(v)]/\lambda}} - \frac{1+\gamma}{1+\gamma(1-e^{-\beta_1(v)/\lambda})} - \frac{2\lambda(Nv-1)}{(N-1)} - \gamma \tag{A-5}$$

It is immediately evident that $\Omega(v, \lambda)$ is strictly decreasing in $v$ since $\beta_1'(v) < 0$ and $\beta_2'(v) < 0$. Thus, there is at most one solution to $\Omega(v, \lambda) = 0$.

To establish the existence of $\tilde{v}(\lambda)$, note that

$$\lim_{v \to \frac{1}{N}} \Omega(v, \lambda) = 1 + \gamma > 0, \tag{A-6}$$

since $\lim_{v \to \frac{1}{N}} \beta_1(v) = \lim_{v \to \frac{1}{N}} \beta_2(v) = \infty$, and

$$\lim_{v \to 1} \Omega(v, \lambda) = \frac{2}{1+e^{-\lambda/\gamma}} - 2/\lambda - 1, \tag{A-7}$$

since $\lim_{v \to 1} \beta_1(v) = 0$ and $\lim_{v \to 1} \beta_2(v) = \gamma$. It is straightforward to verify that $\lim_{v \to 1} \Omega(v, \lambda)$ is strictly decreasing in $\lambda$ and takes negative values for all $\lambda > \tilde{\lambda}$ where $\tilde{\lambda} \in (0, \infty)$ solves

$$\lim_{v \to 1} \Omega(v, \tilde{\lambda}) = 0.$$

Thus, for $\lambda > \tilde{\lambda}$, $\tilde{v}(\lambda)$ uniquely solves $\Omega(\tilde{v}(\lambda), \lambda) = 0$ and $\tilde{v}(\lambda) \in (\frac{1}{N}, 1)$, while for $\lambda < \tilde{\lambda}$, $\Omega(v, \lambda) > 0$ for all $v \in (\frac{1}{N}, 1)$ and thus $\tilde{v}(\lambda) = 1$. This establishes the existence of a unique $\tilde{v}(\lambda) \in \left(\frac{1}{N}, 1\right]$ with $g''(v) > 0$ for $v < \tilde{v}(\lambda)$ and $g''(v) < 0$ for $v > \tilde{v}$, proving property 1).

To establish property 2, note first that for $\lambda < \tilde{\lambda}$ $\tilde{v}(\lambda) = 1$. For $\lambda > \tilde{\lambda}$ implicit differentiation of $\Omega(\tilde{v}(\lambda), \lambda) = 0$ results in

$$\tilde{v}'(\lambda) = -\frac{\partial\Omega(v, \lambda)/\partial\lambda}{\partial\Omega(v, \lambda)/\partial v}$$

Recall that $\partial\Omega(v, \lambda)/\partial v < 0$. Moreover, straighforward differentiation reveals that $\partial\Omega(v, \lambda)/\partial\lambda < 0$. Therefore, it follows immediately that $\tilde{v}'(\lambda) < 0$.

The property $\lim_{\lambda \to 0} \tilde{v}(\lambda) = 1$ follow immediately from the fact that $\tilde{v}(\lambda) = 1$ for $\lambda < \tilde{\lambda} \in (0, \infty)$.

Finally, to establish that $\lim_{\lambda \to \infty} \tilde{v}(\lambda) = \frac{1}{N}$, note that

$$\lim_{\lambda \to \infty} \Omega(v, \lambda) = \lim_{\lambda \to \infty} -2\frac{Nv-1}{N-1}\lambda$$

By definition, $\Omega(\tilde{v}(\lambda), \lambda) = 0$ for $\lambda > \tilde{\lambda}$. Therefore,

$$\lim_{\lambda \to \infty} \Omega(\tilde{v}(\lambda), \lambda) = \lim_{\lambda \to \infty} -2\frac{N\tilde{v}(\lambda)-1}{N-1}\lambda = 0 \Longrightarrow \lim_{\lambda \to \infty} \tilde{v}(\lambda) = \frac{1}{N}$$

■

**Proof of Proposition 1.**

Given $\frac{1}{N} < v_L < v_H < 1$, by Lemma 1, there exist $\lambda_1 > 0$ be such that $\tilde{v}(\lambda_1) = v_H$ and $\lambda_2 > \lambda_1$ such that $\tilde{v}(\lambda_2) = v_L$. Furthermore, by Lemma 1, $\overline{g}(v)$ is convex for all $v < v_H$ if $\lambda \leq \lambda_1$. Thus, by definition of convexity,

$$p_L \overline{g}(v_L) + p_H \overline{g}(v_H) > \overline{g}(p_L v_L + p_H v_H)$$

Analogously, for $\lambda \geq \lambda_2$, $\overline{g}(v)$ is concave for all $v \geq v_L$, implying the reverse inequality.

■

# Appendix B Instructions for Stage 2

**Thank you for participating in our study.**

This is an experiment in decision-making. You will earn money based on the decisions that you and others make during this study. Since you could earn a significant amount of money from this study, please pay attention to the instructions.

It is very important that you remain silent and **do not** talk to others. If you have any questions or need assistance, please raise your hand and an experimenter will come to you.

Today, I will be reading the instructions for you. Please follow the instructions as I read them and please **do not** click "NEXT" until I instruct you to do so. We appreciate your cooperation.

Please turn off your electronic devices and put them away. You are **not** allowed to use your electronic devices until the end of the experiment. Please feel free to use the calculator that is provided for you.

You will be paid a show-up fee of $8 for participating in our study today; this will be yours to keep. You will have the opportunity to make more money during the experiment. All of your earnings will be paid to you in cash and in private at the end of the experiment.

The currency used in this experiment is tokens. At the end of the experiment, all of the tokens you have earned will be converted to money at the following rate:

1 **Token=$0.50 (1 Token = 50 cents)**

**Please click NEXT when you are ready.**

Next

## Instructions

You will be randomly assigned to a group consisting of **three** people. The identity of your group members in this experiment will be kept anonymous and confidential to all participants. Neither before nor after the experimental session will you learn who are/were in your group.

This experiment consists of two sets of 10 rounds, and you will be paid for one round picked at random at the end of the experiment. Right now, nobody knows which round is the paying round. Thus, it is in your best interest to pay equal attention to all rounds.

In each round, each group member has to decide on the allocation of 20 tokens. Each group member starts out with 20 tokens in his/her **private account** in each and every round.

You can leave these 20 tokens in your **private account** or you can contribute them *fully* or *partially* to a **group project** . Each token you do not contribute to the **group project** will automatically remain in your **private account.**

In each round, you will face the same decision. In each round, you will be randomly re-matched with two other participants.

Are there any questions so far?

**Please click NEXT when you are ready.**

Next

## YOUR EARNINGS FROM THE PRIVATE ACCOUNT

You will earn one token for each token you leave in your private account.

**Earnings from your private account** = 20 - *your contribution to the group project*

For example, if you leave 20 tokens in your private account (and therefore do not contribute to the group project), your earnings from your private account will be 20 tokens. If you leave 6 tokens in your private account (and therefore you contribute 14 tokens to the group project), your earnings from your private account will be 6 tokens.

**Only you will earn tokens from *your* private account.**

Are there any questions so far?

**Please click NEXT when you are ready.**

Next

## YOUR EARNINGS FROM THE GROUP PROJECT

You as well as your group members can contribute to the group project. The earnings for the group members from the group project will be determined by either of these two formulas:

**Formula 1:** Earnings from the group project = (Sum of Contributions X **1.2** ) / 3

**Formula 2:** Earnings from the group project = (Sum of Contributions X **1.8** ) / 3

There is a 50% chance that the earnings from the group project will be calculated by Formula 1. In this case, you and your group members will each earn **(Sum of Contributions X 1.2 ) / 3** from the project.

There is a 50% chance that the earnings from the group project will be calculated by Formula 2. In this case, you and your group members will each earn **(Sum of Contributions X 1.8 ) / 3** from the project.

In each round, the computer will randomly determine whether the earnings from the group project will be calculated according to Formula 1 or Formula 2. Right now, nobody knows which formula is going to be used.

We will give you two examples in the following screen. These examples are designed to help you better understand the instructions. They should not be used as a guide for your decisions in the experiment.

Are there any questions so far?

**Please click NEXT when you are ready.**

Next

## EXAMPLES

**Example 1:**

Suppose that the sum of contributions to the group project made by you and your group members is **27** tokens.

Also, suppose that **Formula 1** is randomly selected.

Then, you and your group members will each earn (27 x **1.2** ) / 3 = 32.4 / 3 = 10.8 tokens from the group project.

Are there any questions so far?

**Example 2:**

Suppose that the sum of contributions to the group project made by you and your group members is **11** tokens.

Also, suppose that **Formula 2** is randomly selected.

Then, you and your group members will each earn (11 x **1.8** ) / 3 = 19.8 / 3 = 6.6 tokens from the group project.

Are there any questions so far?

**Please click NEXT when you are ready.**

Next

## TOTAL EARNINGS

Again, there are three participants in each group. This means that you will be matched with two other participants in this sessions. Your total earnings are the **sum** of your earnings from your private account and from the group project:

| | | | | |
|---|---|---|---|---|
| **Total Earnings** | **=** | **Earnings From Your Private Account** | **+** | **Earnings From the Group Project** |
| | | (20 - your contribution to the group project) | | With 50% chance: (Sum of Contributions x 1.2) / 3 |
| | | | | With 50% chance: (Sum of Contributions x 1.8) / 3 |

Are there any questions so far?

**Please click NEXT when you are ready.**

Next

## UNDERSTANDINGS TASK

Before you start making your decisions, we would like you to answer a few questions. These questions are **not** designed to test you; but to help you better understand the experiment. They should **not** be used as a guide for your decisions in the experiment. If you need any help with the questions, please raise your hand and the experimenter will come and help you. You have to answer the questions correctly in order to proceed.

**Please click NEXT when you are ready.**

Next

## QUESTION 1

If you need assistance at any point, please raise your hand.

1. Each group member has 20 tokens in their private accounts. Suppose that nobody contributes anything to the group project.

| | |
|---|---|
| a. How many tokens will you earn from your private account ? | 20 |
| b. How many tokens will you and your group members each earn from the group project ? | 0 |
| c. How many tokens will your total earnings be? | 20 |

**When you are finished answering the questions, please click NEXT.**

Next

## QUESTION 2

If you need assistance at any point, please raise your hand.

2. Each group member has 20 tokens. Suppose that you contribute 5 tokens to the group project. Your other group members contribute 2 and 9 tokens each to the group project. Also, suppose that the earnings from the group project will be calculated according to **Formula 2** (sum of all contributions x **1.8** ) / 3.

Please notice that the answers for some questions may not be whole numbers.

| | |
|---|---|
| a. How many tokens will you earn from your private account ? | 15 |
| b. How many tokens will you and your group members each earn from the group project ? | 9.6 |
| c. How many tokens will your total earnings be? | 24.6 |

**When you are finished answering the questions, please click NEXT.**

Next

## QUESTION 3

If you need assistance at any point, please raise your hand.

3. Each group member has 20 tokens. Suppose that you contribute 5 tokens to the group project. Your other group members contribute 2 and 9 tokens each to the group project. Also, suppose that the earnings from the group project will be calculated according to **Formula 1** (sum of all contributions x **1.2** ) / 3.

Please notice that the answers for some questions may not be whole numbers.

a. How many tokens will you earn from private account ? 15

b. How many tokens will you and your group members each earn from the group project ? 6.4

c. How many tokens will total earnings be? 21.4

**When you are finished answering the questions, please click NEXT.**

Next

Treatment 1 (Selfish Groups – Informed ):

Periode

1 von 1

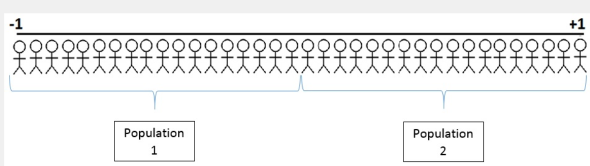
Verbleibende Zeit [sec]: 30

### Information about Today's Session

Recently, all of you participated in our online experiment. During this online experiment, you filled out a conditional contribution table and made contribution decisions to a group project that benefited everyone in your group equally.

