

YOUTH AND EDUCATION INVESTMENT: A CROSS-COUNTRY ANALYSIS

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TABLE OF CONTENTS

- › **Introduction**
- › **Narrative and Objective**
- › **Data Overview**
- › **Loading and Merging Data**
- › **Filter Selected Indicators**
- › **Variable Summary**
- › **Youth not in Education/training**
- › **Gender Parity in Enrollment**
- › **Education Spending (% GDP)**
- › **Tertiary Attainment (Age 25+)**
- › **Adolescent Fertility Rate**
- › **Summary Tables(Average Values)**
- › **Efficient data.table Code Example**
- › **Personalisation Notes**
- › **Final Thoughts**
- › **References**

INTRODUCTION

This presentation explores economic, environmental, social, and development indicators across three countries:

- **USA**
- **Luxembourg**
- **India**

We use `data.table` for efficient data handling and `ggplot2` for visualization.

NARRATIVE AND OBJECTIVE

We investigate the relationship between **education investment** and **youth development**, focusing on:

- Youth not in education, employment or training
- Gender parity in school enrollment
- Tertiary education attainment
- Adolescent fertility rate

DATA OVERVIEW

Source: [Humanitarian Data Exchange - World Bank Indicators]

Indicators from:

- India (IND)
- United States (USA)
- Luxembourg (LUX)

Years: varies per indicator (mostly 1990–2022)

LOADING AND MERGING DATA

	Country Name	Country ISO3	Year
	<char>	<char>	<char>
1:	#country+name	#country+code	#date+year
2:	India	IND	2022
3:	India	IND	2021
4:	India	IND	2020
5:	India	IND	2019

227737:	Luxembourg	LUX	2003
227738:	Luxembourg	LUX	2002
227739:	Luxembourg	LUX	2001
227740:	Luxembourg	LUX	2000
227741:	Luxembourg	LUX	1999
	Indicator Name	Indicator Code	
	<char>	<char>	
1:	#indicator+name	#indicator+code	
2:	Fertilizer consumption (% of fertilizer production)	AG.CON.FERT.PT.ZS	
3:	Fertilizer consumption (% of fertilizer production)	AG.CON.FERT.PT.ZS	
4:	Fertilizer consumption (% of fertilizer production)	AG.CON.FERT.PT.ZS	
5:	Fertilizer consumption (% of fertilizer production)	AG.CON.FERT.PT.ZS	

227737:	Travel services (% of commercial service exports)	TX.VAL.TRVL.ZS.WT	

FILTER SELECTED INDICATORS

	Country Name	Country ISO3	Year	
	<char>	<char>	<char>	
1:	India	IND	2021	
2:	India	IND	2020	
3:	India	IND	2019	
4:	India	IND	2018	
5:	India	IND	2017	

1311:	Luxembourg	LUX	1975	
1312:	Luxembourg	LUX	1974	
1313:	Luxembourg	LUX	1973	
1314:	Luxembourg	LUX	1972	
1315:	Luxembourg	LUX	1971	
				Indicator Name
				<char>
1:	School enrollment, primary and secondary (gross), gender parity index (GPI)			
2:	School enrollment, primary and secondary (gross), gender parity index (GPI)			
3:	School enrollment, primary and secondary (gross), gender parity index (GPI)			
4:	School enrollment, primary and secondary (gross), gender parity index (GPI)			
5:	School enrollment, primary and secondary (gross), gender parity index (GPI)			

1311:	School enrollment, primary and secondary (gross), gender parity index (GPI)			

