Job Seekers or Job Stealers? The Truth Behind

Immigrants and Employment

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Abstract

This paper delves into the longstanding issue of antipathy towards immigrants and its historical context. The author highlights the recurring theme of fear and distrust towards newcomers in global history, then shifts the focus to the United States, examining the impact of immigration waves, both past and present, on the nation's employment landscape. The central objective is to address the prevailing sentiment that immigrants are responsible for "stealing jobs" from native-born Americans. To achieve this goal, a data-driven approach is employed, utilizing statistical analysis to explore the relationship between the foreign-born population and the unemployment rates of native citizens in different U.S. states. The independent variable, the ratio of foreign-born residents to the total population, is examined alongside the dependent variable, the unemployment rate of native citizens. Through a series of visualizations and regression models, a nuanced perspective is presented on this issue. The analysis acknowledges the presence of a correlation between immigrant population ratios and native unemployment rates but emphasizes the need to consider a multitude of other contributing factors, such as education, age distribution, and labor market policies.

Antipathy towards foreigners is nothing new, and has been a common sentiment among the countries of the world throughout history. Whether it was fear and hatred of Muslims in the minds of Europeans during the Crusades, or the distaste towards Europeans in Imperial Japan, there are no shortage of examples that exhibit this fault in humanity. Over the past 200 years in America, these same issues have come into the spotlight at various points in our history. Whether it was the influx of Chinese during the gold-rush, Irish immigrants during the Irish potato famine, or more recently, the large influx of Hispanic and Latino immigrants, there has always been a fear that these new populations would disrupt the status quo. In doing so, they would negatively affect the lives of those already settled in these regions. The sources for this fear and distrust come from a variety of reasons; the fear for national security and crime rates, limited resources and strain on public services, cultural differences, and finally economic concerns. The degree to which these concerns are based on facts and empirical evidence varies significantly, but one of the most common rhetorics promoted in today's society is the fear that immigrants will "steal our jobs" and take away opportunities from "hard working Americans." The objective of this paper is to analyze the extent to which this sentiment is true using real data and analysis. In doing so, the situation can be better understood, and government policies can be adjusted if necessary. To put it in clear terms, the question to be answered is as follows: *How does an increase in skilled immigrant workers impact the unemployment rates of native-born workers in the US?*

Let's start with defining some of the parameters for this analysis:

**Independent variable**: Foreign Born Population

Initially I just graphed the total number of foreign born residents from each state.

However, as shown below, the original chart makes it difficult to visualize the information. The

numbers are very large and use scientific notation, and a single outlier throws off the shape of the

rest of the chart making it heavily skewed to the right. As a result, I divided the foreign born

population by the total population in each state to get a ratio rather than a raw number. This

turned out to be much more manageable, and produced the image seen in the second chart below.

This data is still skewed to the right somewhat. This makes sense because the majority of

immigrants are concentrated in urban areas in a few states, and the rest have relatively low

immigrant populations compared to their total population. There is a single peak between 5%
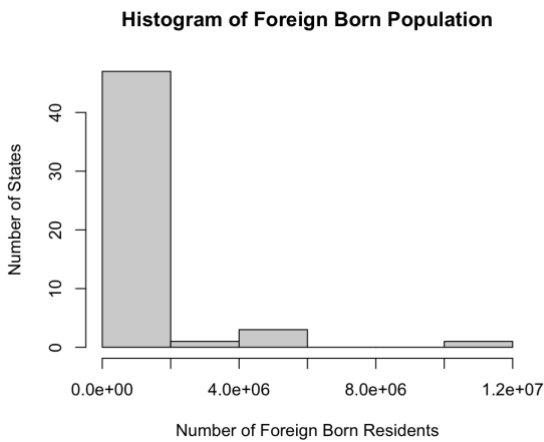
and

