Gender and leadership in organizations:  
The threat of backlash

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ONLINE APPENDIX

1 Laboratory experiment

1.1 General instructions

Thank you all for coming today. You are here to participate in an experiment. In addition to a $10 participation fee, you will be paid any money you accumulate from the experiment. You will be paid privately, by check, at the conclusion of the experiment.

The experiment will consist of six stages and the instructions will be provided separately on your screen at the beginning of each stage. You will have the chance to earn money in each stage of the experiment. Earnings during the experiment will be denominated in Experimental Currency Units, or ECU. At the end of the session one stage of the experiment will be randomly selected for payment and your earnings in that stage will be converted to dollars at the exchange rate of $1 for 6 ECU. After participating in all the stages of the experiment you will be asked to complete a brief questionnaire. You will then be paid the money you earned in the selected stage of experiment.

This study has been reviewed and approved by the SMU Human Subjects Committee. 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 may be asked to leave the experiment and may not be paid.

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Please read and sign the Consent Form that you found on your desk. Please raise your hand if you have any question about any of the information on the Consent form. We will proceed with the experiment once we have collected all signed consent forms.

1.2 Handout 1

**PUZZLE EXAMPLE (Handout 1)**

During the experiment, you will engage in multiple rounds of a puzzle-solving task. Please refer to the paper you have been given to see an example of the task. Each task consists of finding a 4-letter word in a 6x6 matrix. As you can see on the example you have been given, the screen will be divided in two halves. On the left, you will see the matrix and on the right, you will see a list of 40 words. Each puzzle has two words that appear on the list. In order to earn money, you will have to identify one word per puzzle. Once you identify the word, you will have to enter the number next to that word in the list. You will then have to press “submit” to move to the next puzzle.

Please note that the word you are looking for can appear horizontally or vertically in the matrix, following a forward direction. You should ignore words that are read backward or diagonally. You should also ignore words that do not appear in the list.
Look at the example you have been given. In order to earn points, you would have to find either the word “tide” or the word “kite” and enter the corresponding number. The word “tide” appears vertically on the first column. The word “kite” appears vertically on the sixth column.

Can you all see the two words in the puzzle? Raise your hand if you cannot see them.

Note that there are other words that you may identify in the matrix. For instance, the word “sale” [appears horizontally on the fifth row, but it reads backward] and the word “bale” [appears diagonally]. These words would not be valid entries, since they either appear backward or are not on the list. Remember that for an entry to be valid, it MUST be on the list to the right of the matrix.

Can you all see the two words in the puzzle? Raise your hand if you cannot.

Do you have any questions or doubts about the puzzle-solving task?

1.3 Instructions for Stages 2 to 6 - Handout 2

Stage 2 of the experiment is about to begin.

• In this stage and in the following 5 stages of the experiment you will be part of a group, together with two other participants. One group member will assume the role of Manager and the other two group members will assume the role of Worker.

• The manager gets a wage of 100 ECU. The main role of the manager is to decide which worker will be rank A and which worker will be rank B in the group, in this stage of the experiment.

• A Rank A worker gets a wage of 80 ECU. A Rank B worker gets 20 ECU.

• After the rank allocation, all members of the group will engage in a similar puzzle task as in Stage 1 of the experiment. Each correctly solved puzzle generates 2 ECU in addition to the initial wage. Moreover, each puzzle solved correctly by the Rank A worker generated 2 ECU also to the manager.

• Therefore the earnings from this stage of the experiment are determined as follows:

  – The Manager gets 100 ECU + 2 ECU per puzzle + 2 ECU per puzzle solved by Rank A worker
  – Rank A worker gets 80 ECU plus 2 ECU per puzzle
- Rank B worker gets 20 ECU plus 2 ECU per puzzle

- Stages 3 to 6 will be identical to Stage 2. However, at the end of each stage of the experiment, the Manager will be informed about the performance of Rank A and Rank B workers and will have the chance to reassign ranks before the next stage begins, at his or her discretion.

