

A comparative digital survey investigation of the construct validity of the Trait Anxiety Inventory within a UChicago community sample and an MTurk sample

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Introduction

• In psychological and biological research, emotions are measured both in terms of acute states of arousal and in terms of **individual differences in the propensity to experience that emotion**.

Trait Anxiety

- **Def:** an individual measure of intensity and frequency of experienced anxiety, which involves these feelings of apprehension and heightened response of the autonomic nervous system¹.
- Seen as a relatively stable trait, and individuals who have higher trait anxiety tend to perceive situations as more dangerous or stressful over time¹.

Concerns of lab studies:

- Willing research participants coming from a primarily WEIRD population
- UofC may have higher than usual scores of trait anxiety
- May also have rapidly fluctuating rates of both state and trait anxiety throughout their academic experience.
- Use of digital data to remedy this concerns may introduce extraneous predictors, such as setting and acute mood.

Amazon Mturk

- Overall, there has been much discussion regarding the methodology of MTurk sampling and the MTurk population, as its promise of accessing high quality, inexpensive data is ground breaking to many lines of research

Research Questions

- * Do distributions of trait anxiety scores differ in samples acquired from a University of Chicago community vs. the Amazon Mechanical Turk community?
- * How strong is the construct validity of the Trait Anxiety Inventory in a sample drawn from these two populations; specifically, do setting and mood relate to trait anxiety responses of UChicago or MTurk community members when the T.A.I. is completed outside of a controlled laboratory setting?

Model

Variables

- Trait Anxiety – Trait scale of the STAI
- Negative & Positive Mood – PANAS
- Age, Gender, Income, Research Experience, Setting

Compare TAI Scores

- Compare distributions of TAI score between UofC sample and MTurk Sample

Model

$$Y_{TAI} = f(\beta_0 + \beta_{Group} + \beta_{Mood_P} + \beta_{Mood_N} + \beta_{Age} + \beta_{Setting} + \beta_{Income} + \beta_{Gender} + \beta_{Research})$$

Data

- Data collected from two populations: UChicago community and Amazon Mturk community
- Surveyed **104 MTurk workers** on Thursday, May 3rd 2018
- Paid; Restrictions: >18 yrs, U.S., 90% HIT approval rate
- Surveyed **96 UofC community members** on Thursday, May 3rd 2018
- Recruited from UChicago Marketplace, UChicago private Facebook group, UChicago private listservs, and UChicago current student class email lists

