Do Tariffs Make or Break Developing Economies?

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Question

- My goal is to determine whether tariffs have a positive or negative impact on economic growth in developing countries, while also considering other factors such as foreign direct investment and poverty rates
- Tariffs are taxes imposed on imports and they regulate international trade
- Economic growth leads to job creation, increases access to healthcare, and improvement in the standard of living
- Higher tariff rates could lead to a decrease in FDI flows and an increase in poverty rates, due to higher consumer prices

Methods

- In order to answer my question I use these methods:

1. Data collection and preparation: collected tariff data from Our World in Data, FDI data, poverty data, and GDP Per Capita data from the World Bank
2. I then use three different regression models to show the significance of the results
3. The first equation considers the dependent variable GDP Per Capita and the independent variable tariff rates
4. The second equation considers the dependent variable GDP Per Capita, the independent variable tariff rates, and the independent variable foreign direct investment
5. Finally, the third equation considers the dependent variable GDP Per Capita, the independent variable tariff rates, the independent variable foreign direct investment, and the independent variable percent of people living in slums

$$(GDPC_i) = \beta_0 + \beta_1 TariffRates_i + \epsilon_i$$

$$(GDPC_i) = \beta_0 + \beta_1 TariffRates_i + \beta_2 log(FDI_i) + \epsilon_i$$

$$(GDPC_i) = \beta_0 + \beta_1 TariffRates_i + \beta_2 log(FDI_i) + \beta_3 PercentSlums_i + \epsilon_i$$

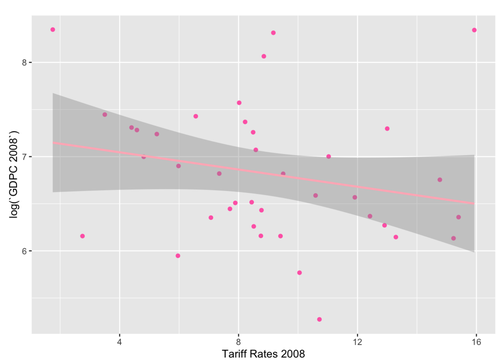

Figure 1: 2008 Tariff Rates and GDP Per Capita

- By considering how tariffs impact GDP Per Capita and controlling for FDI and poverty in these models the real impact of tariffs on economic growth can be understood

Data

- Tariff data measures factors in the rates and the volume of trade of different countries
- FDI data is measured by the amount of investment made by foreign entities, in U.S. dollars
- Poverty data is percent of people living in slums
- By controlling for FDI and Poverty data the real effects of Tariffs on developing economies can be seen
- GDP Per Capita is the economic output per person measured in U.S. Dollars
- This is helpful so that we can limit the scope of countries by the lowest GDP Per Capita
- All data is in the year 2008

Countries that were eliminated due to data loss: Afghanistan, Chad, Cambodia, Eritrea, Kyrgyzstan, Liberia, Papua New Guinea, Sao Tome & Principe, Sierra Leone, Solomon Islands, Tajikistan, Timor-Leste, Vanuatu

Figure 2: 2008 Tariff Rates, FDI, and Percent living in Slums

Results

Figure 1: - The negative slope regression line shows the inverse relationship between tariff rates (x-axis) and GDP Per Capita (y-axis) - Higher tariff rates are associated with lower GDP Per Capita

Figure 2: - The negative slope of the regression line shows an inverse relationship between tariff rates (x-axis) and GDP Per Capita (y-axis).

- Color shows that higher FDI countries (lighter blue) tend to have higher GDP Per Capita, relative to low FDI countries (darker blue).
- Size indicates that countries with smaller slum populations typically have higher GDP Per Capita.

Model Regression Results

	Dependent variable:		
	Log(GDPC 2008)		
	(1)	(2)	(3)
Tariff Rates 2008	-0.046	-0.028	-0.037
	(0.033)	(0.032)	(0.027)
Log(FDI 2008)		0.107**	0.036
		(0.050)	(0.045)
Percent Living in Slums (2008)			-0.024***
			(0.006)
Constant	7.228***	4.987***	7.816***
	(0.312)	(1.089)	(1.131)
Observations	39	39	39
R^2	0.050	0.157	0.436
Adjusted R^2	0.025	0.111	0.388
Residual Std. Error	0.709 (df = 37)	0.677 (df = 36)	0.562 (df = 35)
F Statistic	1.956 (df = 1; 37)	3.363** (df = 2; 36)	9.021*** (df = 3; 35)
Note:			*p<0.1;* ***p<0.05;*** p<0.01

Conclusion

- Model 1 shows that a 1 unit increase in Tariff Rates is associated with a 0.046 decrease in log GDPC, though this is not statistically significant as shown in the p-value.
- In Models 2 and 3, when controlling for FDI and Percent Living in Slums, the effect of tariffs gets smaller and remains statistically non-significant.
- The tariff coefficient changes from -0.046 in Model 1 to -0.037 in Model 3 when more controls are added.
- There is a negative association between tariff rates and GDP Per capita, meaning higher tariffs are associated with lower economic growth, however this effect is not statistically significant
- R^2 Measures the proportion of variance in the dependent variable (y) that can be explained by the independent variables (x's) in the model.
- The third model explains this by demonstrating that 43.6% of the variance in the dependent variable GDP Per Capita is accounted for by the independent variables Tariff rates, FDI, and percent living in slums
- Some evidence indicated tariffs hurt economic growth in developing countries but this evidence is not significant, likely due to volatility in GDP Per capita being greater than the estimated effect and limited sample size of countries