



# LINKING SURVEY WITH TWITTER DATA

## Examining Associations among Smartphone Usage, Privacy Concern and Twitter Linkage Consent

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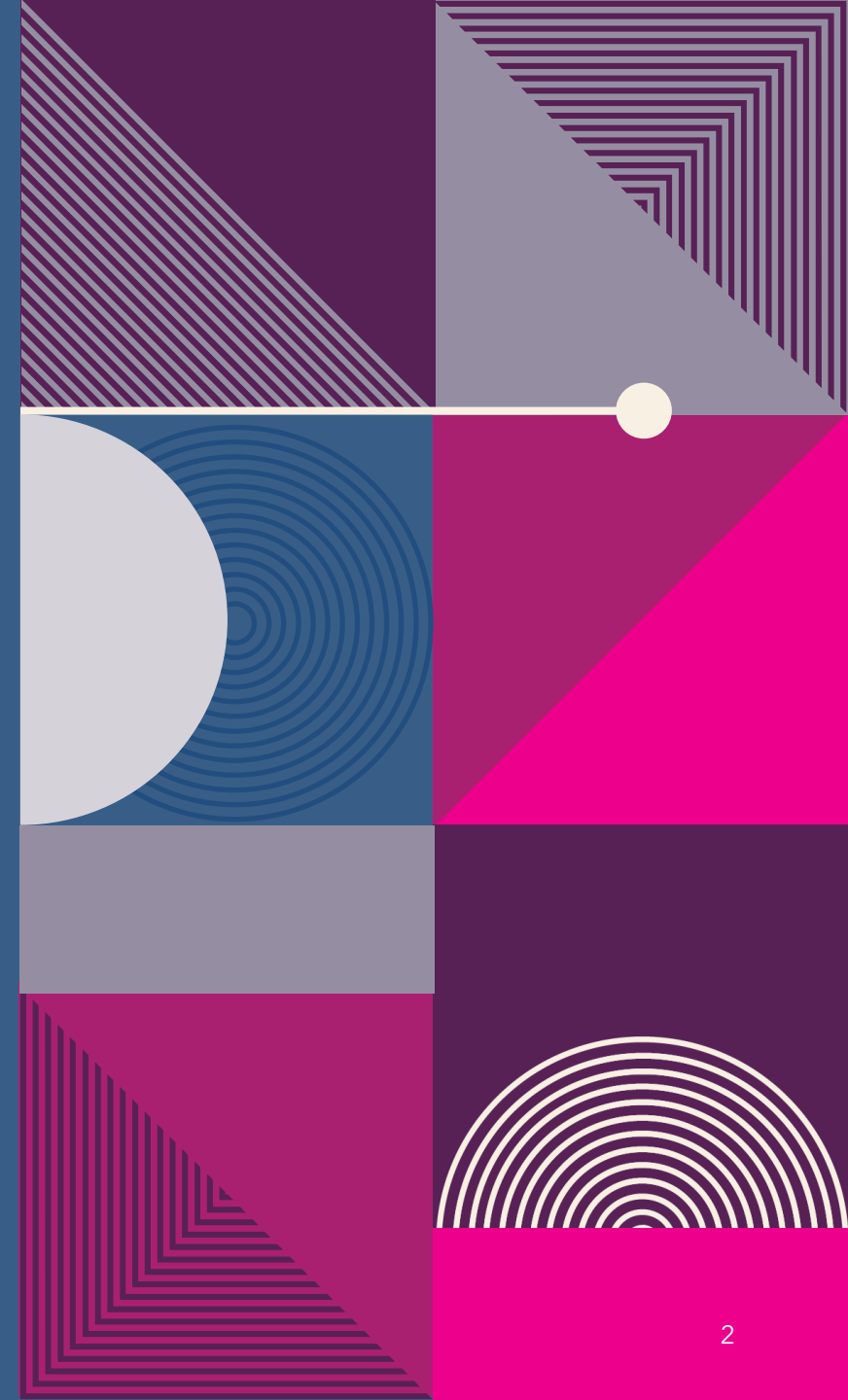
Cardiff University

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# INTRODUCTION

- Social media, such as Twitter (X.), provides a wealth of real-time data. However, researchers often gather and examine social media data in aggregate form.
- A growing number of studies in recent years have sought to link social media data with other types of data, such as survey, in relative secure setting.
- To ethically and practically access and link Twitter data with survey responses, it is necessary to obtain respondents' consent.

