BIOS 611 Project 1

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Introduction

Homelessness is defined as any person living without a home, typically living on the streets. In North Carolina, the Continuums of Care to the U.S. Department of Housing and Urban Development (HUD) reported approximately 9,268 people experience homelessness on any given day as of January 2018 (1). Shelters and volunteers attempt to lower this number by providing resources that can potentially help a person or family find the means to obtain a home, and thus stop living on the streets. One of these shelters in Durham, North Carolina, is Urban Ministries of Durham (UMD). Established in 1983, UMD is a non-profit organization that focuses on lowering the community's rate of homelessness by providing food, shelter and other resources to those in need. In 2001, three organizations (Durham Community Shelter for HOPE, St. Philip's Community Cafe, and the United Methodist Mission Society) merged to create UMD as it exists today. UMD strives to holistically lower Durham's homelessness rates with the help from the Durham community and over 4,000 volunteers. UMD provides "food, shelter, and a future" to over 6,000 men, women, and children every year

Data source

The data for our analysis is from UMD. UMD has been collecting data about people who utilize its resources for decades. This data includes an identifier (ID), date of visit, number of people the food from that visit provided for, pounds of food taken from food pantry, amount of clothing taken from clothing closet, and more. The total number of observations of this data is 79838. Variable descriptions for the UMD data can be found here: https: //github.com/biodatascience/datasci611/blob/gh-pages/data/ project1_2019/UMD_Services_Provided_metadata_20190719.tsv

Data cleaning and preliminary examinations

Since UMD as it is known today was created in 2001, we truncate our dataset to be collected data from January 1, 2001 to the last date of a full year, which is December 31, 2018. Since the data for 2019 is not complete, we omit data that was collected after December 31, 2018.
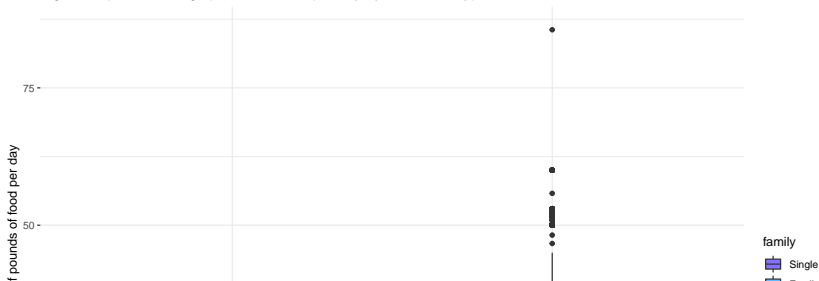
To examine the trends of visits and food obtained between family and single households, we define an observation as part of a family household if the number of people the food given that visit was provided for more than 1 person, and as a single household otherwise. Because of this, we want to limit our population to those who are not missing data for the Food.Provided.for (defined as number of people the food given that visit was provided for) and Food.Pounds (defined as the number of pounds given for that visit) variables.

Client.File.Number	Number_of_Visits	First_Visit_Year	Last_Visit
255	117	2005	

Main Analysis

Figure 1 below displays two boxplots, comparing the average number of pounds of food taken from the UMD food pantry per day between household types (single-member housholds vs. family households). As expected, those with families have a higher overall mean per day. Additionally, there are more and larger outliers for larger average pounds per day for the family households than single-member households. Similarly, single-member households have more lower outliers for average pounds per day compared to family households. This is expected, since family households have more people to feed than single households.

Fig 1: Boxplot of average pounds of food per day by household type

References

1) https://www.usich.gov/homelessness-statistics/nc/
2) http://www.umdurham.org/