Using your decisions made in this online experiment, we calculated a measure for each of the participants. This measure ranges between -1 and +1. If a participant's measure is -1, this means that this participant did not contribute anything to the group project no matter what other group members contributed. If a participant's measure is +1, this means that this participant contributed all of their tokens to the group project no matter what other group members contributed. The higher this measure is for one participant, the higher that participant's contributions were.

After we calculated this measure for each of the participants, we ranked everyone based on their measure as shown in the figure below. Then, we divided the participants into two equally sized populations.




For today's session, we only invited participants from Population 1.

Are there any questions so far?

**Please click NEXT when you are ready.**

Next

Periode

1 von 1

Verbleibende Zeit [sec]: 29

**FIRST SET OF 10 ROUNDS**

The first set of the experiment will last for 10 rounds.

In each round, you will have 20 tokens in your private account and will be asked to make a contribution decision to the group project.

Your total earnings are the **sum** of your earnings from your private account and from the group project:

You will earn 1 token for each token you keep in your private account.

Your earnings from the group project will be:

- Either (Sum of Contributions x 1.2) / 3 with 50% chance (Formula 1)
- Or (Sum of Contributions x 1.8) / 3 with 50% chance (Formula 2)

In each round, **only one** of these Formulas will be randomly selected. The randomly selected Formula will be used to calculate the earnings from the group project for that round.

In the first 10 rounds of the experiment, when you make your contribution decision, you will know which formula is going to be used for that round. In other words, when you make your contribution decision, you will know whether Formula 1 or Formula 2 is randomly selected to be used in that round.

In each round, you will be randomly re-matched with two other participants in this session and you will face the same decision. At the end of each round, you will be provided a Round Summary page. On this page, you will receive feedback on your earnings, the formula that was chosen, and your group member's contributions in that round.

Are there any questions so far?

**Please click NEXT when you are ready.**

Next

INFORMED decision Screen

**ROUND 11**

You have 20 tokens in your private account. Below, we ask you to make your contribution decision to the group project. Your contribution can be any whole number from 0 to 20.

Please remember that you will be randomly **re-matched** with two other participants in each round.

The randomly selected formula to be used in this round is: **(Sum of Contributions X 1.8) / 3**

How many tokens would you like to contribute to the project?

**Please make your decision now and click NEXT when you are ready.**

Next

Remaining Time [sec]: 1

**ROUND SUMMARY**

**Earnings from Private Account:** 17 tokens.

**Earnings from Group project:** 2.80 tokens.

Other's Average Contribution (rounded up): 2 tokens.

Sum of Contribution: 7 tokens.

Formula used: (Sum of Contributions X 1.2) / 3

**Your Total Earnings This Round:** 19.80 tokens.

**Please click NEXT when you are ready.**

Next

Periode

1 von 1

Verbleibende Zeit [sec]: 30

**SECOND SET OF 10 ROUNDS**

Again, in each round, you will have 20 tokens in your private account, and you will be asked to make a contribution decision to the group project.

Your total earnings are the **sum** of your earnings from your private account and from the group project:

You will earn 1 token for each token you keep in your private account.

Your earnings from the group project will be:

- Either (Sum of Contributions x 1.2) / 3 with 50% chance (Formula 1)
- Or (Sum of Contributions x 1.8) / 3 with 50% chance (Formula 2)

In each round, **only one** of these Formulas will be randomly selected. The randomly selected Formula will be used to calculate the earnings from the group project for that round.

**Different from the previous set of 10 rounds, in this second set of 10 rounds, you will make your contribution decision without knowing which formula is selected for that round. This is the only difference.**

Again, in each round, you will face the same decision. Also, in each round, you will be randomly re-matched with two other participants in this session.

Are there any questions so far?

**Please click NEXT when you are ready.**

Next

Uninformed Decision Screen

**ROUND 1**

You have 20 tokens in your private account. Below, we ask you to make your contribution decision to the group project. Your contribution can be any whole number from 0 to 20.

Please remember that you will be randomly **re-matched** with two other participants in each round.

How many tokens would you like to contribute to the project?

**Please make your decision now and click NEXT when you are ready.**

Next

Remaining Time [sec]: 1

**ROUND SUMMARY**

**Earnings from Private Account:** 14 tokens.

**Earnings from Group project:** 10.40 tokens.

Other's Average Contribution (rounded up): 10 tokens.

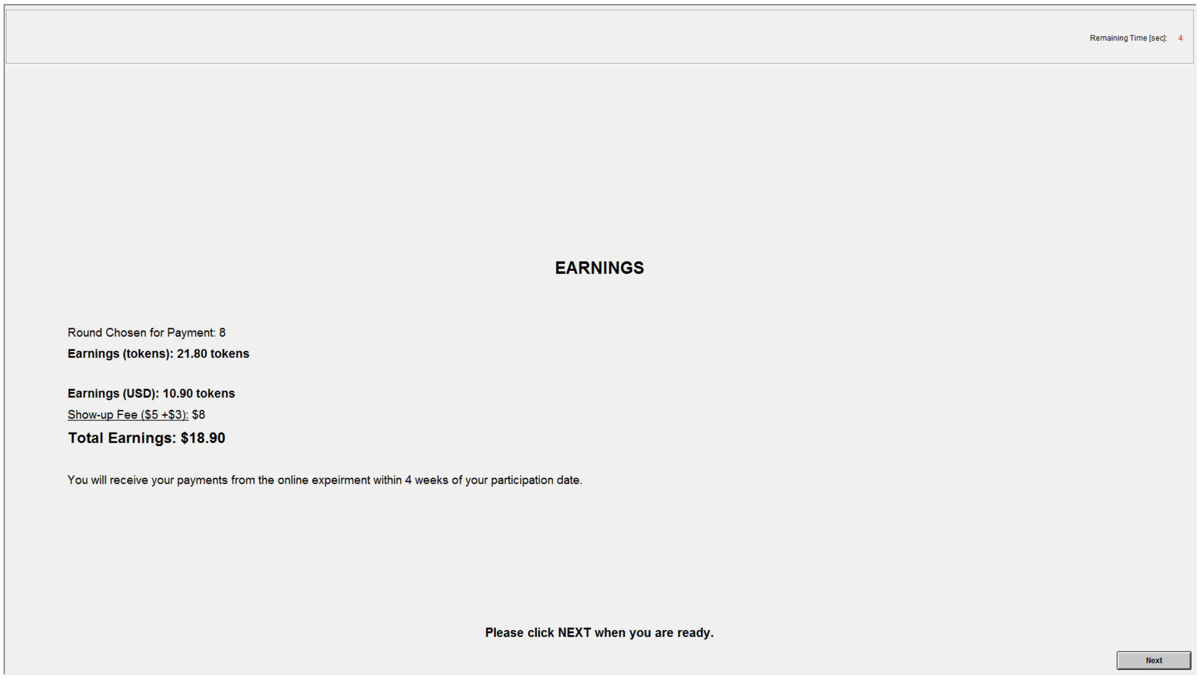
Sum of Contribution: 26 tokens.

Formula used: (Sum of Contributions X 1.2) / 3

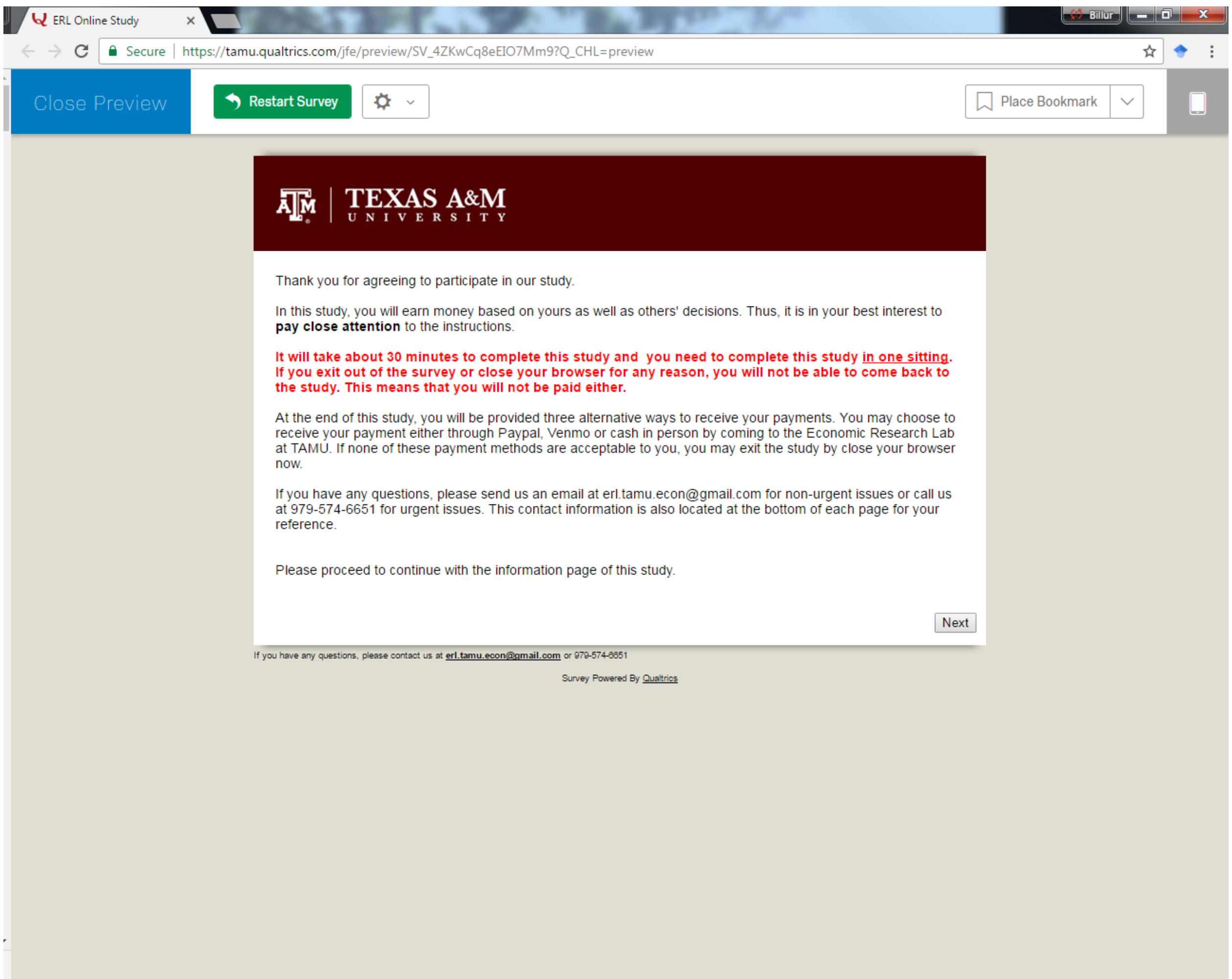
**Your Total Earnings This Round:** 24.40 tokens.