VARIABLE SUMMARY

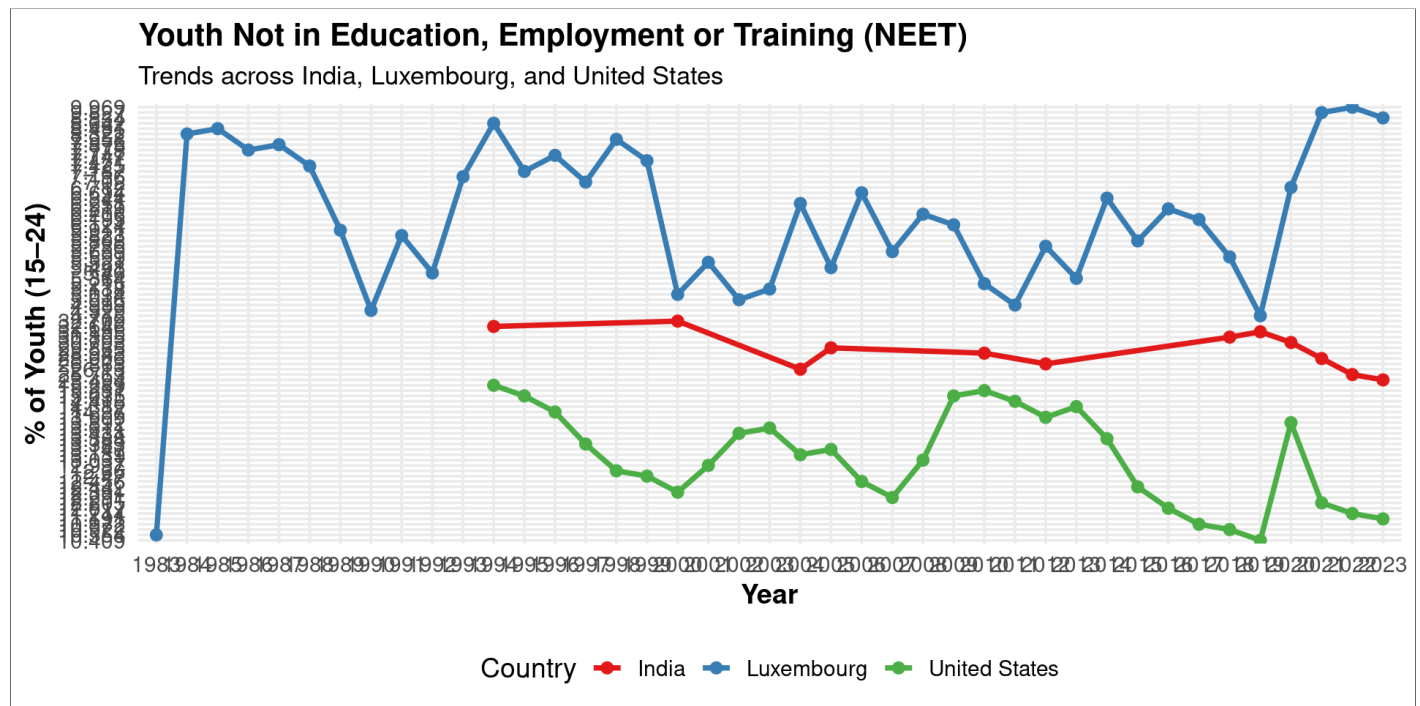
Data summary

Name	dt_sel
Number of rows	1315
Number of columns	6
Key	NULL
Column type frequency:	
character	6
Group variables	
None	

