

DATA ANALYSIS

SCHOOLING RATE AND ITS EFFECT IN SOUTH EAST ASIA

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M1 BDEEM

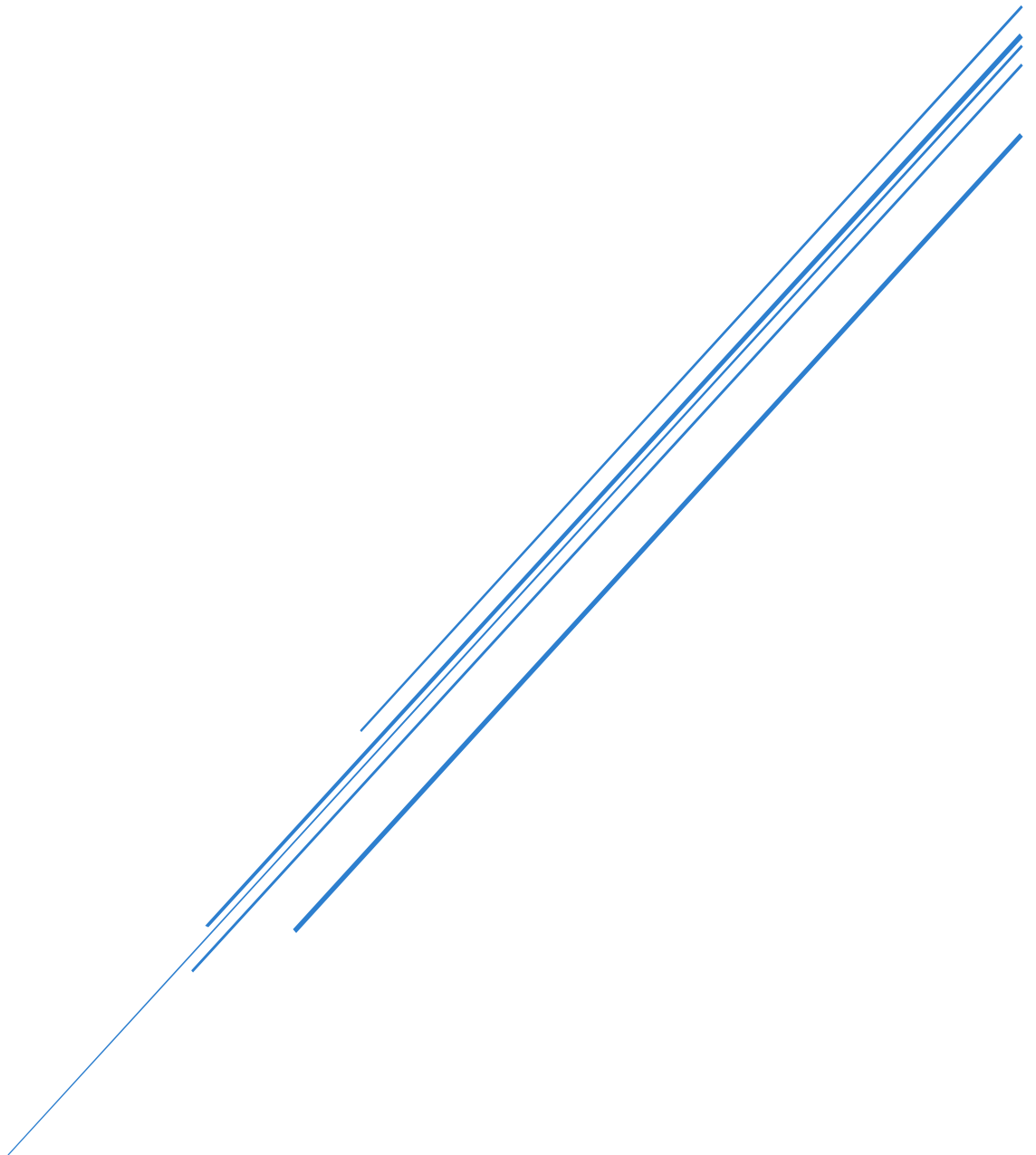


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1 Introduction

The main purpose of doing this research is to study on education system in Southeast Asia Countries. This dataset it provides a comprehensive global perspective on education, offering vital insights into diverse education systems worldwide. It covers essential metrics like out-of-school rates, completion rates, proficiency levels, literacy rates, birth rates, and enrollment in primary and tertiary education. It's a valuable resource for researchers, educators, and policymakers looking to assess and improve education systems globally



Each country's reading proficiency is displayed on the graph. The blue line shows the lowest frequency of reading, and the red line indicates the maximum frequency.

