

# Social Media Exposure and Job Outcomes: Pre-analysis Plan

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## 1 Introduction

We are planning to conduct a field experiment to investigate the effects of social media exposure on job market outcomes. Although our sample will include any kinds of job market candidates, our focus is on individuals from underrepresented groups (i.e., women, URM and LGBTQ+). For our study, we will recruit job market candidates who register on the AEA’s job openings for economists (JOE) during the 2022-2023 economics job market season (due to sample size requirements, we will likely run the experiment also in the subsequent year(s)). We will first send out a pre-market survey to collect candidates’ demographics, job market paper summary, and the use of Twitter. Then we will tweet the job market papers of all survey respondents on our Twitter account “Econ Job Market Helper” (@*econ\_jmp*). After stratified random assignment, we will match job market candidates in the treatment group with academic economists with 5,000 or more Twitter followers (“influencers”) by fields. Influencers will retweet job market papers from the treatment group using templates provided by us and then we will measure whether the retweets improve the job market outcomes of treated participants (i.e., more job interviews, flyouts, job offers etc.).

We are focusing on job market candidates from underrepresented groups (URG) because they typically do not have access to the same high-quality mentoring resources and professional networks as other candidates (Lundberg and Stearns, 2019; Bayer, Hoover and Washington, 2020). Amplifying the visibility of URG job market candidates may provide a low-cost alternative to help young economists from underrepresented groups succeed in the job market.

## 2 Research Strategy

Our experiment consists of three stages: (i) a pre-market survey, (ii) an intervention period, and (iii) a post-market survey.

**Pre-market survey** (mid-late October, 2022): We will compile a list of job market candidates who register on the AEA JOE during the 2022-2023 economics job market. Then, we will invite them to participate in the pre-market survey. The survey will ask job market candidates questions about demographics, job market paper, and use of Twitter. We will also ask participants to summarize their job market paper as a tweet.

**Intervention period** (late October to mid November, 2022): We will use our Twitter account “Econ Job Market Helper” (@econ\_jmp) and post the job market paper tweets of all job market candidates who fill out the pre-market survey. After stratifying by URG/non-URG as well as department ranking, we will randomly assign participants to the treatment or control group. Since we are mainly interested in the outcomes of URG job market candidates, they will have a higher probability (80%) to be assigned to the treatment group. Those assigned to the treatment group will be matched with an influencer in their respective field. The influencers will then retweet the original tweet according to a predefined schedule. The texts in the retweets will be randomly drawn from a list of templates. For example: “Retweeting a JMP from @econ\_jmp to help publicize job market candidates in my field.” Influencers can edit the sentence if they want to.

**Post-market survey** (April-June, 2023): The survey will collect job market outcomes, such as the number of interviews, fly-outs and offers received from PhD/non-PhD-granting departments, as well as salary and additional compensation/perks. In addition, between November 2022 and June 2023, we will collect the number of followers of job market candidates via Twitter API, so that we can measure the number of new followers added during the job market season. We will also collect other intermediate outcomes generated by job market paper tweets via Twitter API and Twitter Analytics, including the number of url clicks of candidates’ personal websites, the number of replies, likes, retweets, impressions, engagements, detail expands, user profile clicks, new follows etc.

## 3 Outcomes and Experimental Design

### Primary outcome measures

Source: post-market survey

- Number of ASSA job interviews (by PhD/non-PhD-granting departments)
- Number of fly-outs (by PhD/non-PhD-granting departments)
- Number of job offers (by PhD/non-PhD-granting departments)

### Secondary/Intermediate outcome measures

- Salary + additional compensation/perks (by academia/public sectors/industry)  
Source: post-market survey
- Twitter influence index (composite measure, such as number of new Twitter followers)

**Long-term outcomes** (not included in this paper)

- Number of citations of the job market paper in 2 years (longer-term effects)
- Number of co-authors in 2 years (longer-term effects)
- Publications (how many, journal ranks) in 2 years (longer-term effects)

**Control and auxiliary variables**

Data sources are marked after “←”

- Appears on the board Minority Job Market Candidates 2022-23 (binary)  
← scrape this data
- Google scholar citations of reference letter writers ← by parsing job market candidates’ CV
- job applications (by types, if post-market survey is able to ask applications by types) ← post-market survey
- Publication - how many, journal ranking (based on RePEc ranking) ← by parsing job market candidates’ CV
- Research grants - how many grants and the amount of money if applicable  
← by parsing job market candidates’ CV
- Number of conference/seminar presentations ← by parsing job market candidates’ CV  
Referee reports - how many, journal ranking (based on RePEc ranking) ← by parsing job market candidates’ CV
- Department ranking ← by parsing job market candidates’ CV
- Field of specialty ← pre-market survey
- Types of jobs JMC is looking for ← pre-market survey
- Countries/Regions of jobs JMC is looking for ← pre-market survey
- Job Market Signaling (dummy variable, send one signal/two signals/not send signal) ← post-market survey
- Whether JMC participates in Job Market Scramble (binary variable) ← post-market survey
- Impact by COVID (seven relevant questions, five-degree likert scale from strongly agree to strongly disagree) ← post market survey