Please turn this page around to have a look at the screen that the Manager will see when making the rank allocation decision.

The Manager will have to decide which worker will be Rank A and which worker will be Rank B. After the Manager makes the allocation decision, each worker will be informed about the Rank they have been assigned, either rank A or rank B.

|CHOICE & TALK: After assigning ranks A and B to the workers, the Manager will have to send a message to the Rank A worker and a message to the Rank B worker. The message chat box CANNOT be left blank. In the chat box, the Manager can write anything he or she wishes to communicate to each worker. After the Manager submits the individual messages, each worker will see the message sent to him or her. |

|CHOICE & BACKLASH: After assigning ranks A and B to the workers, the Manager will have to send a message to the Rank A worker and a message to the Rank B worker. The message chat box CANNOT be left blank. In the chat box, the Manager can write anything he or she wishes to communicate to each worker. After the Manager submits the individual messages, each worker will see the message sent to him or her and will have to send a message back to the Manager.|

|CHOICE & TALK and CHOICE & BACKLASH: The Manager will see the following screen and will have to send a message to each of the two workers. As before, we are referring to the Manager as “Name 1” and the workers as “Name 2” and “Name 3” but in the actual experiment the names of the three group members will be displayed.
**CHOICE & BACKLASH:** Each worker will see the message sent to him or her and will have to send a message back to the Manager. In addition, the Rank B worker can send one or more angry faces to the Manager to express their disapproval of the ranking decision. In particular, the Rank B’s worker can send up to 5 angry faces to the Manager, as shown below.

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<table>
<thead>
<tr>
<th>Stage 1</th>
<th>“Name 2”</th>
<th>“Name 3”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rank</td>
<td>B</td>
<td>A</td>
</tr>
</tbody>
</table>

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Please turn this page to see the screen that Worker Bs and the Manager will see. Rank B worker will see the following screen and will have to decide how many angry faces, if any, he or she will want to send to the Manager. Rank B worker will also have to write a message in the chat box, in response to the Manager’s message. Rank A worker will see a similar screen, except that he or she will not be able to send angry faces to the Manager.
The messages sent by the workers will be displayed to the Manager as shown in the screen below before the next stage begins. [Please note that in this example there is no actual text displayed in the Message Box.] In the example below, Rank B worker has sent 3 angry faces. Remember that Rank B can send between 0 and 5 angry faces.]
ALL TREATMENTS: At the end of each of the next 5 stages of the experiment, the Manager will have to decide whether to keep or re-allocate ranks A and B to the two workers, at his or her discretion.

[CHOICE & TALK: The Manager will also have to send messages to Rank A and Rank B worker before the beginning of each stage of the experiment.]

[CHOICE & BACKLASH: The Manager will also have to send messages to Rank A and Rank B worker before the beginning of each stage of the experiment, and the workers will have to reply to those messages. At the beginning of each stage, the Rank B workers will also have to decide whether to send angry faces to the Manager.]

ALL TREATMENTS: Is the role of the Manager clear? Please raise your hand if you have any questions about the next 5 Stages of the experiment.

[ALL CHOICE TREATMENTS: In the next screen, you will be asked whether you want to be the Manager of your group.]
2 Online experiment on Prolific

2.1 General Instructions

Why am I being asked to take part in this research study? You are invited to participate in this study because we are trying to learn more about: Understanding individual and group decision making. You were selected as a possible participant in this study because you expressed your interest in participating by clicking on the Prolific advertisement. Your participation in this research study is voluntary. The information in this form is provided to help you decide whether or not to take part. If you decide you do not want to participate, you may leave the website at any time without penalty. You must be 18 years of age or older and a current resident of the United States to participate.

Why is this research being done? The (survey or test) is designed to see how individuals behave in a puzzle task and whether they can predict the behaviors and opinions of others.

How long will the research last? It will take about 20 minutes.

