

A woman with dark hair, wearing a striped shirt, stands in a modern office, presenting to a group of four men seated around a conference table. The men are dressed in business attire. In the background, a large digital display shows a presentation titled "Digital Distribution & Sales Analysis" with various charts and graphs. The office has large windows and a contemporary design.

FEMALE LABOR FORCE PARTICIPATION

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INTRODUCTION

Research question

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graph TD; A[Research question] --> B[How does the female participation in the labor market relate to the country's net national income per capita?]; B --> C[Is there a direct correlation between the two variables or what other factors could influence the rate of female participation in the labor force?];
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How does the female participation in the labor market relate to the country's net national income per capita?

Is there a direct correlation between the two variables or what other factors could influence the rate of female participation in the labor force?

Motivation

Analyzing female labor force participation is important:

- Women make up 51% of the global population, but have been chronically underrepresented in the labor force and this has led to a chronic lack of autonomy both in the home and public life
- Given this context, it is imperative that the causes behind a lack of female employment be explored and understood so that policy decisions can be guided towards remedying this grave injustice.

The outcomes would be beneficial because:

- Women will get better opportunities to participate in the labor force and their capabilities improve making their employment outcomes better
- Social constraints disappear, and women can engage in a wider range of spheres of work



LITERATURE REVIEW

“Economic Growth and Female Labor Force Participation – Verifying the u-Feminization Hypothesis. New Evidence for 162 Countries over the Period 1990-2012.”

"U-Shaped Female Labor Participation with Economic Development: Some Panel Data Evidence."

GDP PER CAPITA

There is a U-shaped relationship between the log of gdp per capita and the log of female workforce participation.

- Lowest income countries have high employment, middle income low employment, and high income have high employment
- High income countries have high female employment, middle income have low employment, however, low-income female employment is uncertain

“Growth, Girls’ Education, and Female Labor: A Longitudinal Analysis.”

EDUCATION

Increasing female education does increase female workforce participation. However, it is not the only factor as cultural variables and other considerations can also have an impact.

"Fertility, Female Labor Force Participation and the Demographic Dividend"

FERTILITY

On average, having one child reduces woman's labor supply by 2 years during her reproductive life

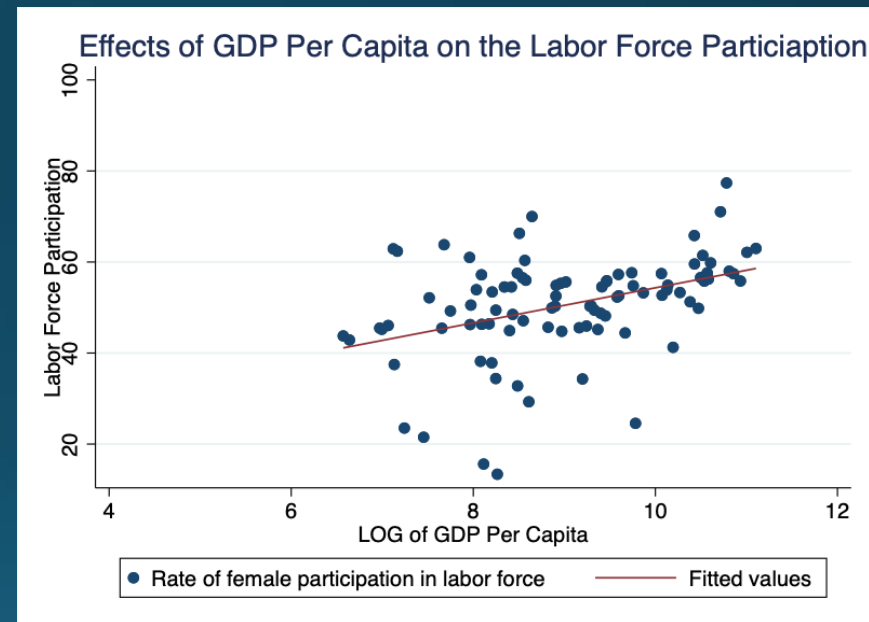
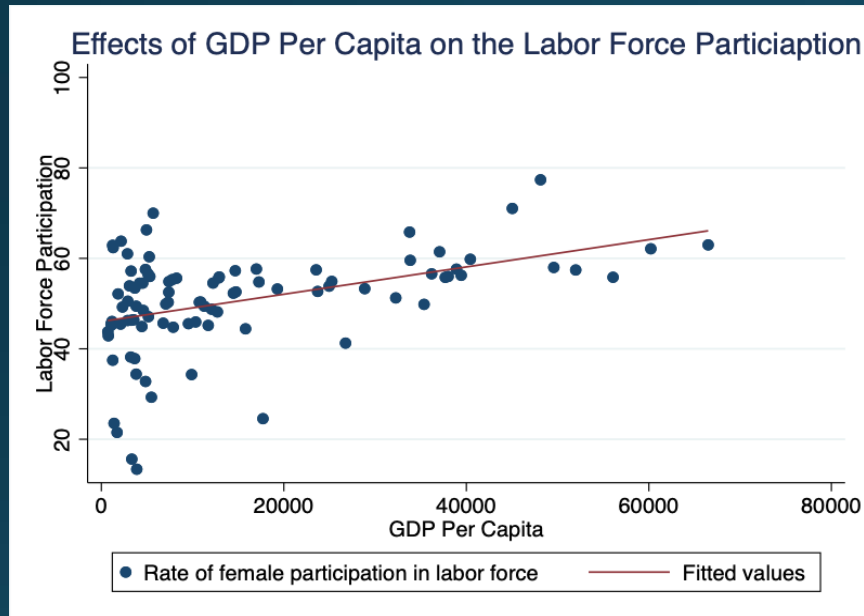
EXPECTATIONS

