

A Panel Analysis of FDI and Trade: Growth in Developing Countries

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Abstract:

This paper investigates the relationship between FDI and trade openness in 5 lower-middle income countries and 5 upper-middle income countries. This study utilizes a panel data regression analysis to determine what plays a role in growth and whether or not it varies depending on development level. The results show that lower-middle income countries should focus their attention on attracting FDI and upper-middle income countries should focus on increasing trade and decreasing government involvement in business operations.

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1.0 INTRODUCTION

In the world there are currently 51 countries that are considered lower-middle income and 53 countries considered upper-middle income by the World Bank. An old economic debate is how to stimulate growth within developing nations to push them in the right direction with regards to development and growth. This study will look to investigate whether or not policy should focus on the loosening of trade barriers and actively attempt to incentivize trade or if governments should attempt to lessen trade to protect domestic businesses. Governments may feel the need to protect their domestic markets by causing a very hostile financial setting for any foreign actors looking to enter the domestic market. This will cause citizens to purchase goods and services domestically instead of from foreign companies, generating growth that stays within the country. Foreign direct investment (FDI) is another way growth is stimulated within a country. The inflows of money creates revenue for the government as well as job opportunities for the working class within the country. Many countries look to stimulate foreign investment through incentive based governmental policy. This study will investigate the effects that trade openness as well as FDI has on growth within lower-middle and upper-middle income countries.

The reason this study will compare and contrast upper-middle income countries to lower-middle income countries is to investigate whether or not policy should be constant over all economies to promote growth or if policy should change at a certain level of growth. To use the previous example of trade barriers, maybe a domestic protective approach is appropriate for lower-middle income economies, but a more open policy is appropriate for upper-middle income economies. This study will hopefully discover

whether there are any cases of inconsistencies as well as offer suggestions as to which approach should be taken at certain income levels.

Lower-middle income countries as defined by the World Bank are countries that have a gross net income (GNI) within the range of US\$1,046 to US\$4,125 per capita. Upper-middle income countries are defined as countries that have a GNI of US\$4,126 to US\$12,735 per capita. There will be 5 lower-middle income countries and 5 upper-middle income countries that will participate in the panel data analysis. An attempt was made to spread out which countries were selected as to not have any regional bias on the study. Ideally, the study would include countries from every continent and every major sub-region within very diverse continents (Ex. Middle East, South-East Asia, etc.). This was impossible to complete due to a lack of data available as well as the lack of reporting conducted by government agencies within these countries. The lower-middle income countries that were selected are Nicaragua, Ukraine, India, Kenya and Pakistan. They fit the criteria of being diverse in location as well as having all available data to conduct the study. The upper-middle income countries that were selected are Belarus, Brazil, Grenada, St. Lucia and Dominica. They also fit the criteria of being diverse as well as having all available data.

2.0 Literature Review

Mohan (2007) spoke about the effect FDI, trade openness and trade liberalization had on growth with respect to the Association of South East Asian Nations (ASEAN). By conducting a panel data analysis from 1980-2001. The ASEAN countries saw high growth over this period due to a surge of foreign investors. This study concluded that FDI, trade openness, import duty and financial market and telecommunication market liberalization

played a large role in economic growth in this region. This study suggests that the ASEAN countries should take a more serious approach to use these variables in implementing growth.

Dash and Parida (2013) studies the relationship between FDI, service trade and growth in India at the aggregate and sectoral level. The study used both a VECM time series and co-integration to conclude that there is a long run relationship between these variable at both an aggregate and sectoral level. The study found that a service exports and FDI influenced total service output in India. Also, there was a complementary relationship between both service exports and FDI. Dash and Parida (2013) suggested that according to the study's findings India as well as countries with similar economic climate should create a positive business environment to stimulate service exports. This increase in service exports will inherently increase FDI as well as increase growth.

Bastola and Sapkota (2015) studies the trade deficit in Nepal and how it has negatively affected their economy. This study views the causal relationship between imports, exports and GDP within Nepal. This study uses a time series analysis over a 46 year period between 1965 and 2011. Bastola and Sapkota (2015) found that imports had a significant negative affect on Nepal's GDP implying an inverse relationship. The Nepalese government should look to find encourage exports to lessen the trade deficit as well as create alternatives to imports to create less reliance on foreign products.

