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Project 1 Topic Proposal: Predicting SNAP Non-Participation

**Background**

In 2021, the Supplemental Nutrition Assistance Program (SNAP) was utilized by about 1 in every 8 Americans, equating to 41.5 million people (Schanzenbach). It is the only social assistance program that is available to all low-income individuals, regardless of work status, making it a critically important social support system in the US (Schanzenbach). However, in 2018 only 82% of SNAP eligible recipients participated in the program (U.S. Department of Agriculture). This raises questions about which demographic groups are least likely to redeem SNAP benefits and how policies may be updated to incentivize participation by these groups. The ability to predict SNAP non-participation would provide useful data when constructing and modifying SNAP related policies so that assistance may be utilized by all who demonstrate a need.

**Research Questions**

* How does allowing for nonlinearity in estimating regression affect the relationship between non-participation in SNAP benefits and demographic characteristics?
* Which model most accurately predicts non-participation in SNAP?
* Which demographic parameters are most predictive of SNAP non-participation?

**Data**

For my research, I will use the American Community Survey (ACS). The ACS is U.S. Census Data, so it is publicly available. I will be accessing it through IPUMS USA. The variables I will focus on include SNAP participation, household size and makeup, education, race, sex, age, and region.

**Methods**

I will be using a few different machine learning methods to assess the possibly non-linear relationship between SNAP participation and key demographic factors. I will perform a Logit regression, a LASSO regression, and a Ridge regression and compare their results in order to determine which model best represents SNAP participation data. The regressors will be demographic data as provided by the ACS and the output variable of interest will be SNAP non-participation. I will test the out of sample accuracy of each model by splitting the ACS sample data into two groups such that one group will serve as the training data and the other group will be the testing data. I will also use the LASSO regression to determine which demographic variables are most predictive of SNAP non-participation. While the results of this research will not provide insight into why some people do not utilize their SNAP benefits, it can inform policymakers which populations are least supported by SNAP so that they may design policies to better engage and support these groups.

Works Cited

Schanzenbach, Diane Whitmore. “Understanding SNAP: An Overview of Recent Research.” Food Policy, vol. 114, Jan. 2023. EBSCOhost, search.ebscohost.com/login.aspx?direct=true&db=ecn&AN=2018585&site=ehost-live&scope=site

U.S. Department of Agriculture. “SNAP Participation Rates by State, All Eligible People | Food and Nutrition Service.” *USDA Food and Nutrition Service*, 2018, https://www.fns.usda.gov/usamap. Accessed 18 February 2023.