



# Poverty Classification using the Supplemental Poverty Measure Dataset

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## Abstract:

Measuring poverty can vary greatly depending on various factors such as marital status, home ownership, and ethnicity. This research attempts to show which style of measurement is the most accurate overall, and which to be used under specific circumstances. The purpose of this research is to help guide poverty alleviation institutions so that they might better understand and use their information and data. A dataset provided by the US supplemental poverty measure (SPM) was analyzed for the year 2019 and results were visualized using pandas, and matplotlib libraries in python. This data will portray poverty measurements based on sex, marital status, ethnicity, location, home ownership, income, and expenses.

## Dataset Description:

The dataset is obtained from the United States Census Bureau 2019 publication on SPM measures in the US [1]. This dataset is an overview of 91,500 household units across the U.S. The dataset has 59 columns with different factors for measuring poverty-including poverty threshold, medical expenses, the number of foster children, the classification of a unit to poverty/ not-in-poverty, etc. This dataset was created to help determine measures and methods for measurement of poverty rate in the U.S.

## Analysis:

We used several data visualization tools such as scatter plots, bar graphs and pie charts to analyze the roles played by each factors.

- There is an inverse relationship between family size and available resources.
- Married Family with spouse absent are more likely to be in poverty.
- Race is not an indication of poverty but findings suggest that racial minorities have a higher poverty rate than the majority race.

## Conclusion:

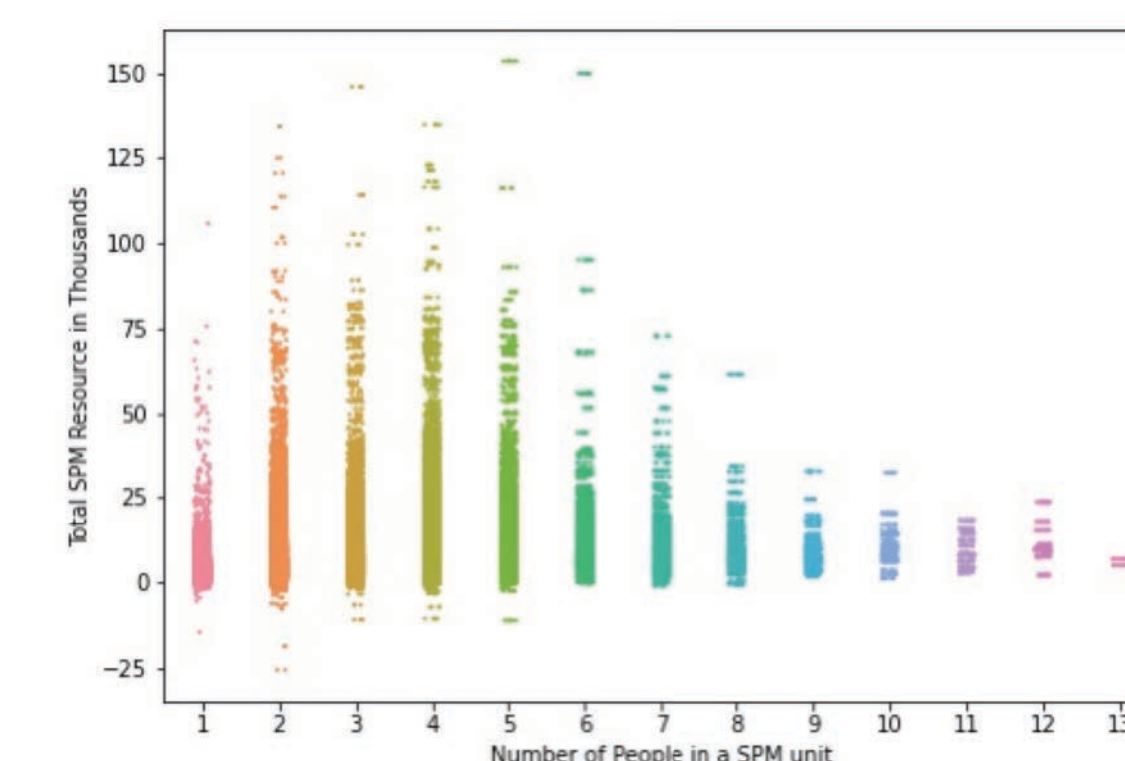
The composition of poverty levels based on different factors is presented and analyzed, constructing and reinforcing/debunking hypotheses. We study the relationships between poverty and the size of the family, mortgage status, race classification, and marital status.