- Spouse/partner: whether have a spouse/partner, whether in academia, highest level of education, on the market at the same year, whether spouse's preference affects what year entering the market, applications, interviews choosing to accept, fly-outs choosing to accept, which job to accept  $\leftarrow$  post-market survey
- Whether attended the navigating JM interview workshop  $\leftarrow$  screenshot of zoom participants
- Mentoring programs (multiple mentoring programs, dummy variables)  $\leftarrow$  pre-market survey
- Number of followers influencers have  $\leftarrow$  Twitter public API
- Whether the influencer tweets their students (dummy variable, 1 if a JMC is tweeted by an influencer who tweets their students, 0 otherwise)  $\leftarrow$  Twitter public API
- Whether the JMC is tweeted by their own advisor(s)  $\leftarrow$  Twitter public API
- Number of tweets influencers tweet/retweet during the intervention month  $\leftarrow$  Twitter public API
- Quality of JMC tweet  $\leftarrow$  recruit ante-post raters

## 4 Pre-market Survey

### 4.1 Academic background

1. Are you on the 2022-2023 job market?
  - Yes
  - No $\rightarrow$ If "No" is selected, skip to the end of the survey
2. Is this the first time you are on the Economics Job Market?
  - Yes
  - No
3. If no: Which year did you go on the Economics Job Market the first time?
4. What is the name of the institution at which you (are expected to) finish your PhD?
5. Have you ever been a full-time research assistant (also known as "pre-doc") before entering your PhD program?
  - Yes

– No

6. If yes: what is/are the name(s) of your pre-doc advisor(s)?

– Advisor 1's name:

– Advisor 2's name:

– Advisor 3's name:

– Advisor 4's name:

Have you done (are you doing) a postdoc?

– Yes

– No

## 4.2 Field of specialty

1. Please indicate your research fields (You can identify at most three research fields).

– Behavioral economics

– Development economics

– Econometrics

– Economic history

– Economics of education

– Environmental/Agricultural economics

– Financial economics

– Health economics

– Industrial organization

– Information economics

– International economics

– Labor economics

– Law and economics

– Macroeconomics

– Microeconomics

– Political economy

– Public economics

– Urban economics

– Other, please specify

2. What are the names of your primary advisors?

– Advisor 1's name:

– Advisor 2's name:

– Advisor 3's name:

– Advisor 4's name:

– Advisor 5's name:

3. Please upload the latest version of your CV:
4. Do you have a personal webpage?
  - Yes
  - No
5. If yes, what is the URL of your personal webpage?

#### **4.3 Support from advisors**

1. How satisfied are you with the support you received from your dissertation advisor(s) during your PhD? (1-7)  
Rating: Not at all satisfied (1) - Very satisfied (7)

#### **4.4 The types & locations of jobs you are looking for**

1. Please describe what types of jobs you are interested in / applying to:  
Rating: Not at all interested (1) - Very interested (7)
  - Assistant professor (tenure-track) at a college or university
  - Lecturer (non-tenure track) at college or university
  - Postdoctoral fellowship at college or university
  - Government, including central banks
  - Non-profit or quasi-governmental organizations (IMF, World Bank)
  - Contract research organizations / think tanks (e.g., RAND, Mathematica, Research Triangle Institute)
  - Private sector (e.g., banking, finance, tech, consulting, or other business/ industry)
2. In which geographic regions are you applying for jobs? You can select multiple choices.
  - U.S.
  - Other North America
  - Africa
  - Asia
  - Oceania/Australia/New Zealand
  - South America
  - Europe
  - Other, please specify

#### **4.5 Twitter account**

1. Do you have a Twitter account?

- Yes
  - No
2. If yes: What is your Twitter handle?  
Your Twitter handle (e.g., @abc):

## 4.6 Demographics

1. What is your gender?
  - Woman
  - Man
  - Non-Binary
  - Prefer not to say
2. Do you consider yourself to be transgender?
  - Yes, I am transgender
  - No, I am cisgender
  - I do not consider myself either transgender or cisgender
  - Don't know / Not sure
  - Prefer not to say
3. Do you consider yourself to be...
  - Straight
  - Gay
  - Lesbian
  - Bisexual
  - Pansexual
  - Queer
  - Asexual
  - Prefer not to say
4. In what year were you born?
  - I was born in... YYYY
  - Prefer not to say
5. What is your country of citizenship? (If you have dual citizenship then please indicate your primary citizenship.)  
- - Select Country - -
6. Are you of Hispanic, Latino, or Spanish origin?
  - Yes
  - No
  - Prefer not to say
7. What is the primary ethnicity or race you identify with?

