



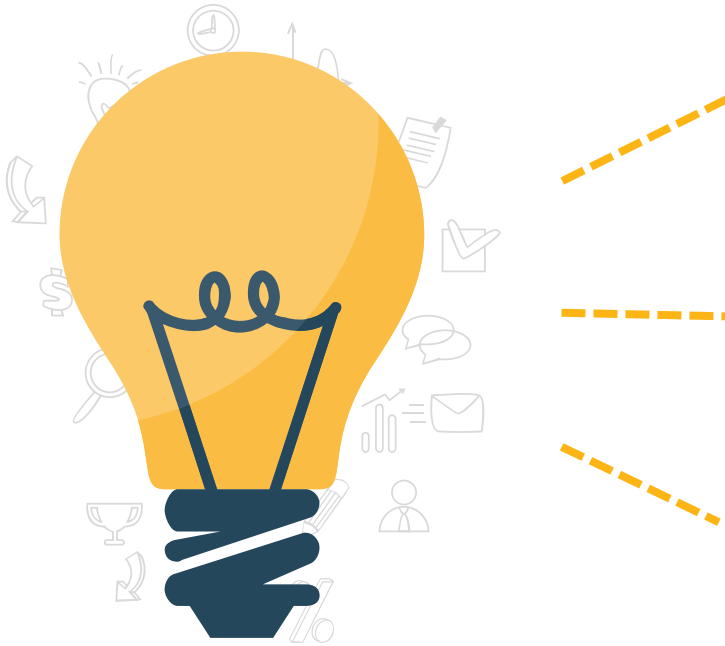
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Trends in Non-Profit Sectors:

A Predictive Analysis of Agency Longevity in the US

OUTLINE



1. Background/Purpose
2. Methods
3. Data/Measure
4. Results
5. Limitations, Conclusions and Implications

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Background/Purpose



Background/Purpose



According to the survey
of 2018 MSW graduates

75%

went to
Non-profit Organizations
after graduation



In the past few decades there have been dramatic **changes** across non-profit sectors, with some service types growing while others shrank.

Background/Purpose

- **1.56 million nonprofits** were registered with the Internal Revenue Service (IRS) in 2015, an increase of **10.4%** from 2005.
- The nonprofit sector contributed an estimated \$985.4 billion to the US economy in 2015, composing **5.4 %** of the country's GDP.
- Of the nonprofit organizations registered with the IRS, 501(c)(3) public charities accounted for just over **3/4** of revenue and expenses for the nonprofit sector as a whole

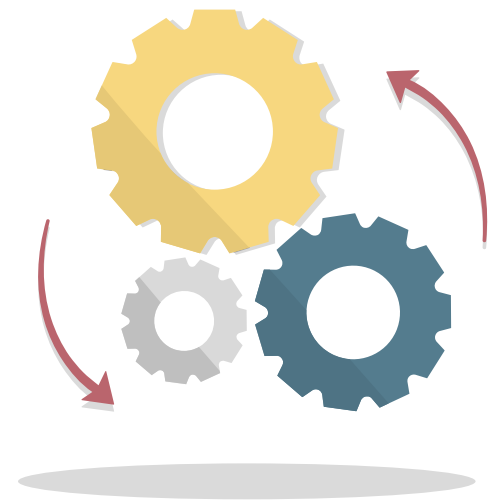
Research Question:

- RQ1:What are the overall changes in NPOs from 1988-2014 based on Form 990?
- RQ2:What is the relationship between human service NPOs' longevity and their location of community poverty status?



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Methods



Methods



NCCS DATA ARCHIVE

National Center for Charitable Statistics Data
e.g., revenue, funding sources, etc.

