Modeling Crude Birth Rate with Cross-Sectional Data

MURPHY LI

Data Set and Key Variables

- Data set obtained through world bank

- 157 countries

- Crude Birth rate: # Births per 1,000 population $\left(\frac{Number\ of\ births}{population} \times \frac{1}{10}\right)$

- Logged GNI Per Capita: Measurement for income

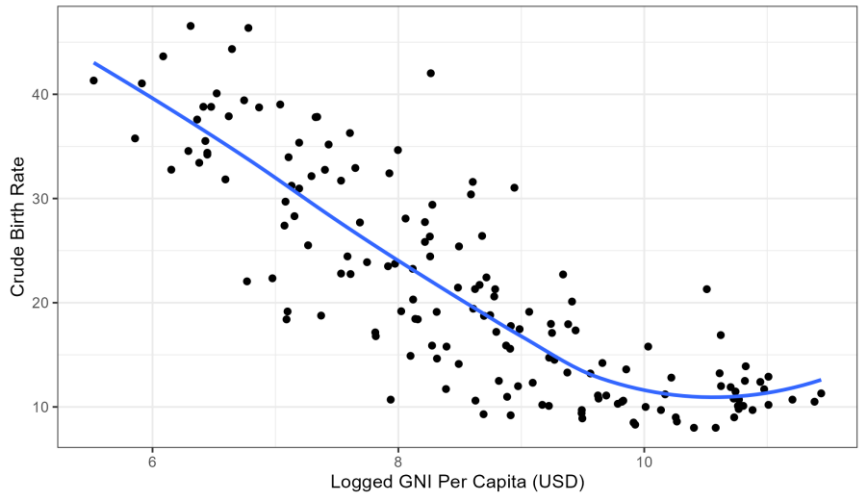
- UHC Index: Universal Health Care Index, Measure of accessibility and quality of healthcare systems, ranges from 0-100

- Government Spending on Education: Measurement for level of education, expressed as %GDP

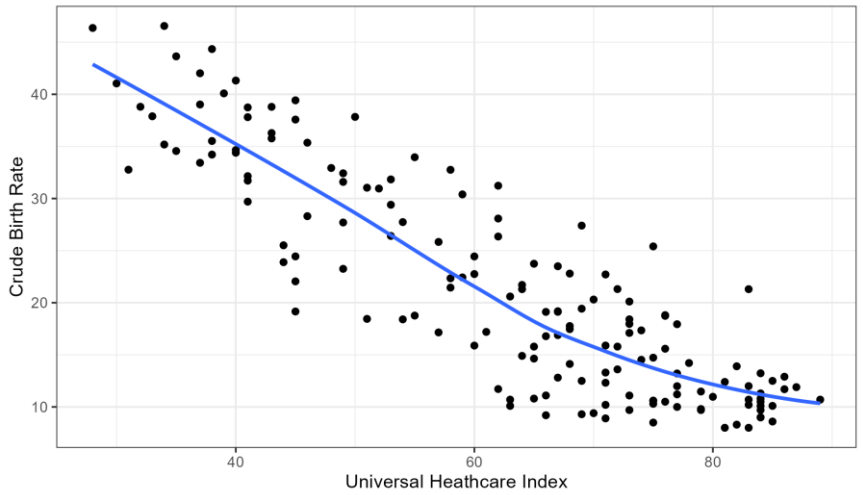
- Female Labor Force Participation rate: Percentage of women employed or seeking employment.

Statistic	N	Mean	St. Dev.	Min	Max
Year	465	2,016.978	1.632	2,015	2,019
UHC_index	465	64.331	15.760	28	89
Gov_health_exp_pergdp	465	3.500	2.265	0.121	11.575
GNI_percap	465	13,996.450	18,712.870	230	92,910
GDP_percap	465	14,270.720	19,552.830	216.973	112,621.800
Crude_birth_rate	465	20.363	10.184	5.900	46.558
Gov_edu_exp_pergdp	465	4.437	1.715	0.00001	12.110
Fe_lab_force_part_rate_a	465	52.115	13.450	13.568	83.322
log_GNI_percap	465	8.642	1.438	5.438	11.439

