

## Problem Set #2

MACS 30200, Dr. Evans

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The research question of the paper is to identify whether using the internet frequently would increase the political polarization of user. In other words, the paper want to examine the causal relationship between the frequency of internet use and the user's political polarization.

Several sources of data used in this paper include the American National Election Studies? (ANES) 1948-2012 Time Series Cumulative (American National Election Study 2016), 2008 Time Series Study (2015a), and 2012 Time Series Study data sets (2015b), and the paper also used data from the Pew Research Center to plot trends in social media use from 2005 to 2012 for illustrating the adults'social media usage,

The main theory the paper referred to is on how to measure the political polarization or how to construct the the political polarization index. Some previously proposed measures referred in this paper are 1) Partisan affect polarization, the ANES thermometer ratings of parties, and 2) Ideological affect polarization, which quantifies peoples feelings towards those on the other side of the political spectrum have changed over time. 3) Partisan sorting, which measures the extent to which partisan identity is correlated with self-reported ideology. 4) Straight-ticket, which measures the frequency that the individuals split their votes across parties in an election. 5) Perceived partisan-ideology polarization which measures the extent to which individuals perceive the ideological differences between the Republican and Democrat parties. 6) Issue consistency which measures the similarity of ideological positions across issues. 7) Issue divergence which computes the average correlation between seven questions and party affiliation for respondents who are not strictly independents. 8) Partisan-ideology polarization which measures the extent to which the self-reported ideological affiliation of Republicans and Democrats differ. 9) Religious polarization which measures the extent to which individuals differ in religious belief.

The paper can be seen as a combination of descriptive analysis and identification exercise because the the paper showed the trends in polarization index by demographic groups and it also examined or identify the causal relationship between the frequency of internet use and the user's political polarization by using statistical inference.

To measure the political polarization, the paper uses computation tool to combine the previously proposed 9 measurements to construct a index of political polarization, which is basically the average of the nine measurements using a nonparametric bootstrap. The results show the trend of political polarization among different age groups: 1)for those aged 75+, the polarization index increases by 0.38 between 1996 and 2012, and 2)for those aged 65+ the polarization index increases by 0.32, and for those aged 18?39 the polarization index increases by 0.05 in the same period. Using

the nonparametric bootstrap, the paper showed that the hypotheses that the increase for those aged 18?39 equals the increase for those aged 65+ and that the increase for those aged 18?39 equals the increase for those aged 75+ could be rejected. The conclusions also apply to other kinds of groups besides the age groups, which shows those demographic groups which are least likely to use the internet show largest increase in polarization. In addition, this paper also shows trends in polarization based on a another general index of internet access in terms of predicted and actual internet access, and the conclusions are respondents having more access to the internet increases slowly in polarization between 1996 and 2012 for predicted internet access, and respondents with actual internet access have greater polarization in 2012 than those without actual internet access, but the growth trends are the same to both groups between 1996 and 2012. So the general answer to the research question of this paper is: the causal relationship between internet use and the increase in political polarization is hard to identify based on current data. But the correlation between them, the potential impact of internet access on political polarization may exist.

Two suggestions for further improvement. First, there could be improvement on how to compute the combined index to measure the political polarization. The index seems to be oversimplified which is essentially simply an average of the 9 previously proposed indices. Instead, I would suggest use a weighed average in which the weight depends on correlation between different measures, or try to include the covariance of these measures in another way. Secondly, the paper may consider the relationship between internet use and the increase in political polarization by controlling the age. Because the age may have confounding effects on political polarization, and the paper showed that the age is both correlated with internet access and with political polarization.