

Incarceration Rate As A Measure of Governance: The United States vs. Latin America

By: Brandon Amarasingam, Elliot Jones and
Lorena Robles

Problem Statement:

What are the similarities between the United States incarceration rates and Latin American countries under civil unrest/authoritarian movements and who does that target?



Background Information

- ◉ "Living in the midst of a growing global trend of democratic decline and rising authoritarianism" - *Freedom House Project*
 - Fewer than a fifth of the world's population now live in fully free countries.
- ◉ "Imprisonment is fundamentally an exercise of power, it is a measure of class/racial struggles, political trends, policy choices, public sentiment and media interpretation." - *Political Sociology, Wiley-Blackwell*

Why we chose these 5 Countries:

- ◉ We've chosen these countries for our analysis because of the deep connections they have with the USA's historical political trends and/or political cultural parallels that've become apparent in recent years
 - Brazil
 - Mexico
 - Honduras
 - El Salvador
 - USA



Democracy Index

- ◉ Assessment of countries' democracy scored out of 10
 - Full Democracy
 - Flawed Democracy
 - Hybrid Regime
 - Authoritarian Regime

El Salvador & Honduras History

● El Salvador

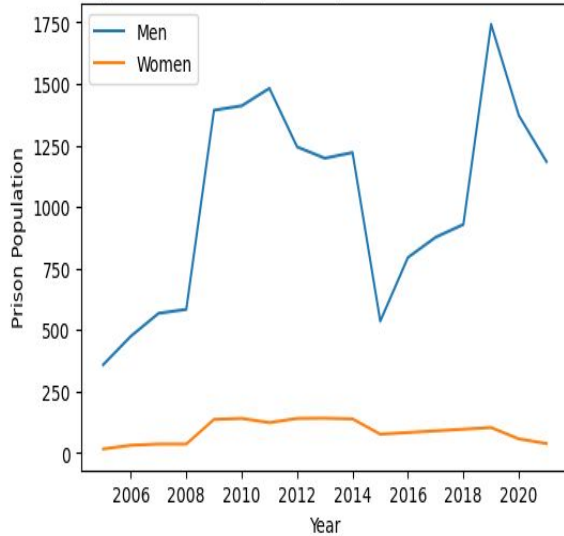
- Transitioned to a democracy in the 1990's after 42 years of a military dictatorship followed by 12 year civil war
- Nayib Bukele came into office 2019
 - Won by promising no compromises while combating cartels & corruption
 - Replaced all judges in the supreme court, redrafted the constitution, and allowed for re-election

● Honduras

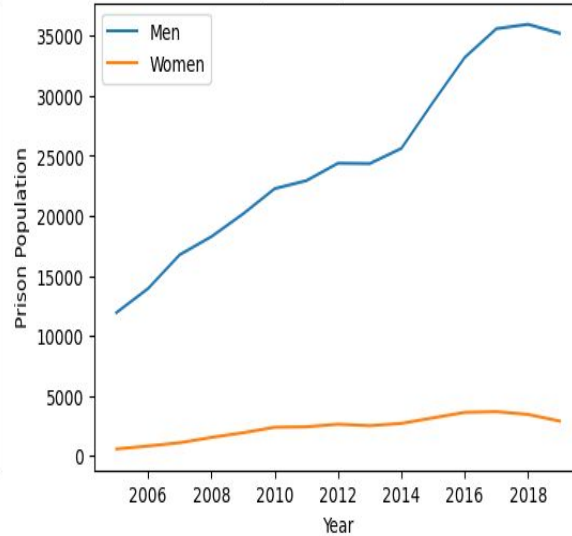
- 1932-1949 military dictatorship, followed by superficial attempt to establish a full democracy, years of repeated human rights abuses, mass disappearances, massacres, corruption, gangs and violence
 - 2011 highest homicide rate in the world
- 2016, most prisons were at 193% capacity
- Xiomara Castro came into office 2022

