

## Introduction

Our main source of literature comes from Alina Mariuca Ionescu's "How does education affect labor market outcomes" in which the author discusses in detail the relationship between education and labor market outcomes. Ionescu talks about numerous topics such as how the level of education attainment impacts the labor market outcomes, the relationship between annual earnings and years of schooling, and how education impacts employment success.

With these questions in mind, we set out to examine the effects of education on unemployment.

**Goal:** Utilize data from IPUMS to find a correlation between levels of education and unemployment rate.

## Model

Numerous variables affect unemployment, including personal variables and geographical location (excluding the education variable).

$$unemployment_{i,t} = \beta_0 + \beta_1 education\_vars_{i,t} + \beta_2 personal\_vars_{i,t} + geographical\_location_{i,t} + u_t + \epsilon_{i,t}$$

$i$ : individual

$t$ : time

*Unemployment* - Dummy variable (=1) if the individual is unemployed

*Education-vars* - Categorical variable for education: (Nursery - 4th Grade, Middle school, Highschool, College, Postgraduate)

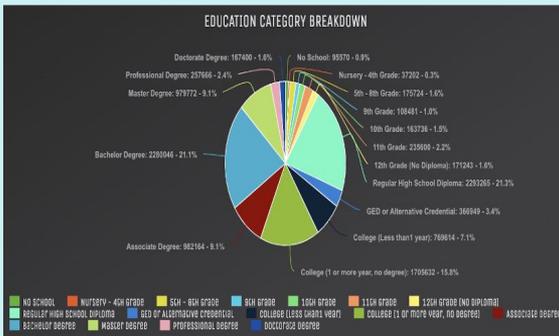
*Geographical\_location* - The individual's state of residence

*Personal-vars* - Personal variables including an individual's race, gender & age.

## Data

Our data comes from 2012-2018 IPUMS individual-level pooled cross-sectional data, consisting of 10,761,348 observations. A summary for each of the variables is as follows:

- Roughly 52.28% of individuals in the dataset are male.
- The range of education levels is from Nursery to Postgraduate completion. The mode of the educational category is having a regular high school diploma (21.31%) and having a bachelor's degree (21.19%).
- The sample size contains individuals ranging from 16 to 97 years of age, with the mean age being 43.
- A large percentage of individuals in this data set are white (78.09%), with the next largest following race being black (9.58%). The remainder of the races makes up only 12.33% of the population.
- Lastly, the state of residence for the individuals in the dataset are represented for all 50 states.



## Results

With all of our variables significant at the 1% level, our results show the following:

- There is a positive correlation between education and unemployment.
  - As the level of education increases, the coefficients decrease, thus creating an overall decrease in the unemployment rate.
- The top three states in the U.S. that individuals are most likely to be unemployed in are Alaska, California, and Nevada, with a 2.04%, 1.78%, and 1.45% increase in unemployment rates, respectively.
  - On the other hand, North Dakota, South Dakota, and Nebraska boast a 2.88%, 2.238%, and 2.2% decrease in unemployment rates for their residents.
- The variables of male and age have little effect on the employment rate. Males increase the unemployment rate by 0.01%. Each additional year of age decreases the unemployment rate by 0.0001%.
- Individuals of White, Asian, or other races showcase a reduction of unemployment by 3.2%, 3.186%, and 3.5% while Black, American Indian or Alaskan Natives increase the unemployment rate by 2.24% and 3.36%, respectively.

## Conclusion

Our results are consistent with our hypothesis, which is that higher levels of educational attainment more often than not lead to lower unemployment rates for the population of U.S. individuals. After controlling for geographical and personal variables, it is implied, based on our findings, that the unemployment rate decreases as the level of education increases.

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\*\*Sources available upon request