

Group ApolloX

“True Prosperity Index: Measuring What Really Matters for Communities”

Analysis of Wellbeing in California & New York Counties



Members:

- Chaitanya Kukreja
- Matt Ghadimi
- Arnav Daultani
- Ferdi Fadillah
- Daniel Adejumo





Data & Indicators



List of Data Sources:



ACS: Income, Poverty, Unemployment



County Health Rankings: Life Expectancy



Geography: CA & NY Counties

	county_name	state_name	median_income	poverty_rate	unemployment_rate	state_abbr	life_expectancy
0	Alameda County	California	122488	9.2	4.9	CA	82.3
1	Alpine County	California	101125	13.7	4.9	CA	NaN
2	Amador County	California	74853	7.8	6.0	CA	78.8
3	Butte County	California	66085	18.2	7.1	CA	75.5
4	Calaveras County	California	77526	13.1	6.2	CA	78.9



Key Points:

- “We combine economic + health indicators to capture real living conditions.”
- “These 4 features are simple, interpretable, and widely used for social wellbeing.”



Constructing TPI



How TPI Is Built:

- **Step 1:** Standardize all variables (Z-scores)
- **Step 2:** Build a composite wellbeing score:

$$TPI = \frac{Z_{Income} + Z_{LifeExp} - Z_{Poverty} - Z_{Unemployment}}{4}$$

- **Step 3:** Normalize TPI to a 0 – 100 scale

Key Insights:

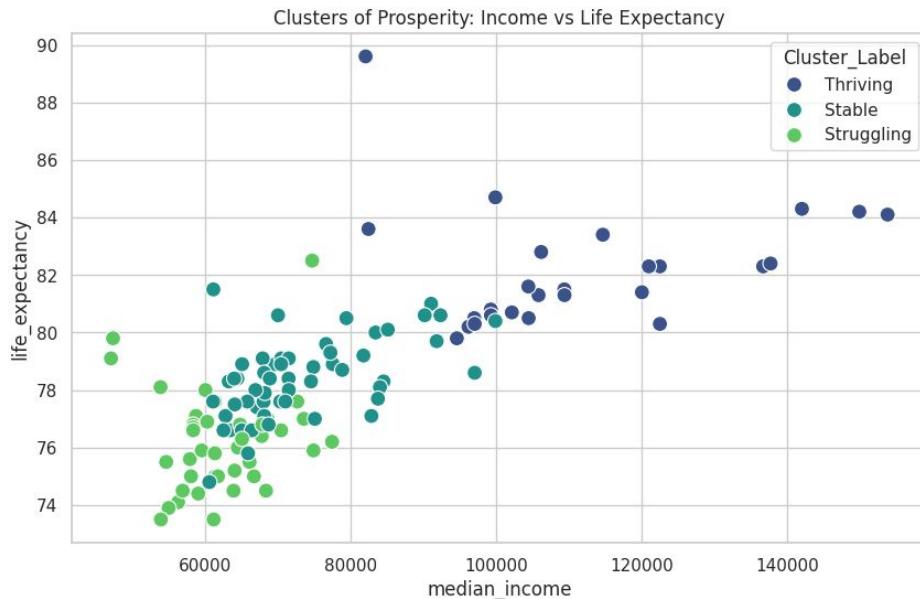
- Income & life expectancy improve prosperity
- Poverty & unemployment reduce it
- The final index is more people-centered than GDP or markets