Yusoff and Nuh (2015) analyzes Thailand and its recent economic policy decisions, mainly the decision to become more open to foreign trade and FDI. The study utilizes a co-integration test that conclude there is a clear relationship between FDI, GDI and economic growth in Thailand. Foreign policymakers have made the correct decision to shift into a

more open economy with regards to FDI and trade. These policymakers should continue to incentivize foreign investment as it is positively affecting real GDP.

3.0 DATA AND EMPIRICAL METHODOLOGY

3.1 DATA

All the data used in this study has been obtained from the World Bank. The sample period being used is 2000-2012. Figure 1 shows the regression variables being used, the expected sign that will be given to each variable and why the variable is being used in the analysis.

FDI is being involved in the model as the main variable to capture FDI's relationship with growth. A strong correlation between changes in FDI and changes in GDPPC will indicate that governments should focus on generating FDI. Boreinsztein et al. (1998) found that FDI was the single most important variable in generated growth within a country. Not only did the study prove FDI generates revenue for governments through tax, increase in jobs and product differentiation, it also created a more innovative environment. Developing nations saw much larger increases in technology due to FDI increases.

Taxes on income, profits and capital gains is being involved in the model because taxes are a huge factor in whether or not investors decide to conduct business in specific countries. A strong inverse correlation between TAX and GDPPC will suggest that higher taxes create a large enough barrier for investors that it affects growth. According to the Organization for Economic Co-operation and Development (OECD) a 1% increase in tax rate will result in a 3.7% decline in FDI on average. This variable will help accurately capture how FDI causes growth.

International tax is being included in the model because it affects how much trade is conducted by a country as well as how much FDI a country receives. Unlike TAX, it may have a positive effect on growth due to protection of domestic markets as well as a negative correlation due to the lack of higher fee's to conduct business. Mohan (2007) found that creating barriers on imports had a positive effect on ASEAN countries due to its protective nature.

Openness is being included in the model because it shows how much countries rely on trade in comparison to their GDP. Openness has historically had a positive correlation with growth because economic activity is the key ingredient in a healthy economy. Higher openness variable will indicate a willingness to import and export at high volumes.

Government consumption is being included in the model because government consumption may positively or negatively affect an economies ability to attract FDI depending on where spending is occurring. Mohan (2007) and Ifeakachukwu et al. (2013) found that more developed telecommunication systems as well as developed infrastructure played a massive role in a developed countries growth through increasing the ease of conducting business. On the other hand, Ifeakachukwa et al. (2007) also found that spending in private sectors may crowd out certain businesses.

Table 1: Variables, descriptions and the relationships with GDPPC.

Acronym	Description	Expected Sign	Rationale
GDPPC	Gross domestic product per capita	Dependent Variable	GDPPC is a good way to capture growth within an economy. This will be used as the dependent

			variable to calculate the change in growth due to changes in trade policy and FDI
FDI	Foreign domestic product. Net inflows as a % of GDP.	+	FDI will be positive due to the injection of market activity FDI will cause.
OPEN	Exports + Imports as a % of GDP.	+	Higher openness leads to higher overall trade. This will stimulate growth.
TAX	Taxes on income, profits and capital gains as a % of revenue.	-	Higher levels of tax will act as a disincentive for foreign investment. This will mitigate growth.
INTTAX	Taxes on international trade as a % of revenue.	Ambiguous	High levels of tax may cause a lack of trade causing a downturn in economic activity. High levels of tax on imports could positively affect growth through the protection of domestic markets.
GOVCON	General government final consumption expenditure as a % of GDP.	Ambiguous	This will have an ambiguous impact on growth because different components of government spending have been found to

			have different effects on FDI.
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3.2 EMPIRICAL MODEL

Following Mohan (2007) this study will utilize a regression analysis to study the correlation between the 5 previously listed variables and growth (GDPPC). A total regression of all 10 countries involved will show overall correlation between these variables. Then, 2 regressions will be ran separating upper-middle income and lower-middle income so that similarities and differences can be further understood. This will also allow policy implications to be determined to better understand how to effectively stimulate growth in countries at different stages of development.

$$GDPPC = \beta_0 + \beta_1 FDI + \beta_2 OPEN + \beta_3 GOVCON + \beta_4 INTTAX + \beta_5 TAX + \epsilon$$

FDI, TAX, GOVCON and INTTAX will be used as independent variables to capture FDI and its correlation to the dependent variable, GDPPC. OPEN and INTTAX will be used as independent variables to capture openness and its correlation to the independent variable, GDPPC.