El Salvador & Honduras Prison Populations

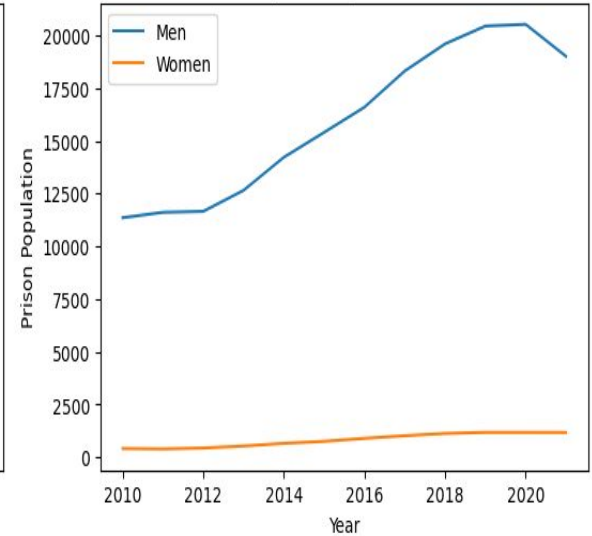
Juvenile Prison Population per Year for El Salvador



Adult Prison Population per Year for El Salvador



Adult Prison Population per Year for Honduras



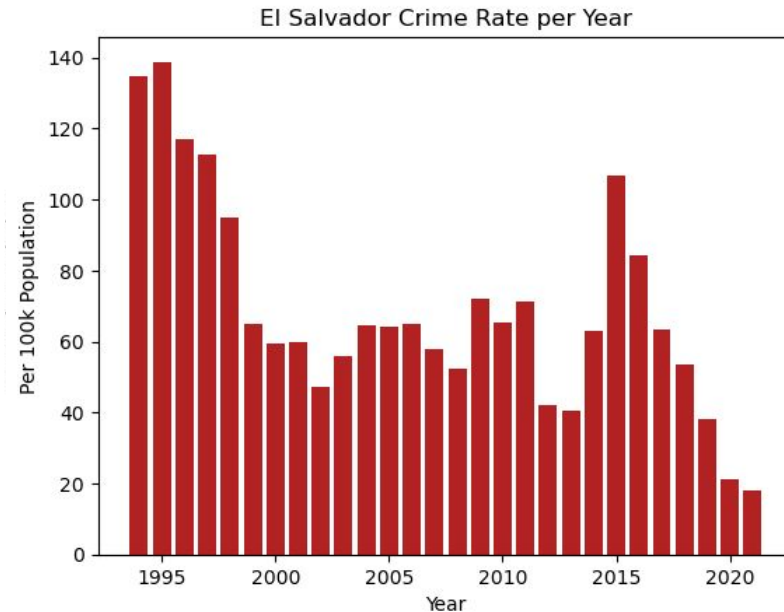
El Salvador & Honduras Today

● El Salvador

- 100,000 in prison (1.6% of population)
- Implemented martial law
- Now considered an authoritarian regime

● Honduras

- Plan on following El Salvador's unforgiving approach to crimes & violence
- Wants to build the only island prison colony in Western Hemisphere
 - Most prisons have been controlled by gangs for decades



Classification Model for Government Regime based on Prison Statistics

- **Target: Democracy Index Class**

- 0.00 - 4.00: Authoritarian Regime
- 4.01 - 6.00: Hybrid Regime
- 6.01 - 8.00: Flawed Democracy
- 8.01 - 10.00: Full Democracy

Baseline

Authoritarian Regime	0.322785
Flawed Democracy	0.322785
Hybrid Regime	0.215190
Full Democracy	0.139241

- **Feature Variables**

- Incarceration Rate per 100k
- Total Incarcerated
- Incarceration Rate for Males
- Incarceration Rate for Females

Classes Totals

Authoritarian Regime	51
Flawed Democracy	51
Hybrid Regime	34
Full Democracy	22

- Tried various classification models, ultimately none scored significantly enough
 - Support Vector Model:
 - Train: 0.317 R^2
 - Test: 0.345 R^2

United States and Mexico

- United States
 - **Source:** Bureau of justice statistics
 - **Key points:** U.S. is **#1** and has for profit prison system, but varies wildly by state
- Mexico
 - **Source:** Un submitted data, missing 2015 by error not by hiding of data,
 - **Key points:** **#9** overall not all prisoners are necessarily reported, lots of missing persons in mexico due to violence or extrajudicial killings or imprisonment.

