Education Statistics (World Bank)

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Why?

"In 40 out of 93 countries, fewer than 50% of the poorest children have completed primary school".

Themes

- Education and Income
- Gender Bias
- Government's role in Education
- Quality of Education

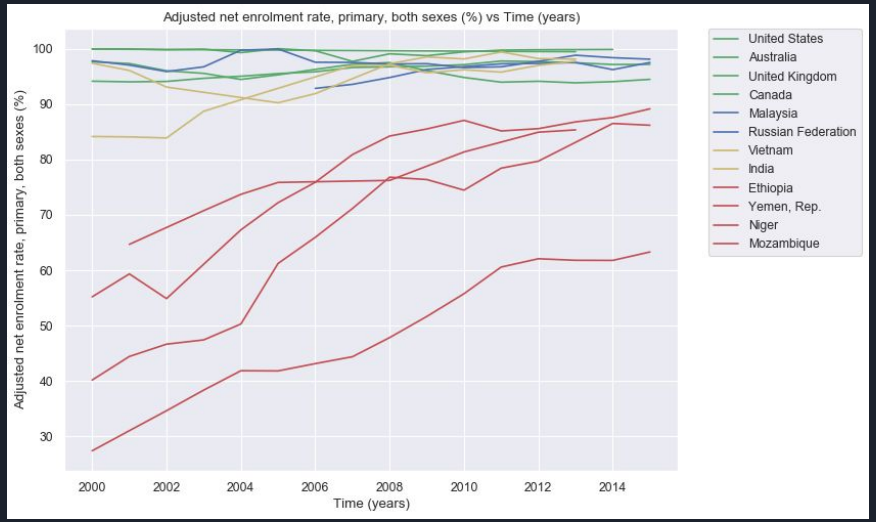
Focus on 12 countries: 4 High, 2 Upper Middle, 2 Lower Middle and 4 Low Income

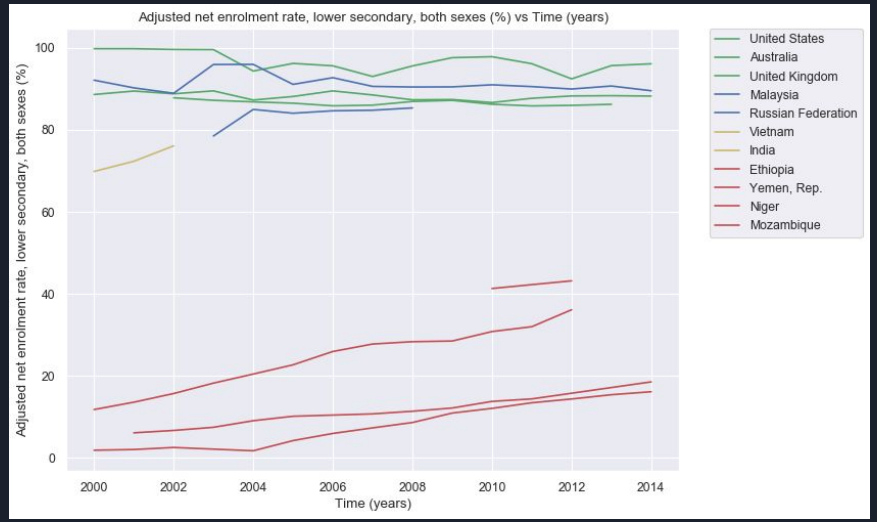
Education and Income

Is there is a correlation between the number of youth attending school and the level of income?

Primary (left), Lower Secondary (right)

School Level	Correlation Coef.
Primary	0.75
Lower Secondary	0.88
Higher Secondary	0.97





Inference

As we can see, there if definitely a **strong correlation between (%) of youth enrolled in schools and the income level** of that country. In fact, as we break this for the three different school groups, we see that the **correlation becomes stronger as the education level progresses**.