Wrangle

Merge

Dataset



Machine Learning

Explore

Cluster Analysis

Decision Tree



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Data/Measure

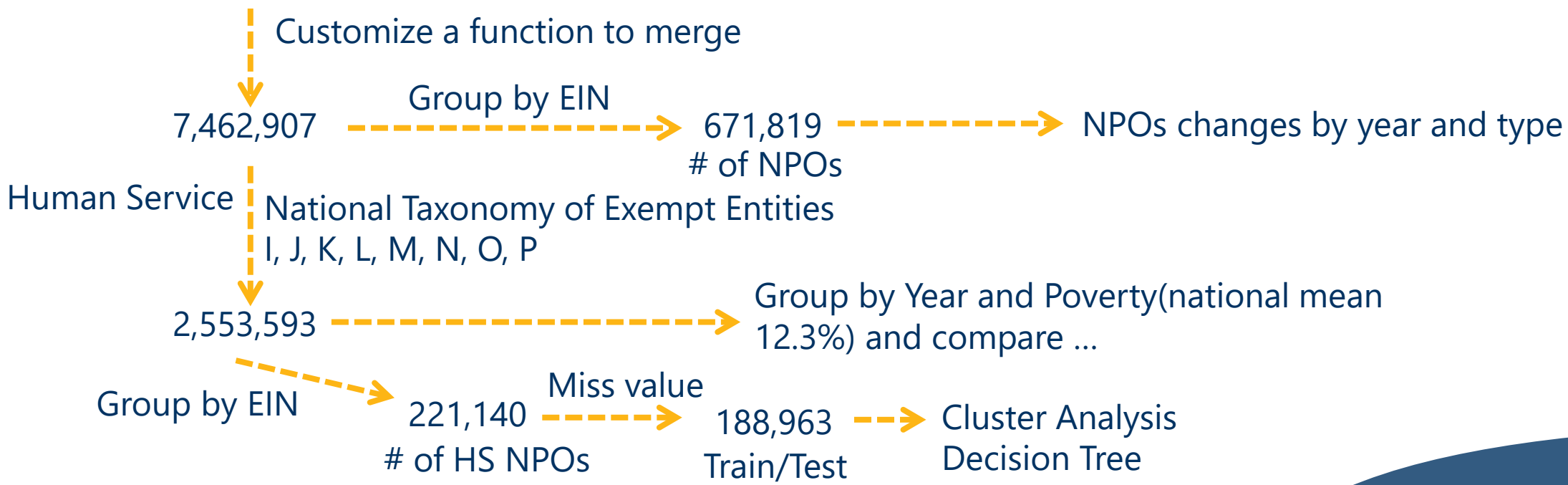


Data/Measure



NPOs (Public Charities)
