

Abstract geometric lines in the top left corner, consisting of several overlapping, irregular polygons and lines in a light beige color.

MGTA 452 FINAL PRESENTATION

Group C

PROJECT GOAL

Through the released U.S. Census data, explore poverty levels and migration patterns, alongside electric vehicle (EV) adoption rates, over the past decade. Our aim is to identify distinct trends within each dataset and communicate that through an interactive medium

MAIN SOURCE

[U.S Census Bureau](#)

MIGRATION
DATASET

Migration patterns across different demographics, including age, sex, education level and race, using data from 2012 to 2022

ELECTRIC VEHICLE
DATASET

California demographic data supplemented with vehicle populations by fuel type via the California Energy Commission and Zillow Home Value Index

POVERTY DATASET

Estimates for the past ten years broken out by Age, Sex, Race, Employment Status & Work Experience

PROJECT DATA

WHAT WE DID

Defined Presentation Goals

Collaboratively determined the specific areas of inquiry for individual exploration, culminating in the consensus to present our findings through an interactive web application

Extract Transform Load

Sourced high-fidelity datasets from the U.S. Census Bureau, utilized Visual Studio Code for data transformation, ensuring optimal aggregation to inform our analytical reporting

Migrate

Initially programmed in Python for data manipulation and exploration, we subsequently transposed our code to R to leverage the Shiny framework for web-app development

Deploy

We successfully deployed our interactive web application using the Shiny framework in R, which allowed us to present our data-driven insights in a dynamic and user-friendly interface



WHAT WE FOUND

Migration Patterns

A higher percentage of migration was observed in the 18 to 24 and 25 to 34 year age groups, as well as among those with bachelor's and graduate degrees. A notable trend starting 2019 showed an increase in migration from different states, coinciding with a decrease in migration within the same county. The shift in migration patterns might be influenced by factors such as career opportunities, educational pursuits, or lifestyle changes, particularly among younger adults and those with higher education.

Furthermore, there was a noticeable dip in migration across all categories in 2021, likely due to the COVID-19 pandemic. This possible pandemic-induced decline reflects the significant impact of external socio-economic factors on migration trends.

Electric Vehicle Adoptions

Despite what we might see on the roads, EV adoption rates remain fairly low within California. Drivers of electric vehicles are found almost exclusively within the largest population centers in the state. Within many of the most populous zip codes ownership rates remain low. There is a strong correlation toward adoption in zip codes where single-family home values and household income are highest. Additional incentives and expansion of infrastructure may be necessary to continue adoption in line with the State's goals.

Poverty Level

U.S. Census data from the past decade highlights a strong link between education and poverty, with college graduates facing a significantly lower poverty rate of around 4% compared to nearly 24% for those without a high school diploma. Gender disparities are evident, with males generally experiencing lower poverty rates than females, likely influenced by women's disproportionate childcare responsibilities. Racially, African Americans, Hispanics, and Native Americans have seen a decline in poverty rates, mirrored by a decrease in childhood poverty from 22% to 16%, thanks to economic recovery, effective social policies like the Child Tax Credit, and increased healthcare access. These trends underscore the multifaceted nature of poverty and the importance of targeted interventions for continued economic improvement.

WHO CAN MAKE USE

GOVERNMENT SECTOR

Social Policy Advisors: Could utilize poverty level data to design and implement more effective anti-poverty strategies.

Urban Development Planners: May apply migration patterns to plan for housing, transportation, and public services to accommodate shifting populations.

PRIVATE SECTOR:

Human Resources Directors: Can use migration pattern data to optimize recruitment strategies and adapt to workforce changes.

Sustainability Managers: Might analyze electric vehicle adoption data to align corporate sustainability goals with consumer adoption trends.

ACADEMIC INSTITUTIONS:

•*Economic Researchers:* Could employ poverty data to understand economic disparities and their effects on various demographics.

•*Transportation Scholars:* May use electric vehicle data to study the diffusion of innovation and its implications for environmental policy and vehicle technology curriculums.

A series of thin, light brown lines forming an abstract geometric pattern in the top left corner of the slide. The lines intersect to create various triangular and polygonal shapes.

THANK YOU

Please find the link to our Web App [here](#).