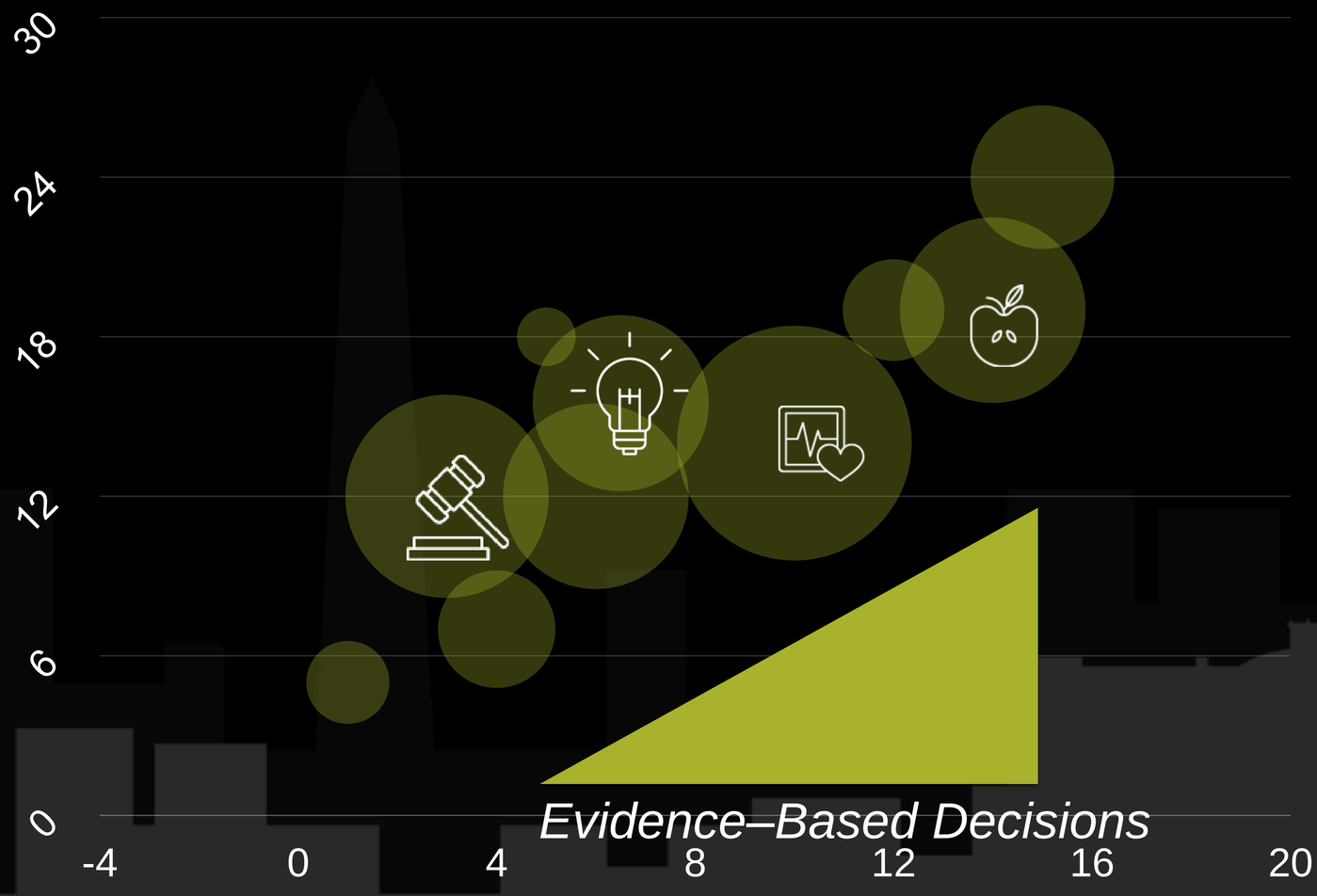
FEDONOMICS



RK Paleru
Principal, Data Analytics
Civil Commercial Group

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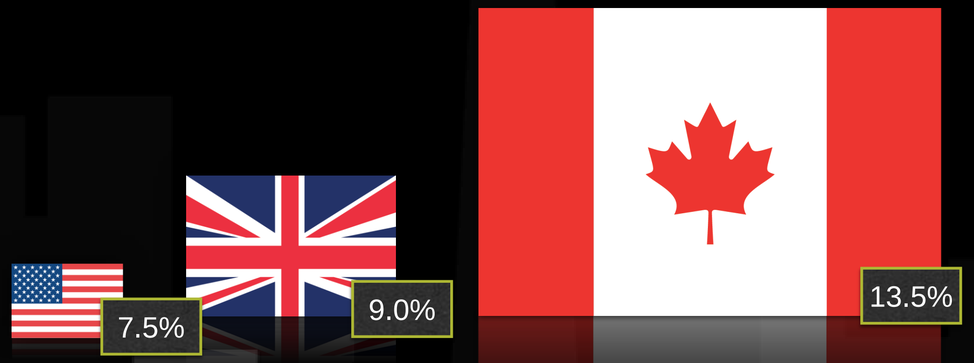
Income *Inequality*

> *Children born in the bottom fifth of the income distribution in the U.S. have a lower chance of reaching the top fifth in their lifetime than children in other developed economies*

Source: Prof. Raj Chetty, Stanford Institute for Economic Policy Research (SIEPR)



Shot at the American Dream

2X

more likely in

Canada

than U.S

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Equal Opportunity *starts with the drivers*

Criminal Justice

Incarceration Rates in US

+Highest in the world

+6x that of next highest (UK)

Source: http://www.prisonpolicy.org/

Education