Core files from 1989-2015

Poverty Rate By Zip

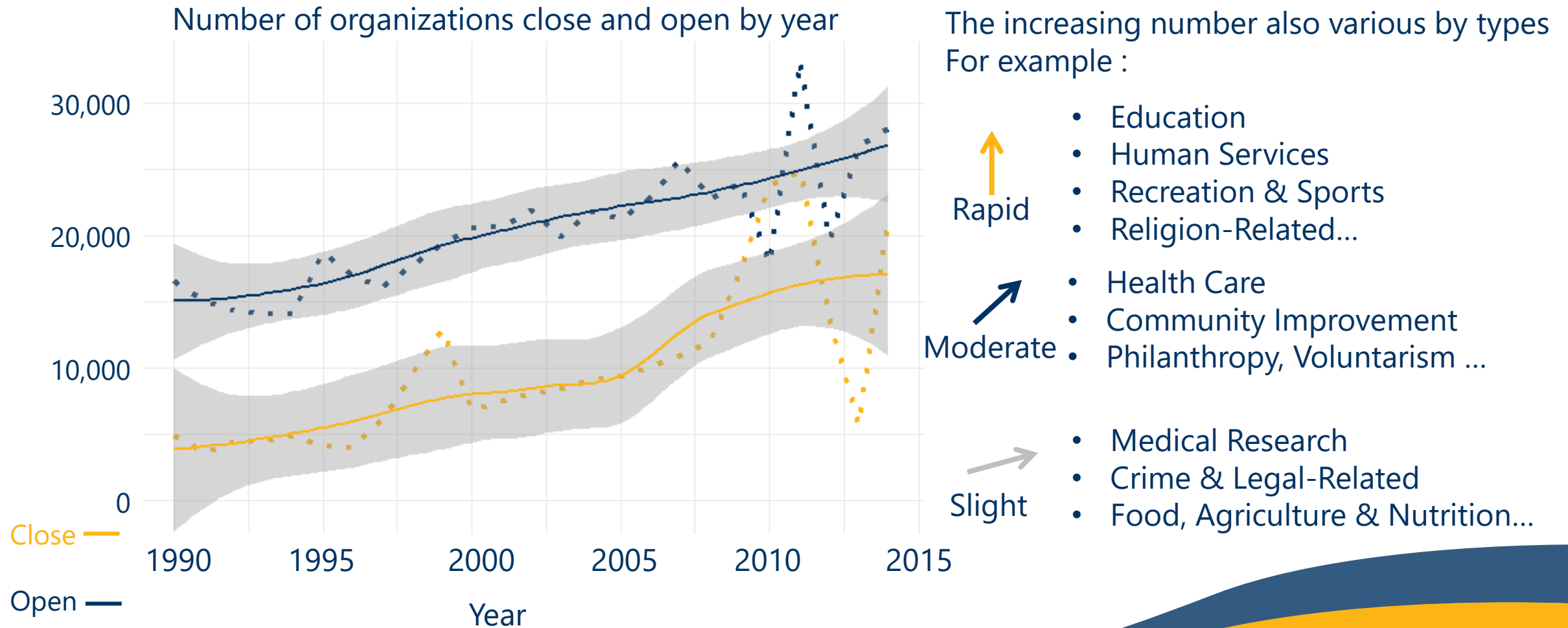


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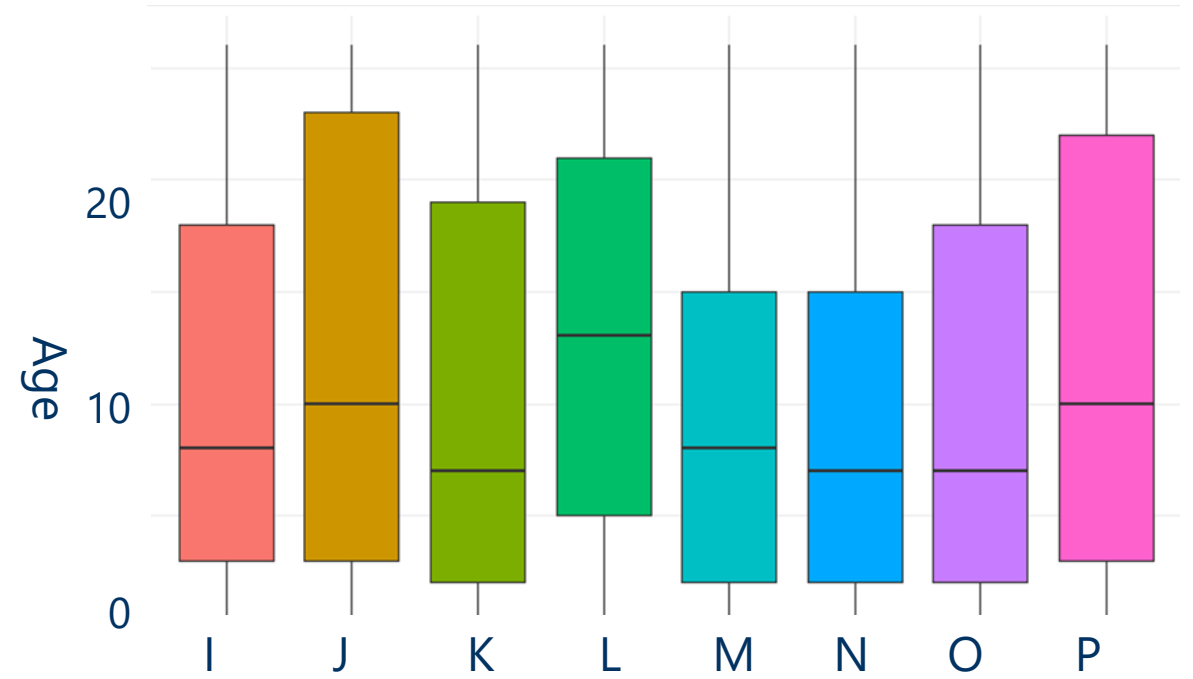
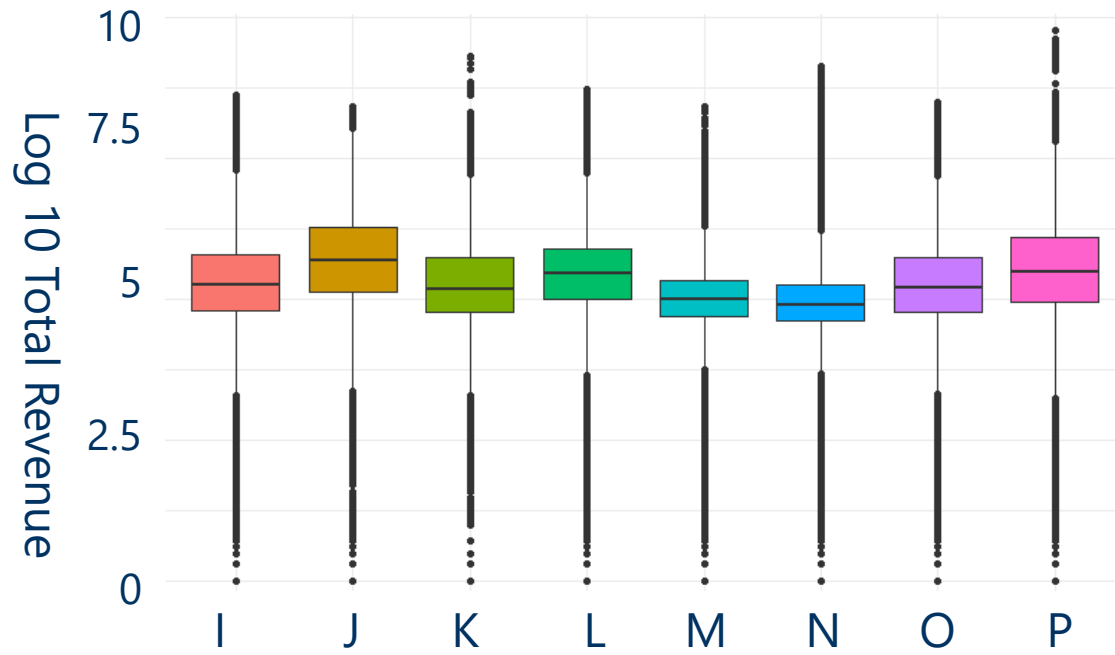
Results