Variable type: character

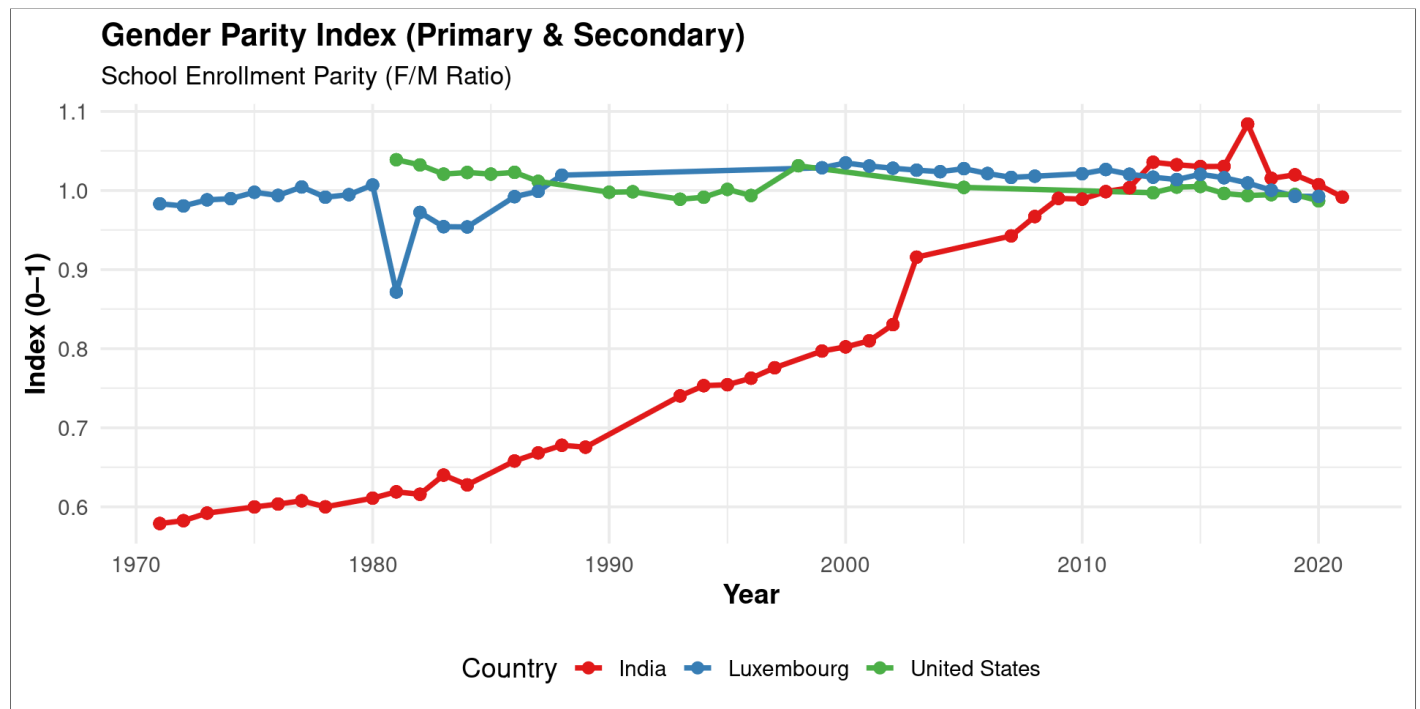
skim_variable	n_missing	complete_rate	min	max	empty	n_unique	whi
Country Name	0	1	5	13	0	3	
Country ISO3	0	1	3	3	0	3	
Year	0	1	4	4	0	64	
Indicator Name	0	1	53	97	0	5	
Indicator Code	0	1	11	17	0	5	
Value	0	1	2	17	0	490	