US Educational Rankings

+ 27 out of 34 in math score across OECD

Source: https://www.oecd.org/pisa/keyfindings/PISA-2012-results-US.pdf

Public Health

Healthcare in US

+Most expensive but lowest in efficiency, equity, and outcomes among 11 wealthiest nations

Source: http://www.commonwealthfund.org/~/media/files/publications/fund-report/2014/jun/1755_davis_mirror_mirror_2014.pdf

Economic Welfare

Child Poverty in US

+Richest nation, yet 1 in 3 children live in poverty

+13.1M live in food-insecure households

Source: http://www.nccp.org/topics/childpoverty.html

Income inequality will be a vicious cycle without making government programs more effective to level the playing field

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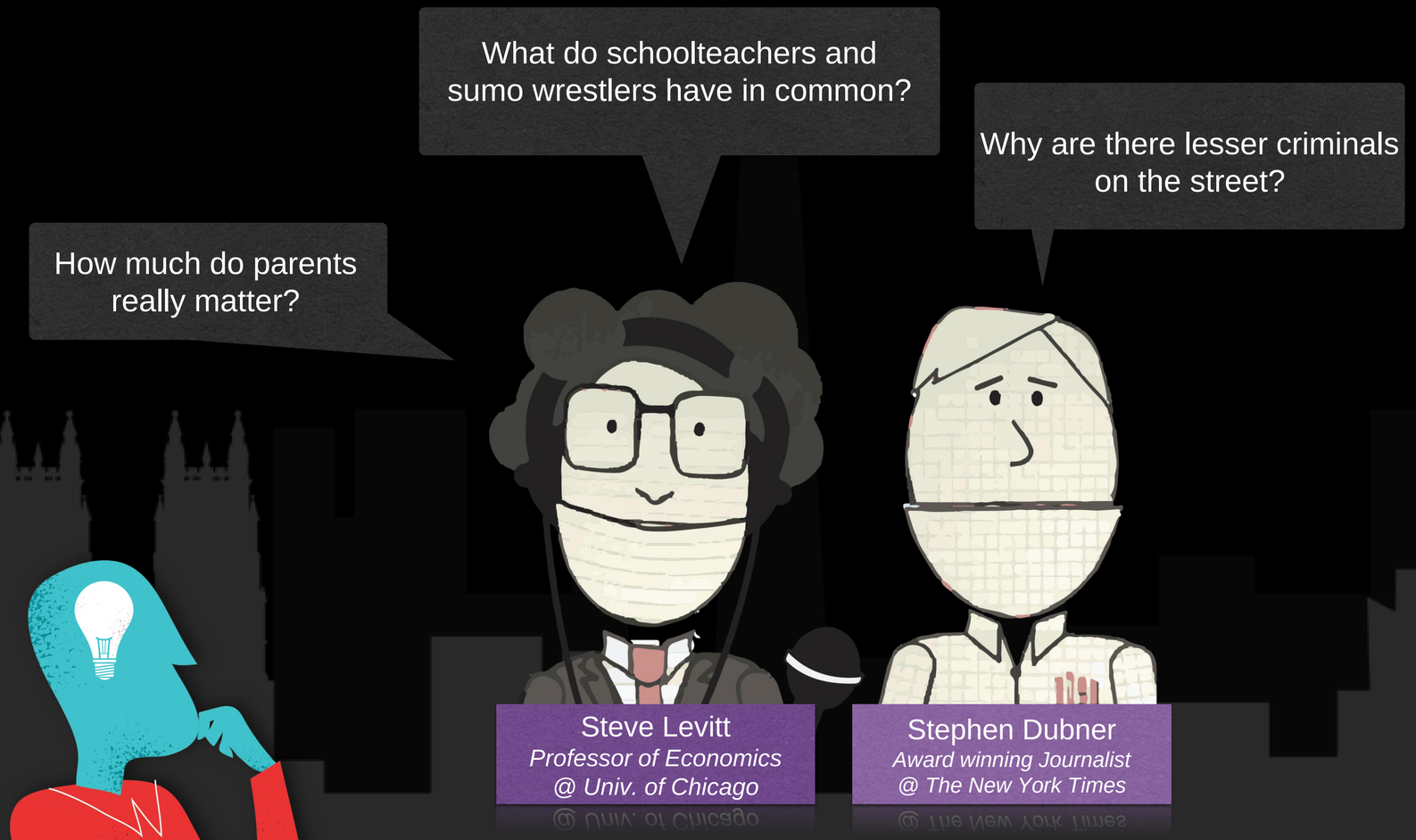
Freakonomics