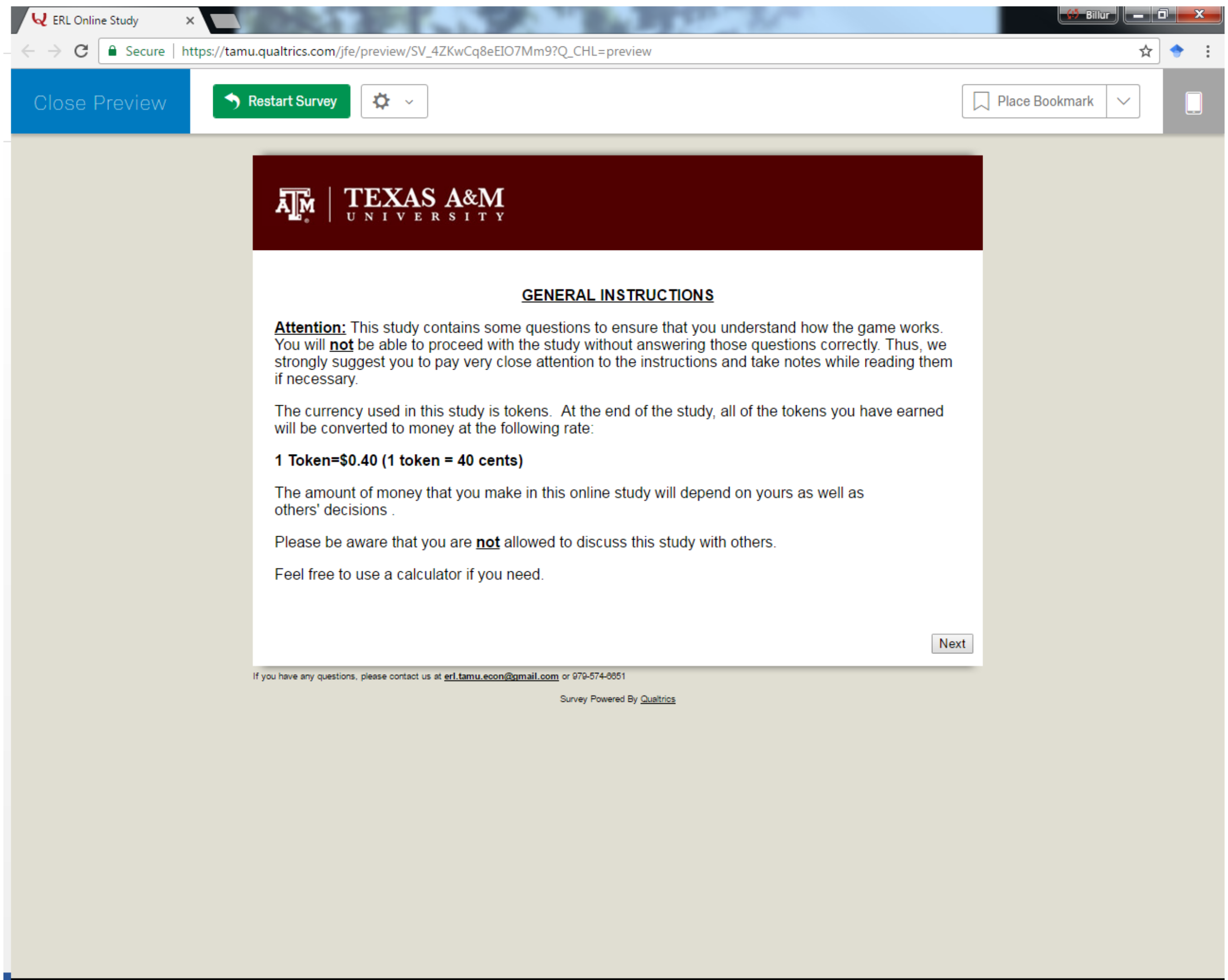
**Please click NEXT when you are ready.**

Next


Remaining Time [sec]: 4
EARNINGS
Round Chosen for Payment: 8
Earnings (tokens): 21.80 tokens
Earnings (USD): 10.90 tokens
Show-up Fee ($5 +$3): $8
Total Earnings: $18.90
You will receive your payments from the online expeirment within 4 weeks of your participation date.
Please click NEXT when you are ready.
Next

# Appendix C Instructions for Stage 1





ERL Online Study

Secure | https://tamu.qualtrics.com/jfe/preview/SV_4ZKwCq8eEIO7Mm9?Q_CHL=preview

Close Preview

Restart Survey

Place Bookmark

TEXAS A&M UNIVERSITY

**GENERAL INSTRUCTIONS**

**Attention:** This study contains some questions to ensure that you understand how the game works. You will **not** be able to proceed with the study without answering those questions correctly. Thus, we strongly suggest you to pay very close attention to the instructions and take notes while reading them if necessary.

The currency used in this study is tokens. At the end of the study, all of the tokens you have earned will be converted to money at the following rate:

**1 Token=$0.40 (1 token = 40 cents)**

The amount of money that you make in this online study will depend on yours as well as others' decisions .

Please be aware that you are **not** allowed to discuss this study with others.

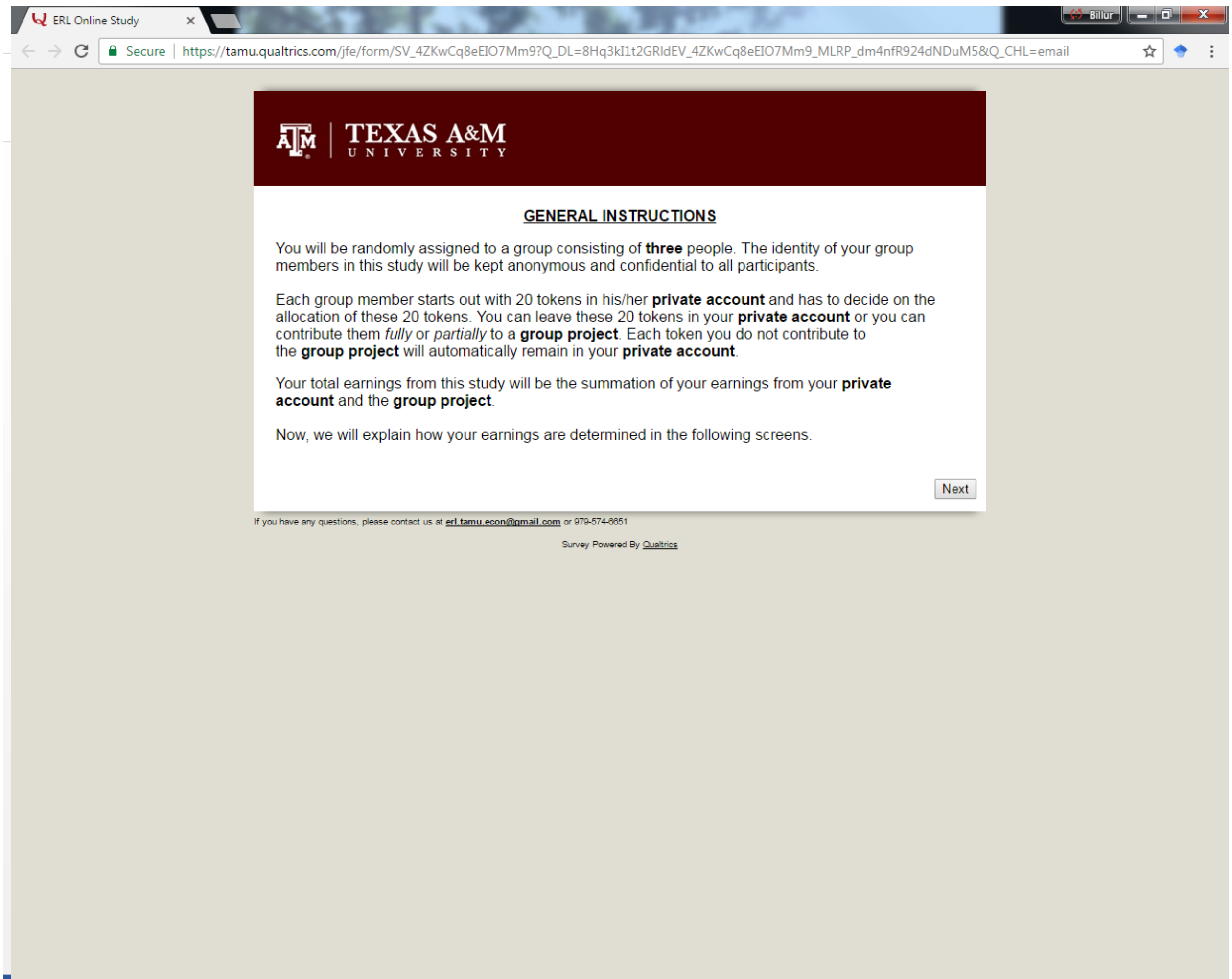
Feel free to use a calculator if you need.

Next

If you have any questions, please contact us at erl.tamu.econ@gmail.com or 979-574-8651

Survey Powered By Qualtrics

4


ERL Online Study

Secure | https://tamu.qualtrics.com/jfe/form/SV_4ZKwCq8eEIO7Mm9?Q_DL=8Hq3kI1t2GRIdEV_4ZKwCq8eEIO7Mm9_MLRP_dm4nfR924dNDuM5&Q_CHL=email

TEXAS A&M UNIVERSITY

**GENERAL INSTRUCTIONS**

You will be randomly assigned to a group consisting of **three** people. The identity of your group members in this study will be kept anonymous and confidential to all participants.

Each group member starts out with 20 tokens in his/her **private account** and has to decide on the allocation of these 20 tokens. You can leave these 20 tokens in your **private account** or you can contribute them *fully* or *partially* to a **group project**. Each token you do not contribute to the **group project** will automatically remain in your **private account**.

Your total earnings from this study will be the summation of your earnings from your **private account** and the **group project**.

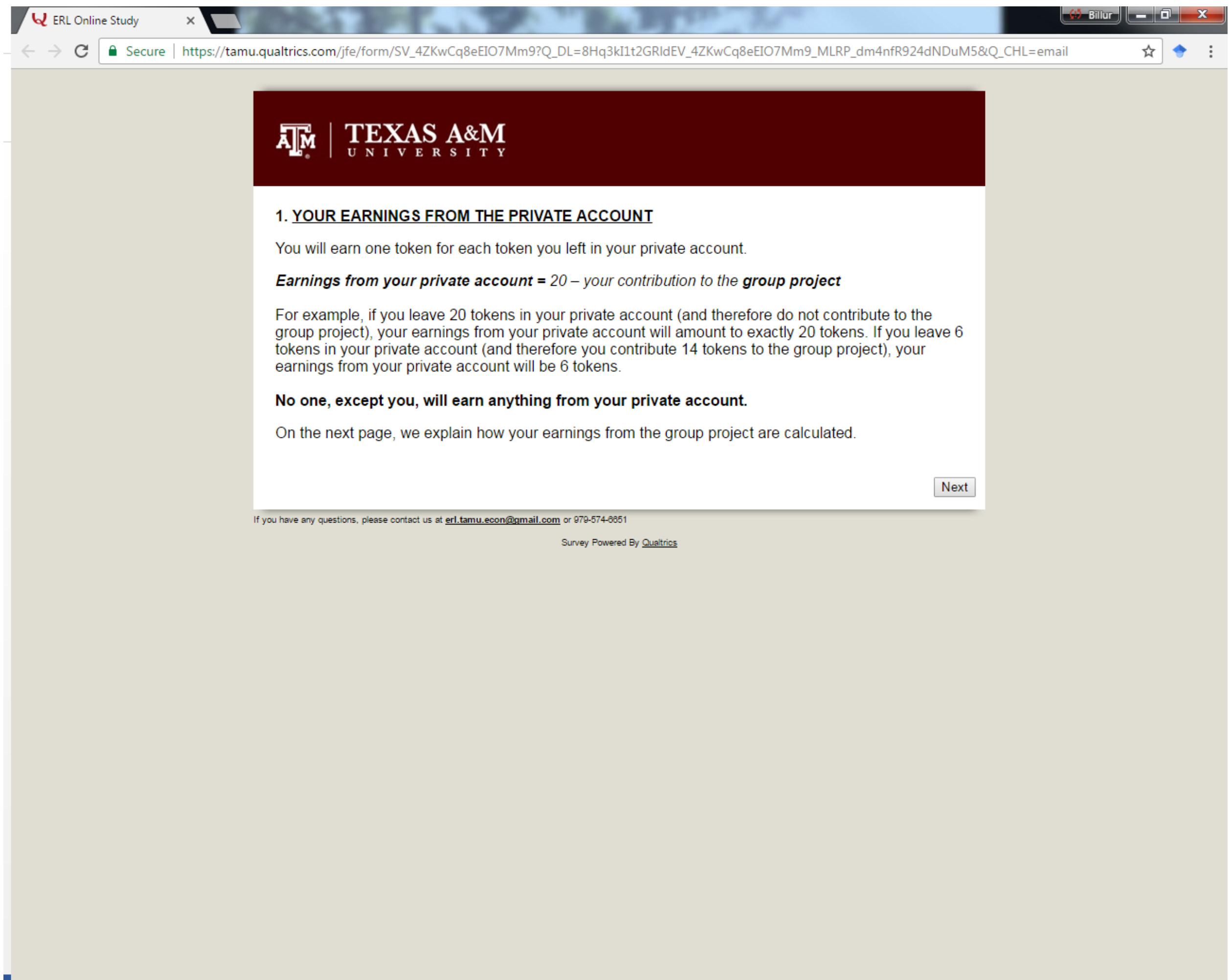
Now, we will explain how your earnings are determined in the following screens.

