

# +TEAM PROGRESS

## Problem Statement

Do long-run state tax structures act as implicit incentive systems that “train” the economic composition and demographic evolution of states over time?

## Methodology

**Tools / Libraries:** Pandas, Numpy, scipy.stats, statsmodels, sklearn, linearmodels

### Framework:

1. Data Ingest + canonical panel build
2. Feature Engineering (Tax Signals)
3. Adaptation Outcomes (Economic, Demographic)
4. Define “Events” indicating “the system is learning”
5. Model Layer A: does “signal” precede adaptation?
6. Model Layer B: counterfactual paths + prediction
7. Decision framework

## Preliminary Findings

- State governments have tax structures that may act as implicit reward vectors.
- Examples: Labor-linked taxes (income, payroll proxies), Consumption taxes (sales, excise), Capital/asset taxes (property, corporate), Resource taxes (severance, fuels)

## +Team 37

Jeff Allen  
Kolbe Sussman  
Lina Al Rawahi  
Sachin Murthy  
Ushasree Jakilinki

## Conceptual Model

Entity (U.S. State)

- ↳ Tax Structure (signals)
- ↳ Relative Economic Payoffs (implicit incentives)
- ↳ Behavioral Adaptation (firms, workers, etc)
- ↳ Economic Composition + Demographics
- ↳ Next-period Tax Base  
(changed tax base, future signals)