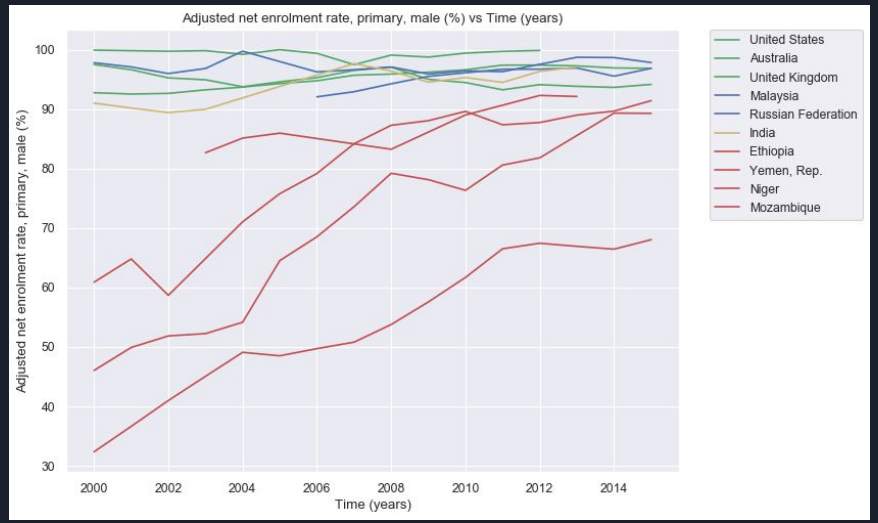
This can be attributed to the fact that **education costs become less affordable** for lower (and middle) income groups as the youth move from primary to lower secondary and higher secondary schools.

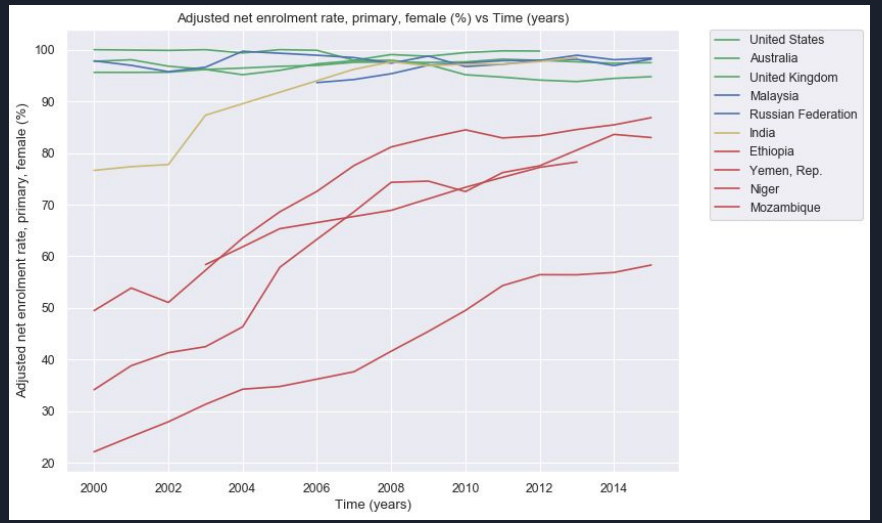
‘Gender’ Bias

Does gender impact the enrollment, level and quality of education received?

Male (left), Female (right)

School Level	Low Income	High Income
Primary	-0.40	0.27
Lower Secondary	-0.23	0.28
Higher Secondary	-0.16	0.32





Inference

Essentially, **for low income countries, a higher % of men go to (are enrolled in) schools than women** and **for high income countries, a higher % of women go to (are enrolled in) schools than men**.

It is interesting to see how the results are so different. This can be attributed to **women empowerment** and **subsidized education for the female** population in high income countries and the **lack of the same thereof** in low income countries.

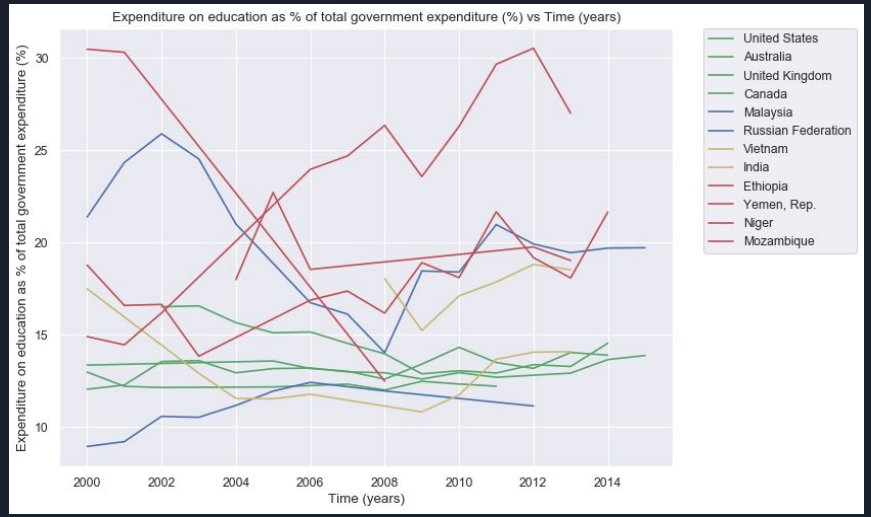
It appears to be true that there is a bias against female education in low income countries that most likely stems from cultural and social beliefs that have propagated down the ages.