Next

If you have any questions, please contact us at erl.tamu.econ@gmail.com or 979-574-8651

Survey Powered By Qualtrics

5



ERL Online Study

Secure | https://tamu.qualtrics.com/jfe/form/SV_4ZKwCq8eEIO7Mm9?Q_DL=8Hq3kI1t2GRIdEV_4ZKwCq8eEIO7Mm9_MLRP_dm4nfR924dNDuM5&Q_CHL=email

TEXAS A&M UNIVERSITY

1. <u>YOUR EARNINGS FROM THE PRIVATE ACCOUNT</u>

You will earn one token for each token you left in your private account.

***Earnings from your private account =** 20 – your contribution to the **group project***

For example, if you leave 20 tokens in your private account (and therefore do not contribute to the group project), your earnings from your private account will amount to exactly 20 tokens. If you leave 6 tokens in your private account (and therefore you contribute 14 tokens to the group project), your earnings from your private account will be 6 tokens.

**No one, except you, will earn anything from your private account.**

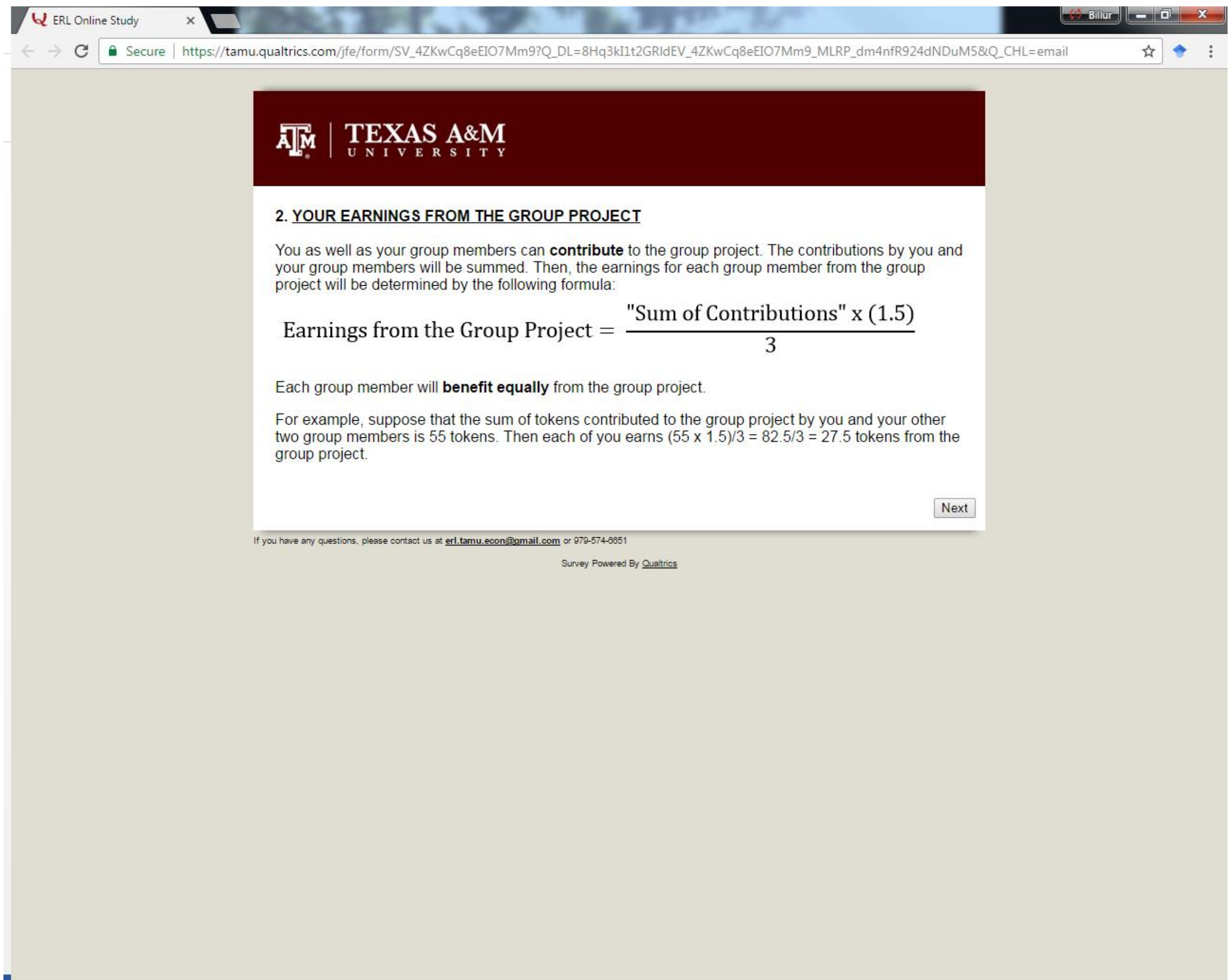
On the next page, we explain how your earnings from the group project are calculated.

Next

If you have any questions, please contact us at erl.tamu.econ@gmail.com or 979-574-6651

Survey Powered By Qualtrics

6



ERL Online Study

Secure | https://tamu.qualtrics.com/jfe/form/SV_4ZKwCq8eEIO7Mm9?Q_DL=8Hq3kI1t2GRldEV_4ZKwCq8eEIO7Mm9_MLRP_dm4nfR924dNDuM5&Q_CHL=email

TEXAS A&M UNIVERSITY

**2. YOUR EARNINGS FROM THE GROUP PROJECT**

You as well as your group members can **contribute** to the group project. The contributions by you and your group members will be summed. Then, the earnings for each group member from the group project will be determined by the following formula:

$$\text{Earnings from the Group Project} = \frac{\text{"Sum of Contributions" x (1.5)}}{3}$$

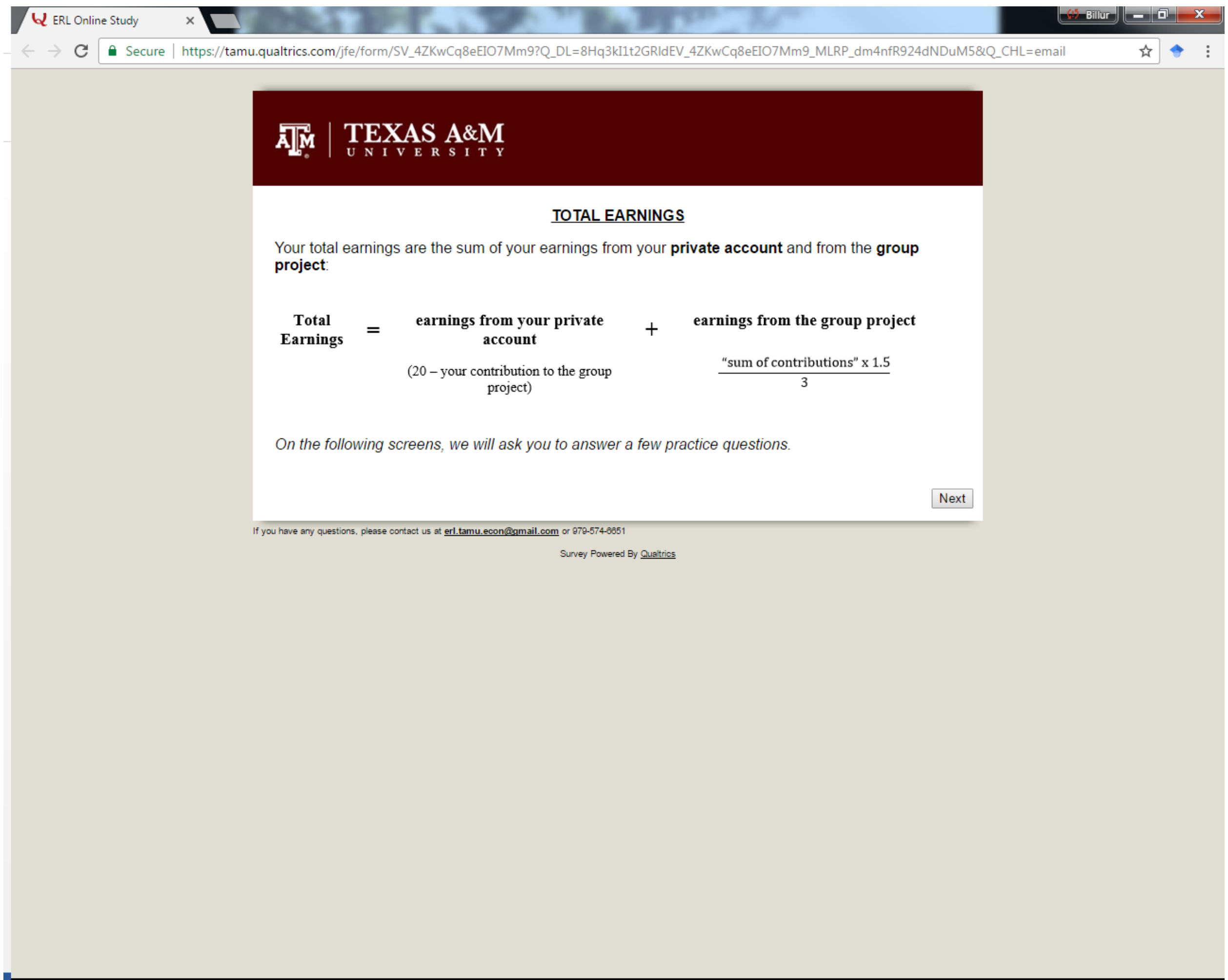
Each group member will **benefit equally** from the group project.

For example, suppose that the sum of tokens contributed to the group project by you and your other two group members is 55 tokens. Then each of you earns (55 x 1.5)/3 = 82.5/3 = 27.5 tokens from the group project.

Next

If you have any questions, please contact us at erl.tamu.econ@gmail.com or 979-574-6651

Survey Powered By Qualtrics



ERL Online Study

Secure | https://tamu.qualtrics.com/jfe/form/SV_4ZKwCq8eEIO7Mm9?Q_DL=8Hq3kI1t2GRIdEV_4ZKwCq8eEIO7Mm9_MLRP_dm4nfR924dNDuM5&Q_CHL=email

TEXAS A&M UNIVERSITY

**TOTAL EARNINGS**

Your total earnings are the sum of your earnings from your **private account** and from the **group project**:

**Total Earnings** = **earnings from your private account** (20 – your contribution to the group project) + **earnings from the group project** $\frac{\text{“sum of contributions” x 1.5}}{3}$

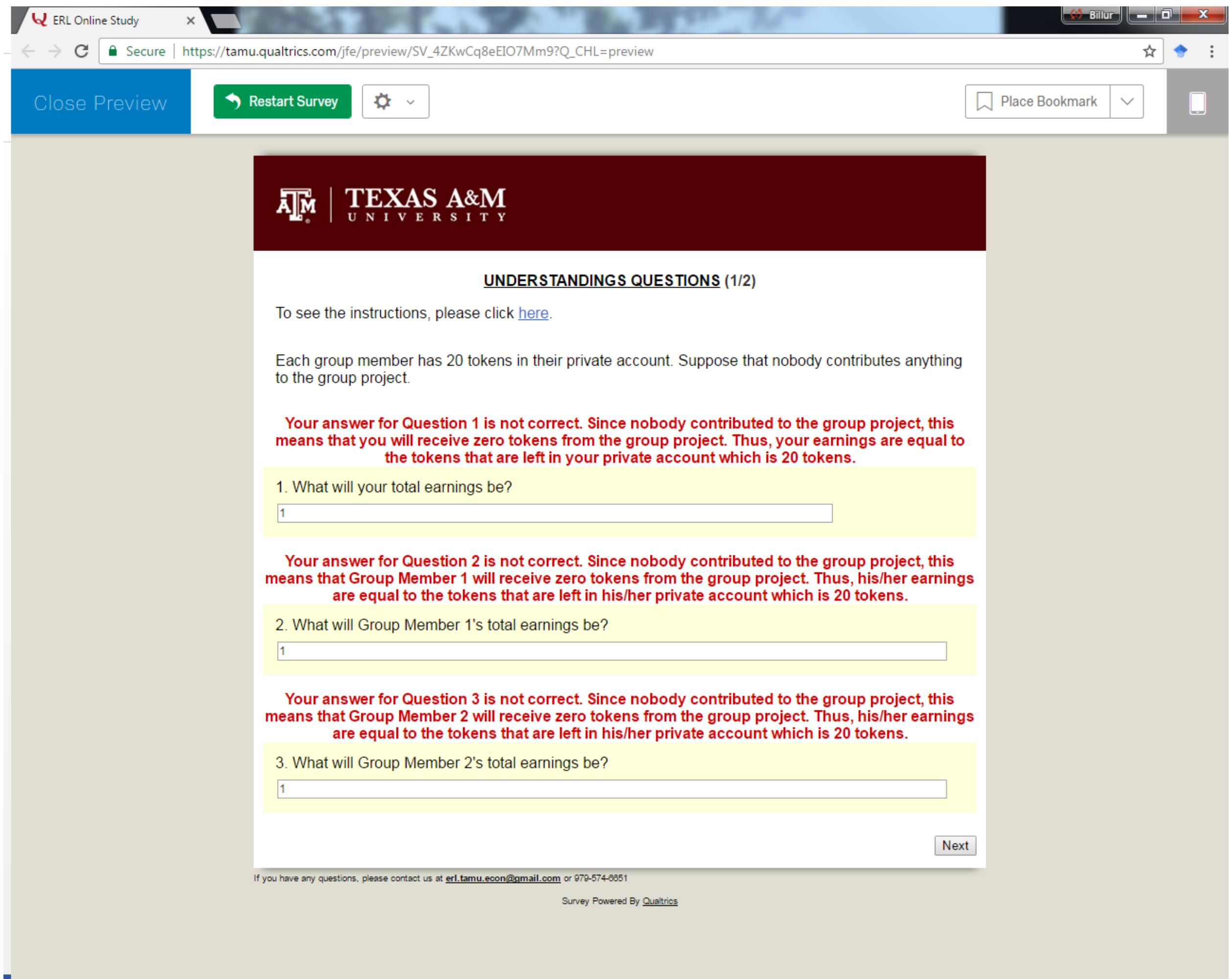
*On the following screens, we will ask you to answer a few practice questions.*