## Future Work:

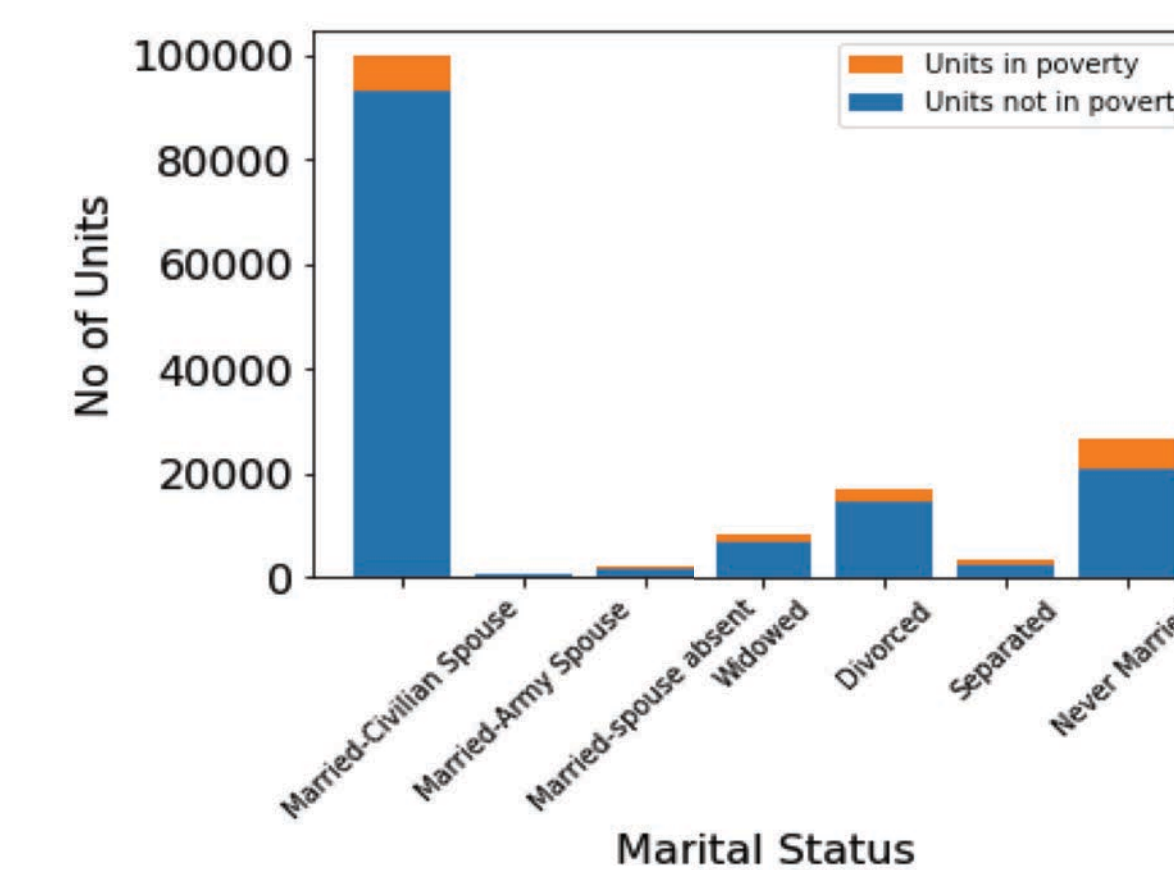
TFuture work will include the study of relationship between gender classification and the poverty level, and trends in poverty over the years.

## Experimental Results:

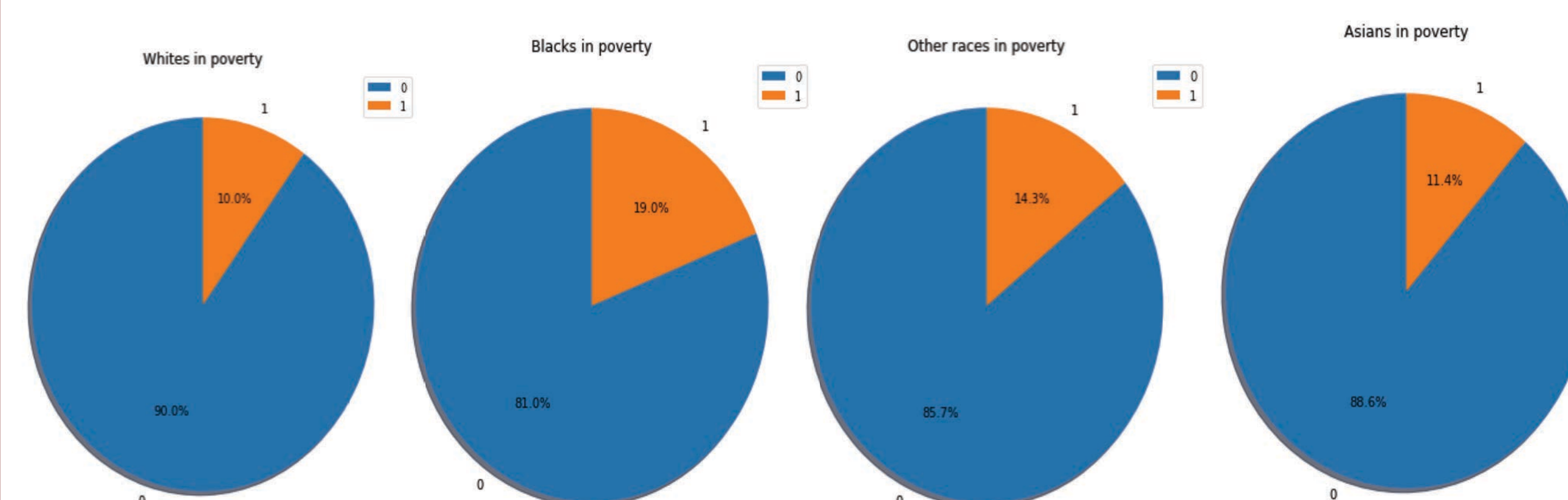
Relationship between available resources and family size



Poverty Distribution by Marital Status



Poverty percentage per race:



## References:

- [1] "2019 Revised Supplemental Poverty Measure Research File". United States Census Bureau . <https://www.census.gov/data/datasets/2019/demo/supplemental-poverty-measure/revised-research.html>
- [2] Emily A. Shrider, Melissa Kollar, Frances Chen, and Jessica Semega. "Income and Poverty in the United States: 2020". Current Population Reports. p60-273. September 2021.
- [3] Varun Kshirsagar, Sharada Ramanathan, Jerzy Wieczorek, Rachel Wells "Household poverty classification in data-scarce environments: a machine learning approach" November 18, 2017. [Online]