Modern world is not unknowable, if you can…

~ Break down barriers

~ Find new ways in looking at things

~ Make it easier to understand

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Freakonomics *of Govt. Decisions*

What if our Govt. Leadership asked similar questions?

Does SNAP have an effect on Public Health?

Do Amazon Gift Cards for tax refund lead to more tax payers getting online?

Can housing vouchers improve student performance?

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Data the Equalizer *for a Data-Driven Government*

Admin. Data

Data as a Service - to further every Govt. Agency's Core Mission

Open Data

Public Private Partnerships - to increase transparency and drive innovation within Government

Survey Data

Program Evaluation - to assess program effectiveness

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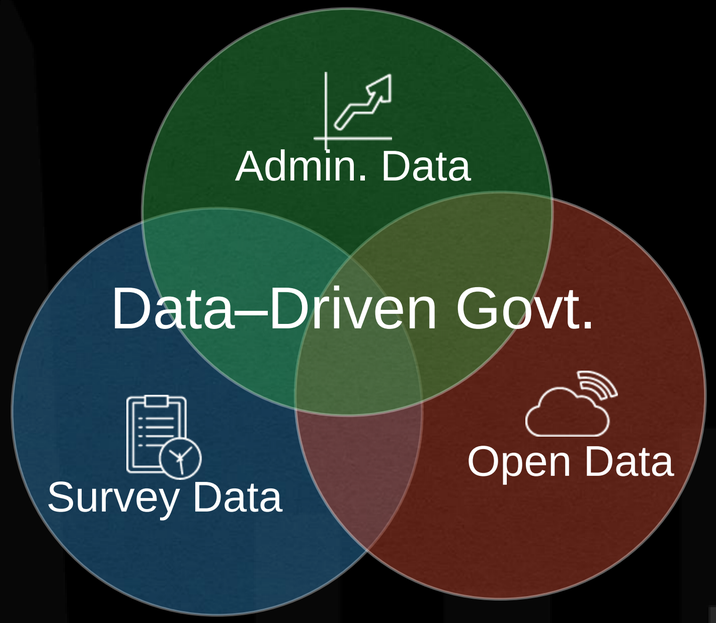
Data the Equalizer *for a Data-Driven Government*