From the Global data, I will filter out only the countries in southeast asia and it will show us the rate of education in each level of education systems.

We will work on the final data in order to apply to the Regression model, analyse, and compare the education system in SEA Countries, too. With all of the work

2 Methodology

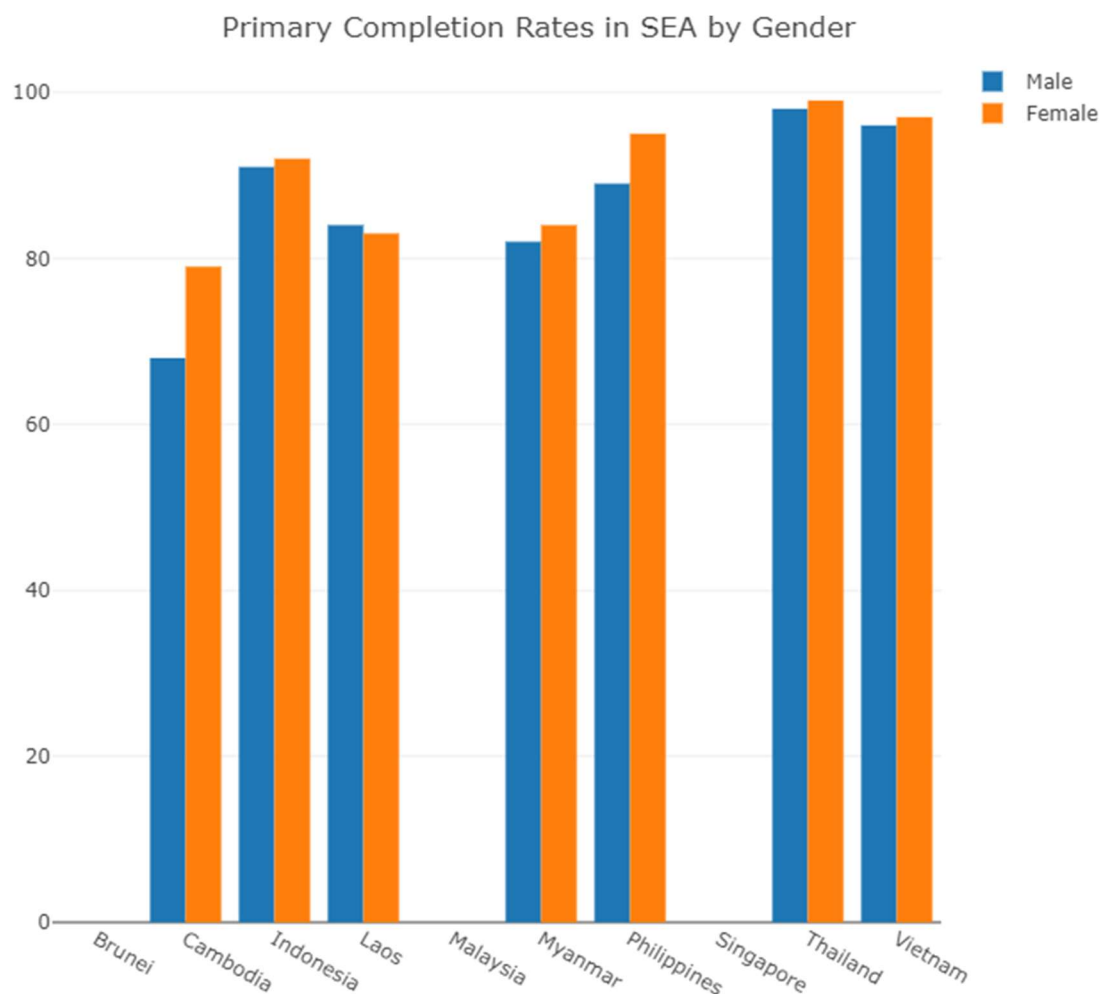
Before writing code and calculating in R studio. First of all, we have to import data into R by reading csv, renames the column named "Countries and areas" to "Countries_and_areas", Convert Field name "Countries and areas" in Global_Education to "Countries_and_areas" and store in Global_Education1