Next

If you have any questions, please contact us at erl.tamu.econ@gmail.com or 979-574-6651

Survey Powered By Qualtrics

8



ERL Online Study

Secure | https://tamu.qualtrics.com/jfe/preview/SV_4ZKwCq8eEIO7Mm9?Q_CHL=preview

Close Preview

Restart Survey

Place Bookmark

TEXAS A&M
UNIVERSITY

**UNDERSTANDINGS QUESTIONS** (1/2)

To see the instructions, please click here.

Each group member has 20 tokens in their private account. Suppose that nobody contributes anything to the group project.

**Your answer for Question 1 is not correct. Since nobody contributed to the group project, this means that you will receive zero tokens from the group project. Thus, your earnings are equal to the tokens that are left in your private account which is 20 tokens.**

1. What will your total earnings be?

1

**Your answer for Question 2 is not correct. Since nobody contributed to the group project, this means that Group Member 1 will receive zero tokens from the group project. Thus, his/her earnings are equal to the tokens that are left in his/her private account which is 20 tokens.**

2. What will Group Member 1's total earnings be?

1

**Your answer for Question 3 is not correct. Since nobody contributed to the group project, this means that Group Member 2 will receive zero tokens from the group project. Thus, his/her earnings are equal to the tokens that are left in his/her private account which is 20 tokens.**

3. What will Group Member 2's total earnings be?

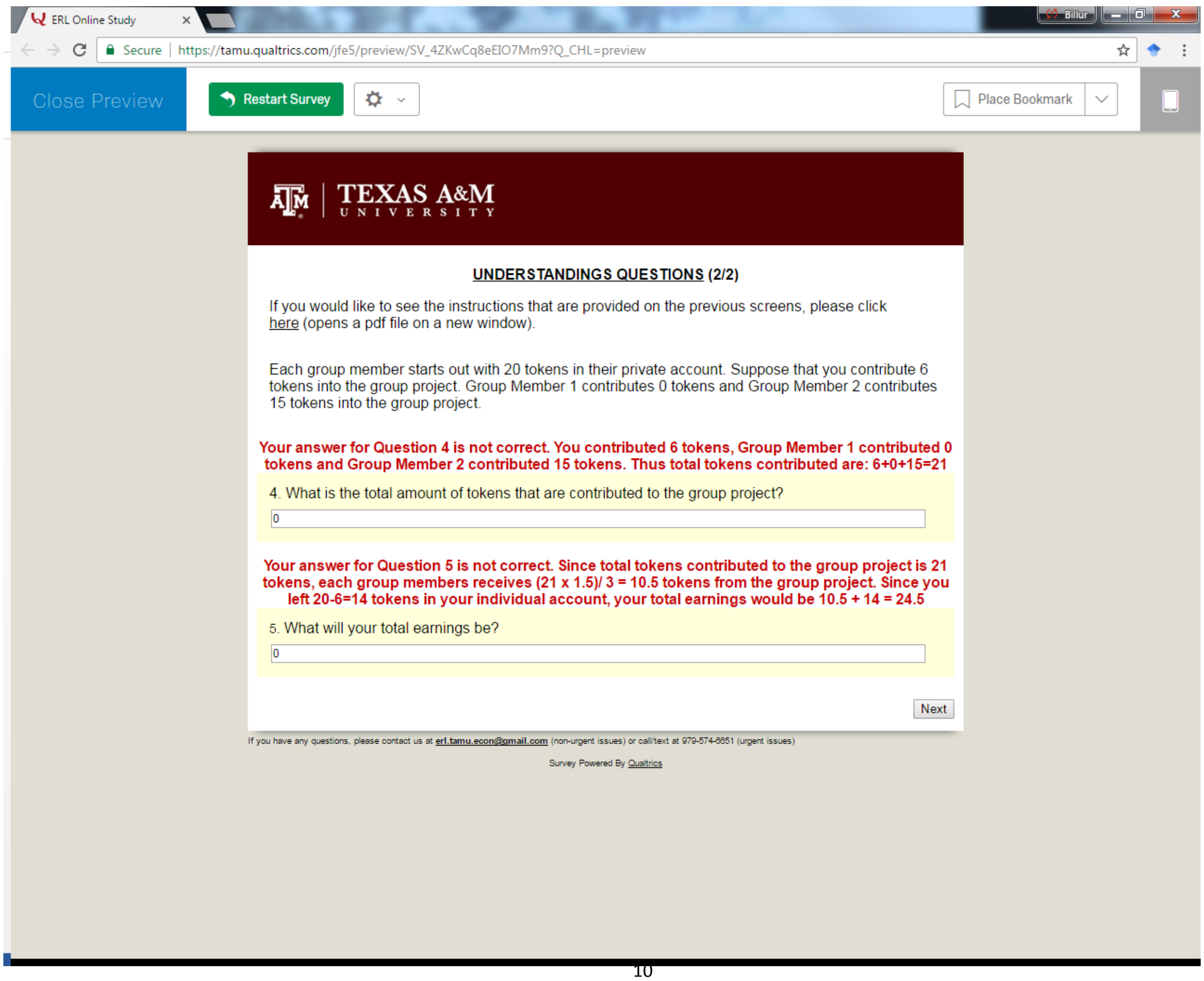
1

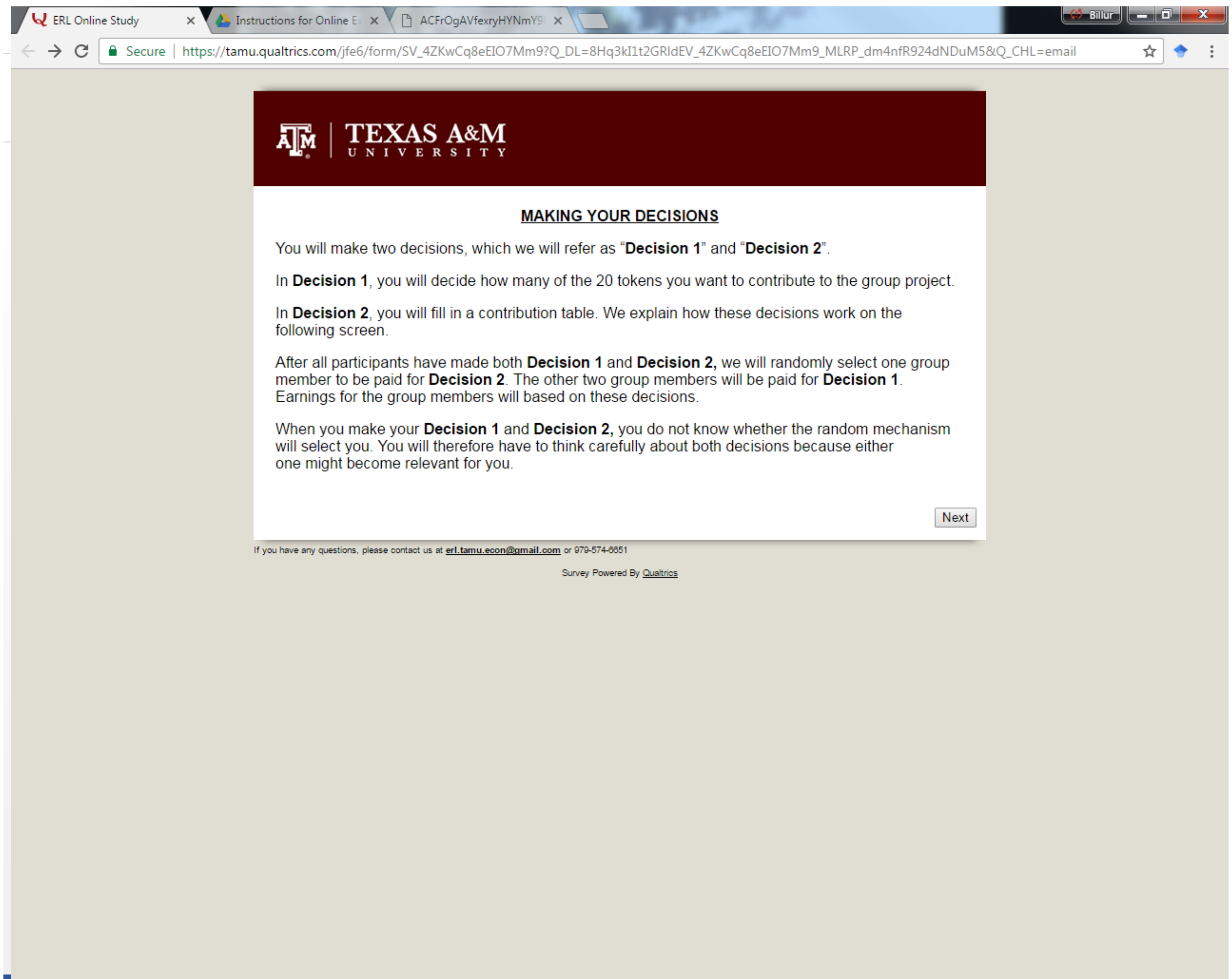
Next

If you have any questions, please contact us at erl.tamu.econ@gmail.com or 979-574-6651

Survey Powered By Qualtrics

9


ERL Online Study
Secure | https://tamu.qualtrics.com/jfe5/preview/SV_4ZKwCq8eEIO7Mm9?Q_CHL=preview
Close Preview
Restart Survey
Place Bookmark
TEXAS A&M
UNIVERSITY
UNDERSTANDINGS QUESTIONS (2/2)
If you would like to see the instructions that are provided on the previous screens, please click here (opens a pdf file on a new window).
Each group member starts out with 20 tokens in their private account. Suppose that you contribute 6 tokens into the group project. Group Member 1 contributes 0 tokens and Group Member 2 contributes 15 tokens into the group project.
Your answer for Question 4 is not correct. You contributed 6 tokens, Group Member 1 contributed 0 tokens and Group Member 2 contributed 15 tokens. Thus total tokens contributed are: 6+0+15=21
4. What is the total amount of tokens that are contributed to the group project?
0
Your answer for Question 5 is not correct. Since total tokens contributed to the group project is 21 tokens, each group members receives (21 x 1.5)/ 3 = 10.5 tokens from the group project. Since you left 20-6=14 tokens in your individual account, your total earnings would be 10.5 + 14 = 24.5
5. What will your total earnings be?
0
Next
If you have any questions, please contact us at erl.tamu.econ@gmail.com (non-urgent issues) or call/text at 979-574-6651 (urgent issues)
Survey Powered By Qualtrics
10




**MAKING YOUR DECISIONS**

You will make two decisions, which we will refer as "**Decision 1**" and "**Decision 2**".

In **Decision 1**, you will decide how many of the 20 tokens you want to contribute to the group project.

In **Decision 2**, you will fill in a contribution table. We explain how these decisions work on the following screen.