YOUTH NOT IN EDUCATION/TRAINING



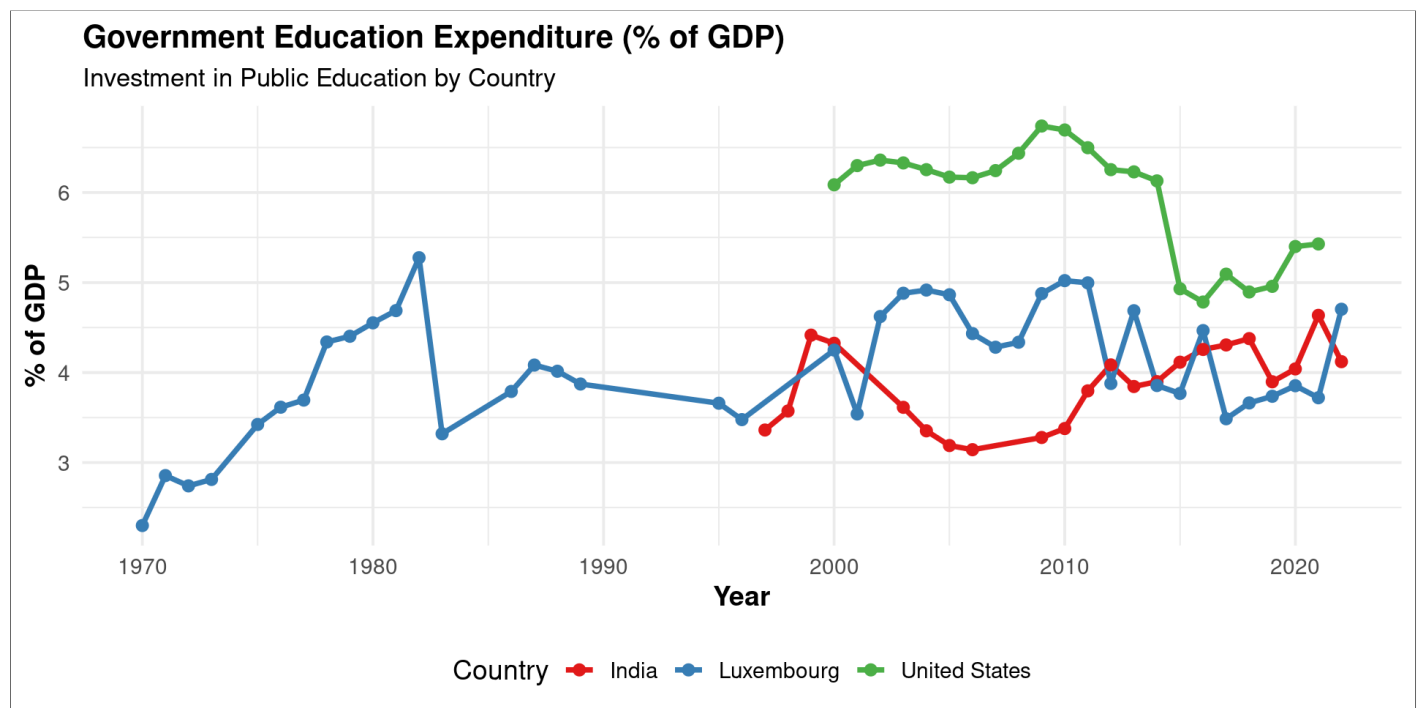
- India shows the **highest NEET rate** and a **rising trend**, highlighting youth disengagement.
- Luxembourg maintains consistently low levels.
- The US exhibits a moderate but more stable pattern.