In this report, we want to study the education rate and its effect to the workforce in each countries in SEA such as gender, age, and year by calculating the mean, median, doing comparison of education rate preventively (with the employment rate). We choose to calculate mean to analyze average of all of education, gender, age, and year to easy understand and compare with other.

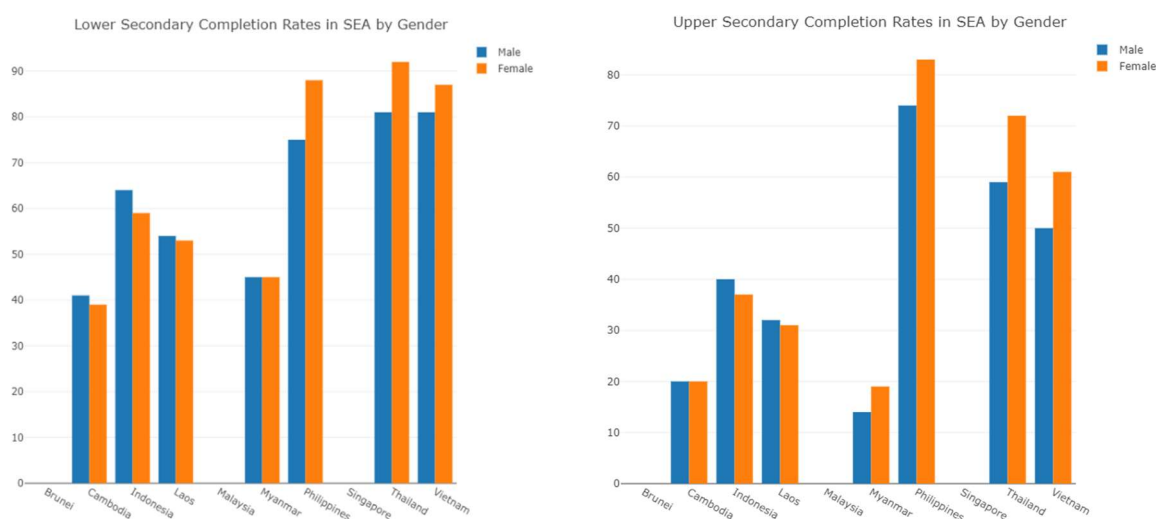
Moreover, we use R studio to calculate and draw plots in order to understand and compare the education rate.

2.1 Education Completion Rate In SEA

Before starting the discussion of the overall education in SEA countries, let have a look on the completion rate in SEA countries both gender in Primary, Lower Secondary and Upper Secondary and the literacy rates for youth ages 15-24, too.



The graph shows the primary completion rates (the percentage of children who have completed at least six years of primary school) in Southeast Asia (SEA) by gender. The graph shows that in all countries except Brunei, female primary completion rates are higher than male primary completion rates. The gender gap is largest in Malaysia, where 97% of females have completed primary school, compared to only 89% of males. (NOTE: Some data have not provide to UN)(that is why we see some empty lines in a few countries).