Decision Tree Regression

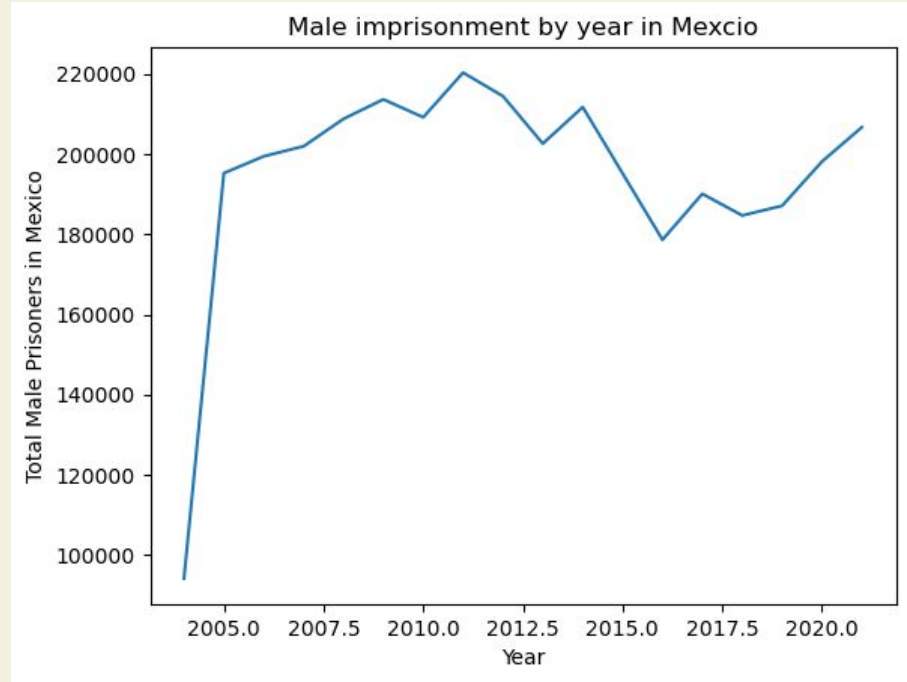
- Using only prison population
- 158 countries
- Target Variable: Democracy Index
- Train Accuracy
 - .72
- Test Accuracy
 - .70

Prison pop map male US

Run stremlit app

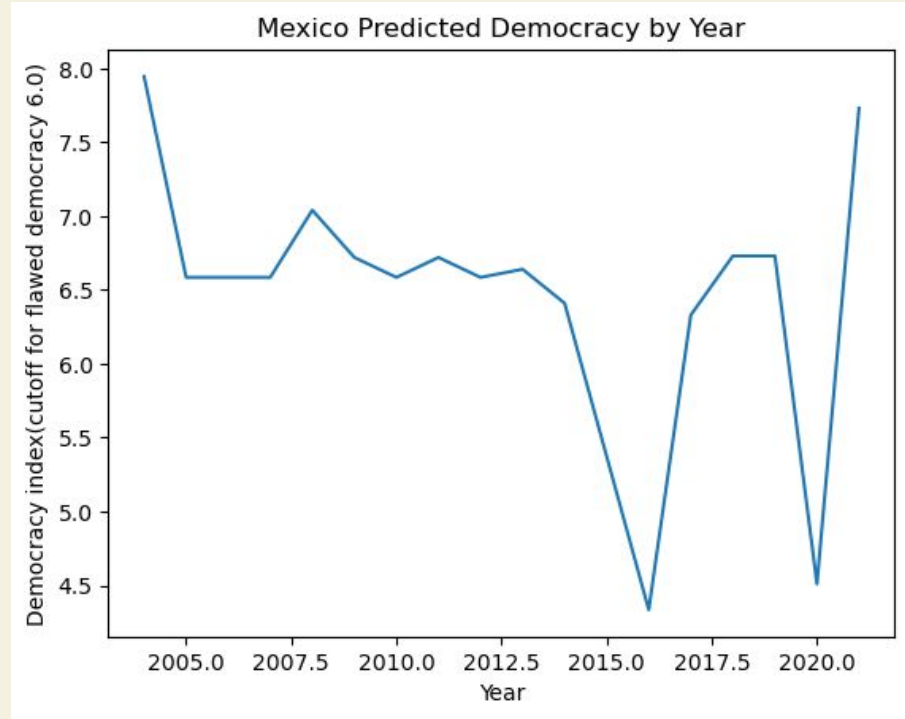
Mexico prisoners by year

Imprisonment data for authoritarian/hybrid regimes is sometimes not total. Because of extrajudicial killings.