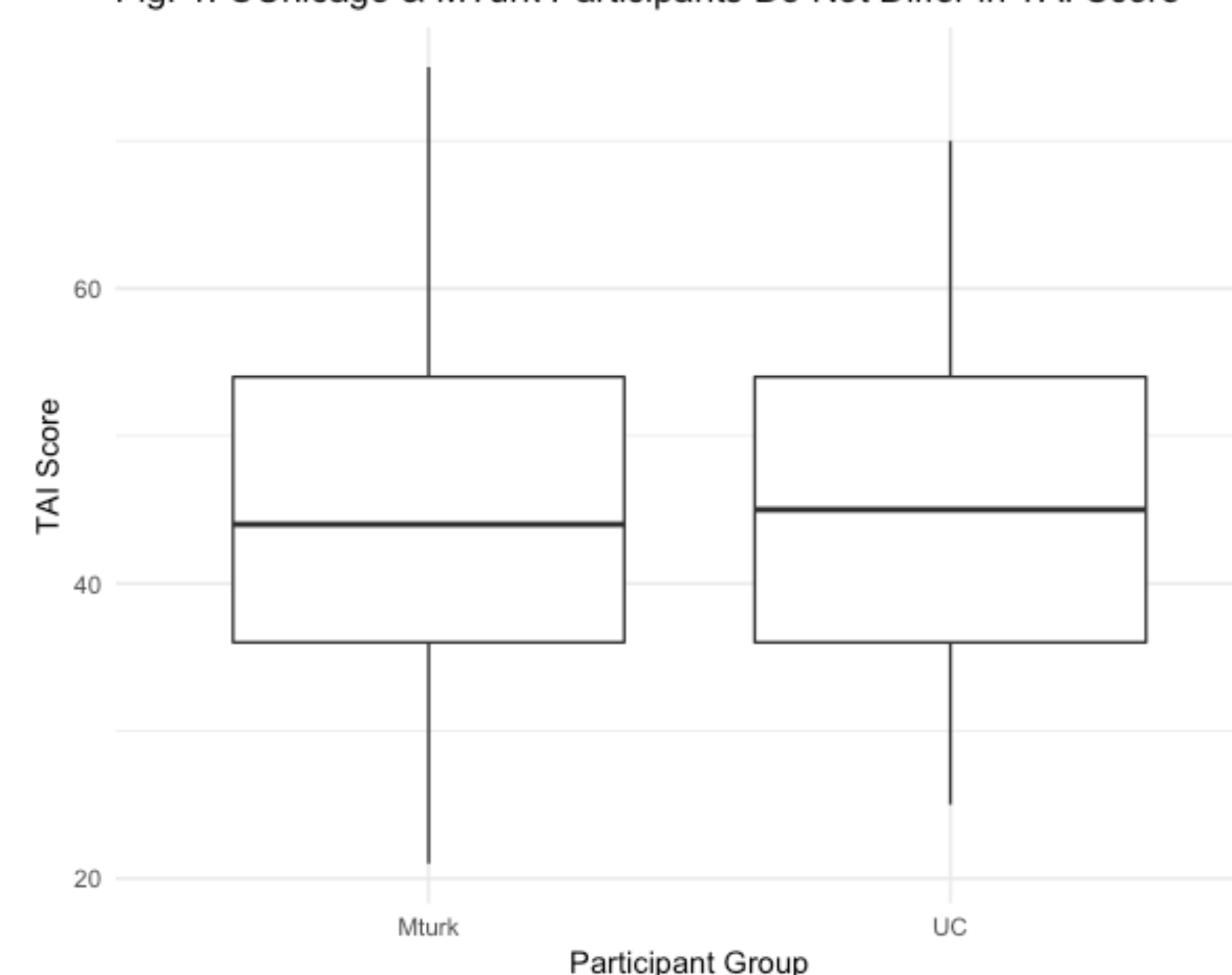
Table 1: Demographics ^a

Group	N	% Female	Mean Age	Mode Income Level	Mode Setting	% of Prior Research Participants	% Single	% Married
Mturk	104	54.8%	37.3	45k - 60k	In Home / Apartment	81.2%	51.9%	34.6%
U of C	96	68.8%	22.8	15k - 30k	In Home / Apartment	60.6%	63.5%	5.2%
Overall	200	61.5%	30.4	15k - 30k	In Home / Apartment	70.5%	57.5%	19.0%

^a Prior research experience defined as having answered yes to participating in a research study previously.