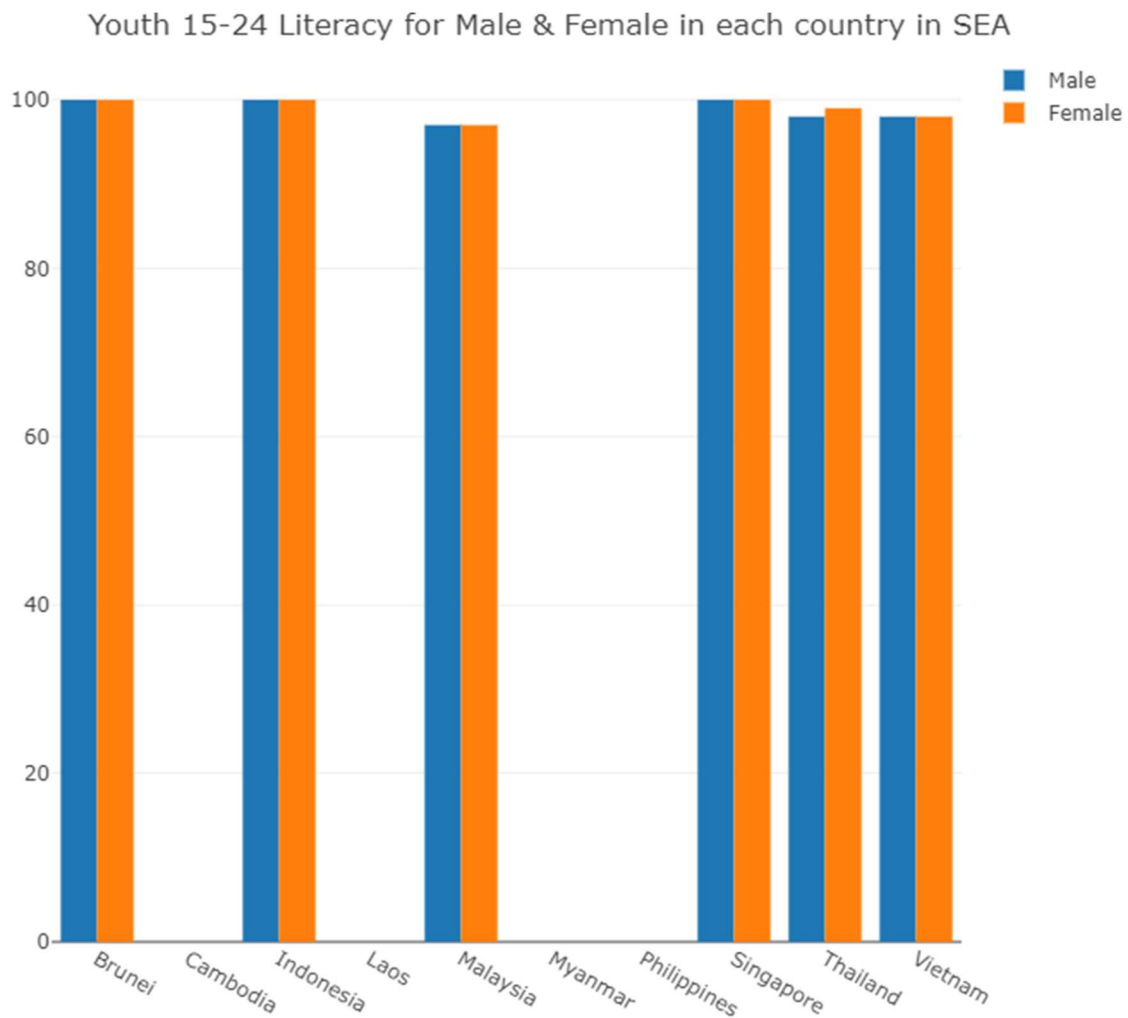
In Lower Secondary school, it shows the lower secondary completion rates (the percentage of children who have completed at least six years of primary and three years of lower secondary education) in Southeast Asia (SEA) by gender.

The graph shows that in all countries except Brunei, female lower secondary completion rates are higher than male lower secondary completion rates. The gender gap is largest in the Philippines, where 95% of females have completed lower secondary school, compared to only 85% of males.

In Upper Secondary, it shows the upper secondary completion rates in Southeast Asia (SEA) by gender. The x-axis of the graph shows the countries in SEA, from Vietnam to Brunei. The y-axis of the graph shows the upper secondary completion rates for males and females in each country.

