# International Trade and Economic Growth in India

Objective:

- Study the relationship between GDP per capita and trade openness for countries having different degrees of trade openness. .
- Using India's foreign trade data and OLS regression to find a correlation, if any exists, between international trade and GDP values.

Justification:

- The relationship between international trade and economic growth is a topic of discussion for most countries in this era of globalization.
- A strong positive correlation is observed between a country's economic growth and its trade openness. However, the causality for this is not yet clear and requires deeper understanding to properly explain this effect.
- Countries that engage more in foreign trade are observed to have high GDP per capita as discussed in the class. We test this on our own data and find a similar relationship.(figure attached)
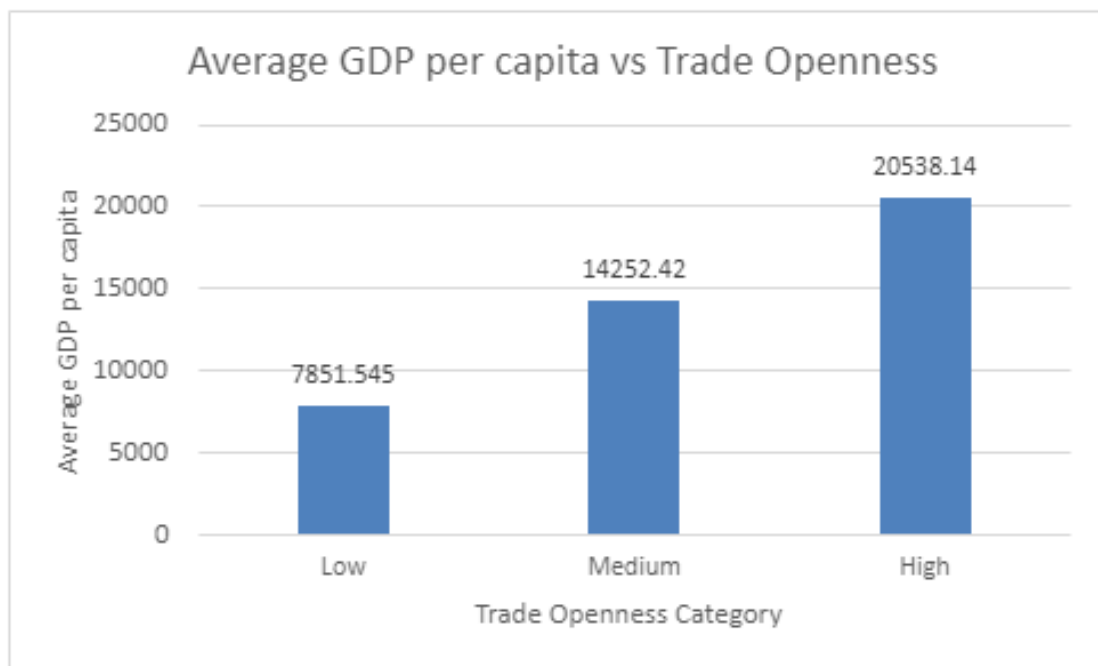
We used trade data for world economies for 2016 and categorized them in three groups - low, medium and high trade openness - to plot average gdp per capita for different categories.

- The openness to foreign trade impacts a country's growth through various channels like-
  - ➢ Trade openness allows a country to specialise in goods that are efficient for it to produce while depending on other countries for the less efficient ones. This increases overall efficiency and in turn drives economic growth.
  - ➢ Trade openness allows for transfer of technology as is evident through the famous case of US's automobile industry adapting to produce higher quality vehicles to compete with Japanese industry
  - ➢ Trade openness enhances factor accumulation through foreign investment.

Methodology:

- We use trade data for India starting from 1960 to 2020. Using the exports and imports of goods and services, and GDP values, we find the trade openness index for the entire time series.

$$\text{trade\_openness} = \text{(Exports+Imports)/GDP}$$

- GDP, exports and imports data are taken in constant 2015 US dollars.
- To check for the impact of trade openness on the GDP of India, we would like to run an Ordinary Least Squares (OLS) Regression with GDP as the dependent variable and the trade openness as the independent variable. The equation for the same would be modelled as:

$$\text{GDP} = \alpha + \beta.\text{trade\_openness} + \epsilon$$

Where,

GDP - Indian GDP from 1960-2020

trade_openness - Trade openness index for India from 1960-2020

α,β - coefficients for the regression equation

ϵ - error term

Data sources: We used data on international trade and GDP for India. The source of the data is the World Bank.