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Hungry *Nation!*

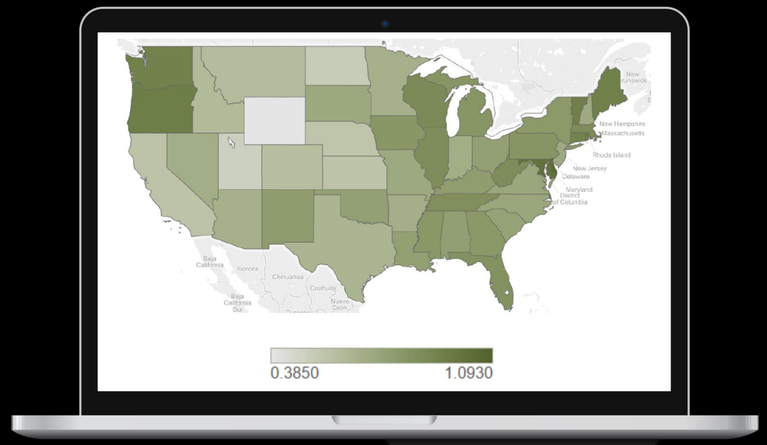
1 in 6 Adults

1 in 5 Children

Food Insecurity

26%

Eligible, NOT Participating



Fill Rate: Participants vs. Eligible People vary by state

Supplemental Nutrition Assistance Program, or SNAP, aims to end hunger here in the U.S.

– U.S. Department of Agriculture

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The Fedonomics Approach

Augmenting Open Data

Break down barriers

Applying Data Science

Find new ways of looking at things

Random Forests
Clustering

Discovering & Visualizing Insights

Make it ***easier*** to understand

Evidence *Based Decisions*

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Augmented *Open Data*

SNAP

+ Broad-based categorical eligibility (BBCE)
+ Call centers
+ Online application
+ Exclusion of all vehicles from asset test
+ Combined application project (CAP)

Wealth

+ Number of retailers
+ Percentage of farmland
+ Number of cities over 50k

Demographics of Impoverished Population

+ Percentage of different age groups
+ Percentage of different education levels
+ Percentage of different ethnic groups

English Illiteracy

+ Number of households without adults who speak English

Locality

+ Number of retailers
+ Percentage of farmland
+ Number of cities over 50k

Crime

+ Number of drug felons
+ Number of drug felons below 18 years old

Health

+ Percentage of diabetes patients
+ Percentage of obese population
+ Percentage of food insecurity

Augmented SNAP Open Data with 29 different attributes

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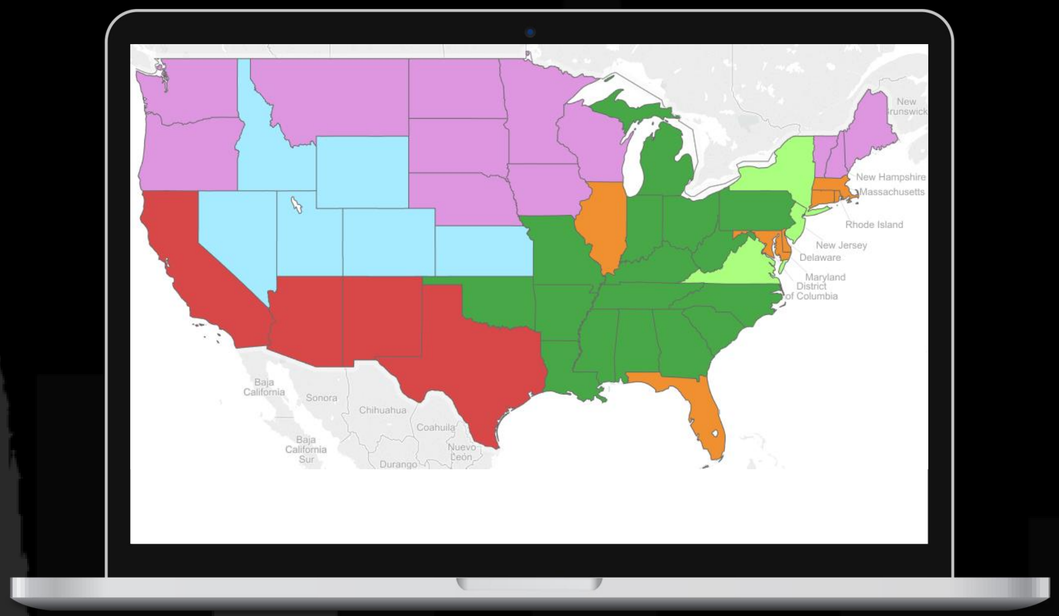
Applied Data Science *- on Augmented Open Data*