- White
  - Black or African American
  - American Indian or Alaska Native
  - Asian
  - Native Hawaiian or Other Pacific Islander
  - Other, please specify
  - Prefer not to say
8. What was the highest level of education achieved by your mother?
- Less than high school
  - High school diploma or equivalent
  - Associate’s degree
  - Bachelor’s degree
  - Master’s degree
  - Professional degree (e.g. MBA, J.D., M.D.)
  - Doctoral degree (e.g., Ph.D., Ed.D.)
  - Don’t know
  - Prefer not to say
9. How would you describe the financial situation of your family when you grew up?
- High income / wealthy
  - Upper middle class
  - Middle class
  - Low income
  - In poverty
  - Prefer not to say

#### 4.7 Instruction to write a tweet

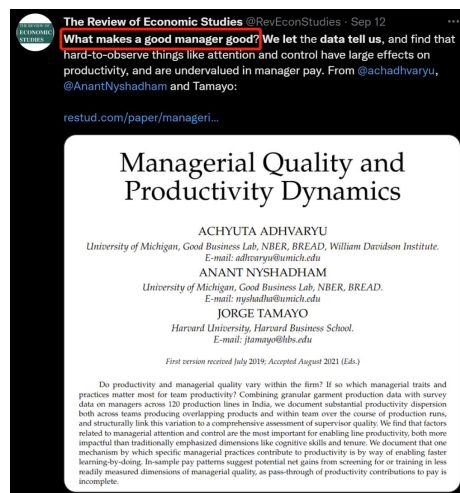
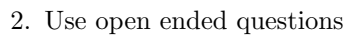
As a thank you for participation, we will post a tweet about your job market paper (JMP) on our Twitter account “Econ Job Market Helper” (@econ\_jmp). This account is already followed by some influential economists.

Because you know your JMP best, we are asking you to prepare the text that we will use verbatim for the tweet. It should describe the main idea and/or result of your job market paper. Note, the text limit is 280 characters. You can also use emojis (each emoji counts as two characters). Below are some guiding questions:

- What is the research question? Try to frame it in a broader context so that the tweet will create more interest.
- What data/method/modeling approach do you use and what is your main finding? Try to state your data/method/modeling approach and finding(s) in a precise way.



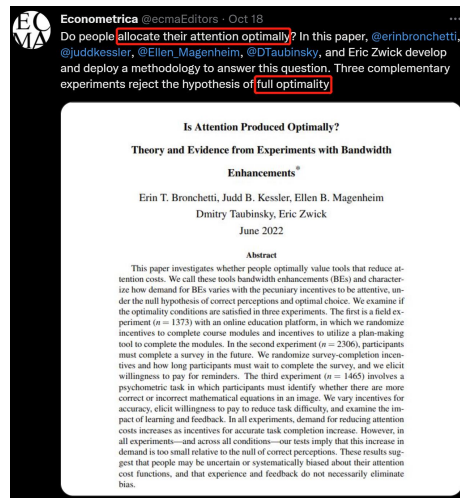
1. Use numbers if applicable



3. Use emojis



4. Focus on first and last words



5. Your tweet:

6. Please provide one keyword about your job market paper

7. Please upload a picture of the title page of your job market paper (this will be included in the tweet).

8. Please upload a picture of the main graph/table/theorem of your job market paper (this will be included in the tweet)

## 4.8 Participation in mentoring workshops open-ended questions

1. What mentoring workshops, summer programs or job market panels have you attended?
  - AEA Summer and Scholarship Program
  - AEA Mentoring Program (CSMGEP)
  - Association for Mentoring Inclusion in Economics (AMIE) Mentoring Program
  - CSQIEP LGBTQ+ Mentorship Program
  - *#econ\_prosem*
  - Job Market Workshops by Economists for Ukraine
  - Panel on the Job Market by Committee on the Status of LGBTQ+ Individuals in the Economics Profession (CSQIEP)
  - Royal Economic Society (RES) Mentoring Programme
  - Russell Sage Foundation Summer Institutes
  - Southern Economic Association Mentoring Workshop
  - Other, please specify
  - I did not attend any workshops / summer program / job market panels
2. What questions do you want to ask the panelists regarding how to prepare for academic job interviews?
3. Do you have any comments or suggestions that you would like to share with the researchers who designed this survey? Is there anything you found unclear or confusing? Are there questions you wished we had asked? Please let us know what you think.

## 5 Empirical Strategy

We will estimate regression models of the following form using OLS:

$lm(DV \sim treat + X)$ , where  $X$  is a matrix of pre-treatment covariates  
 $lm(DV \sim treat + URG + treat * URG + X)$ , where  $URG$  is a dummy variable for JMC from under-represented groups

Depending on the distribution of the outcome variables, we might perform robustness checks (e.g., negative binomial models for count data, log transformation for long-tail distributions etc.).

Anticipating one-sided non-compliance, we will estimate the intent-to-treat effect, and use our randomization as an instrument to estimate the local average treatment effects.

## References

- Bayer, Amanda, Gary A Hoover, and Ebonya Washington.** 2020. “How you can work to increase the presence and improve the experience of Black, Latinx, and Native American people in the economics profession.” *Journal of Economic Perspectives*, 34(3): 193–219.
- Lundberg, Shelly, and Jenna Stearns.** 2019. “Women in economics: Stalled progress.” *Journal of Economic Perspectives*, 33(1): 3–22.