# Education vs Unemployment: A Comparative Analysis of Asian Economies (2019–2022)

*An SPSS-Based Study on the Correlation Between Education Levels and Unemployment Rates in Asia*

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# Introduction

## 1.1 Background of the issue

Under the auspices of UNESCO, the World Declaration on Education for All commits to providing education to all people in diverse communities, while the Universal Declaration of Human Rights and the Dakar Framework for Action emphasize education and literacy as a means to promote opportunity, development and Fundamental human rights of empowerment (Sharma, 2017).

However, within the confines of these ideal goals, long-standing problems such as unemployment remain. The International Labor Organization predicts that global unemployment will reach 5.7% in 2022 due to the ongoing Covid-19 pandemic, especially in Asian countries (WebAdmin, 2021).

This study is expected to primarily investigate whether education level is a key factor in improving unemployment rates in Asian countries, and whether there is a relationship and mutual influence between them.

## 1.2 Rationale of choosing issue

By employing data analysis and visualization tools to examine the correlation between education levels and unemployment rates in Asian countries, the initiative aims to provide policymakers with insightful visual representations. The goal is to simplify messaging so that policymakers in Asian countries can more easily make informed decisions on addressing and reducing unemployment rate.

## 1.3 Primary objective of the report

This report aims to investigate the relationship between education levels and unemployment rates in Asian countries. The dual focus on the overall impact in the region and specific country-level insights is designed to provide valuable information for policymakers and individuals alike.

**Objectives:**

1. Examine the unemployment rates of Asian countries over the year
2. Examine education levels in Asian countries
3. Explore the relationship between education levels and unemployment rate in Asia countries
4. Explore how unemployment rate affects by education levels in India over the year

## 1.4 Approaches to achieve the objectives

To achieve the objectives, a approach involving four key steps will be implemented using the SPSS application:

*I. Variable Identification*

- Identify and select relevant variables within the dataset that align with the objectives of the analysis.

*II. Data Cleaning*

- Use SPSS for comprehensive data cleaning, including the removal of redundant variables and addressing missing or invalid data.

*III. Data Analysis*

- Use SPSS algorithms and statistical tools, such as frequency tables, to analyse data thoroughly. This process tries to identify links and trends within the dataset in order to address the report's objectives.

*IV. Data Visualization*

- Use SPSS features to produce visual representations like charts and graphs. These visualisations are effective tools for extracting relevant insights from data and facilitating the interpretation of outcomes. The insights gained through this method are then used to address and respond to the report's specific objectives.

# Data Description

The raw csv dataset, titled "Unemployment Rates by Education Level," is extracted from OECD Data (https://data.oecd.org/unemp/unemployment-rates-by-education-level.htm#indicator-chart). Comprising 103 entries distributed across 8 columns, this dataset

compiles survey responses on the unemployment rates among individuals aged 25 to 64 years old. The data spans 11 countries and encompasses the years 2019 to 2022.

| Variables | Type | Description of Data |
|---|---|---|
| **Country** | Categorical | COL=Columbia<br>IDN=Indonesia<br>IND=India<br>ISR=Israel<br>JPN=Japan<br>KOR=Korea<br>MEX=Mexico<br>ROU=Romania<br>SAU=Saudi Arabia<br>TUR=Turkey<br>ZAR=South Africa |
| **EmployStatus** | Categorical | UNEMPEDU=Unemployment |
| **EduLevel** | Categorical | BUPPSRY=Below upper secondary<br>UPPSRY_NTRY=Upper secondary non-tertiary<br>TRY=Tertiary |
| **Age** | Numerical | PC_25_64=25-64 year-olds |
| **Frequency** | Categorical | - |
| **Year** | Numerical | 2019 to 2022(time period for which the data is collected) |
| **UnemploymentRates** | Numerical | Percentage of unemployed rate |
| **FlagCodes** | Categorical | - |

# Data Cleaning and Processing

## 3.1 Identify the useful variables

The variables will be use in the analysis are shown below.

