Problem Set 4: Immigration and the Composition of the US Population

Due 11:59 PM, Thursday, May 22

In this problem set, you will analyze data from the 2023 American Community Survey, a 1-in-100 survey of the US population. You will focus on differences between the native-born and foreign-born. The template `Rmd` script loads an individual-level dataset containing adults ages 20-64. The dataset is in `rds` format, which is more compressed than our usual `csv` format: useful because the dataset contains 1.9 million observations. The dataset includes explanatory labels for the variables, so you can familiarize yourself with the variable definitions in the "Environment" window after loading the dataset.

1. What share of the sample is foreign-born? Draw a graph that shows how this share varies by age and sex. Describe your results. Based on your results, how do you think the age structure of the US adult population would change if the US had no immigrants?

2. Does the age composition of the foreign-born vary by national origin? Plot the share foreign-born by age separately for the three origin countries that account for the most immigrants: Mexico, China, and India. Describe your results. Which country's age pattern is most similar to your graph in Question 1?

3. Now consider the racial and ethnic composition of the native- and foreign-born. Create a table that reports the share of native-borns in each racial category and the share of foreign-borns in each racial category.[1] Create another table that reports the share of each group in each Hispanic category. Describe your results. Based on your results, how do you think the racial and ethnic composition of the US adult population would change if the US had no immigrants?

4. Are the foreign-born more or less educated than the native-born? First, compute average years of education for both groups. Second, plot the histogram of years of education for each group, with shares rather than counts on the vertical axis. What do your results tell you about educational differences between immigrants and natives?

5. Now investigate the distribution of education levels among immigrants by national origin. Generate dummy variables for the following categories of highest level completed: less then primary (< 5 years), primary (5-11 years), secondary (12-15 years), college (≥ 16 years).[2] Create a table that reports the share of the adult population with each level of education among Mexican immigrants, Chinese immigrants, Indian immigrants, and immigrants from all other countries. What differences do you notice among Mexican, Chinese, and Indian immigrants? How does the distribution of education levels among Mexican immigrants compare with the distribution we saw in the 2020 Mexican census during the methods lecture? Are Mexican immigrants positively or negatively selected?

6. One sometimes hears the stereotype that immigrants are lazy. On average, are the foreign-born more or less likely to work? To investigate this issue further, plot the share

[1] Tip: You may find it helpful to use `count(race)`.

[2] Primary goes to grade 6 in many countries, but you can use 5 years for all countries for simplicity.

employed by age for native- vs. foreign-born men, and also the share employed by age for native- vs. foreign-born women. Are employment differences between native-borns and foreign-borns similar for different ages and between men and women?

7. Do foreign-born workers earn more or less than native-born workers over the life-cycle? To answer this question, focus on men who have positive earnings. In a first graph, plot average earnings by age for native-borns vs. foreign-borns. Are there large earnings gaps at any ages? In a second graph, repeat the same exercise, but with separate panels for men with and without college degrees. Do any new insights emerge?

8. Another stereotype posits that immigrants rely on welfare benefits more than natives. Is the share receiving positive welfare income higher among native-borns or foreign-borns? Is this evidence consistent with the stereotype?

9. Many people believe that although immigrants have low earnings when they arrive in the US, they catch up with natives eventually. How do average earnings compare between immigrants who arrived in the last year and immigrants who arrived earlier?[3] Do these differences tell us whether immigrant earnings catch up after sufficient time in the US?

10. How would the characteristics of the US population change if all foreign-born people left the country? Compute the share Black, share Hispanic, share Asian, share college-educated, and share employed for the full sample and the native-born subsample. Which characteristics, if any, would change substantively?

[3]Here you should compute average earnings among *all* immigrants, not just those with positive earnings.