# Global trends in Income Inequality

ARSHAD AHMED

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# Background

- Explore global trends in Income Inequality using data from the World Bank from 1980 - 2010
- ▶ Indicators selected:
  - ▶ Income Share held by top 10% (II)
  - ▶ GDP
  - ▶ Population (Pop)
- Derived additional attributes
  - ▶ II / GDP
  - ▶ II / Pop
  - ▶ II / (GDP + Pop)

# Motivating Questions

- What are the global trends in Income Inequality? How has this changed over time? Which countries are most affected?
- Can we derive any additional attributes that allows to segregate this data further?
- What is the impact of data transformation on the final results?
- ▶ How can clustering be used in this context?

# Data Analysis

#### Extraction

- World Bank Indicators
- Income share top 10%
- GDP, Pop

#### Transform:

- Fill missing values
- Scale
- Aggregation by country & year

#### Visual Analysis Tasks

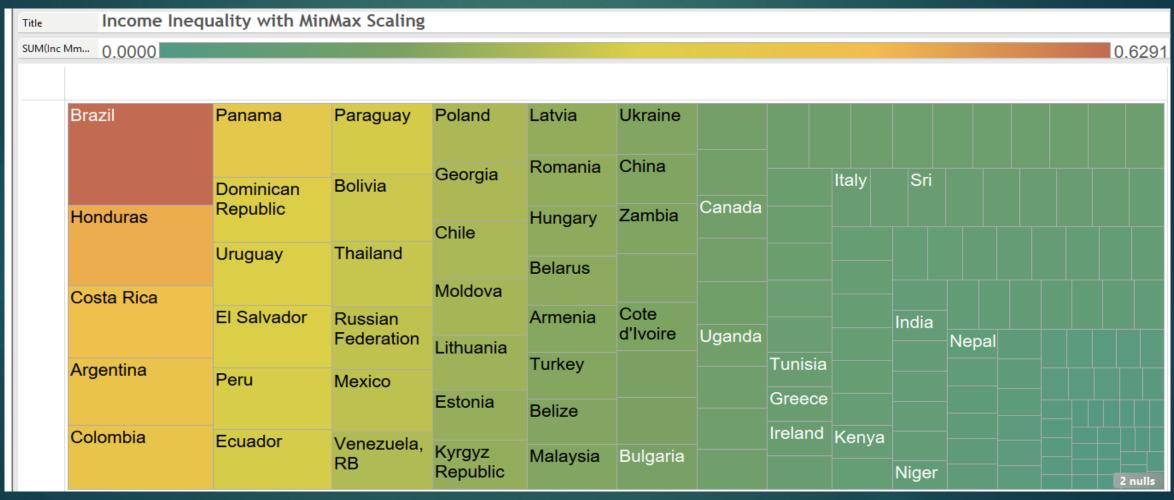
 Choropleths, Proportional Symbol Maps

#### Cluster Analysis

- K-Means, SOM
- Cluster vis and stats

Highlights from the analysis

# Top countries for high Income Inequality



# Additional attributes are useful

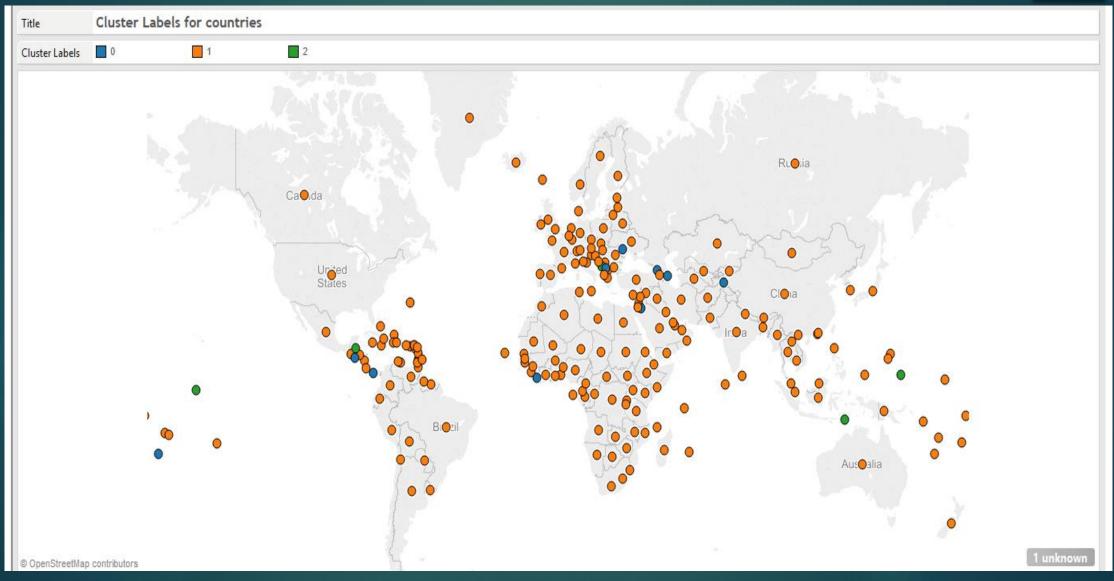