Results



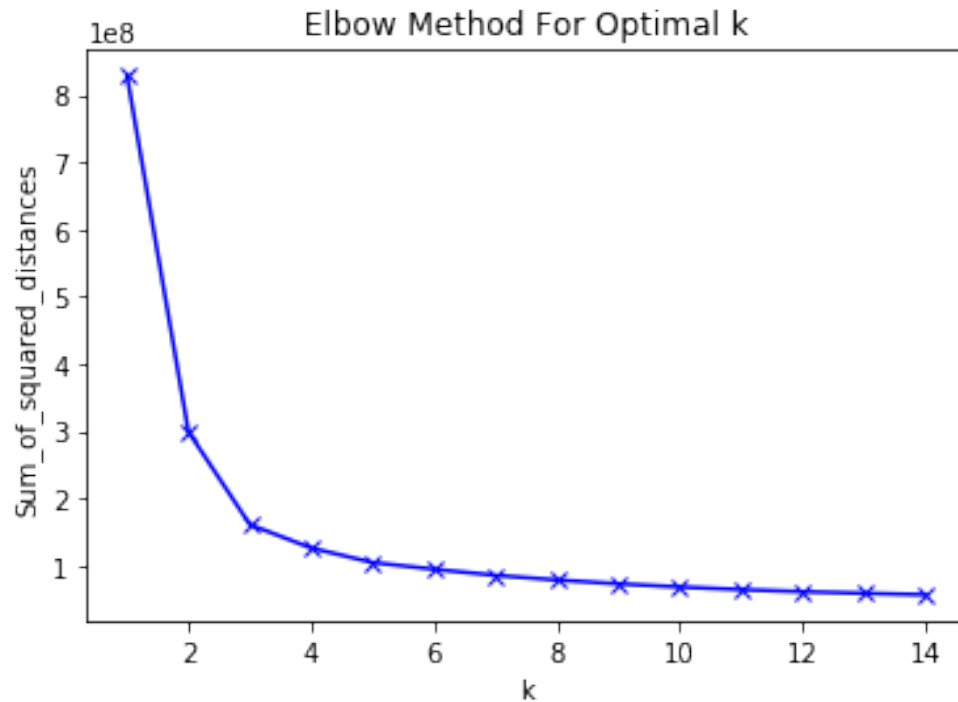
Results



I=Crime & Legal-Related J=Employment K=Food, Agriculture & Nutrition
L=Housing & Shelter M=Public Safety, Disaster Preparedness & Relief
N=Recreation & Sports O=Youth Development P=Human Services

Results

Cluster Analysis



Revenue Sources%

Start Year Program% Investment% Public % Poverty%

2002	0.01	0.07	92.35	14.40	C1: 59,590
1999	82.56	0.13	6.21	12.43	C2: 39,052
1998	22.10	0.35	28.43	12.31	C3: 33,632

C1: Heavily rely on **public support** like donation, government funding and in poor zip.