The upper secondary completion rate is the percentage of youth ages 15-19 who have completed at least upper secondary education. The completion rate is different from the enrollment rate, which is the percentage of youth who are currently enrolled in upper secondary school.

The graph shows that in all countries except Brunei, male upper secondary completion rates are higher than female upper secondary completion rates. The gender gap is largest in Myanmar, where 58% of males have completed upper secondary school, compared to only 48% of females.



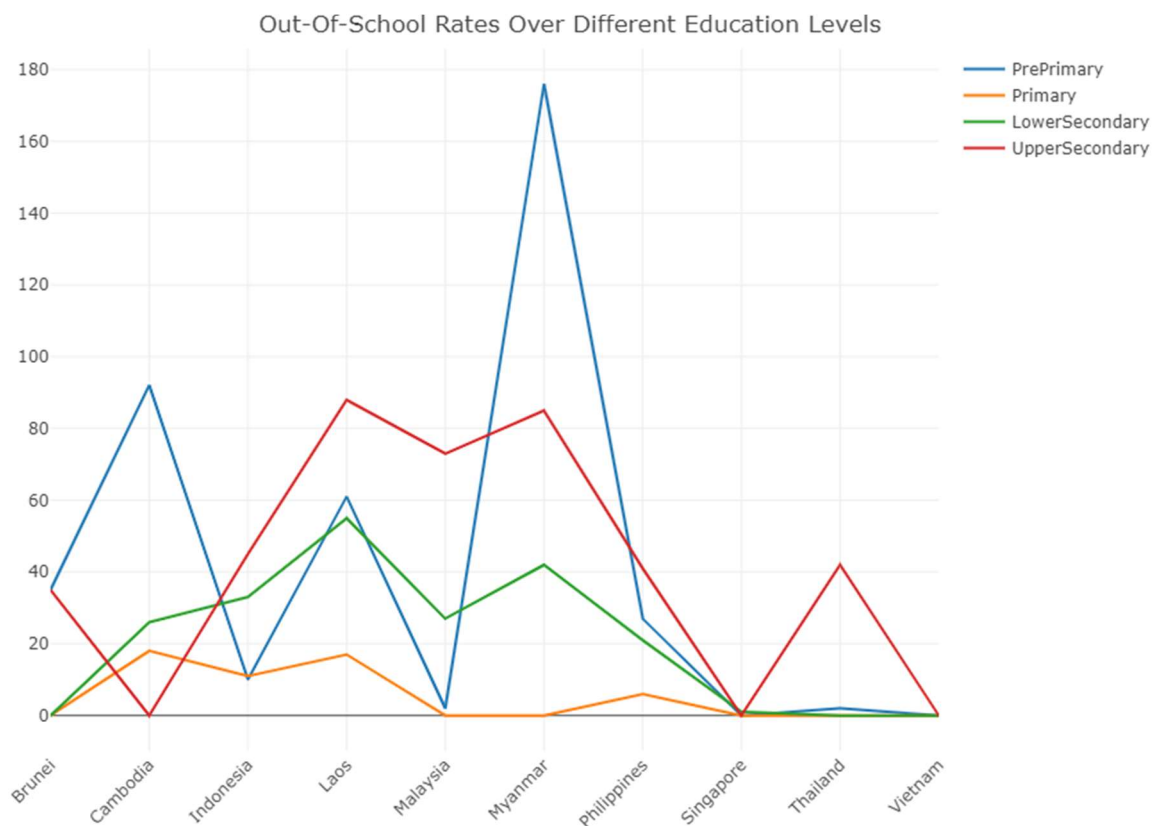
The graph shows that the literacy rates for youth ages 15-24 in SEA are generally high. In all countries shown in the graph, literacy rates for both males and females are above 90%.

As you can see, literacy rates for both males and females are high in all the countries shown in the graph. The highest literacy rates are in Singapore, with 100% of both males and females literate. The lowest literacy rates are in Myanmar, with 90% of males and 88% of females literate.