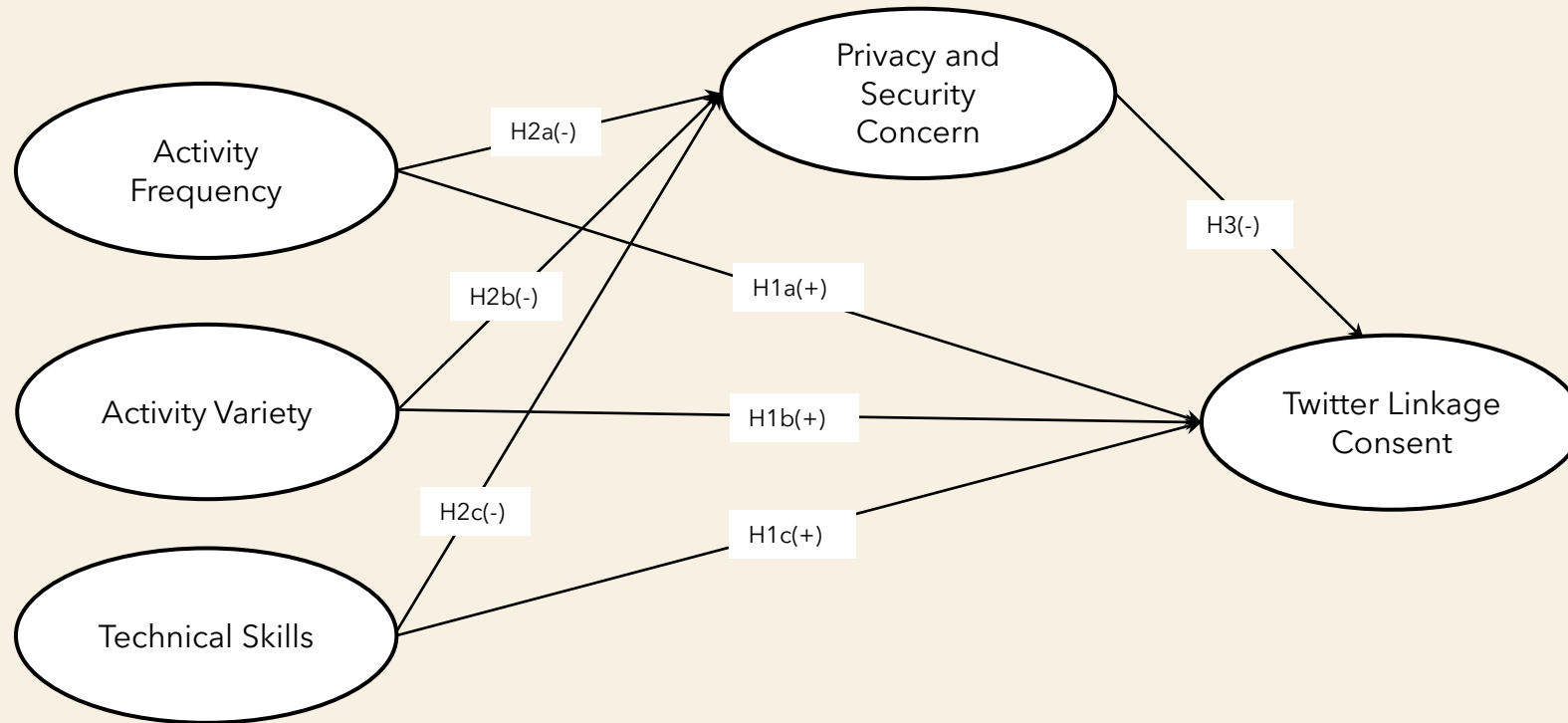


# RESEARCH QUESTION

- Smartphones are increasingly becoming the primary devices through which individuals link their online and offline activities
- **RQ1:** Whether (a) activity frequency, (b) activity variety and (c) technical skills with smartphone affect data linkage consent?
- **RQ2:** Whether privacy and security concern mediate smartphone usage and data linkage consent?



