

# Are people really struggling to find a job?\*

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First sentence. Second sentence. Third sentence. Fourth sentence.

## Table of contents

<b>1</b>	<b>Introduction</b>	<b>2</b>
<b>2</b>	<b>Data</b>	<b>2</b>
2.1	Data Measurement . . . . .	2
2.2	Data Analysis . . . . .	2
<b>3</b>	<b>Model</b>	<b>2</b>
3.1	Model set-up . . . . .	2
3.2	Model justification . . . . .	3
<b>4</b>	<b>Results</b>	<b>3</b>
<b>5</b>	<b>Discussion</b>	<b>5</b>
5.1	First discussion point . . . . .	5
5.2	Second discussion point . . . . .	5
5.3	Third discussion point . . . . .	5
5.4	Weaknesses and next steps . . . . .	5
<b>6</b>	<b>References</b>	<b>6</b>

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\*Code and data are available at: [LINK](#)

# 1 Introduction

## 2 Data

### 2.1 Data Measurement

### 2.2 Data Analysis

## 3 Model

The goal of our modelling strategy is twofold. Firstly,...

Here we briefly describe the Bayesian analysis model used to investigate... Background details and diagnostics are included in

### 3.1 Model set-up

$$\begin{aligned}\text{Youth Unemployment} = & \beta_0 + \beta_1 \cdot \text{Education Level} \\ & + \beta_2 \cdot \text{Reference Period} \\ & + \beta_3 \cdot \text{Adult Unemployment} \\ & + \beta_4 \cdot \text{Senior Unemployment} + \epsilon\end{aligned}$$

Where:

- **Youth Unemployment** is the dependent variable we are trying to predict. These are generally categorized as people who are between the ages of 15-24.
- **Education Level** is an independent variable representing the level of education. (e.g., high school, undergraduate, postgraduate)
- **Reference Period** is another independent variable that represents the time frame of the data collection (e.g., year).
- **Adult Unemployment** and **Senior Unemployment** are independent variables representing unemployment rates for adult and senior age groups, with people ages ranging between 25-44 and above 45, respectively.
- $\beta_0$  is the y-intercept, representing the expected value of **Youth Unemployment** when all the independent variables are 0.
- $\beta_1, \beta_2, \beta_3, \beta_4$  are the coefficients for each independent variable, representing the change in **Youth Unemployment** for a one-unit change in the respective independent variable, holding all other variables constant.
- $\epsilon$  represents the error term, accounting for the variability in **Youth Unemployment** not explained by the model.

This model aims to understand how various factors contribute to youth unemployment. The coefficients  $\beta_1, \beta_2, \beta_3, \beta_4$  provide insights into the relationship between each independent variable and youth unemployment:

- $\beta_1$  tells us how changes in the education level might affect youth unemployment, holding other factors constant. A positive coefficient suggests that higher education levels are associated with higher youth unemployment rates, while a negative coefficient suggests the opposite.
- $\beta_2$  gives insight into how changes over the reference period (e.g., years) impact youth unemployment, which can help identify trends over time.
- $\beta_3$  and  $\beta_4$  help understand how unemployment rates in other age groups (adults and seniors) are related to youth unemployment. This can reveal whether higher unemployment rates in these groups are associated with higher or lower youth unemployment rates.

The intercept  $\beta_0$  provides the baseline level of youth unemployment when all other variables are zero, which may not always be a practical scenario but is necessary for the model's mathematical formulation. The error term  $\epsilon$  captures the model's limitations and any random factors affecting youth unemployment that aren't included in the model.

### 3.2 Model justification

The utilization of a multiple linear regression model for analyzing the relationship between people's unemployment status, age groups, and education level over time is substantiated by various rationales. Primarily, the model adeptly accommodates multiple independent variables such as education level and age group, each potentially exerting influence on the dependent variable, unemployment status. This capacity allows for an assessment of the individual impact of each predictor while simultaneously controlling for the influence of others. Such a model not only facilitates the quantification of the relationships between these factors and unemployment—via coefficients that express the extent of change in response per unit change in a predictor (with other variables held constant)—but also enables hypothesis testing on the parameters. This testing is instrumental in determining whether the associations between predictors and the response are statistically significant, thereby offering insights into the meaningfulness of these relationships.