After all participants have made both **Decision 1** and **Decision 2,** we will randomly select one group member to be paid for **Decision 2**. The other two group members will be paid for **Decision 1**. Earnings for the group members will based on these decisions.

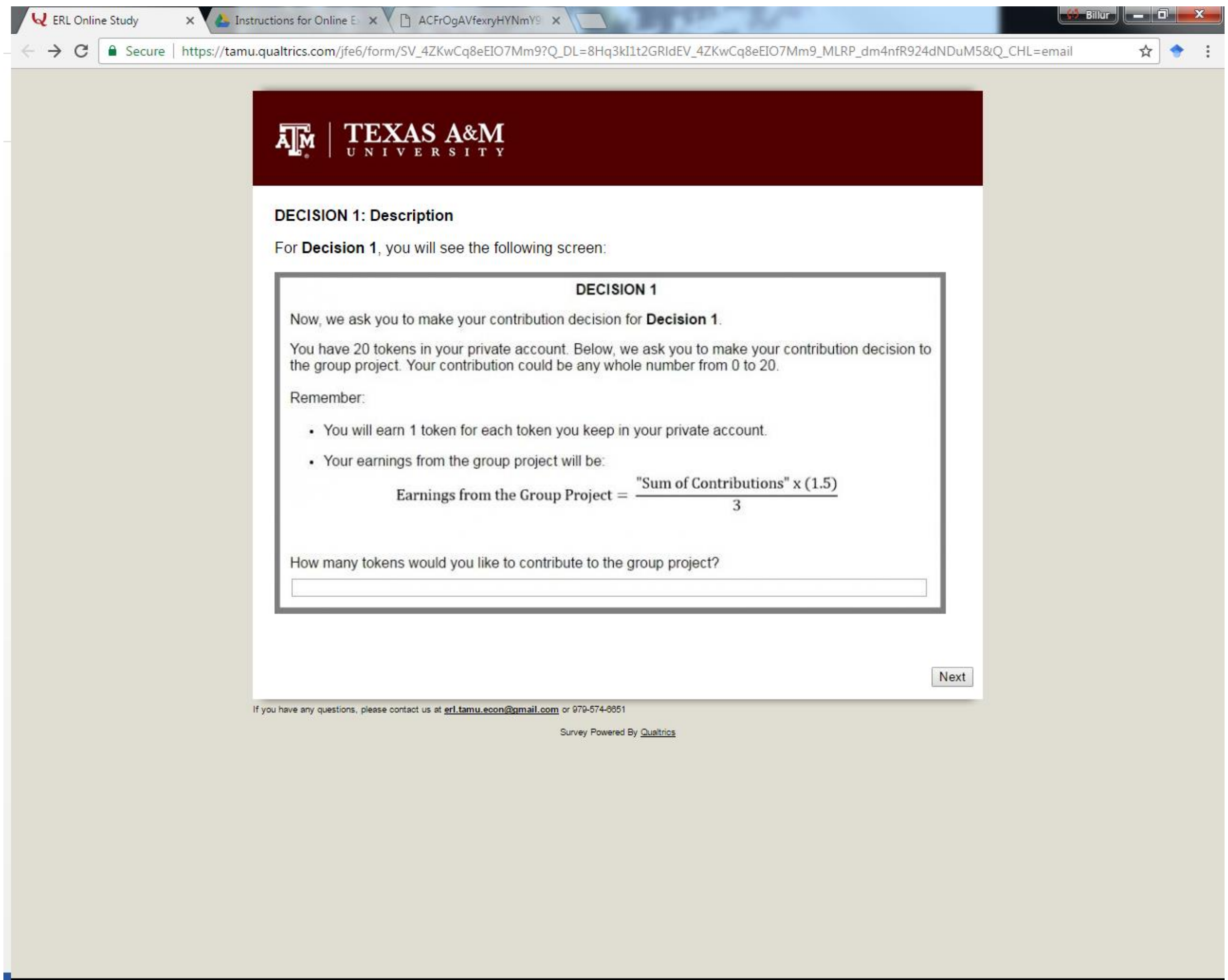
When you make your **Decision 1** and **Decision 2,** you do not know whether the random mechanism will select you. You will therefore have to think carefully about both decisions because either one might become relevant for you.

Next

If you have any questions, please contact us at erl.tamu.econ@gmail.com or 979-574-6651

Survey Powered By Qualtrics

11



TEXAS A&M UNIVERSITY

**DECISION 1: Description**

For **Decision 1**, you will see the following screen:

**DECISION 1**

Now, we ask you to make your contribution decision for **Decision 1**.

You have 20 tokens in your private account. Below, we ask you to make your contribution decision to the group project. Your contribution could be any whole number from 0 to 20.

Remember:

- You will earn 1 token for each token you keep in your private account.
- Your earnings from the group project will be:

$$\text{Earnings from the Group Project} = \frac{\text{"Sum of Contributions" x (1.5)}}{3}$$

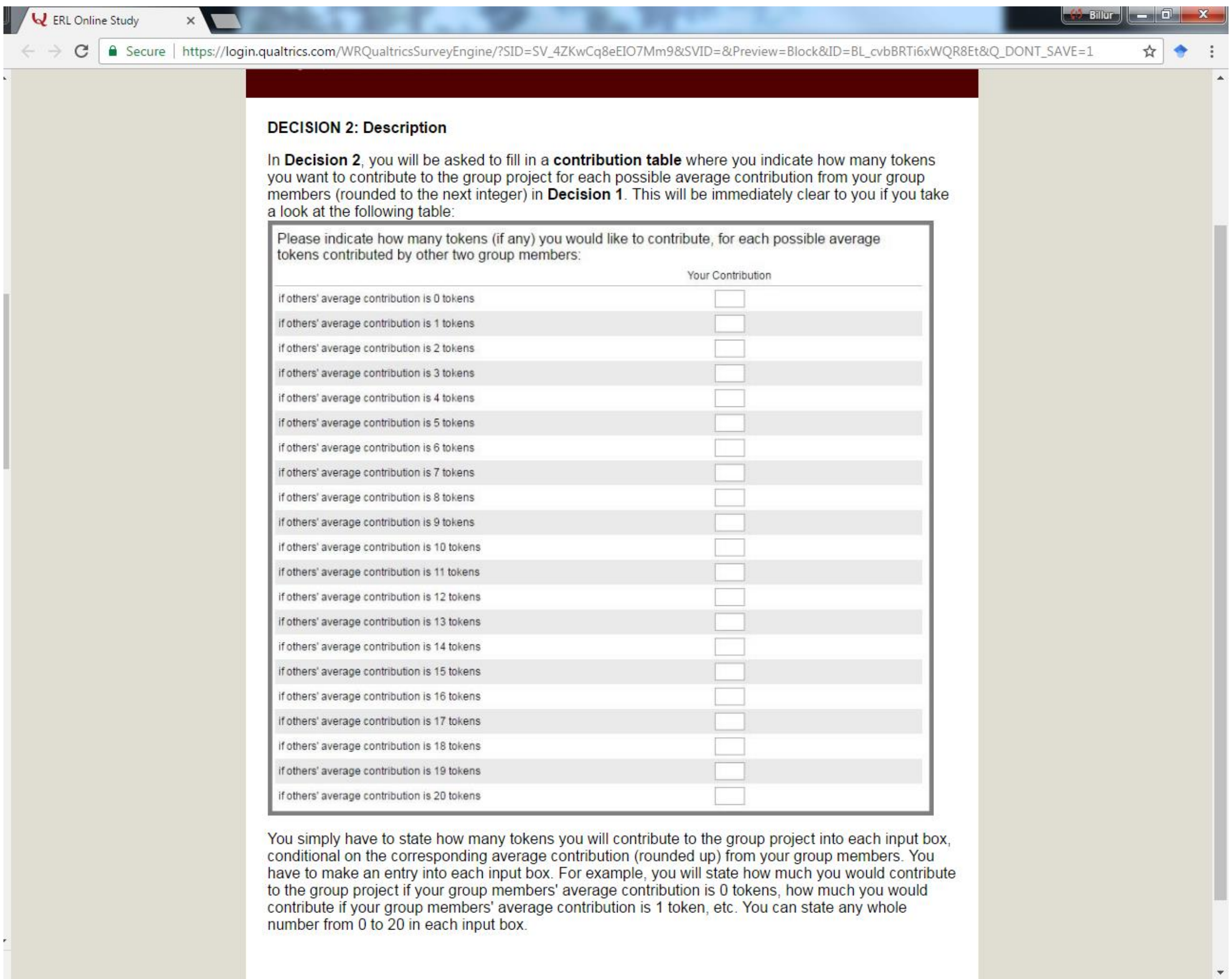
How many tokens would you like to contribute to the group project?

Next

If you have any questions, please contact us at erl.tamu.econ@gmail.com or 979-574-6651

Survey Powered By Qualtrics

12




**DECISION 2: Description**

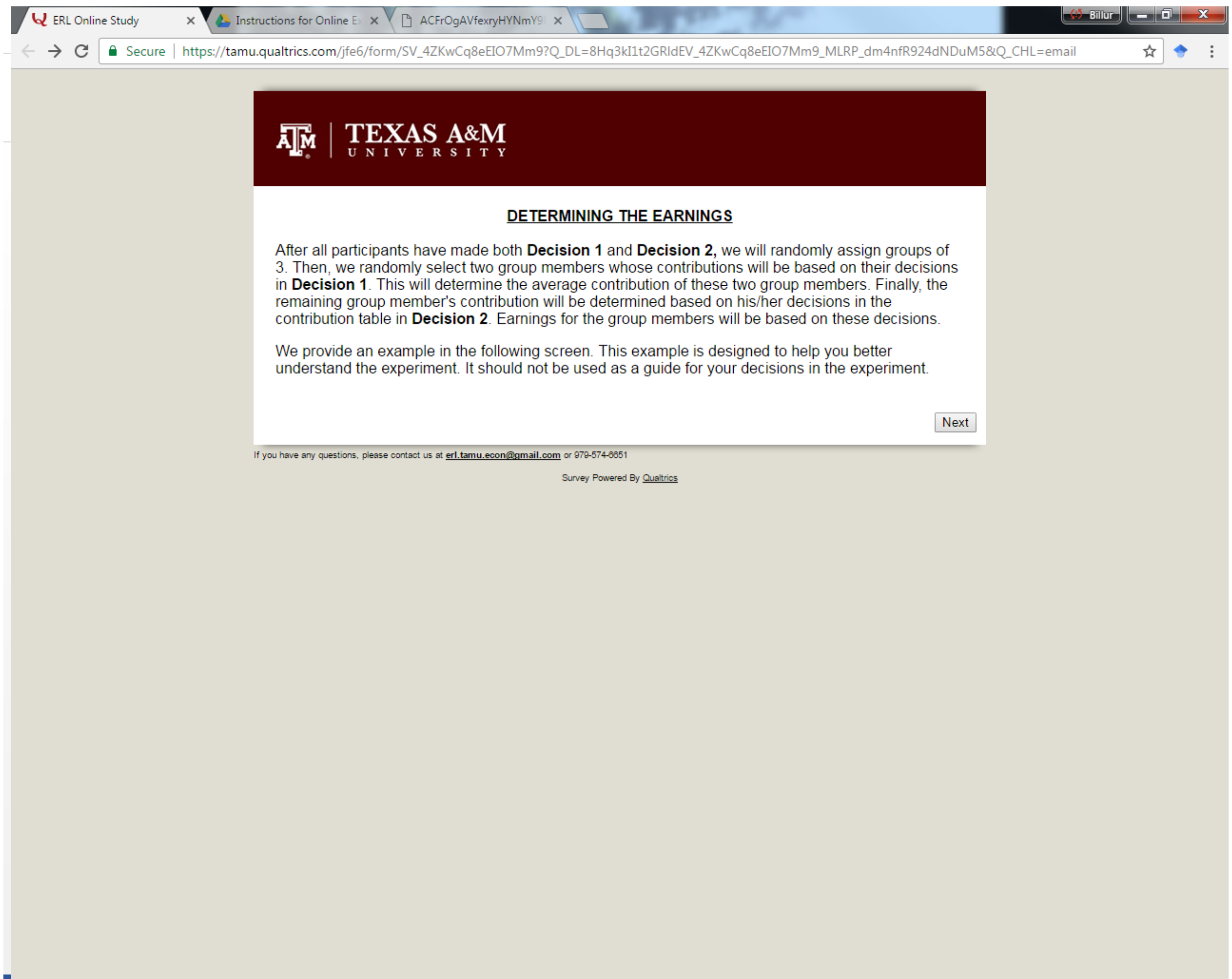
In **Decision 2**, you will be asked to fill in a **contribution table** where you indicate how many tokens you want to contribute to the group project for each possible average contribution from your group members (rounded to the next integer) in **Decision 1**. This will be immediately clear to you if you take a look at the following table:

Please indicate how many tokens (if any) you would like to contribute, for each possible average tokens contributed by other two group members:

| | Your Contribution |
|---|---|
| if others' average contribution is 0 tokens | |
| if others' average contribution is 1 tokens | |
| if others' average contribution is 2 tokens | |
| if others' average contribution is 3 tokens | |
| if others' average contribution is 4 tokens | |
| if others' average contribution is 5 tokens | |
| if others' average contribution is 6 tokens | |
| if others' average contribution is 7 tokens | |
| if others' average contribution is 8 tokens | |
| if others' average contribution is 9 tokens | |
| if others' average contribution is 10 tokens | |
| if others' average contribution is 11 tokens | |
| if others' average contribution is 12 tokens | |
| if others' average contribution is 13 tokens | |
| if others' average contribution is 14 tokens | |
| if others' average contribution is 15 tokens | |
| if others' average contribution is 16 tokens | |
| if others' average contribution is 17 tokens | |
| if others' average contribution is 18 tokens | |
| if others' average contribution is 19 tokens | |
| if others' average contribution is 20 tokens | |

You simply have to state how many tokens you will contribute to the group project into each input box, conditional on the corresponding average contribution (rounded up) from your group members. You have to make an entry into each input box. For example, you will state how much you would contribute to the group project if your group members' average contribution is 0 tokens, how much you would contribute if your group members' average contribution is 1 token, etc. You can state any whole number from 0 to 20 in each input box.

13



**DETERMINING THE EARNINGS**

After all participants have made both **Decision 1** and **Decision 2,** we will randomly assign groups of 3. Then, we randomly select two group members whose contributions will be based on their decisions in **Decision 1**. This will determine the average contribution of these two group members. Finally, the remaining group member's contribution will be determined based on his/her decisions in the contribution table in **Decision 2**. Earnings for the group members will be based on these decisions.

We provide an example in the following screen. This example is designed to help you better understand the experiment. It should not be used as a guide for your decisions in the experiment.

Next

If you have any questions, please contact us at erl.tamu.econ@gmail.com or 979-574-6651

Survey Powered By Qualtrics

14

TEXAS A&M UNIVERSITY

**EXAMPLE**

Suppose that **Decision 1** is the relevant decision for Group Member 1 and Group Member 2. Thus, **Decision 2** (**contribution table)** is your relevant decision.

Suppose in **Decision 1**, Group Member 1 contributes 13 tokens and Group Member 2 contributes 5 tokens. This means that the average contributions made by your group members is (13 + 5)/2 = 9 tokens.

Suppose you indicate in your **contribution table** in **Decision 2** that you would contribute 10 tokens if the other group members' average contribution is 9 tokens.

Sum of contributions to the group project: **13 + 5 + 10 =28** tokens
Each group member earns from the group project: **(28 x 1.5) / 3 = 14** tokens

Your Earnings from your Private Account: **(20 – your contribution) = 20 – 10 = 10** tokens

Your Total Earnings would be:

**14 (**from the group project**) + 10 (**from the private account**) = 24** tokens.

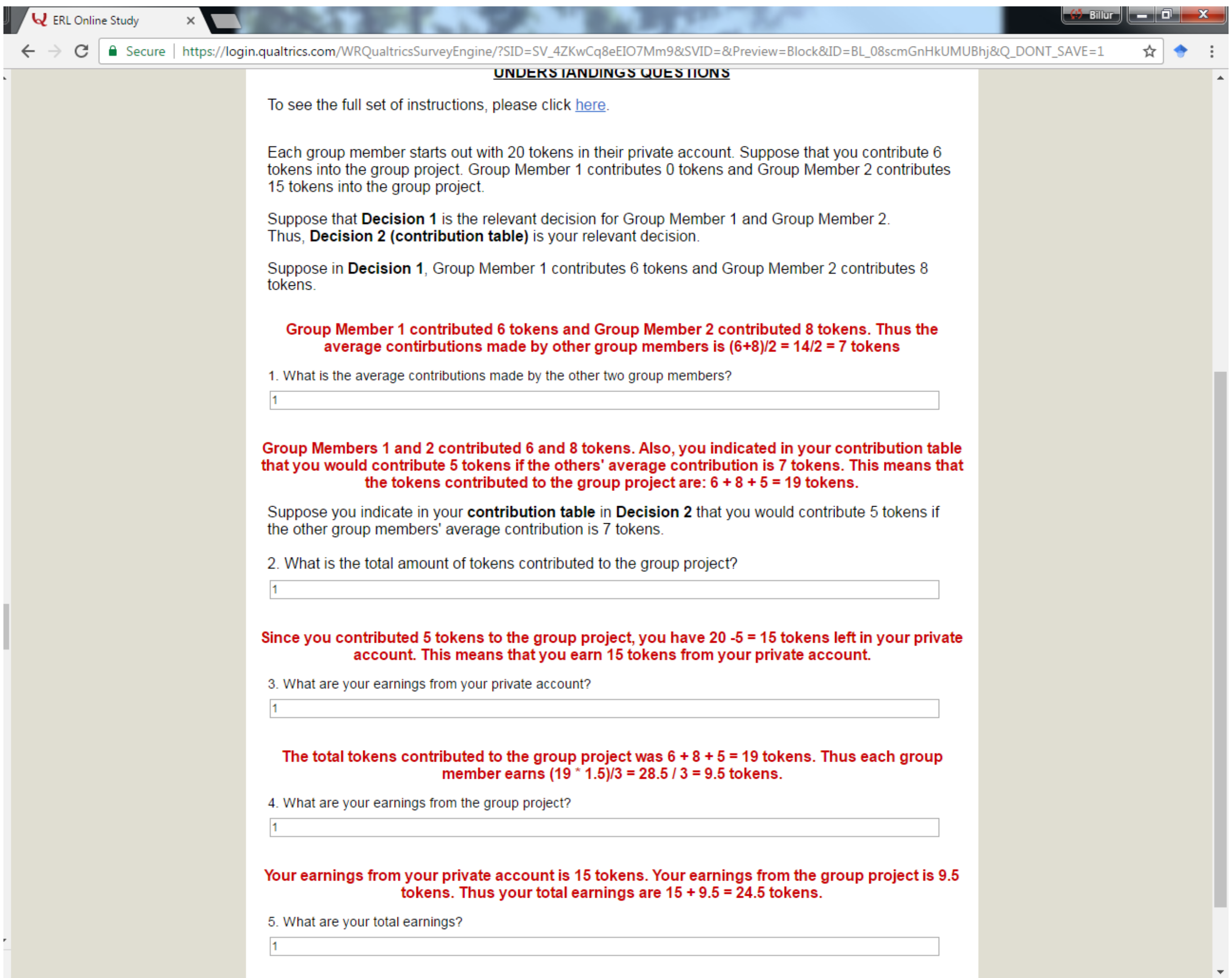
*On the following screen, we will ask you to answer a few practice questions.*

Next

If you have any questions, please contact us at erl.tamu.econ@gmail.com or 979-574-6651

Survey Powered By Qualtrics

15



ERL Online Study

Secure | https://login.qualtrics.com/WRQualtricsSurveyEngine/?SID=SV_4ZKwCq8eEIO7Mm9&SVID=&Preview=Block&ID=BL_08scmGnHkUMUBhj&Q_DONT_SAVE=1

**UNDERSTANDINGS QUESTIONS**

To see the full set of instructions, please click here.

Each group member starts out with 20 tokens in their private account. Suppose that you contribute 6 tokens into the group project. Group Member 1 contributes 0 tokens and Group Member 2 contributes 15 tokens into the group project.

Suppose that **Decision 1** is the relevant decision for Group Member 1 and Group Member 2. Thus, **Decision 2 (contribution table)** is your relevant decision.

Suppose in **Decision 1**, Group Member 1 contributes 6 tokens and Group Member 2 contributes 8 tokens.

**Group Member 1 contributed 6 tokens and Group Member 2 contributed 8 tokens. Thus the average contirbutions made by other group members is (6+8)/2 = 14/2 = 7 tokens**

1. What is the average contributions made by the other two group members?

1

**Group Members 1 and 2 contributed 6 and 8 tokens. Also, you indicated in your contribution table that you would contribute 5 tokens if the others' average contribution is 7 tokens. This means that the tokens contributed to the group project are: 6 + 8 + 5 = 19 tokens.**

Suppose you indicate in your **contribution table** in **Decision 2** that you would contribute 5 tokens if the other group members' average contribution is 7 tokens.

2. What is the total amount of tokens contributed to the group project?

1

**Since you contributed 5 tokens to the group project, you have 20 -5 = 15 tokens left in your private account. This means that you earn 15 tokens from your private account.**

3. What are your earnings from your private account?

1

**The total tokens contributed to the group project was 6 + 8 + 5 = 19 tokens. Thus each group member earns (19 * 1.5)/3 = 28.5 / 3 = 9.5 tokens.**

4. What are your earnings from the group project?

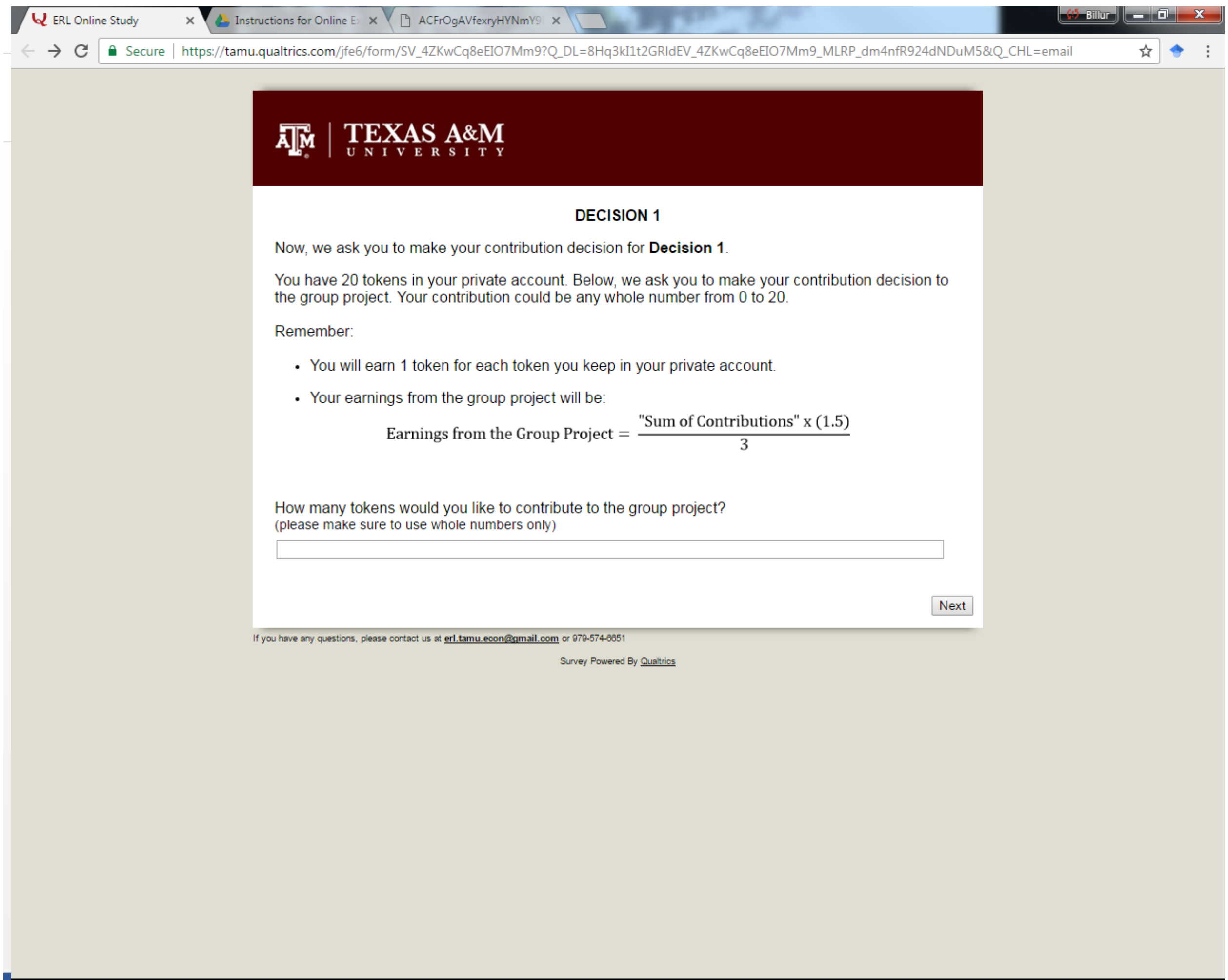
1

**Your earnings from your private account is 15 tokens. Your earnings from the group project is 9.5 tokens. Thus your total earnings are 15 + 9.5 = 24.5 tokens.**

5. What are your total earnings?

1

16


https://tamu.qualtrics.com/jfe6/form/SV_4ZKwCq8eEIO7Mm9?Q_DL=8Hq3kI1t2GRIdEV_4ZKwCq8eEIO7Mm9_MLRP_dm4nfR924dNDuM5&Q_CHL=email

TEXAS A&M UNIVERSITY

**DECISION 1**

Now, we ask you to make your contribution decision for **Decision 1**.