Title	Income Inequality as Ratio of GDP and Population (MinMax Scale)											
SUM(Inc	Gdp 0.00											15.60
	Belize	Uruguay	El Salvador	Cyprus	Ecuador		Cabo Verde			St.		
		Luxembourg	Seychelles	Dominican Republic	Jamaica	West Bank	Peru		Fiji			
	Costa Rica		Slovenia	Kyrgyz	Serbia	Croatia	Sao Tome Jordan					$\vdash$
	Estonia	Latvia	Sioverna	Republic Maldives		Slovak	Kiribati	Brazil				+
		Lithuania	Georgia	Paraguay	Belarus F	Hungary	Ireland					+
	Panama	Moldova	Montenegro	Macedonia,	Argentina	Lesotho	Tonga					$\downarrow$
	Honduras	Iceland	Armenia	FYR				Chile				
		looidild	Amona	Bolivia	Bulgaria	Kosovo					2	2 nulls

# Highlights

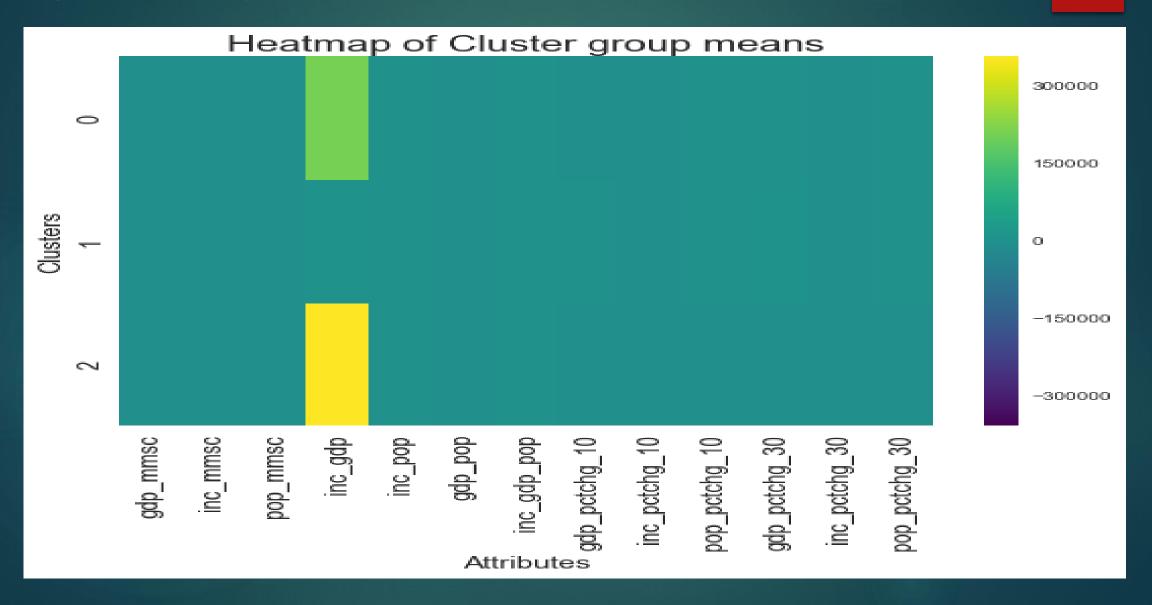
# ➤ 3 distinct clusters (selection shown)

Cluster 0	Cluster 1	Cluster 2				
Azerbaijan	Argentina	Belize				
El Salvador	Australia	Kiribati				
Georgia	Austria	Micronesia, Fed. Sts.				
Jordan	Bahamas, The	Montenegro				
Kosovo	Bahrain	Timor-Leste				
Liberia	Bangladesh					
Moldova	Barbados					
Panama	Belarus					
Tajikistan	Belgium					
Tonga	Bolivia					
	Bosnia and Herzegovina					
	Botswana					
	Brazil					

# Cluster Assignment



## Cluster Stats



# Cluster Stats (II/GDP excluded)