## 4 Results

Our results are summarized in [Table 1](#).

Table 1: Explanatory models of flight time based on wing width and wing length

	First model
(Intercept)	328.013 (368.383)
education_levelAbove bachelor's degree	5.143 (1.400)
education_levelBachelor's degree	4.144 (1.366)
education_levelHigh school graduate	−0.412 (1.163)
education_levelPostsecondary certificate or diploma	1.240 (1.294)
education_levelSome high school	−0.947 (1.100)
education_levelSome postsecondary	−2.195 (1.276)
education_levelTotal, all education levels	4.546 (1.252)
education_levelUniversity degree	4.271 (1.374)
reference_period	−0.164 (0.182)
adult_unemployment	2.187 (0.308)
senior_unemployment	−0.199 (0.368)
Num.Obs.	45
R2	0.923
R2 Adj.	0.898
AIC	182.4
BIC	205.9
Log.Lik.	−78.222
RMSE	1.38

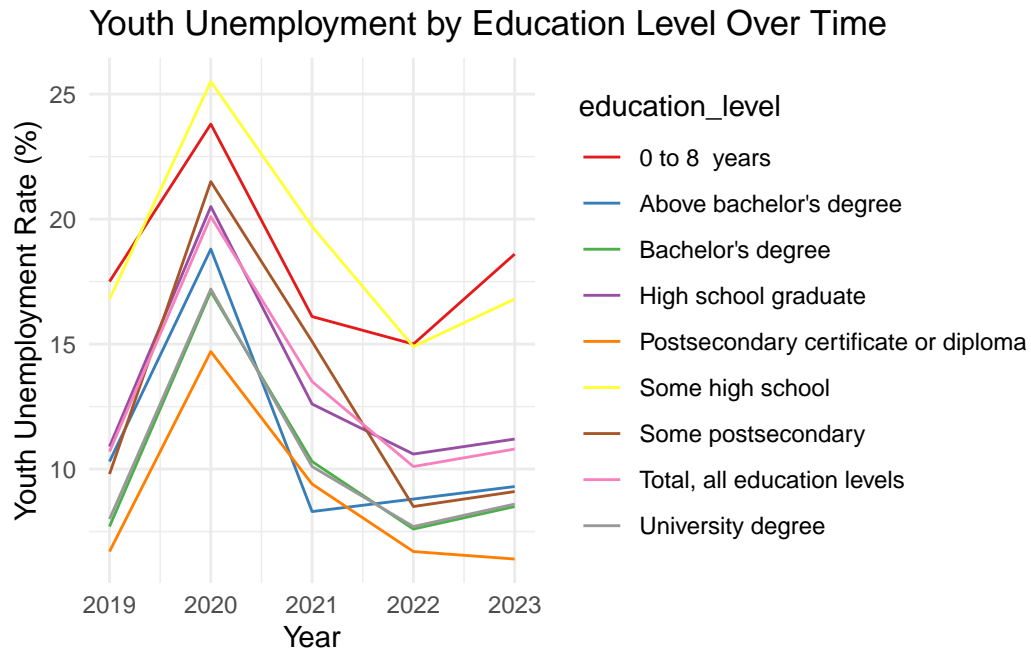


Figure 1: Unemployment Rates

## 5 Discussion

### 5.1 First discussion point

If my paper were 10 pages, then should be be at least 2.5 pages. The discussion is a chance to show off what you know and what you learnt from all this.

### 5.2 Second discussion point

### 5.3 Third discussion point

### 5.4 Weaknesses and next steps

Weaknesses and next steps should also be included.

## 6 References