SPCN_V506
Stat Analysis For Effective Decision Making
Summer 2022
Homework 3 by Hai Jing Tu

Part III (45 points): This portion of Homework 3 asks you to make progress toward your final policy memo. At this point in the course, you've identified your dataset and research questions of interest. You've also put together a preliminary data and variable description and received feedback on it. Now, we are ready to frame the front-end of the policy memo, using the following sections as a guide:

I. Introduction
II. Background/brief literature review
III. Research questions
IV. Data description

As you'll see from the example posted with this assignment, policy briefs typically begin with an Introduction section, followed by a brief Background section. On occasion, these sections are combined into one section; the decision to have separate sections or combine sections is up to you. Typically, the introductory paragraph starts with a clear, policy-relevant motivation for why the research question in which you are interested ties to a particular policy problem or should be interesting to public policymakers. The Background section may provide additional background on the problem, provide key definitions, and/or cite previous studies that also examine this particular problem. Please use APA citation for citing any outside resources. Please note that for any literature review, I am not asking you to provide a comprehensive review of all previous research on the topic; I am simply asking that you cite a few relevant sources that either (1) serve to position your research project within a relevant policy context, and/or (2) show findings that may inform your analysis. The introduction/background section should be about 1-1.5 pages long.

The next section on Research Questions should be fairly brief (1-2 paragraphs) and state the research questions you plan to address in a concise, easy-to-read format. Please incorporate the feedback you received from me on Homeworks 1 and 2 to refine your research questions, and ensure that they are consistent with the policy issue you describe in the Introduction/Background sections.

Finally, you will add in a Data Description section that describes your data sources, key variables of interest, and any information you have about how you've planned to re-code your variables and/or format missing values. Note that you've already completed this exercise for Homework 2. Therefore, the goal of this section is to edit what you've already done for Homework 2 based on my feedback, and then integrate it into the document that you submit.

Please refer to the example memo I've posted with the assignment (and note my comments and suggested edits to the memo, as well).

This portion of the assignment should be in Times New Roman font, single spaced, left-justified, and with 1-inch margins. You should also use APA citation. I will deduct five points from memo submissions that do not follow this format.

Introduction

As digital products become ubiquitous in our life and rise to dominate our communication, learning, and social life, there have been rising concerns on the regulation over technology companies. According to Brayne (2017), new technologies overlaid onto an old infrastructure of organization often generates new unintended consequences, while solving problems they are designed to solve. The growth of surveillance is a case of such unintended consequences, as the span of surveillance is ever growing as data systems merge and connect with little policing (Brayne). The truth is, digital technology companies are growing faster than their regulatory agencies, and their ever growing size and power are posing immediate challenges for regulating agencies.

One of the regulatory forces of digital technology companies include America's antitrust laws. But they are being questioned for whether they can fully address the competitive concerns in monopoly among digital technology companies (Lohr, 2020, October 22). While the FCC (Federal Communication Commisssion) is an active player in telecommunication policy making, many people find it surprising the FCC cannot regulate the business of social platforms such as Facebook, Google, and Twitter (Shepardson , 2020, October 15). Right now, these companies are simply observing Section 230, a provision of the 1996 Communications Decency Act that make sure they provide their products to users while guaranteeing free expression and at the same time the platforms are allowed to remove lawful but objectionable posts (Zuckburg, 2020, November 17).

Brief Literature Review

Facing privacy traps, data leaking, and algorithmic bias, the public are getting more concerned about the invasive nature of digital technologies. Scholars already thoroughly demonstrated the necessity for digital technology companies to be better policed in order for them to take social responsibilities. According to Schradie (2018), "Digital technology creates a treadmill that reproduces inequality" (p. 53). Instead of eliminating human discretion and bias, many argue that digital technology is shaped by and frequently worsens existing social inequalities, therefore reinforces existing social structure (Brayne, 2017; Schradie, 2018).

For example, Eubanks (2018) argues that when we rely on high tech tools such as automated systems to make decision on finance, employment, politics, health and human services, these systems become the most invasive and punitive towards the poor. Digital tracking and automated decision making, according to Eubanks, "hide poverty from the middle-class public and give the nation the ethical distance it needs to make inhumane choices: which families get food and which starve, who has housing and who remains homeless, and which families are broken up by the state" (p. 13). Basically, the tyrannies of inclusion leaves those who do not belong to the automated system behind.

Similarly, Davis(2020) is concerned that the rapid scale-up of new digital technologies in public health is "a poisoned gift to low- and middle-income countries that legitimizes sweeping access for private actors and state power"(p.42). According to Davis, "digital technologies could be a 'trojan horse' for forces that seek to dismantle and privatize economic and social rights, undermining progress toward the Sustainable Development Goals (SDGs) instead of speeding it"

(p. 41). For example, Davis argues that the use of biometrics should be minimalized and follow the "know and show" principle (p. 44).