51 States fell into 6 clusters…



.....and there was a pattern for fill rates for each cluster

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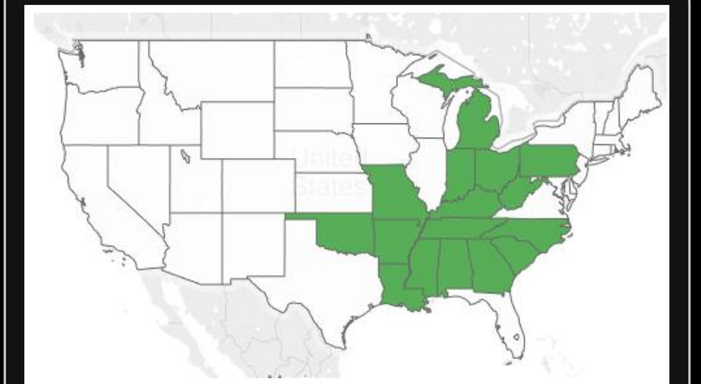
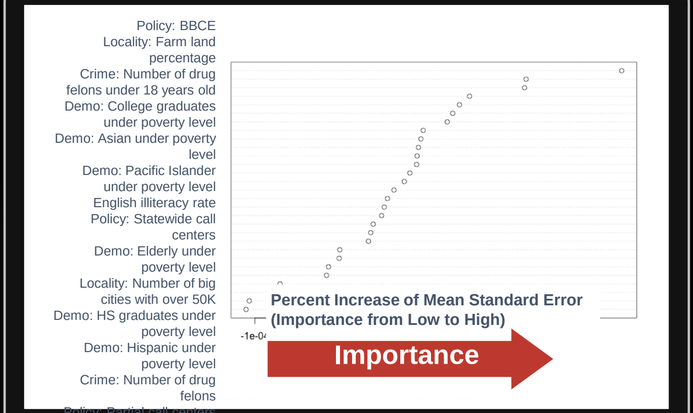
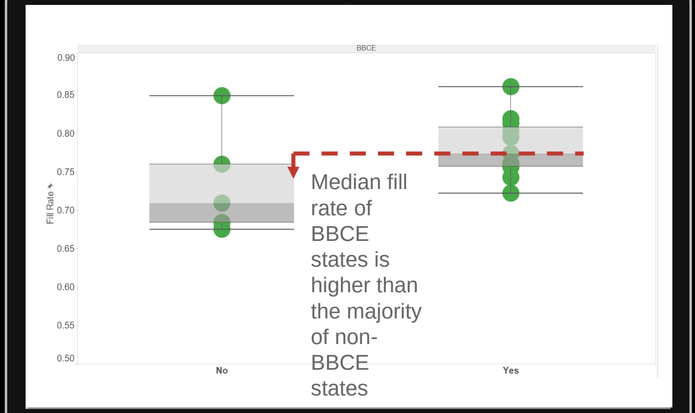
Discovered and Visualized Actionable Insights
- Specific recommendation for each cluster







RECOMMENDATIONS
+ **Adopt Board Based Category Eligibility (BBCE)**

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Fedonomics *as a repeatable Process*

Make it easier to understand

Dashboards as a Service
Client: Many Finance and Economic Development Agencies
Solution Artifacts:
- Dashboards
- Visualization Frameworks
- Preconfigured Data Models

Breakdown Barriers

DATA Act
Client: xAgency
Solution Artifacts
- DATA Act Schema & Exchange Standards
- Information Broker
- USASpending.gov

Find New Ways to Look at Things

Anomaly & Fraud Detection
Client: Revenue Collection Agency
Solution Artifacts:
- Fraud and Anomaly Detection Models
- Predicting ID Theft, Compliance Outliers

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Fedonomics Workbench

Repeatable solutions that span platform, people and processes

	Platform	People	Processes
Data Discovery Visualization	Visualization Frameworks R–shiny, pentaho, tableau, Qlik	Data Storytellers / Insights as a Service	Human-Centered Design
Advanced Analytics Machine Intelligence	Data Scientist Workbench & Reusable Analytical Models SAILFISH, jupyter	Answers on Demand	Community Models / Crowd Sourcing
Data Management	Pre-Configured Data Sets United States Census Bureau, Open Grid, DATA.GOV, amazon web services, IRS	Data Operations	Agile / DevOps