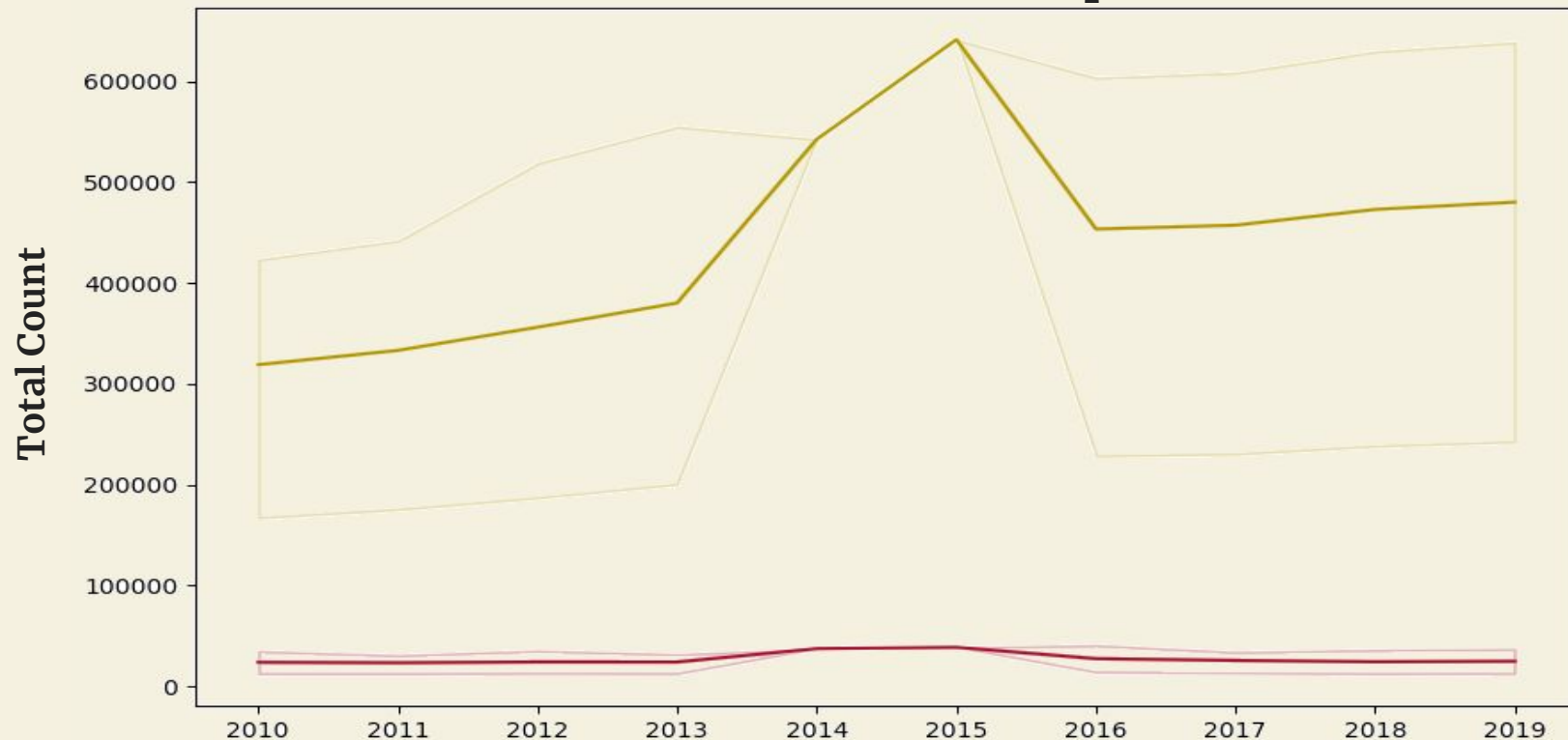
Mexico Predictions

This is post american export of cartels.