What happens if I say “Yes, I want to be in this research”? If you decide to participate, please do the following: This study involves three stages. In the first stage you will be asked to fill in a short demographic survey, in the second stage you will engage in a puzzle solving task, and in the third stage you will have to guess the behavior of participants in a previous study. Participation in this study will take less than 20 minutes.

What happens if I do not want to be in this research? Your participation in this study is voluntary. You can decide not to participate in this research and it will not be held against you. You can leave the study at any time.

Is there any way being in this study could harm me? There are no sensitive questions in this survey that should cause discomfort. However, you can skip any question you do not wish to answer, or exit the survey at any point.

What happens to the information collected for the research? In this study, no direct personal identifiers will be collected. Nobody, including the study researchers, will be able to link your personal information to the answers you will give in the survey. Your information will be kept confidential to the extent allowed by law. The results of the research study may be published but your identity will remain confidential. You may view the survey host’s confidentiality policy by clicking here. You may view Prolific’s privacy policy by clicking here.

What else do I need to know? You will be paid 3.30USD for completing all stages of the study, and a bonus of up to 2.3USD that will depend on your decisions and your performance in the puzzle-solving task. You will be paid by Prolific via PayPal. The amount of compensation is in compliance with Prolific’s guideline. All payments including the bonus payment will be
paid to you in no longer than 2 weeks of your completion. Note that it might take longer before you receive your bonus payment.

Who can I talk to? Please feel free to ask questions regarding this study. You may contact Dr. Danila Serra (dserra@tamu.edu) later if you have additional questions or concerns. You may also contact the Human Research Protection Program at Texas AM University (which is a group of people who review the research to protect your rights) by phone at 1-979-458-4067, toll free at 1-855-795-8636, or by email at irb@tamu.edu for: additional help with any questions about the research voicing concerns or complaints about the research obtaining answers to questions about your rights as a research participant concerns in the event the research staff could not be reached the desire to talk to someone other than the research staff If you want a copy of this consent for your records, you can print it from the screen. If you wish to participate, please click the “I Agree” button and you will be taken to the survey. If you do not wish to participate in this study, please select “I Disagree” or select X in the corner of your browser.

2.2 Brief Fear of Negative Evaluation Index

(In order to construct the Brief Fear of Negative Feedback Index we asked the following questions.)

Do you agree or disagree with the following statements? (5-point likert scale)

• I worry about what other people will think of me even when I know it doesn’t make any difference

• I am frequently afraid of other people noticing my shortcomings.

• I am afraid that others will not approve of me.

• I am afraid that other people will find fault with me.

• When I am talking to someone, I worry about what they may be thinking about me.

• I am usually worried about what kind of impression I make.

• Sometimes I think I am too concerned with what other people think of me.

• I often worry that I will say or do wrong things.
2.3 Predictions of backlash in the laboratory experiment

(In order to elicit subjects’ expectations of the backlash received by male and female managers in the laboratory experiment we first had subjects solve the same real effort task that we employed in the laboratory experiment (Activity 1). We then introduced Activity 2. The instructions are reproduced below.)

Activity 2 involves a study that has already been conducted and had over 400 university students participate. After reading about the study, you will have to guess how some of these previous participants behaved in the study. If your guesses are correct, you will earn 1USD from this activity.

In the study, participants were placed in groups of 3. In each group, one person was assigned the role of manager and the other two were assigned the role of workers. Each participant chose a fictitious name to be used in the study, and group members knew only the fictitious names of the participants. All interactions were made via computer screen and nobody knew with whom they were matched.

In the first part of the study, the manager and the two workers engaged in the same puzzle task as in Activity 1 and, like you, they earned money based on their individual performances.

In second part of the study, the manager had to decide which worker in the group would be rank A and which worker would be rank B for the next part of the study. The Rank A worker would get a fixed wage of 8USD. The Rank B worker would get a fixed wage of 2USD.