FEDONOMICS *Evidence–Based Decisions*

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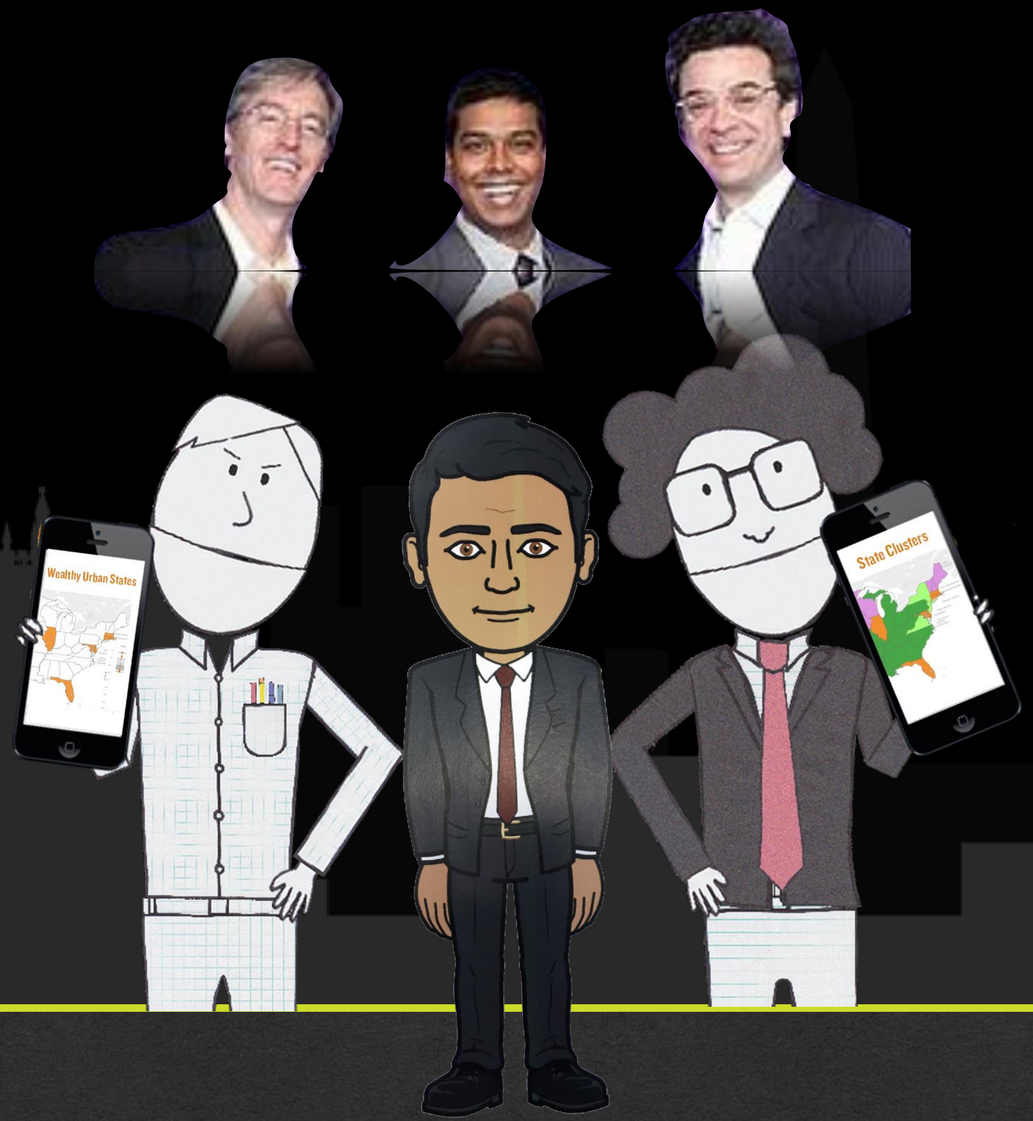
FEDONOMICS

Evidence–Based Decisions



So are you…..

~ Breaking barriers
across data sets?

~ Finding new ways of looking
at furthering the mission?

~ Delivering insights that
make it easier for your mission
partners?

…Thank You!

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