GENDER PARITY IN ENROLLMENT



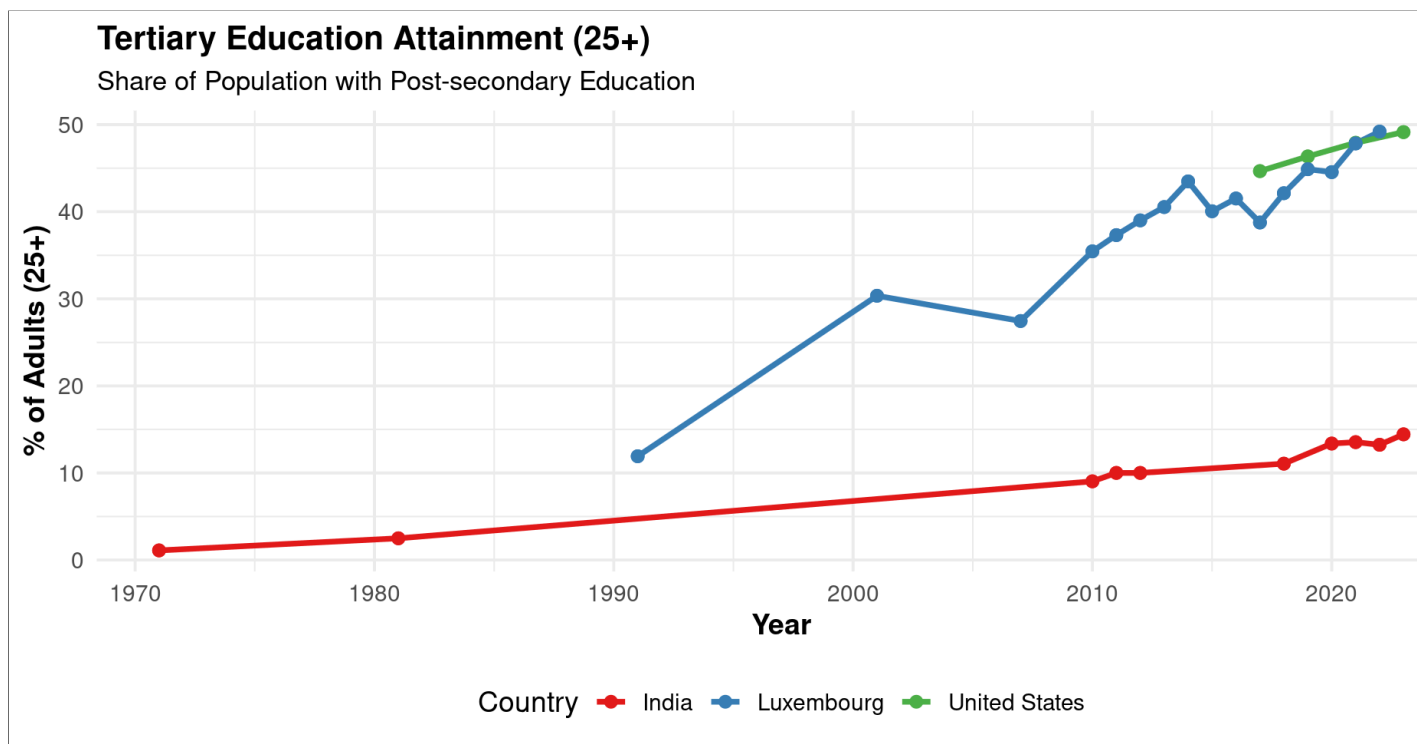
- › India and Luxembourg are near parity or slightly favor females.
- › USA maintains consistent balance.
- › Gender disparity appears largely addressed.

EDUCATION SPENDING (% GDP)



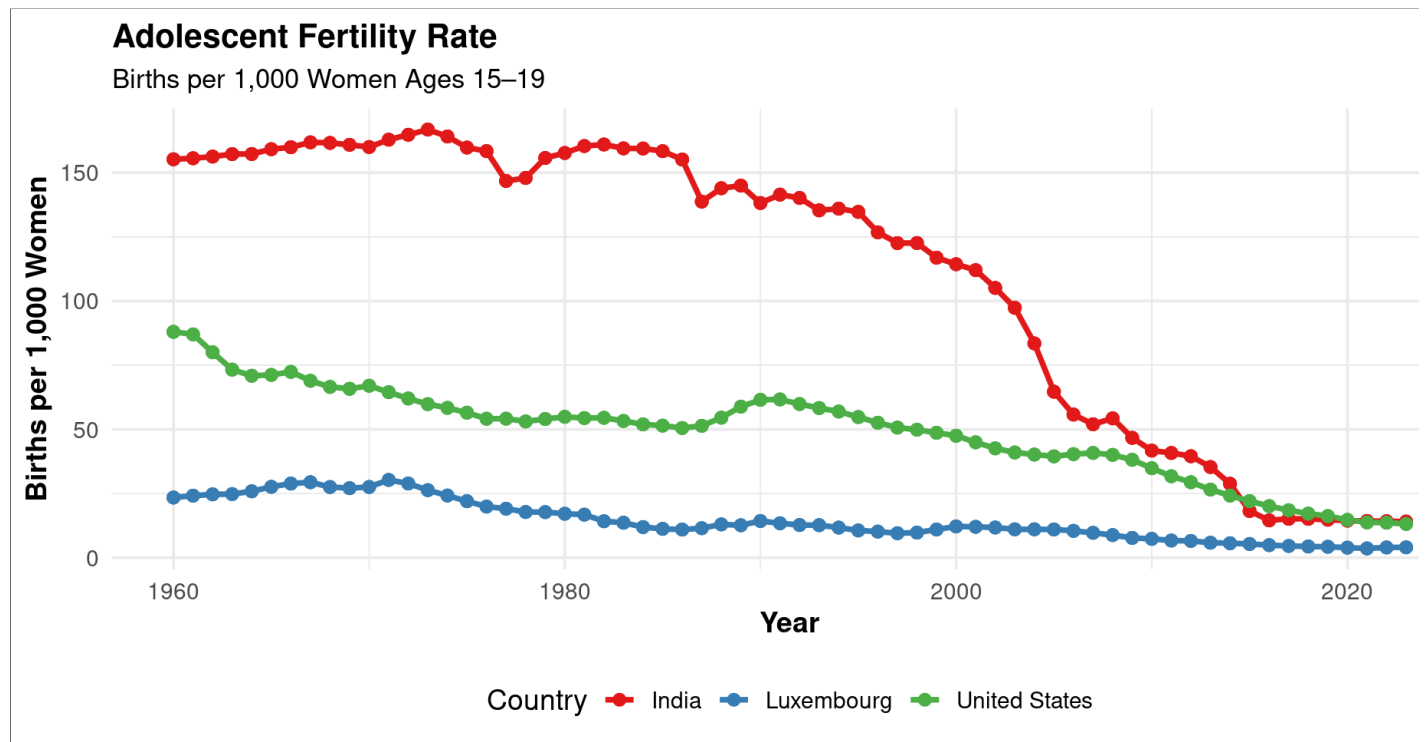
- › India invests 4%(approx) of GDP in education, the **lowest** among the three.
- › Luxembourg shows the **highest and most stable investment**.
- › U.S. exhibits moderate but consistent funding.

