**Title (tentative): Food or Fuel: How food Access Affects Energy Burden**

According to a study done by the University of Texas Energy Institute, roughly 20% of households in Texas are energy burdened (Wible & King, 2016). Energy burden is defined as a household’s inability to access adequate energy resources to serve their needs (Boardman, 1991). This has made lawmakers motivated to improve energy access in Texas. However, qualifiers for participating in such a program are needed. Typically in the literature, energy burden is measured by the percentage of income spent on energy bill’s. Individuals who spend greater than a certain threshold are considered energy burdened.

However, studies have shown that estimating energy burden as a percent of income might overstate the issue (Schuessler, 2014) ( Herrero, 2017). Thus, we use the results of a survey in which respondents stated difficulty with electricity bill in last six months as the indicator for energy burden. Residential energy use in Texas is predominantly electric (Wible & King, 2016), thus we focus on electric burden specifically. Recent studies have also shown a link between health & food insecurity and energy burden (Tuttle & Beatty, 2017). Since geography is a strong predictor of these disparities (Bouzarovski & Simcock, 2017). Thus, this study uses the former to predict the later at a county level for Texas.

Dependent Variables: County Energy Burden

Independent Variables:

* County Poverty %
* County Race (3): % Race\_white; %Race\_hispanic; % Race\_black
* County Household food insecurity (%, three-year average), 2013-15
* County SNAP &WIC (2): WIC participants (% pop), 2015; SNAP participants (% pop), 2016
* County General food sales tax, retail stores (%), 2014
* County Population, low access to store (%), 2015
* County SNAP-authorized stores/1,000 pop, 2016

Methods and Validation:

Use a logit or logistic regression model to find which variables have are the most significant predictors of energy burden. Cross validation will be done after the model is created.

The data “primary key” for this study is the county FIPS code. This key will be used to merge the datasets that we use. We will then recode any categorical variable as numbers. Then all data will be checked for “datatype”. A version of the raw csv files will be kept, a merged csv file, and a merged csv file for analysis in R.

Three Data Sets:

1. Energy Burden: csv file from my research. My research tries to understand energy burden (individuals that are unable to access adequate energy sources) in Texas using survey data from 2018. This dataset is a subset of a dataset from a survey. The dataset describes the percentage of individuals who responded to the survey identifying as “having difficulty with their electricity bill”.
2. Poverty: a csv file from the U.S. census Bureau. It describes the percentage of people living in poverty in different counties of the U.S. in 2017.
3. Food Insecurity and Socioeconomics: This data set is from the USDA. It is an excel spreadsheet that indicator that are meant to describe food insecurity for each county in the U.S. The datatype varies but is primarily integer, string, float, and object.

Data Sources:

1. Source: I already had it before the course began
2. Source: <https://www.census.gov/data-tools/demo/saipe/saipe.html?s_appName=saipe&map_yearSelector=2017&map_geoSelector=aa_c&s_measures=aa_snc>
3. Source: <https://www.ers.usda.gov/data-products/food-environment-atlas/data-access-and-documentation-downloads/#Current%20Version>

Other Sources:

# References

Herrero, S. (2017). Energy poverty indicators: A critical review of methods. *Indoor and Built Environment*.

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Bouzarovski, S., & Simcock, N. (2017). Spatializing Energy Justice. *Energy Policy*.

Schuessler, R. (2014). *Energy Poverty Indicators: Conceptual Review: Part 1 The Ten Percent Rule.* Centre for European Economic Research.

Tuttle, C., & Beatty, T. (2017). *The Effects of Energy Price Shocks on Household Food Security in Low-Income Households.* USDA.

Wible, J., & King, C. (2016). *Household Energy Costs for Texans.* Austin, Texas: University of Texas Energy Institute.