And we also calculate the mean and media, which we get:

- Mean of education: 35.84
- Median of education: 33.45

2. 2 Out of School Rates



The graph shows out-of-school rates for primary, lower secondary, and upper secondary education levels in Southeast Asia (SEA) from 2015 to 2023. The out-of-school rate is the percentage of children who are of the official age to be in school but are not enrolled.

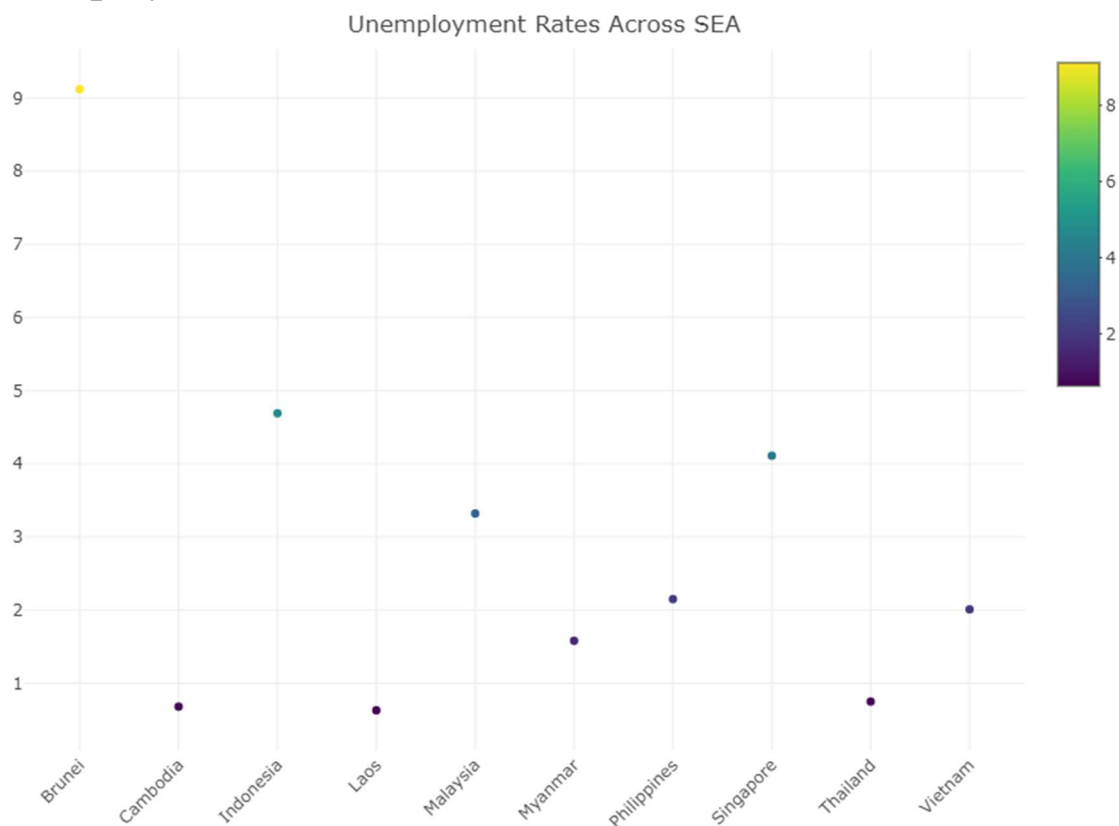
The graph shows that there has been a general decline in out-of-school rates across all education levels in Southeast Asia. In 2015, the out-of-school rate for primary education was 8%, for lower secondary education it was 13%, and for upper secondary education it was 23%. In 2023, the out-of-school rate for primary education was 6%, for lower secondary education it was 7%, and for upper secondary education it was 17%.

However, there are still significant differences in out-of-school rates between different countries in Southeast Asia. In 2023, the out-of-school rate for primary education was highest in Cambodia (11%), followed by Myanmar (8%) and Vietnam (7%). The out-of-school rate for lower secondary education was highest in Cambodia (13%), followed by Myanmar (11%) and Lao PDR (9%). The out-of-school rate for upper secondary education was highest in Cambodia (29%), followed by Myanmar (24%) and Indonesia (19%).

