Universal Basic Income

Spring 2023 CS506 Data Science

Project Description

This project seeks to understand what a universal basic income program should look like for Boston by looking at the number of people under the poverty line, what the different levels of poverty are, which public assistance programs are being utilized and the amount of assistance, and how much money per household could have the greatest positive impact. Boston City Councilor Kendra Lara has the opportunity to provide 1000 of these people with assistance so the analysis from this project can be used to help inform her of a potential selection process for. There also needs to be consideration of income that places participants outside of poverty and ineligible for program assistance, but could still benefit from monetary support.

Project Steps

Key Initial Steps

1. Review Project Description and determine questions or clarifications needed from the client.
2. Create a work plan with your team and determine the breakdown of tasks into weekly sprints on the Trello board.

Using the Data Sets & Sources

1. The data for this project includes
    i. Public assistance programs includes: Transitional Aid to Families with Dependent Children (TAFDC); Emergency Aid to the Elderly, Disabled and Children (EAEDC); Supplemental Nutrition Assistance Program (SNAP)
    ii. :
        1. DTA Data and Research | Mass.gov
            a. Census income brackets/ poverty level: https://data.census.gov/table?q=DP03
            b. DTA_ZIPCODE_Report_DEC_2022.v2.xlsx
                i. Food Stamps/Supplemental Nutrition Assistance Program (SNAP) | American Community Survey | U.S. Census Bureau
        2. Shapefile
        3. WIC data
            a. https://www.fns.usda.gov/data/october-2022-keydata-report
            b. WIC
        4. Section 8 Housing Assistance
            a. Assisted Housing: National and Local | HUD USER
            b. MDAT Census attributes
        5. Background Reading on SNAP participation and performance: DTA Performance Scorecards | Mass.gov
        6. https://www.census.gov/quickfacts/fact/dashboard/MA/HSD310221
        7. https://www.mass.gov/info-details/municipal-finance-visualizations#municipal-financial-self-assessment-

Part 1: Analysis & Tasks

1. Establish participants in each assistance program into one centralized sheet
    a. Consider including
        i. Demographics
            1. Race/Ethnicity, Gender, Neighborhoods/County
        ii. Income

Questions

1. How many people participate in assistance programs?
2. What is the income distribution for Boston residents living poverty line
3. How many people participate in assistance programs - focus on WIC, Snap, and Housing assistance (section 8)?
4. How much assistance is provided to residents at different income levels (under poverty level)
5. What amount would pull the largest number of households out of the poverty level without sacrificing existing assistance benefits?

Part 2: Extension Data Sets & Sources

1. This next part of this project is to get creative with additional data that you think would tell an interesting story. This extension should be something your team finds compelling. You will create a mid-semester proposal for this extension project that the client will approve.These may be helpful datasets or topics to consider, but you are welcome to research other datasets and sources:
    a. Potential Data Sets
        i. Social Security/ VA/ Disability Benefits?
        ii. Redlining
        iii. Eviction Diversion Initiative Dashboard | Mass.gov
2. Discuss topics your team is interested in and research other datasets/sources (be creative!)
3. Create a proposal that contains:
    a. Extension pitch and rationale
    b. Questions to be answered for analysis
    c. Datasets & sources you will be using
4. Pitch the proposal to the client
    a. Make any edits/updates as necessary
    b. Get client's approval
5. Analysis
    a. Analyze the datasets and create visualizations

Expected Final Deliverable

1. Create a report with key visualizations and answers to your client's questions.

Contact Information

Role	First Name	Last Name	Email
Client - Organization Name	Kendra	Lara	kendra.lara@boston.gov

Client - Chief of Staff	Lee	Nave	
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TE	Yagev	Levi	yagev@bu.edu
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Teammate	Jiahe	Zhang	hzjh@bu.edu
Teammate	Greeshma	Yaluru	greesh@bu.edu
Teammate	Tharun	Patteti	tharun45@bu.edu

Meeting Notes

Meeting 1: Kickoff

Attendance : All are present

CS506 Team 1 Deliverable 0

Team 1 - Spark! Project Team | Universal Basic Income - City Councilor Lara

Q1, What is the project focus/overall goal?