10%,

and each
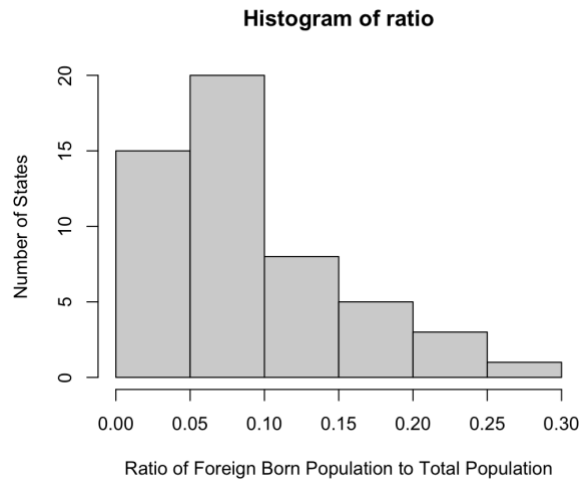
successive 5% increase sees a decrease in
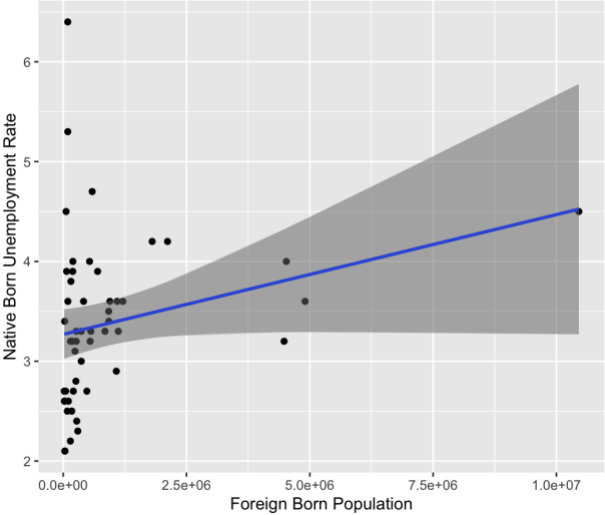
frequency among states.

Histogram of Native Born Unemployment
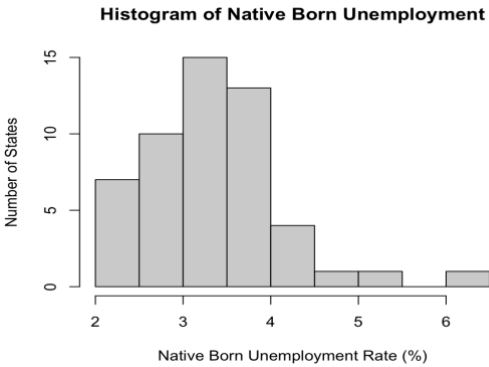
Dependent variable: Unemployment rate of native citizens

While the data isn't normally distributed, it does have some similarities to a normal curve. It is slightly skewed to the right with few data points greater than 4%. There is a potential outlier just over 6%, and it causes a gap in the chart. The unemployment rate for most states hovers right around 3-4% which is in accordance with the national average.
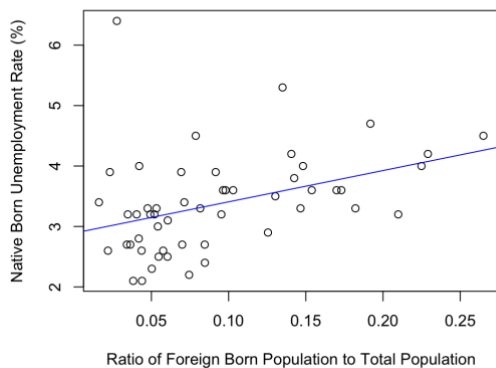
Before conducting any statistical analysis, it's a good idea to graph the two variables against each other and see if there is any relationship visible just for a simple scatterplot. The first graph reflects the original dataset I was going with–total foreign born population in each state. As I mentioned earlier, this data was unwieldy so I chose to adjust it. Part of the reason was because the confidence interval was so large that it wasn't clear whether or not there was a

positive or negative relationship between the two variables. It also clusters a lot of the data points close together which makes it difficult to make accurate visual observations.

In this second graph, the scatter plot shows a much more easily visible relationship between the two variables. It does not seem conclusive, but the general trend is: As the ratio of the foreign born population to total population increases, there is an increase in the unemployment rate of native born citizens. In terms of answering my original research question, this data definitely suggests that an influx of immigrants can have adverse effects on the economic outlook of citizens. There are definitely plenty of other variables that still have to be taken into consideration, and there are statistical tests that can be done to flesh this out in greater detail, but it seems to support the rhetoric that immigrants (equivalent to the foreign born population) take away jobs that otherwise would be available to native workers. In some ways this seems to be common sense, but it also can cause resentment, especially among those who are employed in low-skilled jobs that have a low barrier to entry and are easily taken by immigrants.