And we also calculate the mean and media of the out of school rate, which we get:

- Mean of education: 2.904
- Median of education: 2.08

2.3 Unemployment Rates Vs Education



The graph shows the unemployment rates in each of the 11 countries of Southeast Asia (SEA) from 2019 to 2023.

The graph shows that there was a general increase in unemployment rates in SEA from 2019 to 2020, as a result of the COVID-19 pandemic.

In 2020, the unemployment rate in SEA was 5.4%, up from 4.8% in 2019.

The highest unemployment rate in 2020 was in the Philippines, at 8.1%, and the lowest was in Brunei Darussalam, at 1.4%.

The unemployment rate in SEA began to decline in 2021 and 2022 as the economies of the region began to recover from the pandemic.

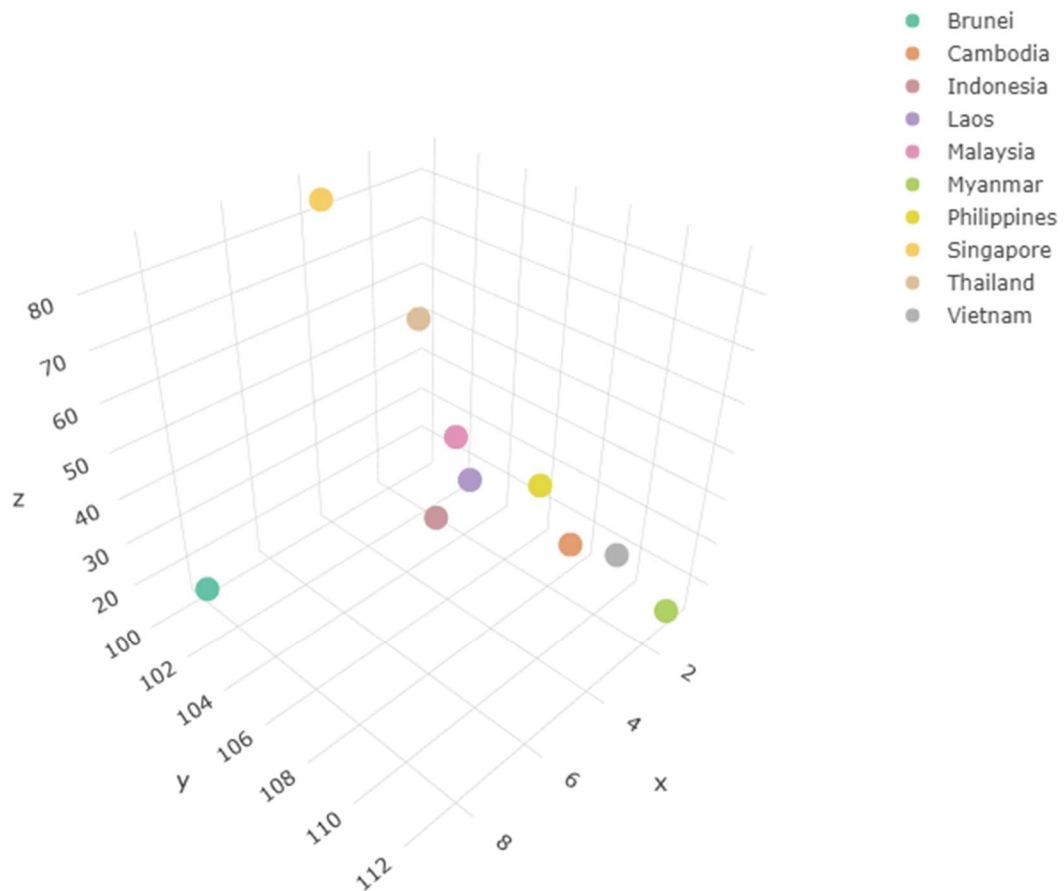
In 2021, the unemployment rate in SEA was 4.8%, and in 2022 it was 4.2%.