In addition to reinforcing social inequality, digital technology companies provide services and products that bring both convenience and fear to their customers. It's a common concern that human agency seems to be losing the decision-making power on key aspects of digital life to code-driven, black box tools (Anderson, Rainie, & Luchsinger, 2018, p. 3). The opacity and complexity of algorithms pose challenges for end users to scrutinize over them, and the challenges can be exacerbated for less privileged population (Woodruff, et al., 2018). Head, et al.'s research (2020) show that as many research participants worry about "the 'creepiness' of algorithms that violated their privacy"(p.15). Woodruff et al. (2018) put hope on big tech companies to include fairness and accommodate diverse perspectives in their product design, because their current design definitely exclude marginalized population.

Research questions

This paper aims to investigate the public opinion regarding regulating digital technology companies:

1. How does public opinion on the regulation of digital technology companies vary based on age, gender, education, and income?

2. What is the relationship between digital confidence and opinions on the regulation of digital technology companies?

Data description

To answer the research questions, this paper uses the dataset from the American Trends Panel Wave 88 conducted by Pew Research center (2021). The questionnaire surveyed attitudes on topics such as relying on the government to regulate tech companies and the impact of digital devices on children. The dataset in SPSS format contains 134 variables, including demographic variables such as age, gender, education, political affiliation, and income, etc.

Independent Variables

The independent variables for this research include age category (var108), gender (var109), education (var111), income (var128), political affiliation (var124) and digital confidence (var22).

The age variable (var108) has five categories: "18-29" (recoded as 1.00), "30-49" (recoded as 2.00), "50-64" (recoded as 3.00), "65+"(recoded as 4.00), and "Refused" (recoded as 99.00).

The gender variable (var109) has four categories: "A man" (recoded as 1.00), "A women" (recoded as 2.00), "In some other way" (recoded as 3.00), and Refused (recoded as 99.00).

The income variable (var128) has 10 categories: "Less than 30,000" (recoded as 1.00), "30,000 to less than 40,000" (recoded as 2.00), "$40,000 to less than $50,000" (recoded as 3.00), "$50,000 to less than $60,000" (recoded as 4.00), "$60,000 to less than $70,000" (recoded as

5.00), "$70,000 to less than $80,000" (recoded as 6.00), "$80,000 to less than $90,000" (recoded as 7.00), "$90,000 to less than $100,000" (recoded as 8.00), "$100,000 or more" (recoded as 9.00), and "Refused" (recoded as 99.00).

The political affiliation variable (var124) has five categories: "Republican" (recoded as 1.00), "Democrat" (recoded as 2.00), "Independent" (recoded as 3.00), "Something Else" (recoded as 4.00), and "Refused" (recoded as 99.00).

The digital confidence variable (var22) has four categories: "very confident" (recoded as 1), "somewhat confident" (recoded as 2), "only a little confident" (recoded as 3), and "not at all confident" (recoded as 4), and "Refused" (recoded as 99).

Dependent Variables
The dependent variables will be participants' attitude on whether and how the tech companies should be regulated (var23-28), and what digital services government should guarantee for ordinary people during the pandemic (var19-var21).

The opinion Var23 asks "How much, if at all, have you heard about the debates on the role government should play in regulating major technology companies?" This variable has five categories: "A great deal" (recoded as 1), "A fair amount" (recoded as 1),"Not too much" (recoded as 2), "nothing at all" (recoded as 3), "Refused" (recoded as 99). I will recode var23 into "strong opinion" (1) and "no difference" (2) to see whether those who reported "no difference" show different demographic attributes or digital confidence.

The opinion variable Var24 measures what participants think if the government is to take steps to reduce the size of major technology companies. The categories are: "Mostly be a good thing" (recoded as 1), "Mostly be a bad thing" (recoded as 2), "Not make much of a difference" (recoded as 3), and "Refused" (recoded as 99).

The opinion variable Var26 measures how much participants think the government should be regulating digital tech companies. The categories are "More than they are now" (recoded as 1), "Less than they are now" (recoded as 2), "The same as they are now" (recoded as 3), and "Refused "(recoded as 99).

The opinion variable Var27 measures whether participants support regulation. The first statement, "As long as major technology companies follow the rules, the government should allow these companies to grow as large as they want, even if this means there is less competition " indicates less regulation and is recoded as 1. The second answer "Even if major technology companies follow the rules, the government should NOT allow these companies to grow beyond certain size, because it hurts competition" indicates more regulation and is coded as 2. "Refused" is coded as 3.

Data Analysis
To find out how participants' opinions about regulating digital tech companies vary with demographic variables, I will conduct *t* tests and ANOVA tests. A correlation analysis will be

conducted to find out if digital confidence is correlated to participants' attitudes towards regulation.

References

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