| Variables | Description of Data |
|---|---|
| Country | Present the countries used to study unemployment rates, which only 7 countries such as ‘Indonesia’, ‘India’, ‘Japan’, ‘Korea’, ‘Saudi Arabia’ and ‘Turkey’. |
| EduLevel | Present the education level of the people in those countries |
| Year | The time period for which the data is collected |
| Rates | The percentage of unemployment rate in those country |

## 3.2 Data Cleaning and Pre-processing

I. The main goal of this step is to enhance the ‘Country’ column by specifically including Asian countries such as ‘Indonesia’, ‘India’, ‘Japan’, ‘Korea’, ‘Saudi Arabia’ and ‘Turkey’.
II. The ‘EduLevel’ variable of ‘TRY’, ‘UPPSRY_NTRY’, and ‘BUPPSRY’, will be label as ‘1’, ‘2’, ‘3’ accordingly.
III. Variables, such as "EmployStatus" and "age", are fixed for all variable, so it will be remove the entire variable column, cause it will not provide any new information.
IV. Variables such as “frequency” and “flag code” does not provide any meaningful indicator will also be remove the entire variable column.
V. There are no missing values in this dataset to be clean.

**I. Steps to filter Only Asian Countries in 'Country' column**

1. *Navigate to the "Data" Menu*

- Click on the "Data" menu in the top menu bar.

2. *Select "Select Cases..."*

- In the "Data" menu, choose "Select Cases..." to access the dialog box for case selection.

3. *Define the Condition*

- In the "Select Cases" dialog box, select the "If condition is satisfied" option.
- Enter the condition to delete countries except for Asian countries using the command "NOT Country = 'MEX'" (replace 'MEX' with the appropriate country code or name for non-Asian countries).
- Click "Continue."
- In the "Output" dialog box, select the "Delete unselected cases" option.

4. *Apply the Selection*

- Click the "OK" button to apply the selection criteria. This will delete the dataset that meets the specified conditions.

5. *Keep Repeating*

- Repeat the steps above to delete other non-Asian countries until only Asian countries are left in the 'Country' column.

## II. Steps to label the education levels variable

1. *Open the Variable View:*

- Click on the "Variable View" tab at the bottom of the screen.

2. *Locate the Variables:*

- Find the variables TRY, UPPSRY_NTRY, and BUPPSRY in the list of variables.

3. *Enter Label Values:*

- In the "Values" column for each variable, enter the corresponding labels for each category.
- For TRY=3, UPPSRY_NTRY=2, and BUPPSRY=1

# Data Analysis

## 4.1 Descriptive Statistic of Unemployment Rate

**Descriptive Statistics**

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| UnemploymentRate | 64 | .712 | 12.416 | 4.42336 | 2.971758 |
| Valid N (listwise) | 64 | | | | |

From table above shows that the mean of unemployment rate of Asian country over the year is 4.42%.

## 4.2 Frequency Statistics of Variables

*Education Level*

**EduLevel**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | BUPPSRY | 20 | 31.3 | 31.3 | 31.3 |
| | TRY | 24 | 37.5 | 37.5 | 68.8 |
| | UPPSRY_NTRY | 20 | 31.3 | 31.3 | 100.0 |
| | Total | 64 | 100.0 | 100.0 | |

*Country*

**Country**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | IDN | 12 | 18.8 | 18.8 | 18.8 |
| | IND | 9 | 14.1 | 14.1 | 32.8 |
| | ISR | 12 | 18.8 | 18.8 | 51.6 |
| | JPN | 4 | 6.3 | 6.3 | 57.8 |
| | KOR | 12 | 18.8 | 18.8 | 76.6 |
| | SAU | 6 | 9.4 | 9.4 | 85.9 |
| | TUR | 9 | 14.1 | 14.1 | 100.0 |
| | Total | 64 | 100.0 | 100.0 | |

*Year*

**Year**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 2019 | 19 | 29.7 | 29.7 | 29.7 |
| | 2020 | 16 | 25.0 | 25.0 | 54.7 |
| | 2021 | 13 | 20.3 | 20.3 | 75.0 |
| | 2022 | 16 | 25.0 | 25.0 | 100.0 |
| | Total | 64 | 100.0 | 100.0 | |