The highest unemployment rate in 2022 was in the Philippines, at 5.9%, and the lowest was in Singapore, at 2.4%.

The unemployment rate in SEA remained relatively stable in 2023, at 4.2%.

The highest unemployment rate in 2023 was in Cambodia, at 5.2%, and the lowest was in Brunei Darussalam, at 1.4%.

Unemployment vs. Education Enrollment



The graph shows the relationship between unemployment and education enrollment in countries in Southeast Asia (SEA).

The x-axis of the graph shows the unemployment rate in each country as a percentage, while the y-axis shows the average years of schooling.

The graph shows that there is a positive correlation between unemployment and education enrollment: countries with higher unemployment rates tend to have higher average years of schooling. This is likely because unemployed people may be more likely to pursue education to improve their job prospects.

However, there are also some exceptions to this general trend. For example, Cambodia has a very low unemployment rate of 0.9% but a relatively low average of 7.3 years of schooling. This is likely because Cambodia is a relatively poor country with a young and unskilled workforce.

Meanwhile, Laos has a relatively high unemployment rate of 4.2% but a relatively high average of 8.7 years of schooling. This is likely because Laos has a large and growing export sector, which has helped to boost its economy and increase the demand for skilled workers.

Overall, the graph suggests that there is a strong positive correlation between unemployment and education enrollment. However, there are some exceptions to this trend, and other factors such as economic development and labor policies can also play a role in determining a country's education enrollment rates.

2. 4 Regression

```
Call:
lm(formula = OOSR_upper_secondary_Age_Male ~ OOSR_Pre0Primary_Age_Male +
    OOSR_Primary_Age_Male + OOSR_Lower_Secondary_Age_Male, data = Global_Education1)

Residuals:
    Min       1Q   Median       3Q      Max
-10.970  -7.665  -1.529   7.775  11.993

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)    8.999485    4.965109   1.813  0.11985
OOSR_Pre0Primary_Age_Male  0.007495    0.145921   0.051  0.96071
OOSR_Primary_Age_Male    -3.015912    1.166220  -2.586  0.04143 *
OOSR_Lower_Secondary_Age_Male  1.787268    0.453607   3.940  0.00762 **

Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 10.36 on 6 degrees of freedom
Multiple R-squared:  0.7743,    Adjusted R-squared:  0.6615
F-statistic: 6.862 on 3 and 6 DF,  p-value: 0.02291
```

Base on this we can say:

The intercept (8.999) is the predicted schooling rate when all age groups are zero. It's like a starting point.

- OOSR_Pre0 Primary_Age_Male (0.007495): A little positive value, but statistically insignificant. It suggests that the education rate for boys in upper secondary may somewhat rise with the age group preceding primary education, albeit this effect is insufficient to be certain.
- OOSR_Primary_Age_Male (-3.015912) A negative value with statistical significance. As the age group in primary school grows, the education rate for males in upper secondary tends to decline.
- OOSR_Lower_Secondary_Age_Male (1.787268) A positive value with statistical significance. When the age group in lower secondary school increases, so does the education rate for males in upper secondary.

The whole model is statistically significant, implying that at least one of these age groups has an impact on male upper-secondary schooling rates. After accounting for the number of age groups, the model explains approximately 66.15% of the variation in schooling rates. The standard deviation of the variations between anticipated and observed values is around 10.36.

In summary, the model explains how distinct age groups influence the schooling rate for males in upper secondary, with primary and lower secondary age groups having large effects in opposing directions.

3. Conclusion

In conclusion, after analyzing and comparing the education rate of the countries in the SEA, Singapore has the highest education rate in the SEA and due Most countries are developed countries, and base on their education level made them face the difficulty of having a job and even send their children to get an education at school.

The analysis shows that there is a positive correlation between unemployment and education enrollment: countries with higher unemployment rates tend to have higher average years of schooling. This is likely because unemployed people may be more likely to pursue education to improve their job prospects.

4. References

<https://www.kaggle.com/datasets/nelgiriyeewithana/world-educational-data>