Findings:

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. reg GDP trade_openness
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Source	SS	df	MS		Number of obs	=	61
					F(1, 59)	=	235.49
Model	2.5327e+25	1	2.5327e+25		Prob > F	=	0.0000
Residual	6.3455e+24	59	1.0755e+23		R-squared	=	0.7997
					Adj R-squared	=	0.7963
Total	3.1673e+25	60	5.2788e+23		Root MSE	=	3.3e+11

GDP	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
trade_openness	4.30e+12	2.80e+11	15.35	0.000	3.74e+12	4.86e+12
_cons	-1.77e+11	7.48e+10	-2.37	0.021	-3.27e+11	-2.75e+10
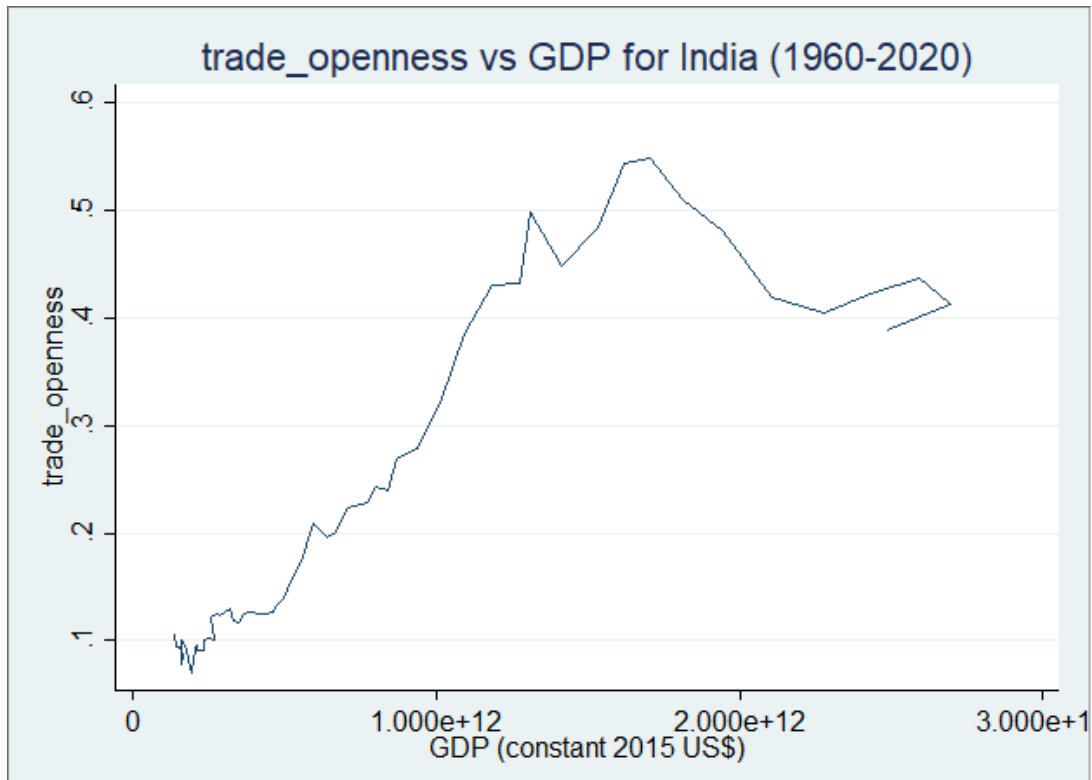
- Coefficient of trade openness is positive and is statistically significant. This implies that economic growth is positively correlated with trade openness.
- Also R squared value from the regression is 0.7997, implying that a considerable amount of variation in economic growth can be explained through trade openness.
- The plot of trade openness vs GDP also shows the positive correlation between trade openness and GDP.

Conclusion:

- Our Empirical analysis supports the role of trade openness in facilitating economic growth, a hypothesis that is consistent with the results obtained from the studies conducted previously.
- Trade facilitates transfer of knowledge providing an opportunity for low income countries to flourish.
- Trade barriers like tariffs, NTMs(Non-tariff measures) hamper international trade and need to be dealt with so that international trade can flourish, benefitting the lower and middle income countries by expanding their markets and increasing their access to goods and services.
- A lot of work needs to be done to increase trade openness and facilitate international trade, which can be a significant and indispensable enabler of growth, job creation and poverty reduction.

References:

- https://databank.worldbank.org/source/world-development-indicators
- Economic Growth (3rd edition), Ch 11 - 'Growth in the Open Economy', David N. Weil, Pearson.
- ECO-523 (Economic Growth Theory and Practice), Lecture - 'Trade and Economic Growth', Dr. Sohini Sahu.

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