Results

Fig. 1: UChicago & MTurk Participants Do Not Differ in TAI Score

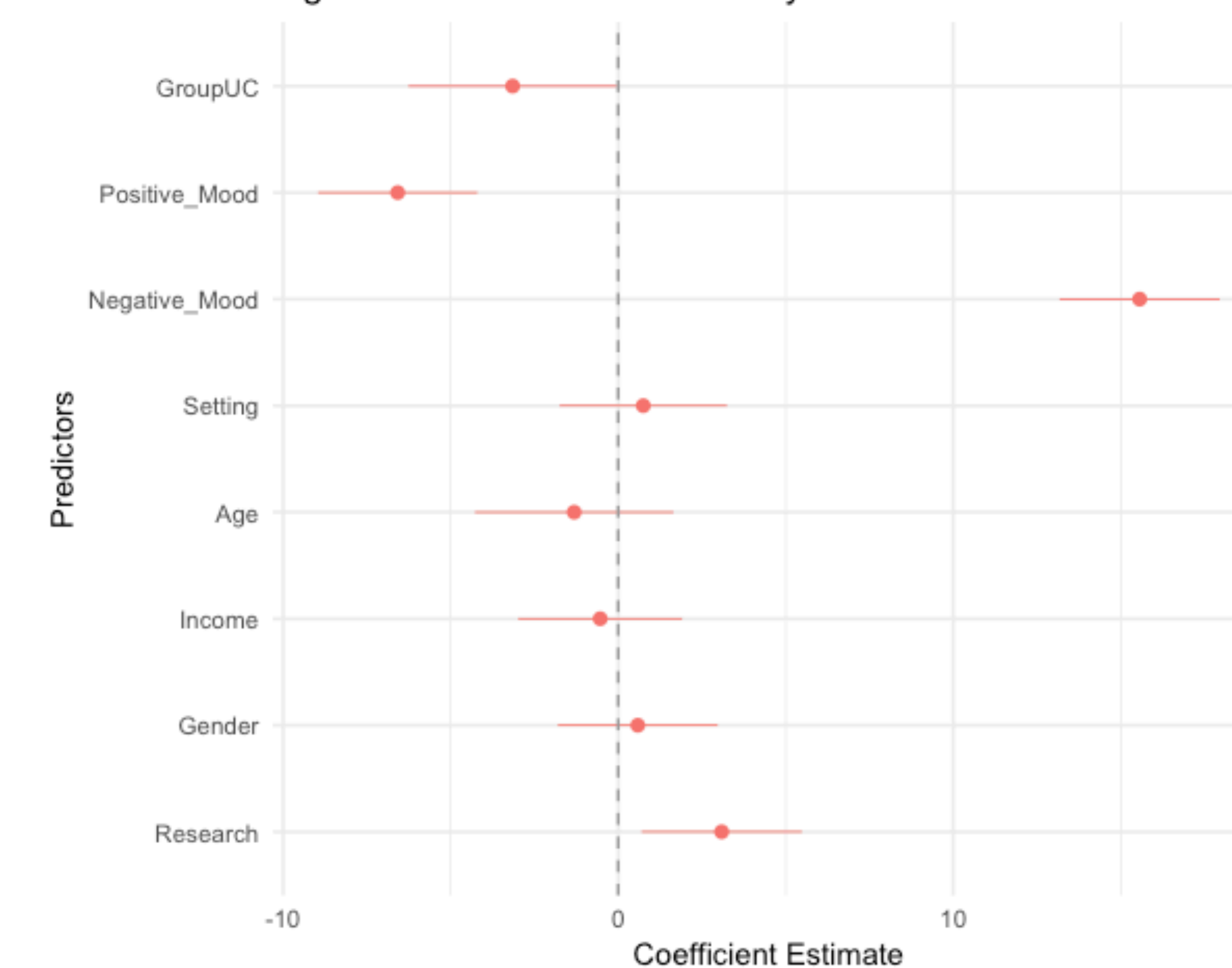


- In comparing average Trait Anxiety Scores between UChicago (M = 45.68) and MTurk samples (M = 45.41), we found no difference in TAI Scores between the two groups (t = -0.155, p-value = 0.877). Figure 1 shows the average TAI score between groups.

Results

- Multiple linear regression to predict TAI scores.

Fig. 2: Predictors of Trait Anxiety Scores



A significant regression equation was found, such that positive acute mood, negative acute mood, and past research participation were all significant predictors of TAI scores, while controlling for setting, age, income, and gender.

Conclusion

- Important to consider the effects of acute mood on stable personality and emotional traits.
- Negative acute mood in particular may affect stable traits of anxiety.
- In terms of overall TAI scores, further supports the validity of MTurk participants, along with demographics characteristics.
- Further supports the validity of the idea of Trait Anxiety and the STAI – normally distributed amongst multiple populations.

Limitations

- Confounding difference in motivation: MTurk participants paid, UofC participants unpaid.
- Encourage study of in lab vs. out of lab responses in MTurk participants.