Null hypothesis: $H_0: \beta_{eta} = 0$

Alternative hypothesis: $H_A: \beta_{eta} \neq 0$

We expect to reject the null hypothesis and to find that net national income per capita has an influence over participation

Regress Participation on Income



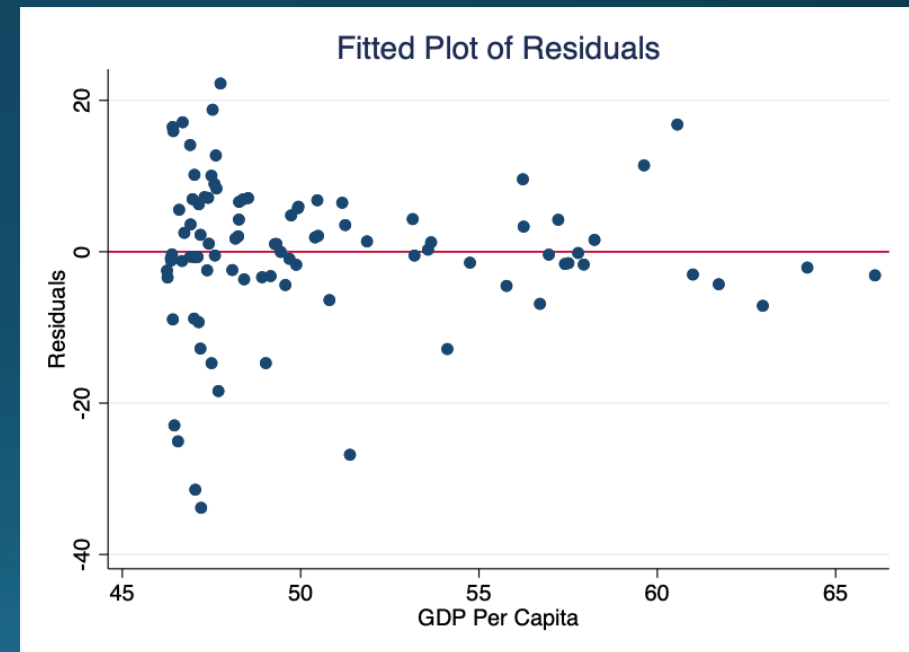
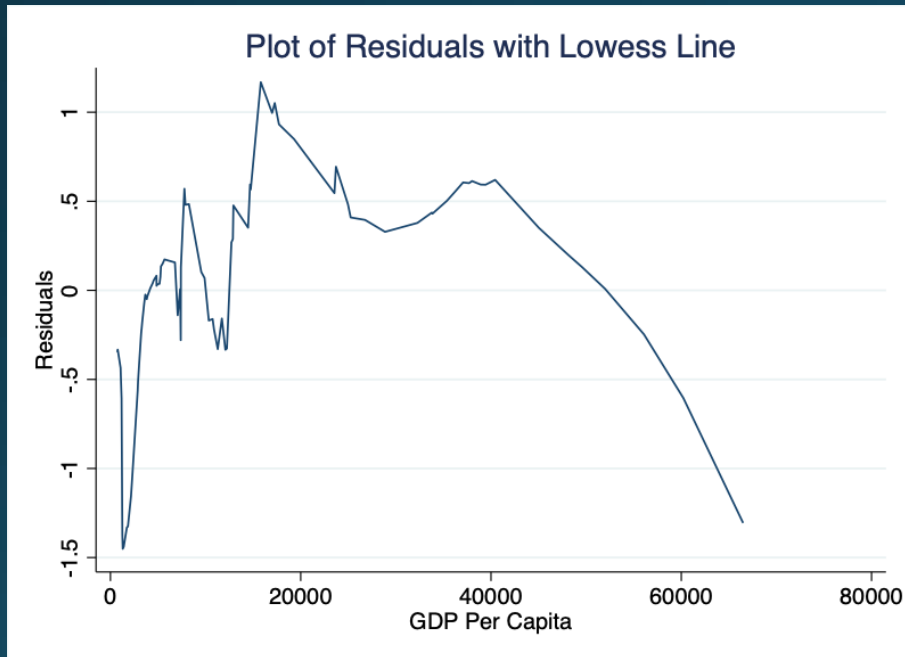
We take the log transformation