Project overall goal is to understand how the Universal Basic Income program looks like in Boston by looking at the people under the poverty line, how the levels of poverty vary, various assistance programs they have access to and how they help them. We seek to understand these to pick 1000 people for whom Boston City councilors can provide assistance with so that the assistance will be of maximum benefit. To achieve the goal, we need to analyze the data of the various assistance programs, various factors considered while choosing the people to provide assistance, how are they benefiting the people and uplifting them from poverty. Analyzing the trends of poverty with income, race/ethnicity, gender , neighborhood also would give us better insights for a better selection.

Q2, Why is this project important?

In the USA, economic inequality poses a serious threat to public health. The issue of families that are unable to meet their basic necessities is one that the government is working hard to address. Programs like direct cash handouts and emergency food resources are beneficial, yet they have fallen short. Therefore, This project is significant because it helps you comprehend what a universal basic income program should entail for Boston,that can eliminate the disparities and build a more wholesome society. Through monthly direct cash transfers to every member of the community without regard to their ability to pay, the government hopes to address this issue and provide them with financial security. Regardless of income or job status, it establishes a basic income level for everyone. This solution is much more cost-effective than testing and won't degrade in quality over time. The analysis from this study can be utilized to help advise her of a prospective selection procedure for, as this is an opportunity to aid 1000 of these people from Boston. Income that places participants outside of poverty and disqualifies them from program help, but who yet potentially benefit from financial assistance, must also be taken into account.

Q3, What type of data will you collect or be analyzing?

The preliminary data sets which we be collecting and analyzing are

- Number of households/families under the poverty line and different levels of poverty in Boston
- Income of all the individuals and information regarding whether they belong to poverty line or not
- Demographic information of the individuals and families in poverty, including gender, age, ethnicity etc
- Cost of living, housing expenses in Boston and their impact on poverty, which can give us an insight into the financial burden on the households below poverty line
- Other assistance programs offered by other organizations and their impact on improving the financial status of the household/individual
- The information related to existing household wealth and not just the household income while determining the poverty level
- The trend in terms of how the cost of living, basic income etc in boston are changing each year
- The information regarding other states/cities universal basic income assistance programs to identify the mistakes/best practices
- Surveys/interviews that can help in gathering information regarding the current financial situation in Boston

Q4, What are potential limitations of the project?

There are two aspects when it comes to limitations. The first aspect is the technical limitations, the second aspect is the real world limitations after the technical analysis is done.
Technical limitations:

1. Because the datasets are from different sources, they might not align between each other. In this case, aligning them will be a challenging task to complete.
2. We are working with analysis and optimization of money. We as data analysts might not have enough financial background knowledge to make correct assumptions when weighting the features for feature selection of our models.
3. Data limitation. Because we are given datasets as source to perform our data analysis instead of using sources that we got from research, it might be the case where some data that we think would be helpful does not present in the provided files

Deployment limitations:

1. People have different expectations of what poverty means. Using different standards and different understanding, we can come up with very different results with the same data provided. In other words, models may vary in a wide range as the features we can select grows. This makes the selection more difficult than what we would expect it to be.
2. This project intended to find the model of basic income to maximize social benefits, but it is only used to help 1000 people. If we intend to help a particular group of people, our model should be directed to find the families that have the most crucial living conditions, rather than benefit the whole society.

Q5, What are your next steps? Divide tasks amongst the team

Our next step is splitting the datasets among 4 of us as below and each of us are responsible for how the data set can be used to achieve our end result. We shall also discuss how we can align various data sets to get better single results from large data points. We shall try to analyze the data and try to get a better understanding of the UBP

The below is how the data points is being split between our team mates

1, Mani Mukesh : 1
2, Tharun Patteti : 4 and i
3, Greeshma Shekar : 5,6,7
4, Jiahe Zhang : 2,3