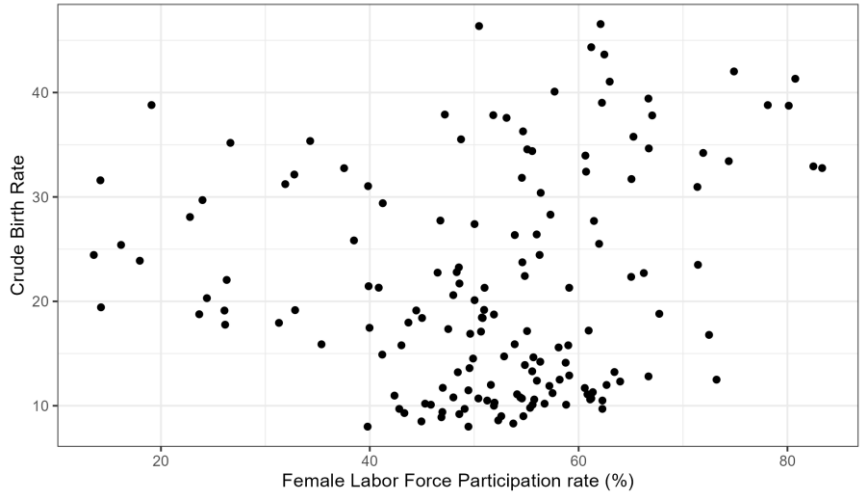
Logged GNI Per cap v CBR in 2015



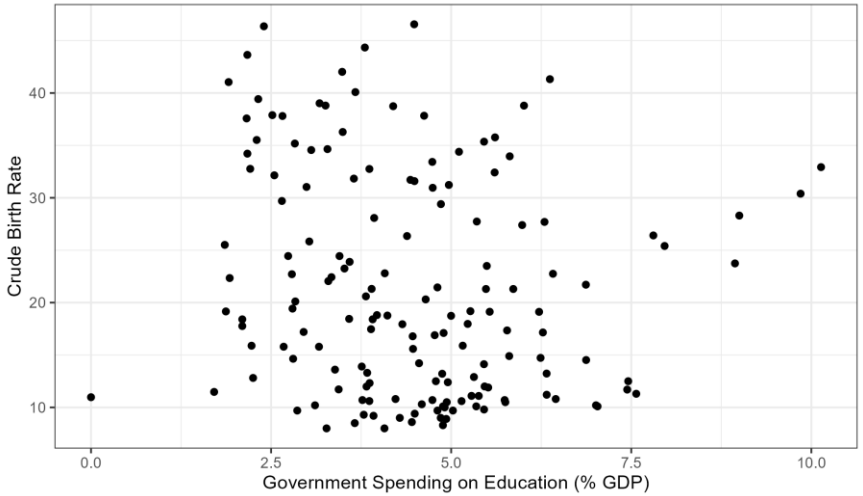
UHC Index v CBR in 2015



Female Labor Force Participation rate v CBR in 2015



Gov Education Spending v CBR in 2015



Linear Regression Model 2

$Crude\ Birth\ Rate =$

$60.84 - 0.48X_1 - 1.52X_2$

$+0.74X_3$

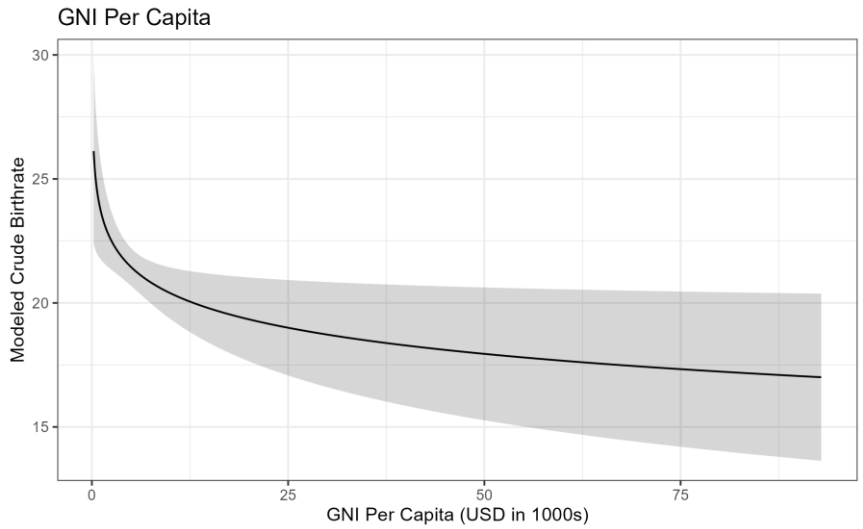
X_1 = UHC Index

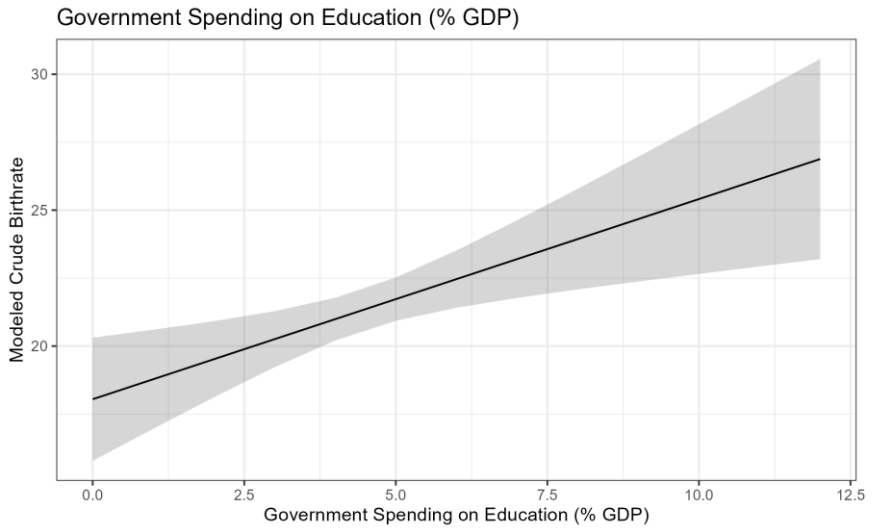
X_2 = Logged GNI per Capita (USD)

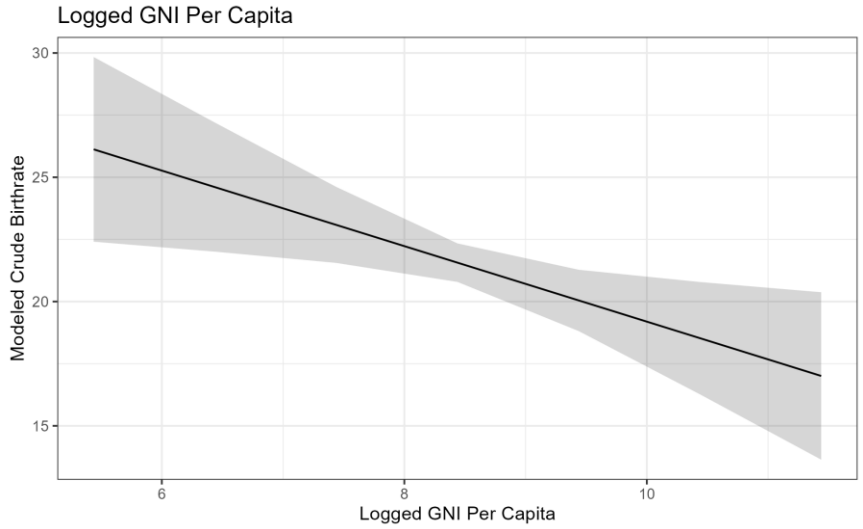
X_3 = Government Expenditure on Education (% GDP)

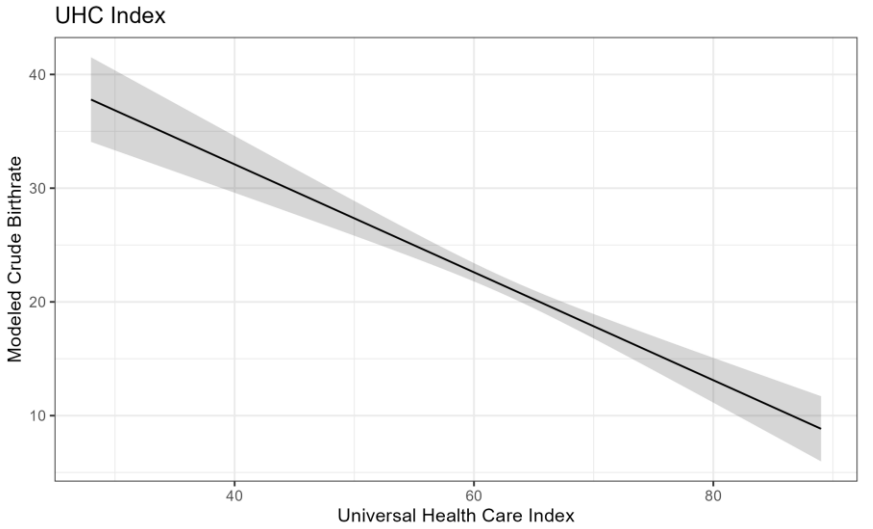
	Dependent variable:	
	Crude Birth Rate	
	(1)	(2)
Universal Heatlh Care Index	−0.467***	−0.475***
	(0.054)	(0.054)
Logged GNI Per Capita	−1.567***	−1.519**
	(0.587)	(0.588)
Government Spending on Education (% GDP)	0.673***	0.736***
	(0.247)	(0.244)
Female Labor Force Participation Rate	0.040	
	(0.028)	
Constant	59.009***	60.844***
	(3.004)	(2.715)
Observations	157	157
R^2	0.794	0.792
Adjusted R^2	0.789	0.787
Residual Std. Error	4.801 (df = 152)	4.816 (df = 153)
F Statistic	146.665*** (df = 4; 152)	193.646*** (df = 3; 153)
Note:		*p<0.1; **p<0.05; ***p<0.01