(1)	
income	
VARIABLES	participation
income	0.000302*** (0.000066)
Constant	46.039606*** (1.436637)
Observations	93
R-squared	0.187115

- $R^2 = 18.71\%$
- Participation = 46.04 + 0.0003017 income
- Low p-value - we reject the null hypothesis that $\beta_{\text{income}} = 0$

Zero-conditional mean of errors

It is violated so we suspect OVB and will account for it by proposing a multivariate regression



EMPIRICAL STRATEGY

MODEL

Multivariate regression which will improve the original theoretical model:

$$Participation = \alpha + \beta_{income} + \epsilon$$

Where participation is the dependent variable and income is the independent variable

We enhance the model by adding two more independent variables - educational attainment and fertility which would leave us with a final model:

$$Participation = \alpha + \beta_{income} + \beta_{education} + \beta_{fertility}$$

DATA

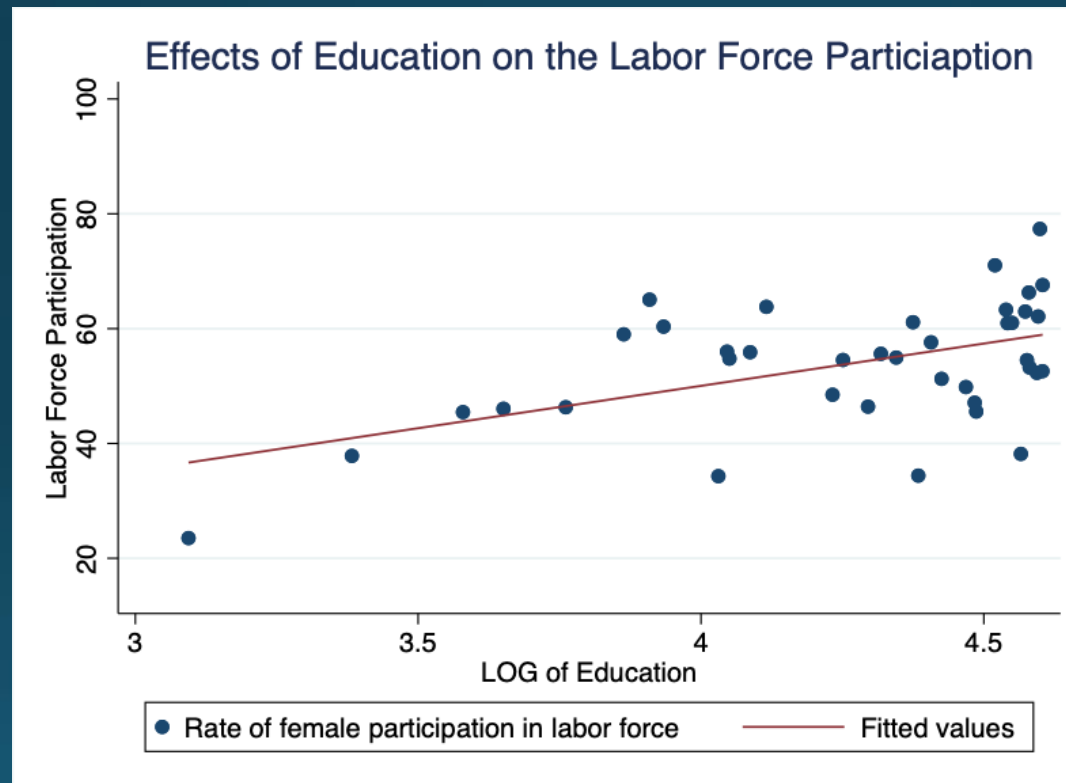
SAMPLE

- World development indicators available in World Bank
- Sample is a total of 217 countries
- For each independent variable the number of observations differs
 - Participation: 117
 - Fertility: 200
 - Education: 41
 - Income: **137**