TERTIARY ATTAINMENT (AGE 25+)



- › Luxembourg and the USA lead in tertiary attainment.
- › India lags behind and shows **declining** attainment rates.
- › Indicates need for sustained investment in higher education.

ADOLESCENT FERTILITY RATE



- › India has seen a **rise** in adolescent fertility, indicating gaps in health education.
- › Luxembourg and the U.S. show **lower and decreasing** rates.
- › Higher fertility correlates with lower educational attainment.

SUMMARY TABLES(AVERAGE VALUES)

Key: <Country Name, Indicator Name>

	Country Name	Indicator Name
	<char>	<char>
1:	India	Adolescent fertility rate (births per 1,000 women ages 15-19)
2:	India	Educational attainment, at least completed post-secondary, population 25+, total (%) (cumulative)
3:	India	
4:	India	
5:	India	
6:	Luxembourg	
7:	Luxembourg	
8:	Luxembourg	
9:	Luxembourg	
10:	Luxembourg	
11:	United States	
12:	United States	
13:	United States	
14:	United States	
15:	United States	

#Decision : Cross Country Trends

- **India:** Higher NEET rate and fertility, lower tertiary education.
- **Luxembourg:** High parity index and spending.
- **USA:** Steady investment, but large variation in outcomes.

#Interpretation:

- **Education spending** and **gender parity** are strong predictors of youth inclusion.
- Countries with low fertility often have higher tertiary attainment.

EFFICIENT DATA.TABLE CODE EXAMPLE

```
Key: <Country Name>
Country Name Country ISO3 Year
<char> <char> <char>
1: India IND 2000
2: Luxembourg LUX 1983
3: United States USA 1994

Indicator Name
<char>
1: Share of youth not in education, employment or training, total (% of youth population)
2: Share of youth not in education, employment or training, total (% of youth population)
3: Share of youth not in education, employment or training, total (% of youth population)
Indicator Code Value
<char> <char>
1: SL.UEM.NEET.ZS 32.709
2: SL.UEM.NEET.ZS 10.554
3: SL.UEM.NEET.ZS 15.289
```

PERSONALISATION NOTES

- Used **custom LaTeX header** for fonts and spacing.
- Fonts: Fira Sans.
- Beamer theme: compact with clean lines.

FINAL THOUGHTS

- Investment in education correlates strongly with youth development.
- Gender-focused policies improve parity and outcomes.

REFERENCES

- Humanitarian Data Exchange: <https://data.humdata.org/>
- World Bank Education & Development Indicators

Speaker notes