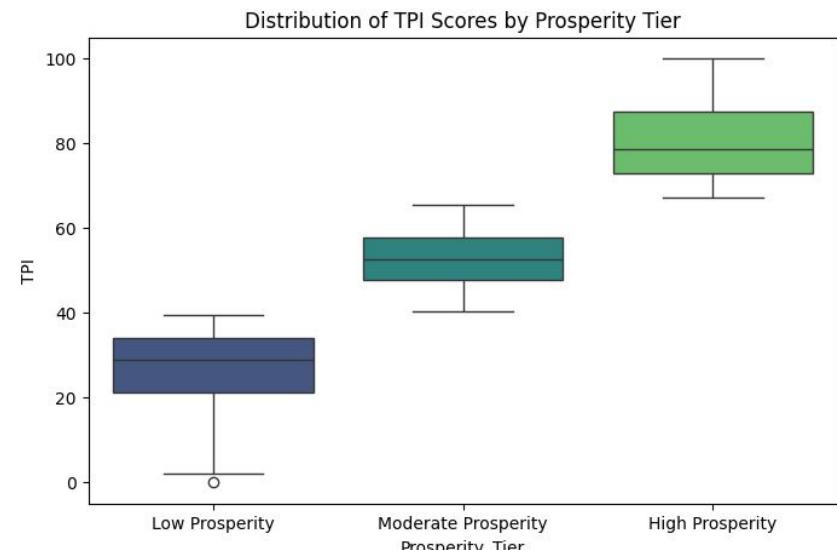
Prosperity Tiers (Clustering)

K-Means (k=3): Low / Moderate / High Prosperity



What the Clusters Show

- Low Prosperity:**
 - Lower incomes, highest poverty & unemployment
 - Lower life expectancy
- Moderate Prosperity:**
 - Middle-class counties
- High Prosperity:**
 - High income + high health outcomes
 - Mostly Bay Area, LA suburbs, and NYC metro



Talking Points

- “Even across two very different states, the tiers look surprisingly similar.”
- “Prosperity inequality is real and sharply visible.”



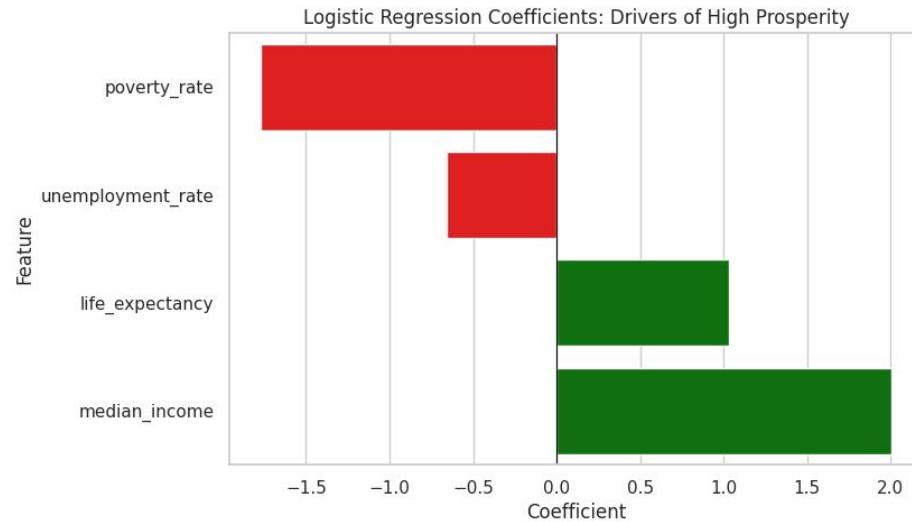
pic is best for presentation?



WHAT DRIVES HIGH PROSPERITY?



Logistic Regression: Which Features Predict High Prosperity?



Interpretation:

Poverty (strong negative)

→ Higher poverty dramatically reduces odds of high prosperity

Unemployment (negative)

→ Weak labor markets lower prosperity

Life expectancy (positive)

→ Healthiest counties tend to be prosperous

Income (small positive)

→ Once poverty & unemployment are included, income adds less

Takeaway:

“Poverty reduction and employment matter more than income alone.”