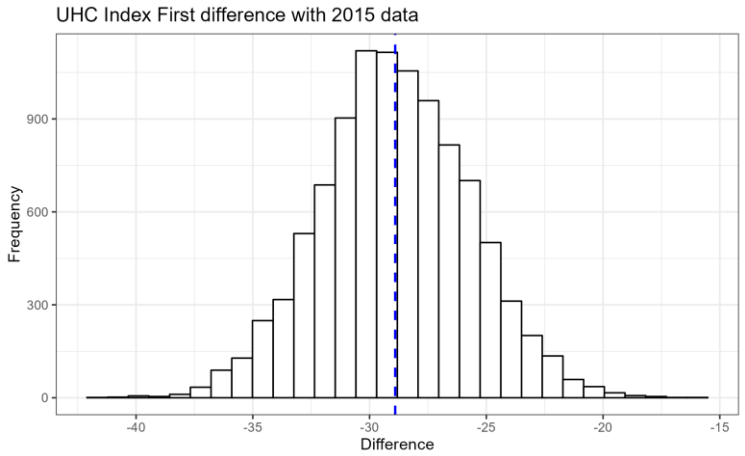
Hypothetical Independent Variable Holding Covariates Constant at Mean



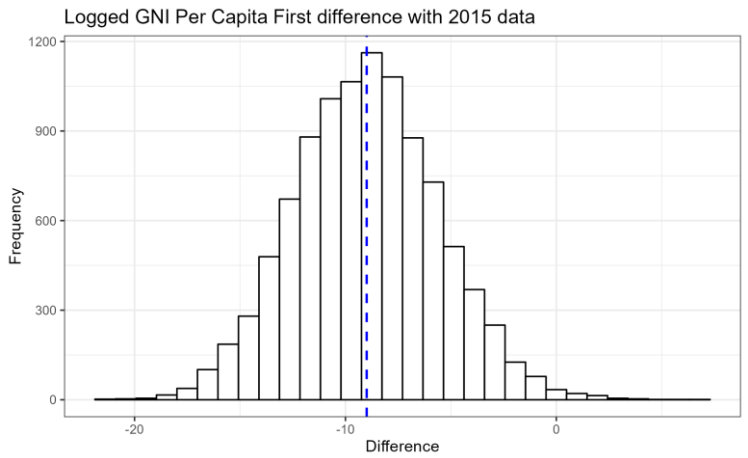




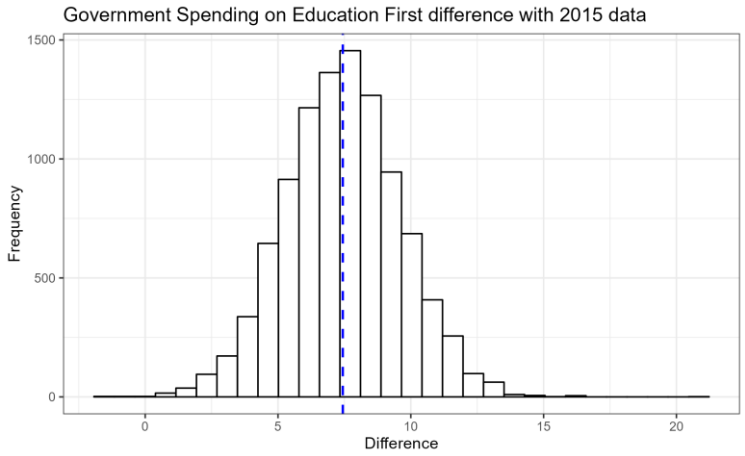




Average	Lower Quartile	Upper Quartile
-28.907	-35.269	-22.618



Average	Lower Quartile	Upper Quartile
-8.992	-15.580	-2.265



Average	Lower Quartile	Upper Quartile
7.439	3.193	11.698

First Difference with Bootstrap