With this basic visualization of the data being dealt with, it'll be useful to look at prior literature that touches on the same topic. Statistics studies on the issue of immigration and unemployment have been done before, and their methodologies and findings can be compared to this one. One article is "The Effect of Immigration on Aggregate Native Unemployment: An across-City Estimation" by Simon. The primary difference in this study is its focus on specific cities rather than entire states. In some ways this is a more accurate model because it eliminates

the bias a single large city has over a whole state by looking at each city in isolation. The regressions used are more technical and are more precise in this article. It's also interesting because it includes a model with a lag in the immigrant population by 0-9 years. This is significant because changes in the independent variable do not always take effect immediately. This was difficult to do with the data from the Census Bureau because the data is updated only every 10 years. The data from this article on the other hand was from the BLS which conducts much more frequent reports on unemployment rates (the dependent variable). From his analyses, Sumon comes to the conclusion that "there is little or no observed increase in aggregate native unemployment due to immigration, even in the short run during which adjustment frictions should be most severe." (312). He emphasizes the relative insignificance of immigration to the total labor force, comprising less than half of one percent of the civilian labor force. As a result, "it is almost impossible that immigration could explain a large proportion of the differences in unemployment" (Simon 310).

The article by Bonin takes a much more econometric approach to answering the question and analyzes the influx of immigrants as a labor supply shock rather than a social or cultural shock. He also has a methodological approach that segments immigrant labor into different groups by skill. I was unable to do this due to the limitations in the data I was using. In addition to looking at the effects of immigration on unemployment, he also looked at the effects they had on wages, which I think is very perceptive because it is a metric of the economy that provides a different perspective than unemployment. In particular, he zeroes in on the employment conditions in Germany and came to the conclusion "that the massive influx of foreign immigrants following German reunification had indeed a significant negative impact on the employment outcomes of native men." To put it in exact numbers, "A 10 percent immigrant

supply shock from immigration would raise the unemployment rate in a skill group by about 1.5 percent." (13). This is in contrast with the findings that Simon came to, and there seems to be an explanation for that. Bonin was analyzing statistics in Germany, while Simon was looking at a country with almost four times the population–the United States. It would make sense that a smaller country is more sensitive to population shocks compared to the larger United States which is more easily able to absorb the effects of a similar number of immigrants.

As in any comprehensive analysis of two variables, analyzing a regression model is a useful tool for seeing the impact the treatment variable has on the dependent variable. I first ran a bivariate regression using just the original treatment of "ratio" (ratio of foreign born residents to total population). The above graphic shows the output, which indicates a positive relationship between the two variables. A unit increase in "ratio" accounts for an increase of 5.178 percentage points in the unemployment rate of citizens. The p-value associated with the "ratio" variable is 0.00432. This indicates that there is statistically significant evidence to reject the null hypothesis that the coefficient for the "ratio" variable is zero. In other words, the variable for the ratio of foreign born population to the total population in a state has a significant effect on the native unemployment variable. As can be seen from the R-squared value, only about 15.17% of the variability "native_unemployment_numeric" can be explained by the "ratio" variable alone. Essentially, there are many other variables that need to be taken into consideration and the "ratio" variable is only one among many that contributes to the unemployment rate. These factors include differences in education level. The disparity in educational attainment between native citizens and foreign-born individuals can affect both their employment opportunities and unemployment rates. Higher education levels among the foreign-born population may directly impact their job competition with native citizens. If foreign-born individuals have higher

```
Residuals:
    Min      1Q  Median      3Q      Max
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    Min     1Q  Median     3Q     Max
-1.0561 -0.3576 -0.1190  0.2003  3.4151

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)     4.304      0.689   6.247 9.74e-08 ***
college_stats  -7.748      3.635  -2.131 0.038107 *
ratio           7.230      1.931   3.745 0.000476 ***
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Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.7327 on 49 degrees of freedom
Multiple R-squared:  0.2236,    Adjusted R-squared:  0.1919
F-statistic: 7.057 on 2 and 49 DF,  p-value: 0.002027
```

educational attainment, they might compete for higher-skilled jobs that are also sought after by native citizens. Another potential factor is age distribution This can impact both the foreign-born population and native citizen unemployment rates. For example, if the foreign-born population is composed mainly of working-age individuals, it could have a different effect on unemployment rates compared to native citizens. Controlling for age structure variables, such as the proportion of the population in different age groups, can help address this confounding factor. A third confounder could be labor market policies. Examples such as regulations around hiring practices, employment protections, or affirmative action measures, may directly influence job competition between the foreign-born population and native citizens. Different labor market policies can create varying degrees of competition, potentially affecting unemployment rates.