## 4.3 Crosstab Data

*Education levels in Asian countries*

**EduLevel * Country Crosstabulation**

Count

| | | Country | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IDN | IND | ISR | JPN | KOR | SAU | TUR | Total |
| EduLevel | BUPPSRY | 4 | 3 | 4 | 0 | 4 | 2 | 3 | 20 |
| | TRY | 4 | 3 | 4 | 4 | 4 | 2 | 3 | 24 |
| | UPPSRY_NTRY | 4 | 3 | 4 | 0 | 4 | 2 | 3 | 20 |
| Total | | 12 | 9 | 12 | 4 | 12 | 6 | 9 | 64 |

According to the above table, it can be inferred that the main educational level in Asia is higher education, and 24 out of 64 people have received higher education.

*Education levels across the Year*

**EduLevel * Year Crosstabulation**

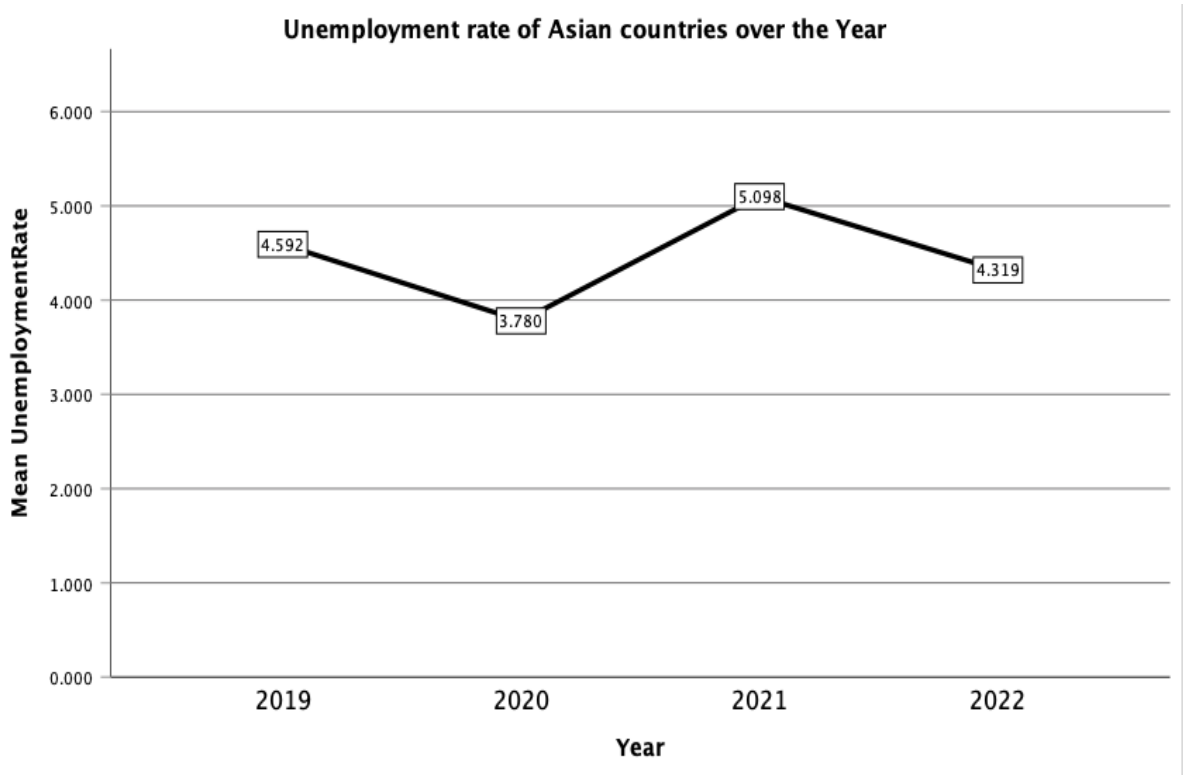
Count

| | | Year | | | | |
|---|---|---|---|---|---|---|
| | | 2019 | 2020 | 2021 | 2022 | Total |
| EduLevel | BUPPSRY | 6 | 5 | 4 | 5 | 20 |
| | TRY | 7 | 6 | 5 | 6 | 24 |
| | UPPSRY_NTRY | 6 | 5 | 4 | 5 | 20 |
| Total | | 19 | 16 | 13 | 16 | 64 |

According to the table above, the results show a declining trend in individual educational attainment across Asia.