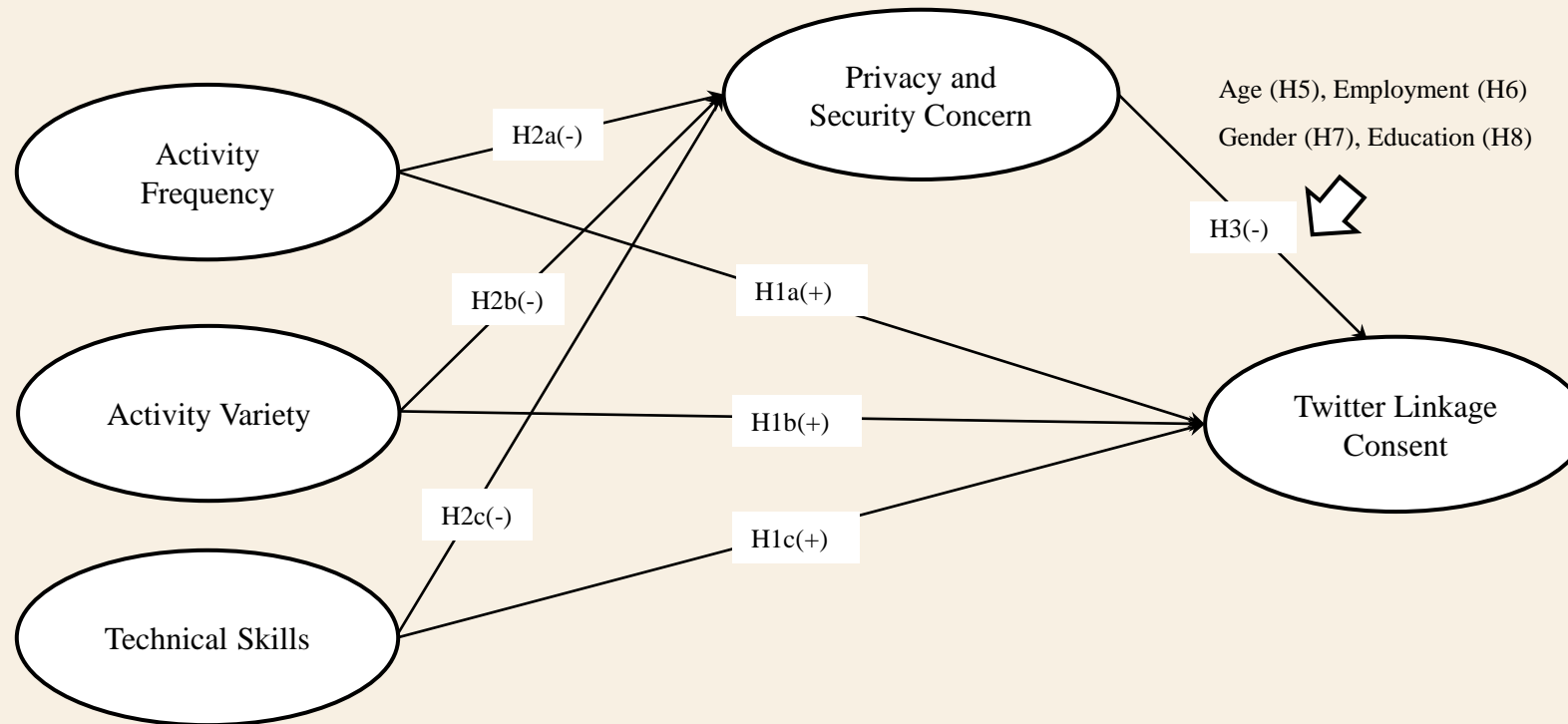
# THEORETICAL MODEL

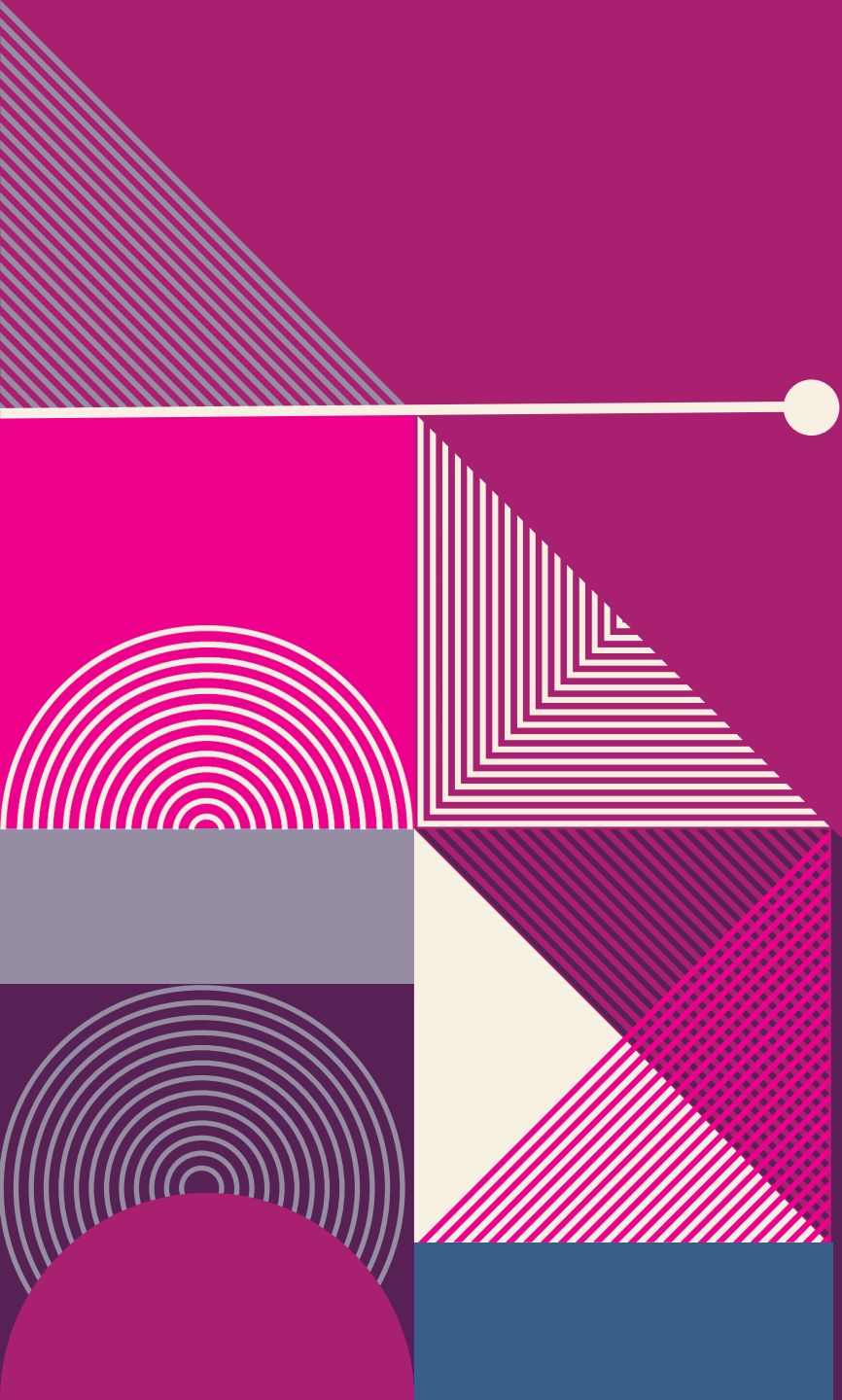


# DATA LINKAGE & LINKAGE CONSENT

- Previous research showed output inconsistency regarding the influence of individuals' characteristics on data linkage consent.
  - Males tended to grant data linkage consent (Mneimneh et al., 2021)
  - Females tended to grant data linkage consent (Dunn et al., 2004)
- **RQ3:** Whether demographic features, such as age, gender, educational level, and employment status moderate the association between privacy concern and data linkage consent?

# THEORETICAL MODEL





# METHODOLOGY

- **Data collection**

- UK Understanding Society Innovation Panel (IP), a national representative survey of the United Kingdom
- Wave 10 of IP survey, gathered in May 2017.

- **Procedure**

- If they had a Twitter account
- Those who having an account were asked for consent to link their Twitter data with survey responses.