With these factors in mind, I conducted a multivariate regression that adds in the variable "college_stats." This is the percentage of native born citizens who have attained a Bachelor's degree in each state. Education has the potential to significantly impact unemployment rates because better educated citizens tend to be employed at a higher rate. The multiple regression analysis aimed to predict the "native_unemployment_numeric" based on the `college_stats` and `ratio` predictors. The results showed a statistically significant relationship between the predictors and the response variable. The coefficient for `college_stats` was estimated to be -7.748, suggesting a negative association. For every unit increase in `college_stats`, the predicted

`native_unemployment_numeric` value decreased by 7.748, on average. Comparing this with the original bivariate model, the multiple regression model including both predictors provided a better fit (higher R-squared value). This means that both variables, in conjunction, are better able to explain unemployment rates than either one their own. The negative coefficient for `college_stats` in the multiple regression model is intuitive because as the number of college-educated citizens goes up, the unemployment rate should conversely go down. More independent variables can also be added such as race or age, for an even more accurate analysis of the data. With this in mind, I ran another multivariate regression using the same variables as before. This time however, I included a new metric–the percentage of households with food stamps/SNAP benefits for native citizens. This seems to have been the most accurate predictor by far of the lot, and raised the R-squared value all the way to 71%, a very significant increase. For each unit increase in "percentage_snap", the dependent variable (unemployment_rate_numeric) increased by 11.115 percentage points. This is very significant and provides a much more accurate understanding of the factors behind unemployment.

The regression analysis aimed to examine the relationship between the ratio of foreign-born population to total population and the unemployment rate of native citizens in the United States. The bivariate regression indicated a positive relationship between the two variables. The multivariate regression expanded on this by incorporating both the ratio and the percentage of native-born citizens with a Bachelor's degree as predictors, providing a better fit to the data. The coefficient for the percentage of native-born citizens with a

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Residuals:
     Min       1Q   Median       3Q      Max
-1.03611 -0.23995 -0.06379  0.16929  1.54609

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)     1.877      0.499    3.761  0.00046 ***
ratio           7.243      1.182    6.128 1.60e-07 ***
percent_snap   11.115      1.222    9.099 5.07e-12 ***
college_stats  -2.117      2.310   -0.916  0.36402
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.4485 on 48 degrees of freedom
Multiple R-squared:  0.7151,    Adjusted R-squared:  0.6973
F-statistic: 40.16 on 3 and 48 DF,  p-value: 3.916e-13
```

Bachelor's degree was estimated to be -7.748, suggesting a negative association. Lastly, the inclusion of the percentage of households receiving food stamps/SNAP benefits as a predictor significantly improved the model. This variable had the most substantial impact on the unemployment rate, with each unit increase corresponding to an 11.115 percentage point increase in the unemployment rate. The model incorporating this variable achieved a high R-squared value of 71%, indicating its strong explanatory power. Interpreting the regression results, it can be concluded that while there is a relationship between the ratio of immigrants and unemployment, there is no conclusive evidence to go beyond simple correlation. In conjunction with the other variables analyzed, it became clear that there are many economic and structural factors that affect unemployment, and it definitely doesn't come down to a single detail like immigration numbers. The findings support the rhetoric that an influx of immigrants can be correlated with adverse effects on the economic outlook of native-born citizens. However, like the conclusions made by Simon and Bonin, the effect isn't large enough to be of significance. It is also important to recognize the limitations of this data and the analysis of it. One limitation of the analysis is the reliance on aggregate data at the state level. The use of state-level data may overlook regional variations and specific dynamics within cities or localities. A more granular analysis at the city or metropolitan level could provide a more nuanced understanding of the relationship between immigration and unemployment, as Simon did in his study. Another limitation is the omission of other potentially influential variables. While the analysis included the percentage of native-born citizens with a Bachelor's degree and the percentage of households receiving food stamps/SNAP benefits, other factors such as race, age, and labor market policies were not considered. These additional variables could contribute to a more comprehensive understanding of the complexities surrounding immigration and its impact on unemployment.

It is never justifiable to tolerate hateful or bigoted policies toward immigrants, regardless of their impact on the country they're settling in. However, the prosperity of the native citizens in a country should come first, and if there is sufficient evidence that their job prospects are being harmed by immigrants, then there should be some consideration about limiting the number of immigrants across borders. In any case, incorporating the results of studies like this into public policy and law can be used to work toward a more equitable economy and society in years to come.

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    Estimates, Table S0502; using data.census.gov; <https://data.census.gov/immigration/>