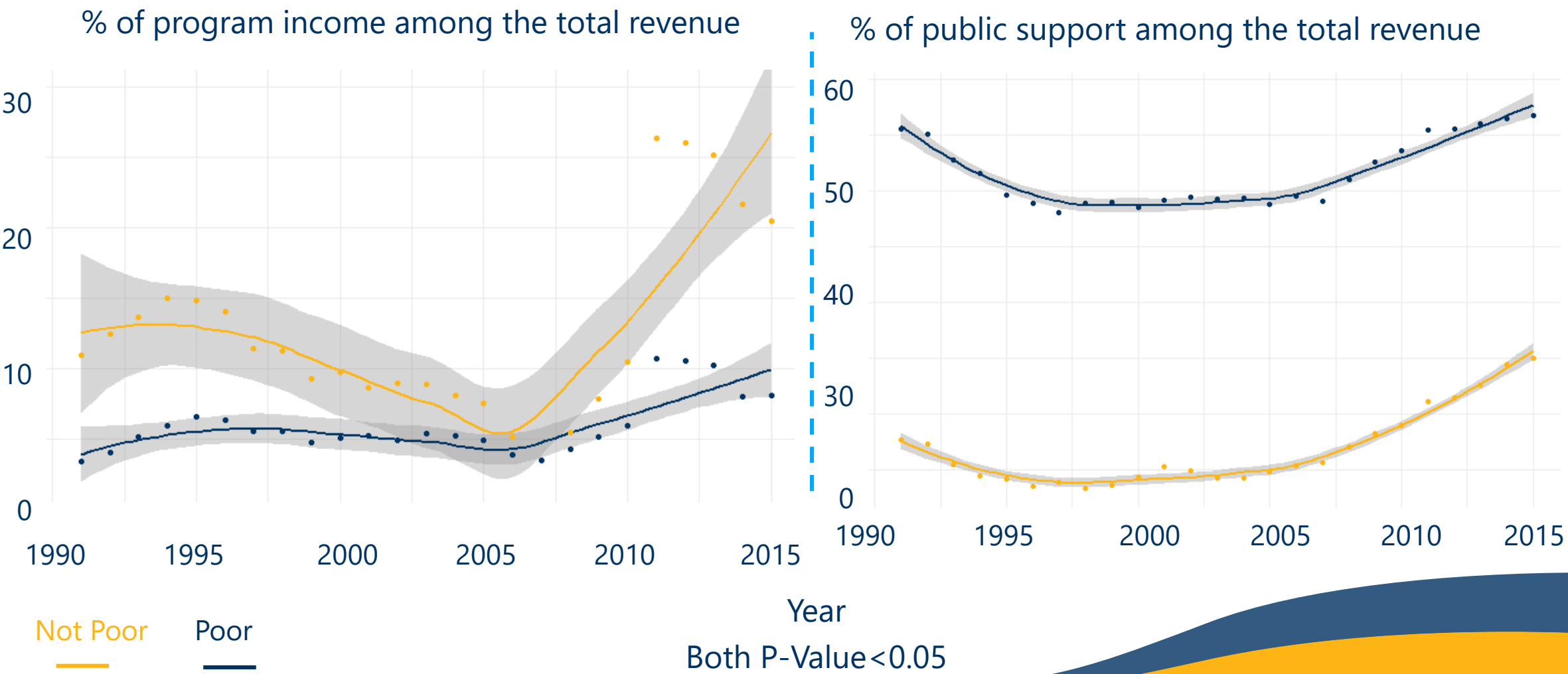
C2: Heavily rely on **program income**

C3: Rely on **both** program income and public support



HY: Poor areas have a different revenue source pattern to areas that are not poor in human service NPOs in recent decades?