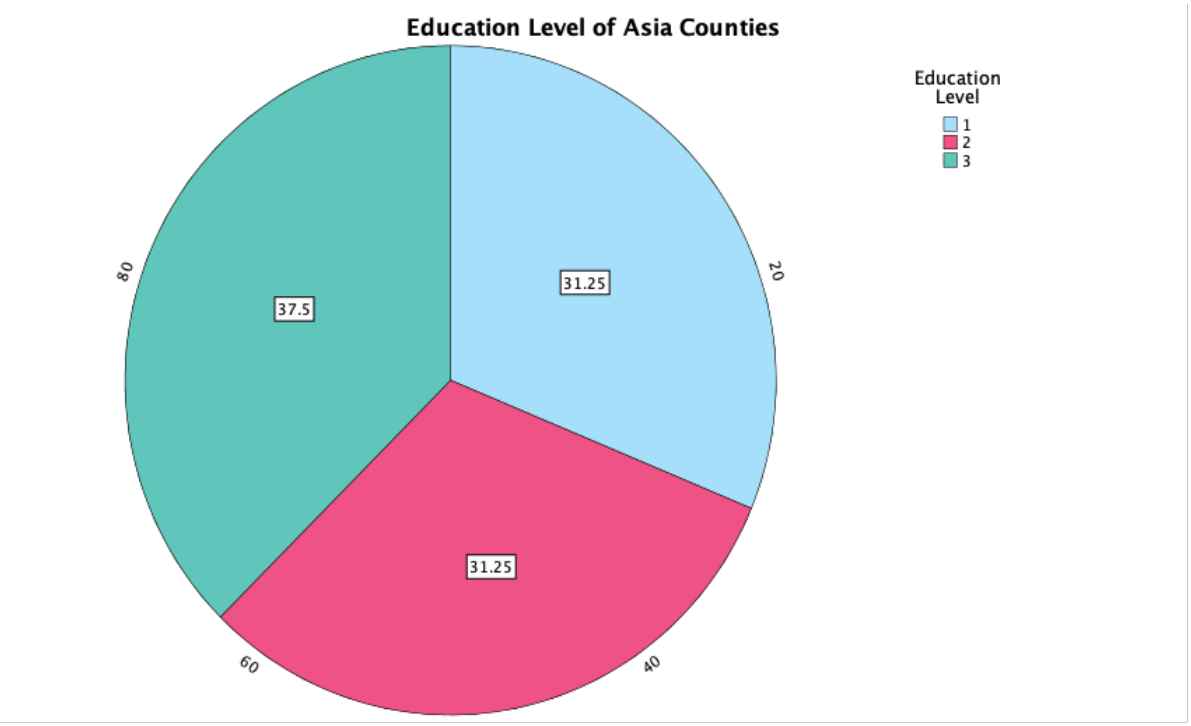
# Data Visualization

## 5.1 Examine the unemployment rates of Asian countries over the year



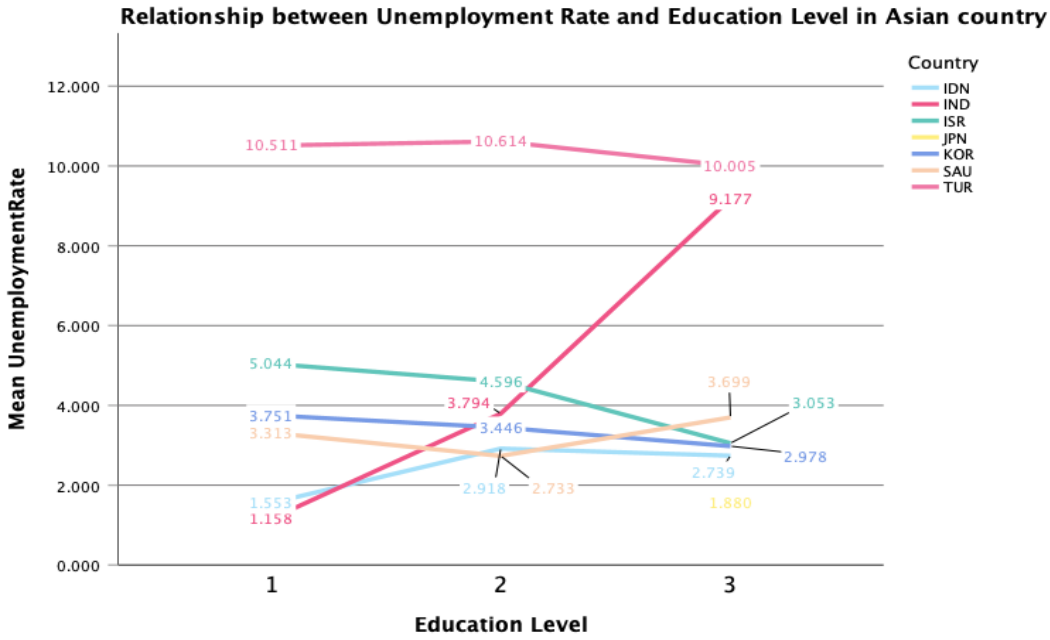

The unemployment rates line chart above shows a recognisable pattern of changes, providing insight into the dynamic nature of Asia's labour markets. In 2020, the region's unemployment rate fell significantly to a commendable 3.78%, indicating a period of stability. However, the following year, 2021, saw a significant increase, with the rate reaching at almost 5.1%. This spike in unemployment rates coincides with the peak of the COVID-19 pandemic, providing an important historical backdrop (Falk, 2021). The epidemic is thought to have triggered an unparalleled economic crisis, causing widespread unemployment and contributing to the indicated increase in the unemployment rate in 2021.

## 5.2 Examine the education levels in Asian countries




The pie chart examined education levels in Asian countries such as Indonesia, India, Japan, Korea, Saudi Arabia, and Turkey. It indicates a striking distribution of educational achievement, with 37.5% of the population obtaining university education, while below secondary and upper secondary education account for an equal 31.25%. The majority of tertiary education may indicate a significant emphasis on higher education, maybe driven by causes such as changing employment needs, technological improvements, and an increased demand for specialised skills in the workforce (Editor, 2023). The equal representation of lower and upper secondary education levels indicates a determined attempt to provide a wide range of educational demands, generating a diversified and adaptable workforce. This sophisticated understanding of the educational landscape lays the groundwork for future research into the relationship between educational achievement and employment outcomes in these various Asian countries.