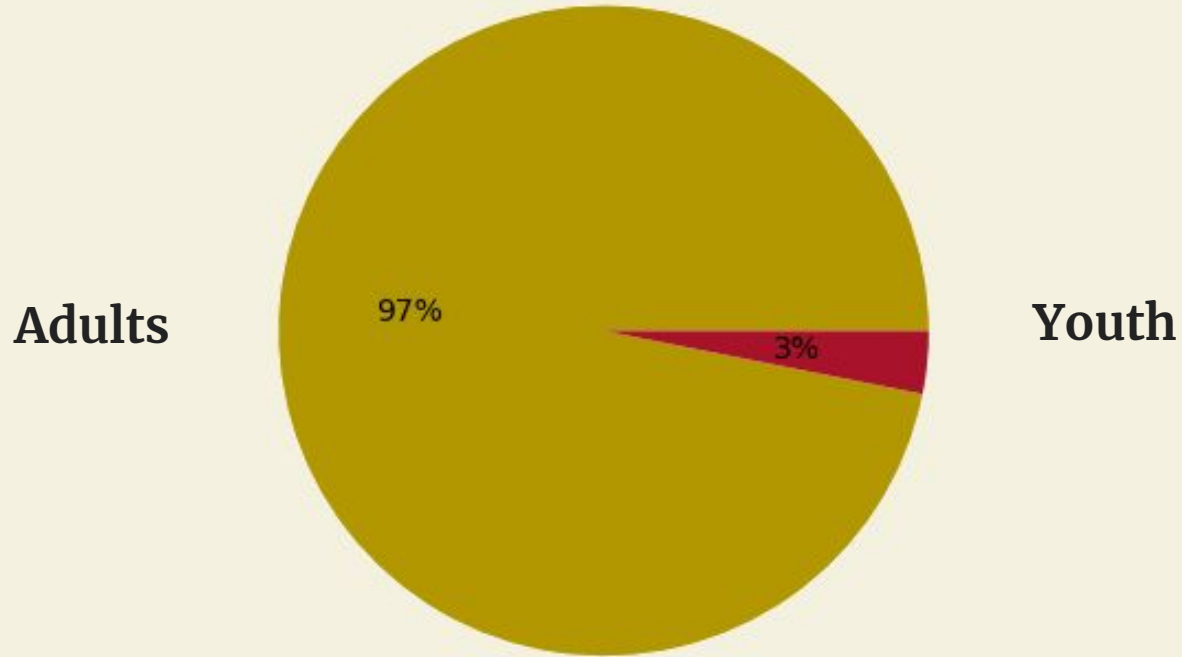
Brazil

Male vs. Female Prison Population



Brazil

Adult vs. Youth Prison Population (Average from 2010 to 2019)



Random Forest Regressor Model



- KNN Imputer
- 33 Political and Economic Indicators
- 35 Total Countries
- Target Variable: Democracy Index
- Train Accuracy
 - .99
- Test Accuracy
 - .96

Random Forest Regression Model

Safety & Security Index

Human Development Index

Basic Human Needs Index

State Fragility Index

Percent Unemployment

Judicial Corrupt Decisions

HDI

Overall Gender Gap

Female Secondary School Enrollment

HDI

Opportunity Index

Ongoing Conflict Index

Political Participation Index

Political Participation

Global Peace Index

Correlations with Democracy Index:



Indicator	Scale	Correlation Coefficient
Opportunity Index	0-100	0.83
Foundations of Well Being	0-100	0.82
Legislature Corrupt Activities	0-4	0.82
Judicial Corrupted Decisions	0-4	0.76

Correlations with Democracy Index:



Indicator

Scale

Correlation
Coefficient

Human
Development Index

0-1

0.78



Overall Global
Gender Gap

0-100

0.67

Correlations with Democracy Index:



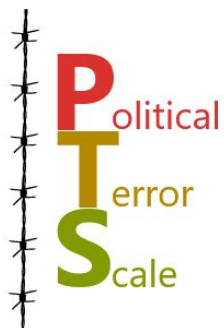
Indicator	Scale	Correlation Coefficient
Ongoing Conflict Index	1-5	-0.57
Safety and Security Index	1-5	-0.70
Incarceration Rate	Per 100,000 people	-0.37

Correlations with Incarceration Rates:



Indicator	Scale	Correlation Coefficient
Global Peace Index	1-5	0.52
Safety and Security Index	1-5	0.42
Intentional Female Homicide Rate	Per 100,000 people	0.47