Results

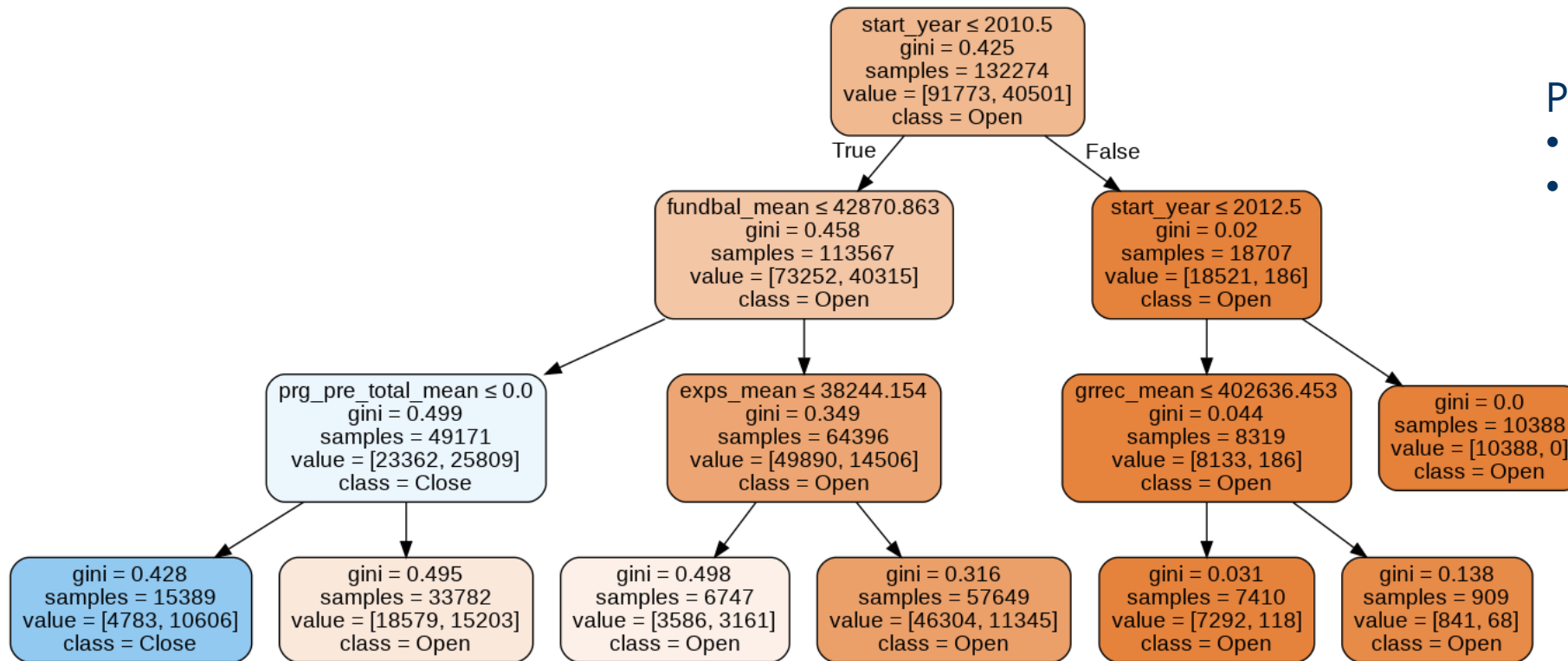


Results

Decision Tree

Do organizations in higher poverty area more likely to close?

Yes and No!

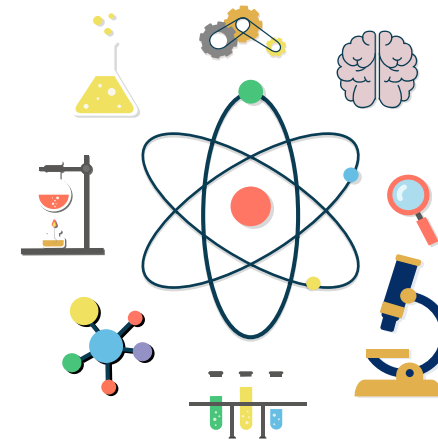


Predication Accuracy:

- Decision Tree: 77.1%
- Random Forest: 83.7%

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Conclusions and Implications



Limitations, Conclusions and Implications

1. 990 forms could help schools and students of social work better understand the environment of their future employment, like what kind of courses or tracks should be added to meet future opportunities. Or how social work schools could collaborate with other schools to meet the job market.
2. High poverty areas should be invested continually, organizations in poverty areas must diversify its funding portfolio in order to be sustainable
3. There is room for human service organizations to increase the percentage of investment income whatever which place they locate.
4. The current model could be improved to predict **when** we could flag human service organization facing financial difficulties and provide assistance
5. Other values are not included like number of employees
6. Cannot check errors in the original datasets

Thanks