MARKETS VS PEOPLE



S&P 500 Volatility vs. Stable TPI



Interpretation:

- **S&P 500 jumps daily** due to speculation, news, investor sentiment
- **TPI is stable**, reflecting actual community wellbeing
- The contrast proves:
- “**Financial markets ≠ community prosperity.**”

Takeaway:

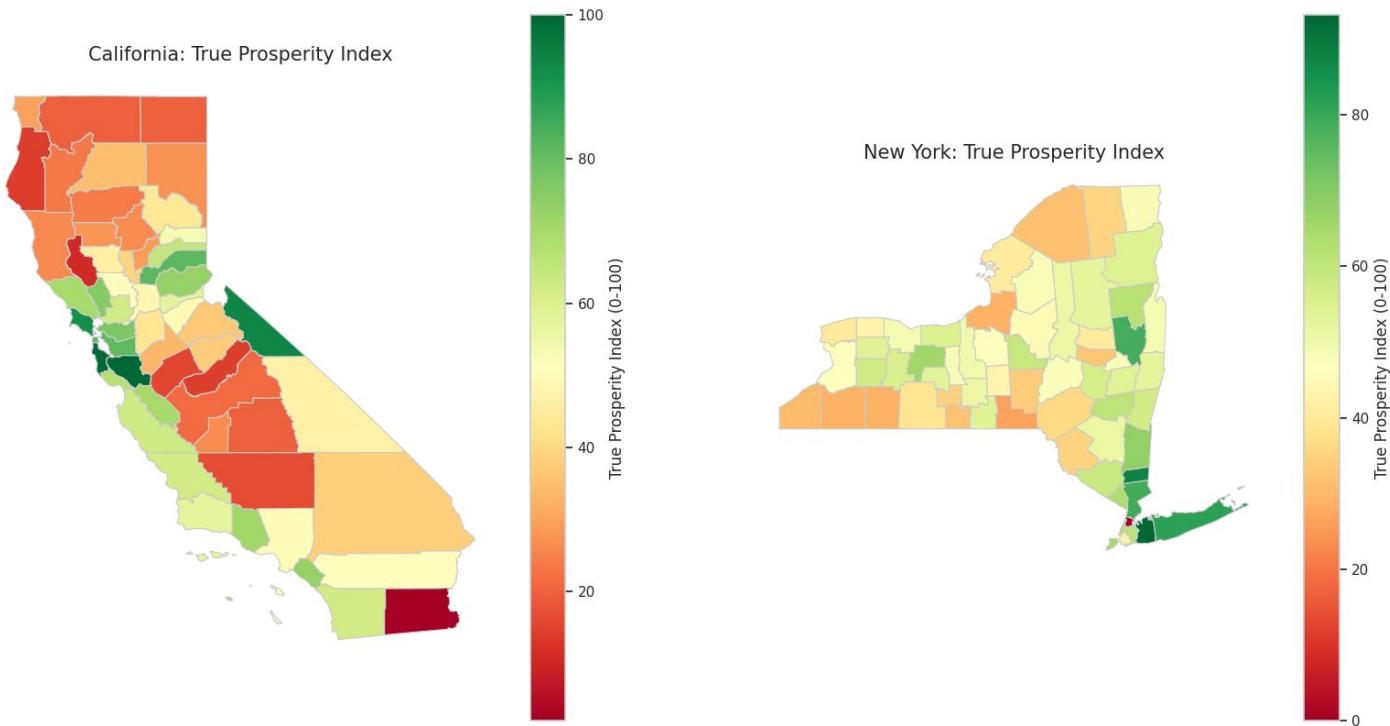
“The stock market cannot be used to measure how well people are living.”





REGIONAL VIEW

Geospatial Analysis of Prosperity (TPI)



Regions:

- NYC Metro – High prosperity
- Upstate NY – Much more Mixed
- LA County – High but very uneven
- Other CA – Many inland counties struggling

Takeaway:

“Prosperity is place-based,
geography explains a lot.”



FINAL TAKEAWAYS

What We Learned

- A people-centered index reveals inequality that GDP masks
- Poverty, unemployment, and health are the strongest drivers of prosperity
- The stock market is not a wellbeing indicator
- Regional analysis shows deep internal inequality within states

Future Extensions:

- Add education, environment, job risk, healthcare access
- Perform causal inference or time-series trends
- Expand national TPI for all U.S. counties





TANDON SCHOOL
OF ENGINEERING

Thank you for your attention!