You have 20 tokens in your private account. Below, we ask you to make your contribution decision to the group project. Your contribution could be any whole number from 0 to 20.

Remember:

- You will earn 1 token for each token you keep in your private account.
- Your earnings from the group project will be:

$$\text{Earnings from the Group Project} = \frac{\text{"Sum of Contributions" x (1.5)}}{3}$$

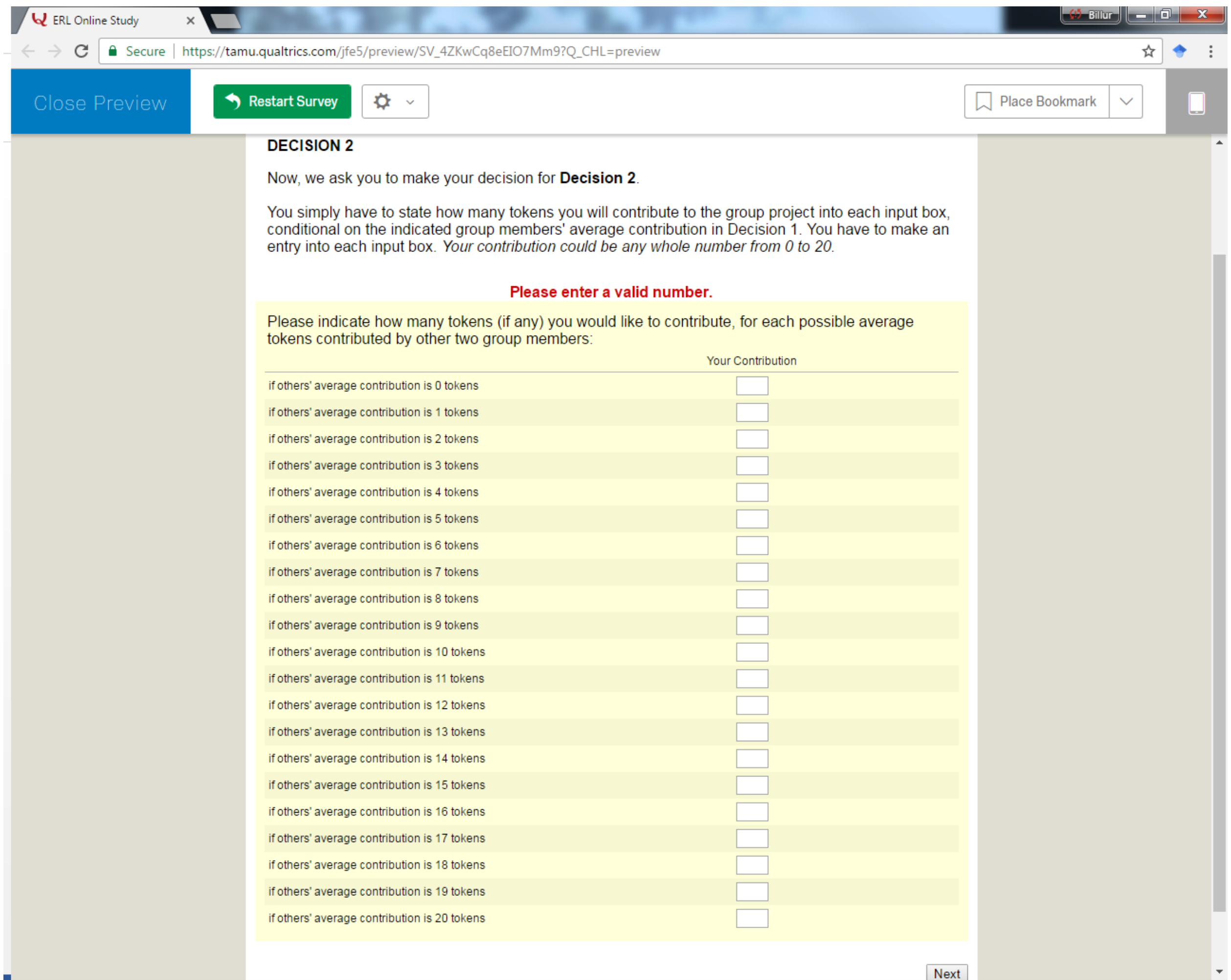
How many tokens would you like to contribute to the group project?
(please make sure to use whole numbers only)

Next

If you have any questions, please contact us at erl.tamu.econ@gmail.com or 979-574-8651

Survey Powered By Qualtrics

17



ERL Online Study

https://tamu.qualtrics.com/jfe5/preview/SV_4ZKwCq8eEIO7Mm9?Q_CHL=preview

Close Preview | Restart Survey | Place Bookmark

**DECISION 2**

Now, we ask you to make your decision for **Decision 2**.

You simply have to state how many tokens you will contribute to the group project into each input box, conditional on the indicated group members' average contribution in Decision 1. You have to make an entry into each input box. *Your contribution could be any whole number from 0 to 20.*

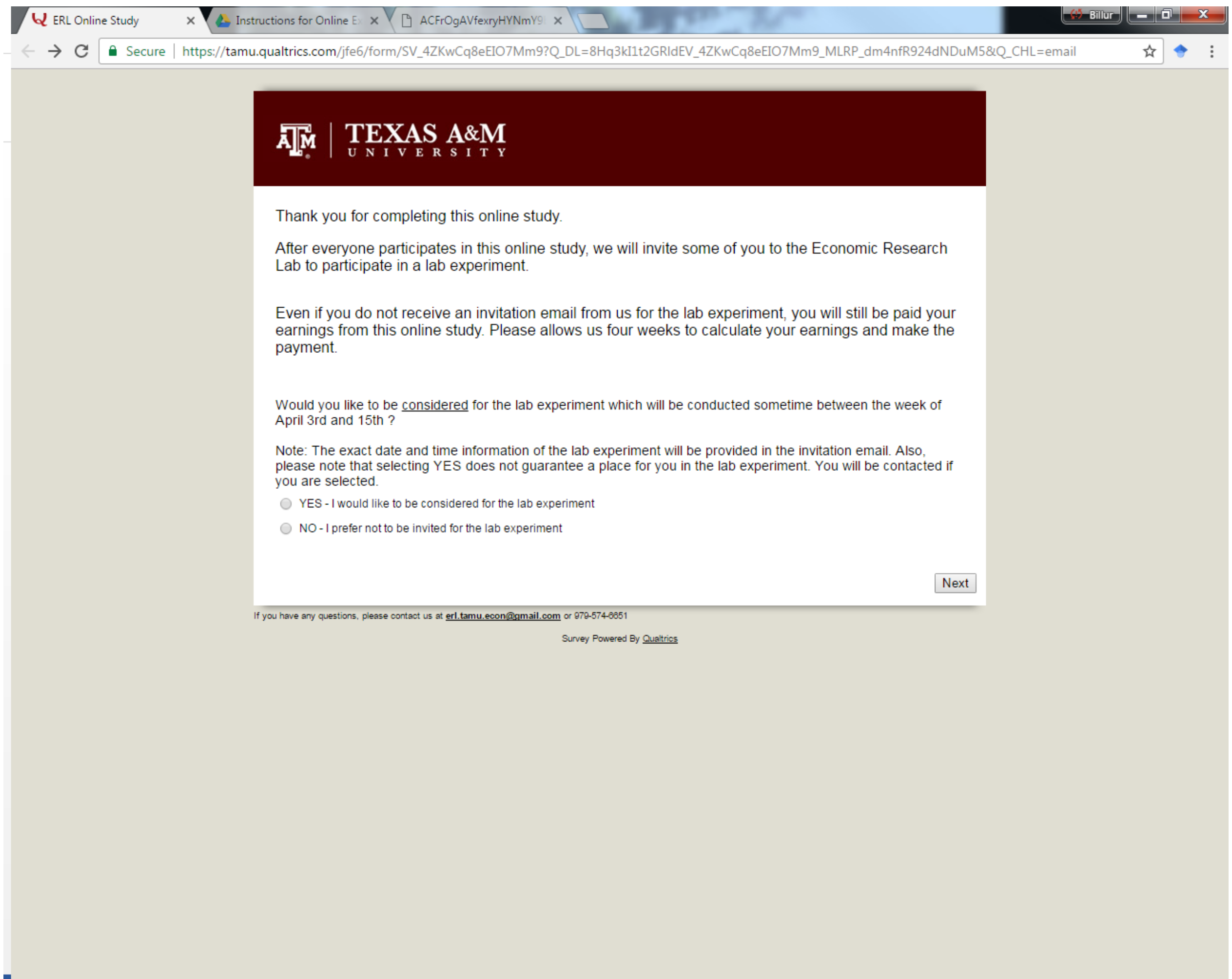
**Please enter a valid number.**

Please indicate how many tokens (if any) you would like to contribute, for each possible average tokens contributed by other two group members:

| | Your Contribution |
|---|---|
| if others' average contribution is 0 tokens | |
| if others' average contribution is 1 tokens | |
| if others' average contribution is 2 tokens | |
| if others' average contribution is 3 tokens | |
| if others' average contribution is 4 tokens | |
| if others' average contribution is 5 tokens | |
| if others' average contribution is 6 tokens | |
| if others' average contribution is 7 tokens | |
| if others' average contribution is 8 tokens | |
| if others' average contribution is 9 tokens | |
| if others' average contribution is 10 tokens | |
| if others' average contribution is 11 tokens | |
| if others' average contribution is 12 tokens | |
| if others' average contribution is 13 tokens | |
| if others' average contribution is 14 tokens | |
| if others' average contribution is 15 tokens | |
| if others' average contribution is 16 tokens | |
| if others' average contribution is 17 tokens | |
| if others' average contribution is 18 tokens | |
| if others' average contribution is 19 tokens | |
| if others' average contribution is 20 tokens | |

Next

18



ERL Online Study

Instructions for Online E

ACFrOgAVfexryHYNmY9

Secure | https://tamu.qualtrics.com/jfe6/form/SV_4ZKwCq8eEIO7Mm9?Q_DL=8Hq3kI1t2GRIdEV_4ZKwCq8eEIO7Mm9_MLRP_dm4nfR924dNDuM5&Q_CHL=email

TEXAS A&M UNIVERSITY

Thank you for completing this online study.

After everyone participates in this online study, we will invite some of you to the Economic Research Lab to participate in a lab experiment.

Even if you do not receive an invitation email from us for the lab experiment, you will still be paid your earnings from this online study. Please allows us four weeks to calculate your earnings and make the payment.

Would you like to be considered for the lab experiment which will be conducted sometime between the week of April 3rd and 15th ?

Note: The exact date and time information of the lab experiment will be provided in the invitation email. Also, please note that selecting YES does not guarantee a place for you in the lab experiment. You will be contacted if you are selected.

- YES - I would like to be considered for the lab experiment
- NO - I prefer not to be invited for the lab experiment

Next

If you have any questions, please contact us at erl.tamu.econ@gmail.com or 979-574-6651

Survey Powered By Qualtrics

19