Correlations with Incarceration Rate:



Indicator	Scale	Correlation Coefficient
Civil Liberties Aggregate Index	0-40	0.52
Political Rights Aggregate Index	0-60	0.42
Political Terror Scale	1-5	0.39

Correlations with Incarceration Rate:

Indicator

Scale

Correlation
Coefficient



Civil Liberties
Aggregate Index

0-40

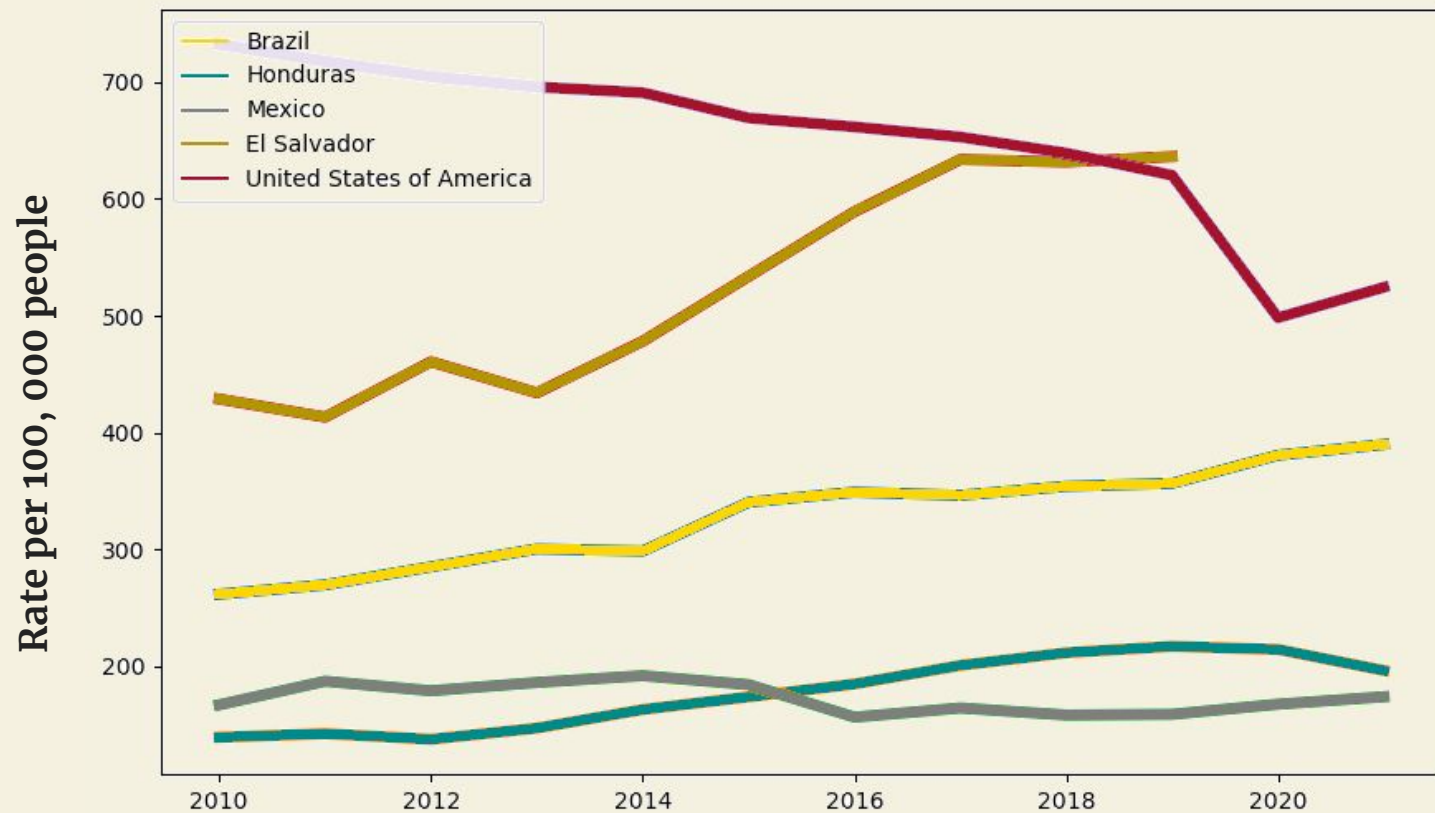
0.52

Political Rights