RESULTS

Regress Participation on Education

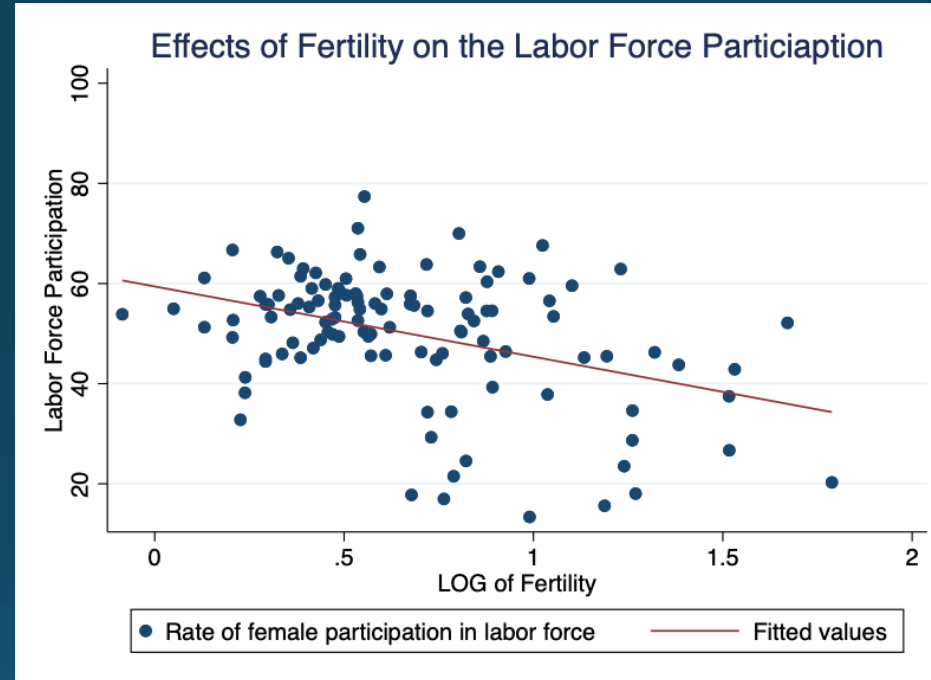
Education is related to both the net national income per capita and labor force participation



	(1)	(2)
	income	education
VARIABLES	participation	participation
income	0.000302*** (0.000066)	0.000230** (0.000104)
education		0.156789* (0.080828)
Constant	46.039606*** (1.436637)	36.833211*** (5.651471)
Observations	93	32
R-squared	0.187115	0.364986

- We get an adjusted r-squared higher than the original one $Adjusted R^2 = 32.12\%$
- Therefore we conclude that education is a valid factor
- Current model
- Participation = $36.9 + 0.00023 \text{ income} + 0.157 \text{ education}$

Regress Participation on Fertility



	(1)
	fertility
VARIABLES	participation
fertility	-5.849***
	(1.211)
Constant	62.287***
	(2.772)
Observations	115
R-squared	0.171

For fertility however, we get a lower adjusted R squared therefore we cannot say for certain that it is a valid factor

FINAL MODEL

	(1)
	income education
VARIABLES	participation
income	0.000230**
	(0.000104)
education	0.156789*
	(0.080828)
Constant	36.833211***
	(5.651471)
Observations	32
R-squared	0.364986

The Final Model:

$$Participation = 36.83 + 0.00023(Income) + 0.16(Education)$$

$$R^2 = 37$$

Better explains the changes in the rate of female participation in the labor force than the original model

CONCLUSION

- Female labor force participation and Income have a statistically significant relationship with $p < 0.01$
- Labor Force Participation and Education have a statistically significant relationship with $p < 0.01$
- The final model with multiple variables can be considered as statistically significant with a $p < 0.05$
- We can conclude that the changes in the rate of female participation in the labor force are influenced by factors apart from net national income per capita, educational attainment certainly being one of them

Limitations

- We didn't weigh the data
- Since the number of observations differs, we will end up with a smaller final sample size
- We cannot determine if there is reverse causality: if female labor force participation affects GDP per capita

REFERENCES

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THANK YOU!