## 5.3 Examine relationship between unemployment rate and education level in Asian countries



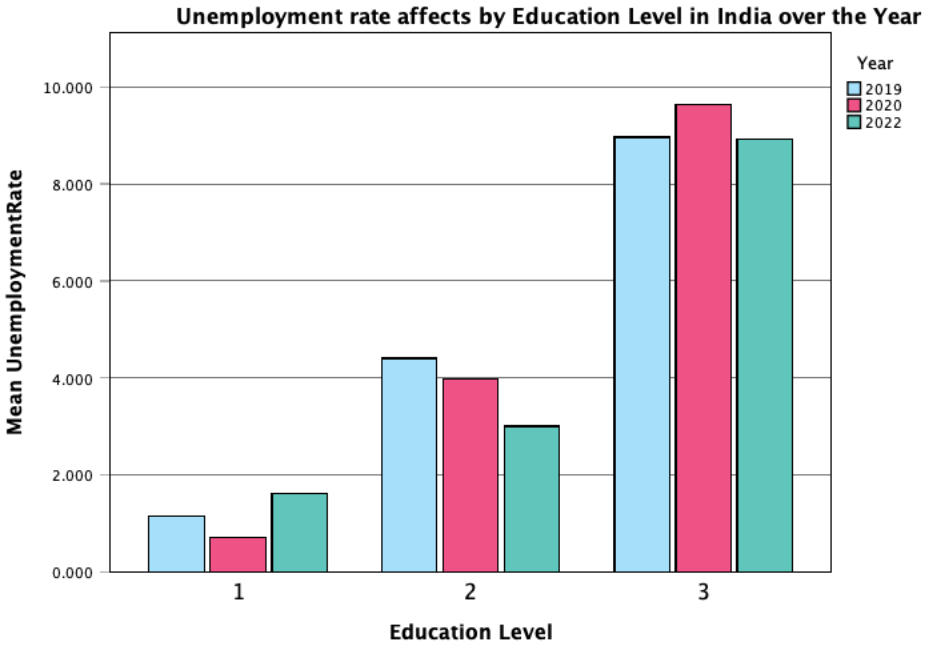

The unemployment dynamics in Turkey and Israel present a notable trend where increased education levels coincide with a reduction in unemployment rates. In Turkey, a decline from 10.5% to 10% in unemployment is observed as education levels rise. Similarly, in Israel, a significant drop from 5% to 3% in unemployment aligns with an increase in education levels. These cases highlight the potential positive correlation between higher education and improved employment prospects.

Conversely, India's scenario stands in contrast, revealing a somewhat unexpected pattern. Despite an increase in education levels, the unemployment rate in India rises substantially from 1% to 9%. This divergence prompts a closer examination of the factors contributing to this counterintuitive relationship between education and employment in the Indian context.

Indonesia introduces a unique trend where the unemployment rate starts at 1% for below secondary education. Surprisingly, the rate increases as education levels progress to upper secondary. However, a subsequent drop in unemployment is observed when education reaches the tertiary level. This distinctive pattern suggests a complex interplay of factors, including the alignment of educational offerings with market demands and the evolving nature of job opportunities at different education levels.

These diverse trends underscore the intricate relationship between education and unemployment rates, revealing that the impact varies across countries. A comprehensive understanding of these dynamics is crucial for policymakers and stakeholders in crafting targeted interventions that address the specific challenges and opportunities associated with education and employment in each context.

## 5.4 Explore how education levels affects trends of unemployment rate in India.




Based on the bar chart, a discernible trend emerges, indicating that the unemployment rate in India tends to increase with higher levels of education. This observation underscores a unique challenge facing the country - educational unemployment, where individuals with advanced education encounter difficulties in securing suitable employment opportunities (Beniwal, 2023). This issue stands out as a distinctive problem in the Indian job market, reflecting the nation's unique dynamics.

**Educated unemployment in India is characterized by notable features:**

***Overqualification:*** A substantial number of well-educated individuals often find themselves overqualified for the limited job opportunities available. Despite holding advanced degrees and qualifications, they encounter challenges in obtaining positions that match their educational background (Mane, 2022).

***Underemployment:*** Widespread underemployment is a concerning aspect of India's labor force. Despite acquiring higher education and qualifications, many individuals find themselves in roles that only partially utilize their skills and expertise. This mismatch between qualifications and job responsibilities contributes to the complexity of the educated unemployment challenge (Mane, 2022).

Addressing this issue requires a comprehensive approach, including improving the quality of education, aligning educational curricula with industry needs, and implementing strategies to create jobs in sectors capable of absorbing the skills of the educated workforce. Effectively tackling educational unemployment is not only crucial for the well-being of individuals affected but also pivotal for India's overall economic growth and competitiveness on the global stage.

# Conclusion

In summary, a relationship between educational levels and the unemployment rate certainly exists. While the traditional perspective suggests that higher education should lead to a reduction in unemployment, the analysis challenges this assumption. The prevalence of educated unemployment, particularly notable in India, defies the expectation that increased education inevitably translates to improved job prospects. The complexities of the labor market, characterized by issues such as overqualification and underemployment, underscore the intricate nature of the problem. Policymakers must demonstrate insight and consider nuanced factors when shaping strategies and decisions related to education and employment, recognizing that a simplistic correlation between higher education and lower unemployment may not always hold true.