

Final Project Report

California, with a total population of 39.03 million as of 2022, stands as the nation's most populous state. Over the years 2016-2020, it maintained an average growth rate of 0.225%. Additionally, boasting a GDP nearing 3.9 trillion in 2023, California also holds the title of the nation's wealthiest state. To provide deeper insights into these statistics, our project aimed to visualize the migration and population fluctuations within California from 2016 to 2020. Our objective was to offer valuable insights for researchers, residents of California, policymakers, economists, and anyone interested in understanding population trends, thereby facilitating informed decision-making for future planning initiatives.

We devised a series of maps to elucidate migratory and population patterns in and out of California. Beginning with two graduated symbol population maps for 2016 and 2020, we allowed users to discern significant differences in population over the four-year period, establishing a clear baseline for our study. Subsequently, we delved into the natural increase of population, depicting crude birth rates (CBR) and crude death rates (CDR) for each county using distinct color classifications. Five hues of green represented CBR, with a single hue of orange denoting CDR, aiding users in identifying counties with higher CDR effortlessly.

Moving forward, we created maps for each year to visualize average migration rates within each county, utilizing color schemes to denote areas with higher emigration or immigration rates, thus presenting population changes in migration over time effectively. Additionally, we crafted a flow map illustrating migration patterns out of California to the ten highest counties in the contiguous U.S. Through this map, users could comprehend where individuals were migrating to, with nodes and arrows indicating the highest migratory routes.

Our final set of maps depicted the average population percent change within each county in California from 2016 to 2020, utilizing a red-to-blue color scheme to signify negative and positive population changes. This visual approach allows users to quickly grasp demographic shifts, with varying shades indicating the extent of change across counties. By providing a spatial perspective on population dynamics, the maps enabled the identification of regions experiencing significant growth or decline, aiding policymakers, urban planners, researchers, and residents in understanding California's evolving demographic landscape and informing strategic decision-making processes. Overall, these maps offered valuable insights into population trends, supporting proactive planning efforts, and facilitating informed discussions on future development strategies.

This project was a collaborative effort between myself (Hunter DeJager) and Jackson Barker. Jackson focused on creating choropleth and graduated symbol maps, developing an online story map, and providing descriptions for each map. Meanwhile, I created the flow map and compiled this project report. Data sourcing, manipulation, and map creation were conducted using tools like ArcGIS Pro and QGIS, a process that involved sorting, joining, and cleaning datasets for visual appeal and audience understanding.

Though the project presented various complexities and learning curves across its stages, it served as a platform for skill development in data manipulation and map creation. Overall, our study aimed to provide valuable insights into California's population dynamics, contributing to informed decision-making and future planning initiatives.