After the rank allocation, all members of the group engaged in a similar puzzle task as in Activity 1 of this study. Each correctly solved puzzle generates 0.20USD in addition to the fixed wage. Moreover, each puzzle solved correctly by the Rank A worker generated 0.20USD also to the manager.

Therefore, the earnings of the participants in the study were determined as follows:

- The Manager got 10 + 0.20 per correct puzzle + 0.20 per correct puzzle solved by Rank A worker;
- Rank A worker got 8 plus 0.20 per correct puzzle;
- Rank B worker got 2 plus 0.20 per correct puzzle.

When the manager assigned ranks to each worker, the rank B worker could send up to 5 angry emojis to the manager to express disapproval of the ranking decision, as shown below.

Please answer the following 3 questions to check your understanding of Activity 2. You will earn 0.10 for every correct answer.
Q1. What was the manager’s main role in the study?  
a. to decide which worker was rank A and which worker was rank B;  
b. to decide who could talk in the chat and who could not;  
c. to decide which worker could get paid for the puzzle task and which worker could not get paid.

Q2. If the rank A worker solved 5 puzzles correctly and the rank B worker solved 5 puzzles correctly, what were the earnings each worker, including their fixed wages?  
a. 10 each in total;  
b. Rank A got wage of 8 and bonus of 1, while Rank B got wage of 2 and bonus of 1;  
c. Rank A and Rank B got wages equal to 8 and bonuses equal to 1;  
d. Rank A got 10 and rank B got 2 in total.

Q3. Who could send angry emojis in the study?  
a. The manager could send angry emojis to a worker who did not work hard;  
b. The rank B worker could send angry emojis to the manager to express disapproval of the ranking decision;  
c. The rank B worker could send angry emojis to the rank A worker to express disapproval of the ranking decision;  
d. Both Rank A and Rank B workers could send angry emojis to the Manager.

2.3.1 Male Manager Treatment

We are now going to ask you to guess what actual participants in one of the groups did in the study. We will ask you to make two guesses. For each correct guess, you will get 0.5USD. Therefore, you can make up to 1USD from this task.

Some of the managers were men and some of the managers were women.

Q1. What is the percentage of rank B worker who sent one or more angry emojis to a male manager?  
(Half of the participants, randomly selected)  
You earn 0.5USD if your guess is correct

• 0-10%  
• 11-20%  
• 21-30%  
• 31-40%  
• 41-50%  
• 51-60%  
• 61-70%
Recall that if a rank B worker decided to send one or more angry emojis to the manager, he or she could send up to 5 emojis.

Q2. What is the number of angry emojis that you think the rank B workers matched with sent to a male manager, on average? (Half of the participants, randomly selected)

You earn 0.5 USD if your guess is correct.

- 0
- 1
- 2
- 3
- 4
- 5

2.3.2 Female Manager Treatment

We are now going to ask you to guess what actual participants in one of the groups did in the study. We will ask you to make two guesses. For each correct guess, you will get 0.5USD. Therefore, you can make up to 1USD from this task.

Some of the managers were men and some of the managers were women.

Q1. What is the percentage of rank B worker who sent one or more angry emojis to a female manager? (Half of the participants, randomly selected)

You earn 0.5USD if your guess is correct

- 0-10%
- 11-20%
Q2. What is the number of angry emojis that you think the rank B workers matched with sent to a female manager, on average? *(Half of the participants, randomly selected)*

You earn 0.5 USD if your guess is correct.

- 0
- 1
- 2
- 3
- 4
- 5

2.4 Final questions (to all)

Q.1 Generally speaking, do you think that on average female managers receive more backlash from employees, as compared to male managers?

- No
• Yes

Q2. We now ask you to guess if the majority of the Prolific workers participating in this study (all between the ages of 18 and 30) answered yes or no to the question:

“Do you think that female managers receive more backlash from employees, as compared to male managers?”

You will receive 0.5USD if your guess is correct I guess that the majority of Prolific workers in this study answered:

• No
• Yes