Data 22700

Data Visualization and Communication

Trimble

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**Homework 1: Population Histograms**

*Question:* *To what extent are concerns about an aging American population founded and how have age distributions in the U.S. population changed over the past century across sexes?*

Chart, line chart

Description automatically generated

Chart

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*Caption: As illuminated by the data, across both sexes, the distribution of the population across five-year age groupings tends to follow a more normal distribution than in 1900, where there appears to be an approximately linearly decreasing trend in the population proportion of successively older age groups. At the turn of the twentieth century, the U.S. population appears to have fewer children and young adults, and a greater middle-aged and senior population relative to a century prior. Compared to the overall population, the proportion of infants in 2000 are nearly half the percentage they were in 1900, whereas men and women ages 60 and older in 2000 represented nearly two times the proportion of the population that their peer group did in 1900—a trend that increases with older age groups. Consistent with research on women displaying longer lifespans, women aged 60 and older represented a greater proportion of the overall population than their male counterparts for each five-year grouping in 2000, and across both genders, the proportion of elderly U.S. residents significantly increased relative to the overall population between 1900 and 2000. Notably, in 2000, there appear to be slight peaks in the population of 5 to 10-year-olds and middle-aged U.S. residents across both sexes. Taken together, the insights from the data reveal that, in addition to a greater proportion of senior residents and a lower proportion of children and teenagers in 2000, the likewise increased proportion of 35 to 60-year-old residents may validate concerns about an aging population, both in 2000 and in the decades after.*

Chart, line chart

Description automatically generatedInspired by political discourse about the economic consequences of changing age demographics in America, I centered my question around understanding how grounded concerns about an aging population are in U.S. Census data, and also sought to gain insight into how sex impacts the proportional distribution of age brackets over time. Though perhaps somewhat antiquated, my thematic color choices of pink and blue reflect palettes that are traditionally associated with the two sexes to visually distinguish the two plots filtered by sex. I also used color and brightness to distinguish between the two years’ data for each bar, with the darker tone representing the more recent year of 2000 for emphasis and contrast.

As the data already came organized into bins, I plotted bar graphs to mimic the effect of a true histogram and provide insight into the distribution of frequencies across five-year age buckets. My first iteration of this visualization initially looked like the plot to the right, but upon further contemplation, I decided to represent the data in terms of proportions relative to the total populations in 1900 and 2000 to standardize for absolute population growth and make it simpler to compare corresponding bars for each age group across the two years. To make the visualization more easily readable, I also staggered the positioning of the bars for each year that corresponded to the same age bucket to facilitate side-by-side comparison across years. Finally, I stacked the graphs for each sex so the age axis would be vertically aligned, allowing for easier comparison across sexes.