Aggregate Index

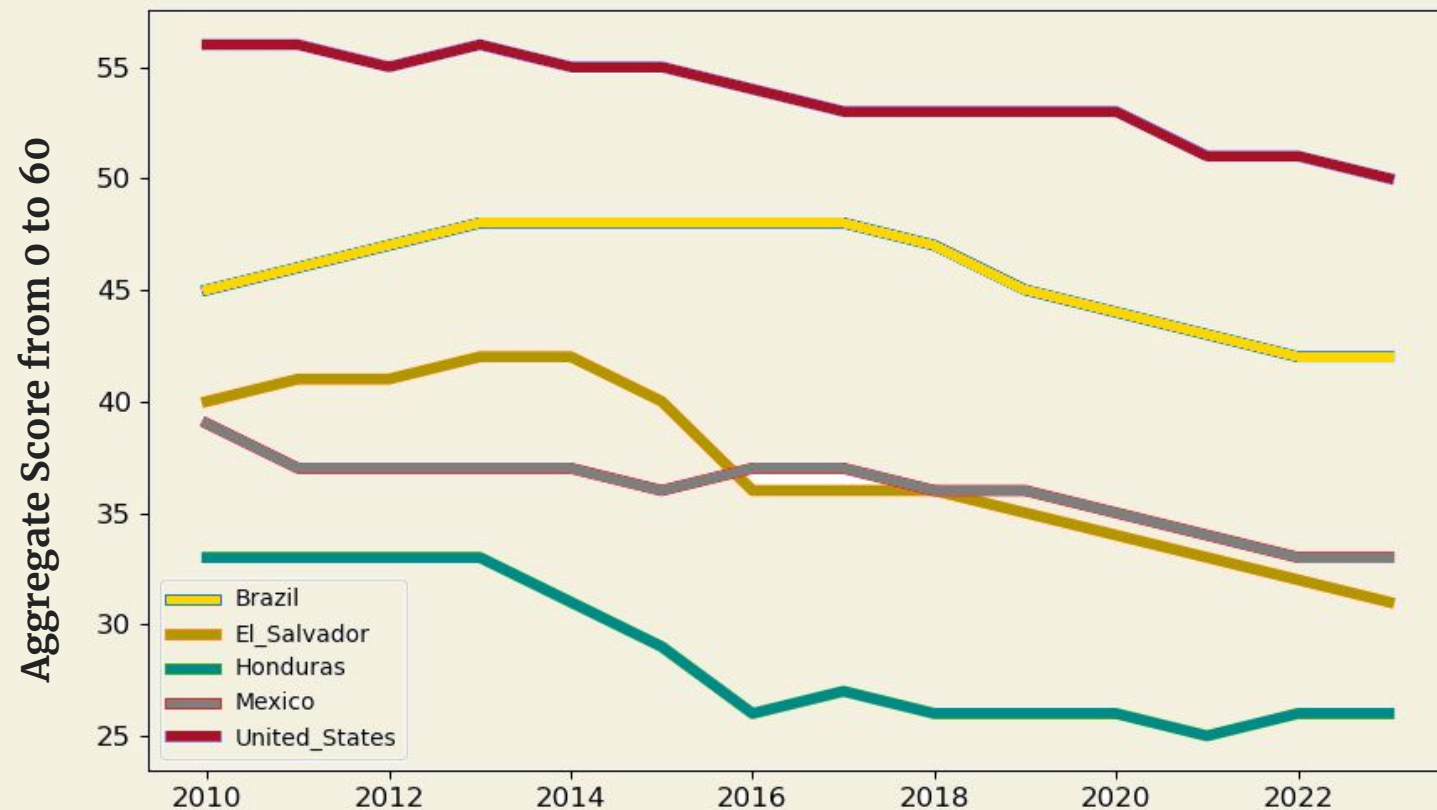
0-60

0.42

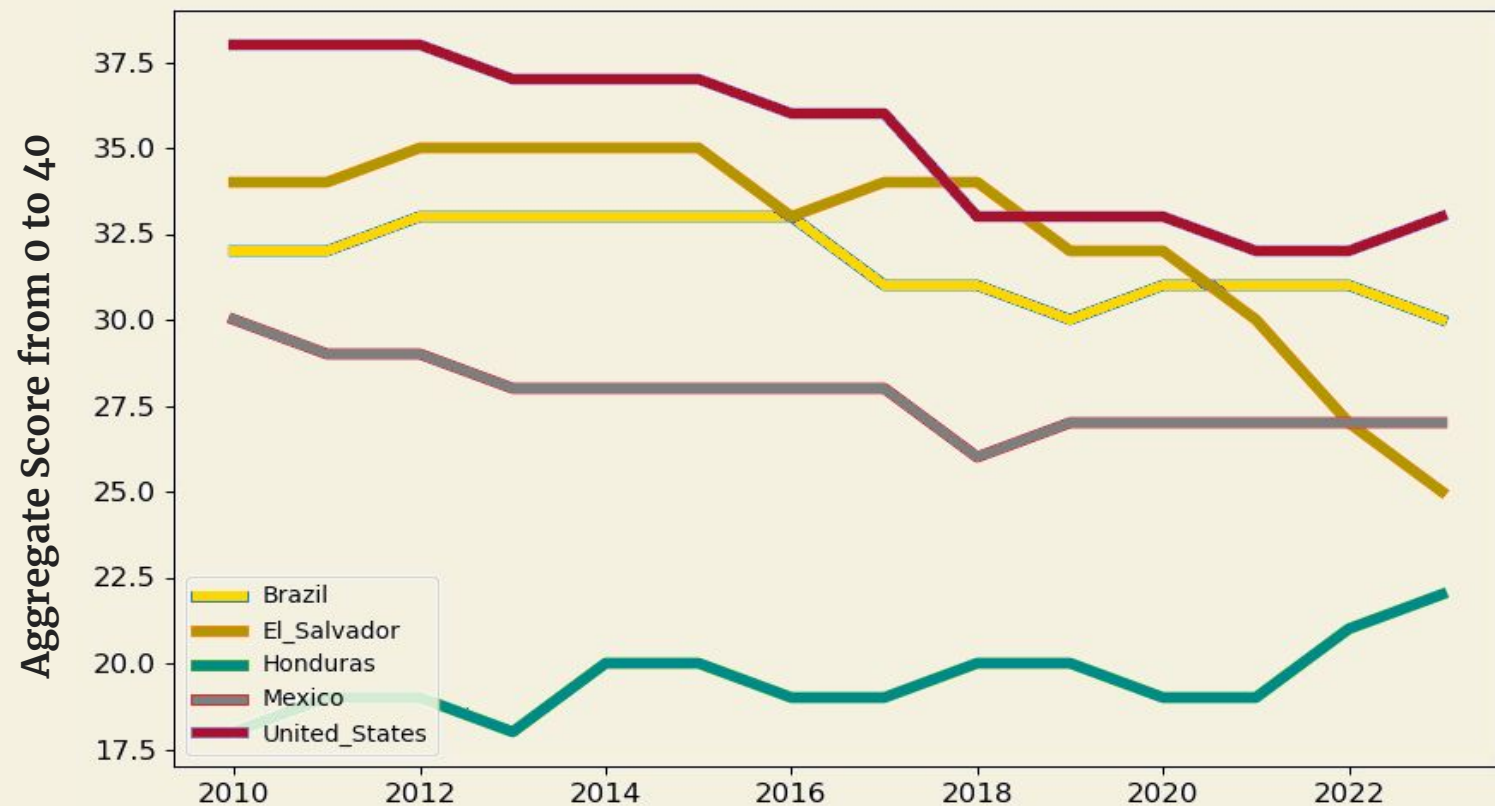
Summary of Incarceration Rate



Summary of Civil Liberties Scores (Freedom House Project)



Summary of Civil Liberties Scores (Freedom House Project)



Conclusions:

- Authoritarian and high incarceration policies have been exported from the United States to Latin America over the past century.
- This has led to some of the highest incarceration rates in the world in the United States in Latin America.
- These policies have overall affected young, male, black populations.

Thanks!

ANY QUESTIONS?



Please visit our Project Repository for more
information about our team



Presentation template by [SlidesCarnival](#)
Photographs by [Unsplash](#)