- **Sample size**

- Wave10: 2,570; Twitter holder: 513

- **Variable construction**

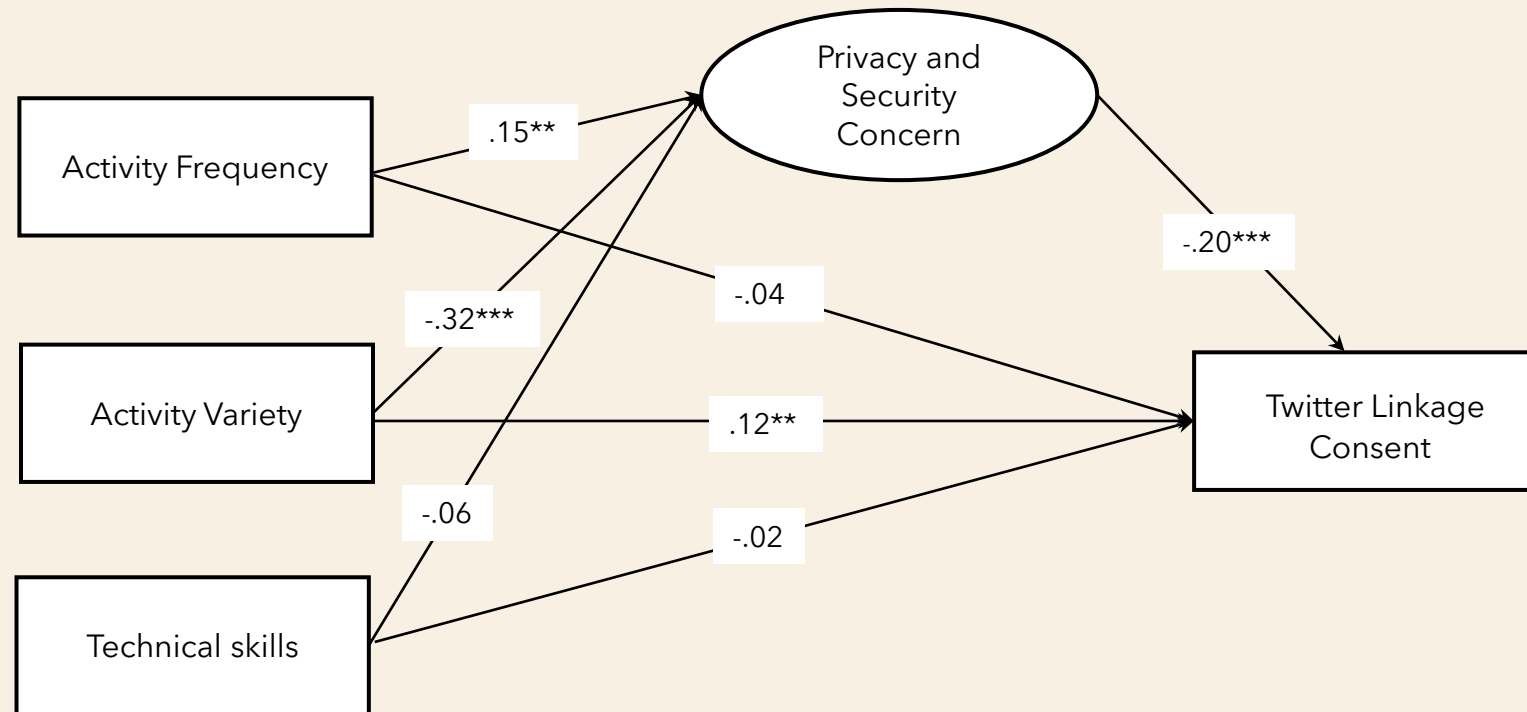
- Activity frequency with smartphone: How often do you use smartphone for activities other than phone calls or text messaging (*1 = Everyday; 4 = Once a month or less*)
- Activity variety with smartphone: Do you use smartphone for browsing websites/playing games/shopping (*1 = Yes; 0 = No*)
- Technical skill with smartphone: How would you rate your skills of using a smartphone? (*1 = Beginner; 5 = Advanced*)
- Privacy and security concern: How concerned they would be about privacy of using camera of smartphone/sharing GPS position of smartphone (*1 = Not at all concerned; 5 = Extremely concerned*).  
 $\chi^2(12) = 37.76, p < .001, \chi^2/df = 3.15, CFI = .99, RMSEA = .07, SRMR = .03$