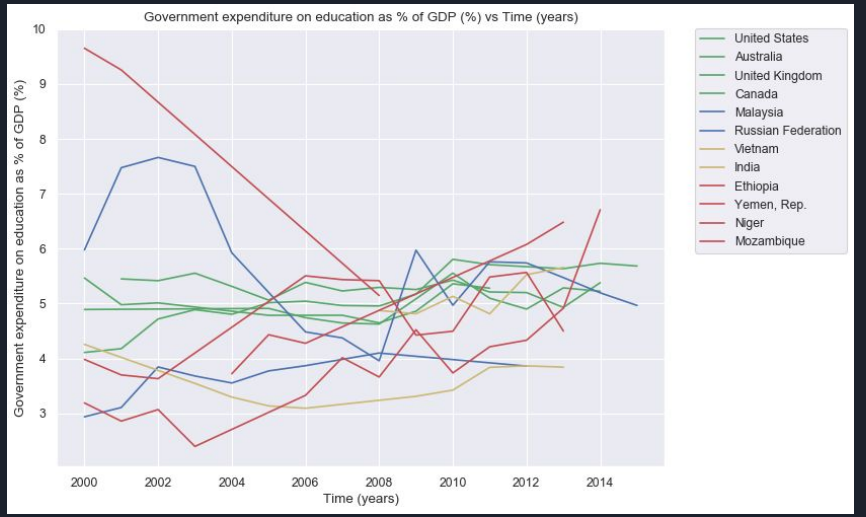
Government's role in Education

Do governments change their investment in education over time? Is it related to their annual GDP?

Education Expenditure as % of (?)	Corr. Coeff.
Government Expenditure	-0.74
GDP	-0.09

As % of total Gov. Exp. (left), as % of GDP (right)





Inference

% of total expenditure that governments invested in Education negatively correlated with the Income level.

There is negligible correlation between % of GDP invested in education and income level of the country

- Percentage investment of GDP in education is stable in High Income countries (more or less constant over the years) and volatile in Low Income countries (changes a lot over the years).
- Governments try to invest an amount in education that is proportional to their GDP.

Quality of Education

Is the learning outcomes of different subjects negatively correlated i.e. does performing well in one subject correlate with performing badly in another subject?

Correlation between performance in mathematics and reading :	0.97
Correlation between performance in mathematics and science :	0.98
Correlation between performance in science and reading :	0.96

Which subjects have seen improvements over time in terms of scores? Has the academic curriculum become harder in the recent years?

Correlation between performance in reading and time (years):	-0.81
Correlation between performance in mathematics and time (years):	-0.89
Correlation between performance in science and time (years):	-0.79

Inference

We see a positive correlation between mathematics, science and reading and this explains that good scores in one subject are not correlated with bad scores on another. Countries that do good in one subject tend to do good in the others as well. This shows that none of the three fields gets a special focus/preference (till the age of 15) that negatively impacts the other subjects.

We see that all three scores correlate negatively with time. This means that as time progresses, the PISA scores in all three subjects tend to fall. This can be explained by the increasing difficulty of the test, which is designed to represent a standard test for proficiency in that subject.

By extension, this can be one of two things:

1. Academic curriculum around the world has become tougher/more competitive and so has the PISA test. Thus we see scores falling as the proficiency requirements keep increasing every year.
2. Academic curriculum has become simpler while the PISA Test has evolved. Thus causing students to get a relatively lower score as the bar is set higher for them

Thank You

Questions?