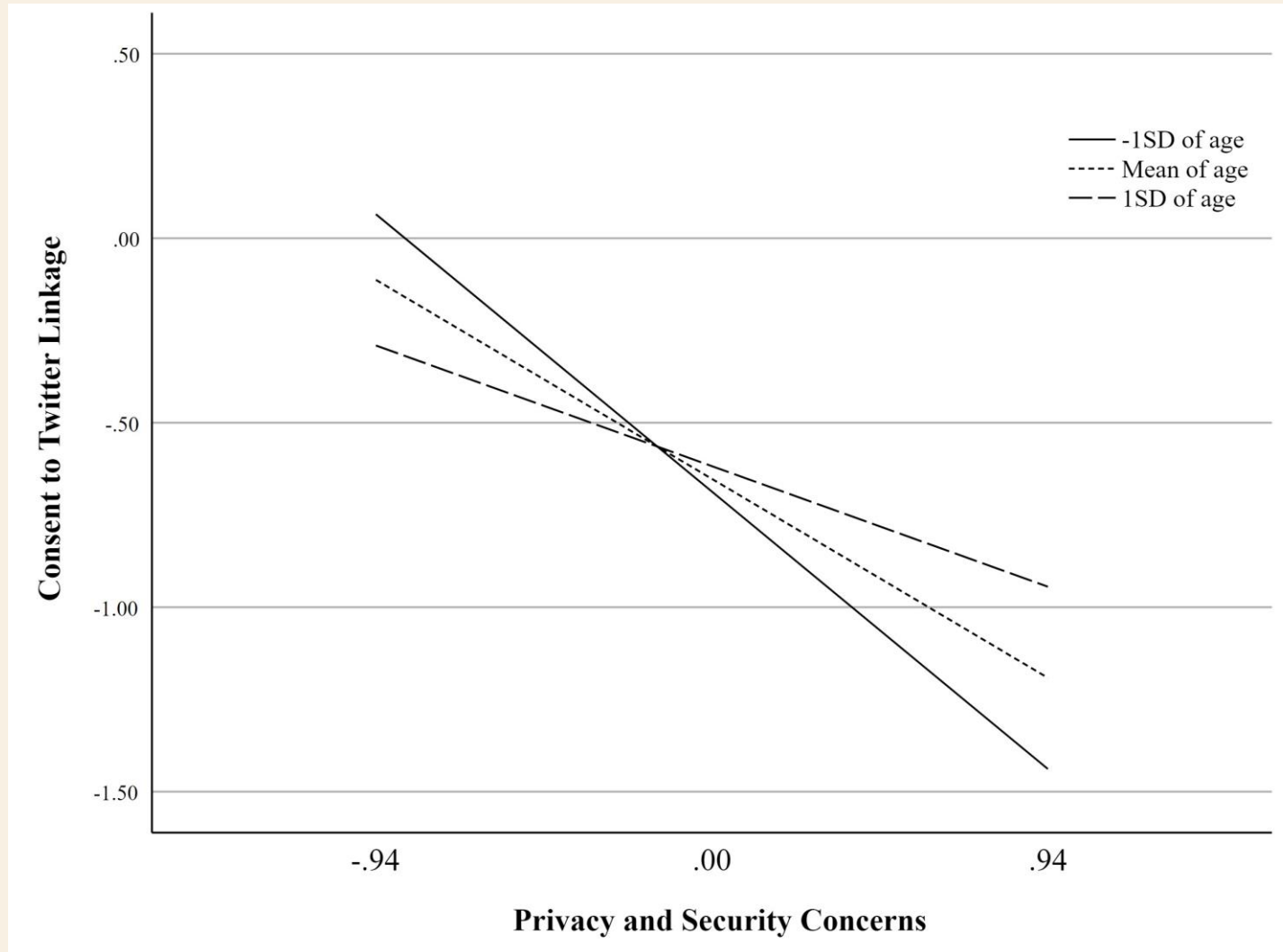
# FINDINGS

# STRUCTURAL EQUATION MODELING

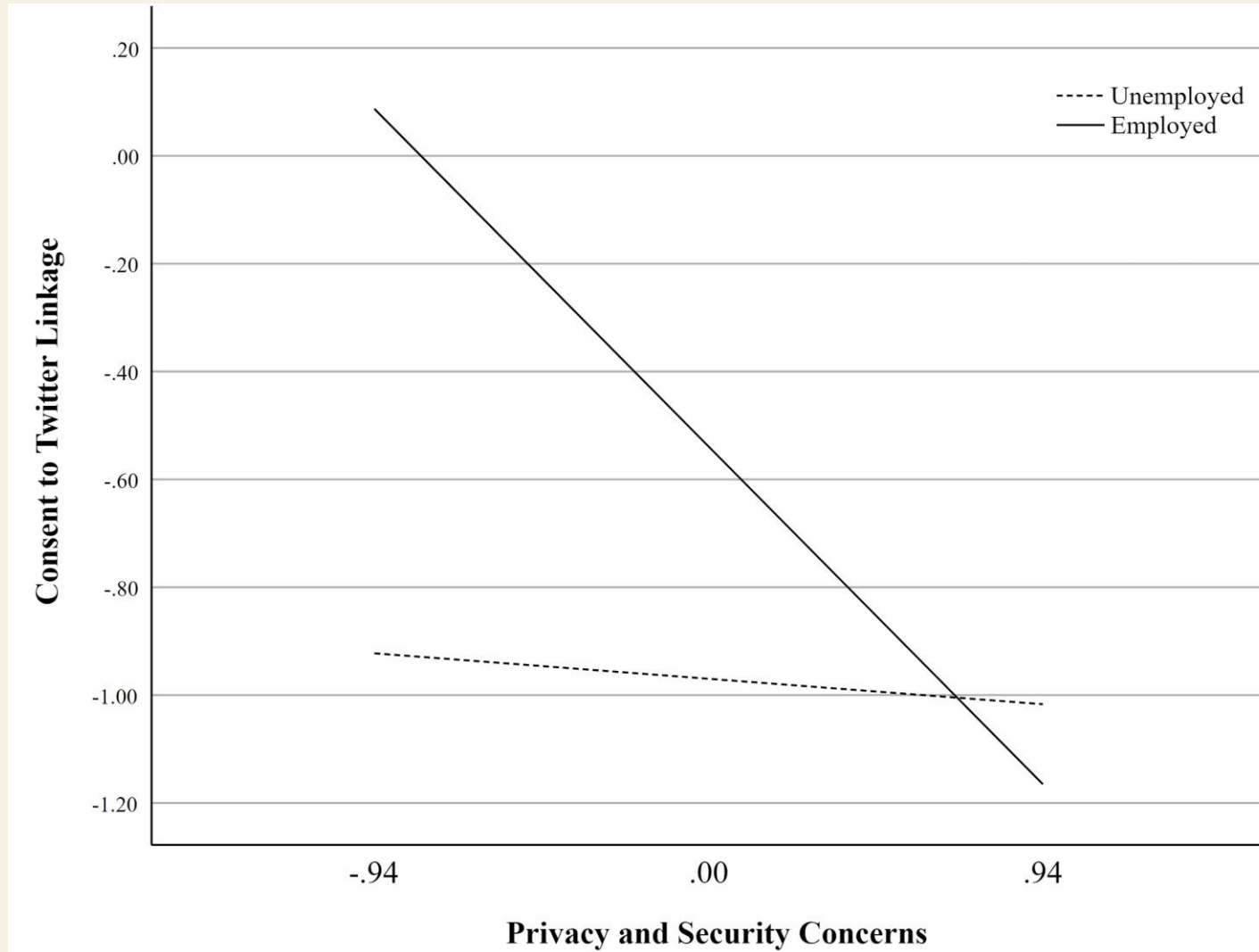


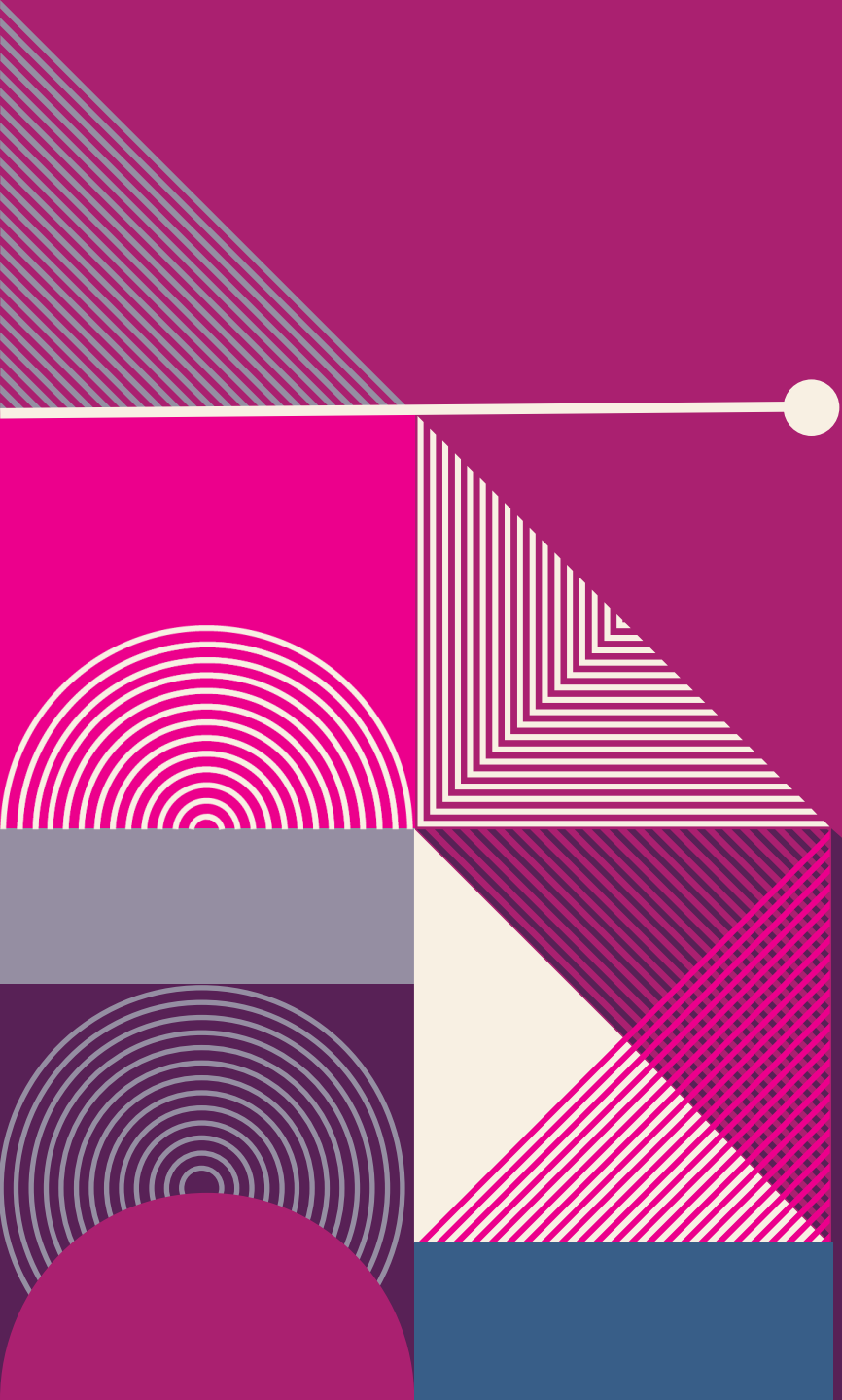
$\chi^2(37) = 93.95, p < .001, \chi^2/df = 2.53, RMSEA = .06 [CI_{90} = .044, .073], SRMR = .03, CFI = .97$

# MODERATION ANALYSIS

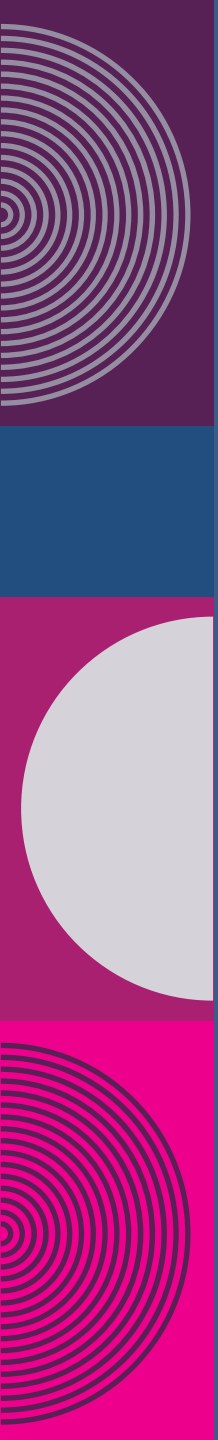


# MODERATION ANALYSIS





# DISCUSSIONS & TAKEAWAYS

- 
- Activity variety with smartphone was positively associated with Twitter linkage consent.
    - Individuals who use smartphones for a wider array of purposes tend to be more open to new experiences and practices
  - Activity frequency was positively associated with privacy concern, while activity variety was negatively associated with privacy concern.
    - Individuals who use smartphones more frequently are more likely to encounter privacy risks;
    - Individuals who engage in a wider range of smartphone activities may have a more relaxed attitude toward privacy
  - Privacy and security concern could act as a mediator between other factors and data linkage consent.
  - For respondents with same levels of privacy concern, younger and employed respondents are more likely to translate their privacy concerns to actual protective behavior, that is declining linkage consent.



# THANK YOU

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