4.0 EMPIRICAL RESULTS

The total regression that encompassed all the countries in the study showed that FDI, OPEN, INTTAX and TAX all appeared to be significant at the 1% level. The regression

analysis involving only lower-middle income countries showed only FDI to be significant at the 1% level. INTTAX and TAX were significant at the 5% level. The regression analysis only involving upper-middle income countries shows that only GOVCON is significant at a 1% level. Also, only OPEN is significant at a 5% level.

Table 2: Regression results for lower-middle and upper-middle income countries

Variable	Total Regression	Lower-Middle Income	Upper-Middle Income
FDI	2.95417143E-11 *** (+)	0.00005312 *** (+)	0.936643329911577 (+)
OPEN	0.00002586 *** (+)	0.79443520 (+)	0.03337484 ** (+)
GOVCON	0.17601978 (+)	0.10076906 (+)	0.00019404 *** (-)
INTTAX	2.85127229E-10 *** (-)	0.01061205** (-)	0.61030807 (-)
TAX	0.00007206 *** (+)	0.02614065 ** (+)	0.22432156 (+)
Adjusted R ²	0.66031594	0.56784967	0.39989349

***, **, * denote significance at 1%, 5%, and 10%, respectively. Sign in parenthesis indicates coefficient sign.

5.0 Interpretation/Policy Implications

Interpreting these results in terms of relative change brings up a few critical points that may lead to significant policy change. FDI, INTTAX and TAX appear to be very important in a lower-middle income setting but less significant once countries become more developed. The focus then turns to GOVCON and OPEN, which is essentially insignificant in lower-middle income countries.

The lower-middle income results are consistent with Mohan (2007) because INTTAX has a negative correlation with GDPPC and FDI has a positive correlation. This confirms

the hypothesis that higher INTTAX, which dissuades FDI, hurts growth within lower-middle income countries. The positive correlation between TAX and GDPPC in lower-middle income countries was an unexpected result because as stated previously an increase in taxes tends to decrease FDI (OECD). It appears that in low-income countries, an increase in taxes either does not influence investors enough to persuade them to pull out of ventures or the increased tax revenue outweighs the reduction in FDI. Another argument that the data is making is that trade openness does not seem to have a meaningful significance in growth for lower-middle income countries. In conclusion, when a country is still in the lower-middle income phase of development, focus should shift from trying to open trade to trying to stimulate FDI.

The upper-middle income results suggest that GOVCON and OPEN should be the focus of policymakers. The shift in significance in FDI, TAX and INTTAX may be due to the fact that upper-middle income economies already have enough foreign investment in their country that the barrier for further growth is no longer actually persuading investors, but spending money in the right areas. The negative correlation between GOVCON is not surprising because it agrees with Ifeakachukwa et al. (2007) in that overspending may crowd out businesses causing a downturn in GDPPC. It also agrees with Mohan (2007), which claimed an increase in GOVCON may reflect high government intervention and less market freedom. GOVCON may be insignificant in lower-middle income countries and significant in upper-middle income countries because lower-middle income countries need government spending to implement better infrastructure to enhance business. Once this level is achieved, government spending hurts development. OPEN has a positive impact on growth, which may be due to countries taking advantage of comparative advantage.

Also, Anderson (2008) found that higher trade openness leads to higher technological development.

5.0 Limitations

There were a few limitations to the model. The first limitation was that there were not enough variability in countries that were available to be added to the panel data due to a lack of reporting. There are no countries from the middle-east, south-east Asia or northern Africa involved in the study. Another limitation is the time series. Due to the nature of studying countries in lower development stages, data was not reported in many cases into the 1900's. The addition of more countries and a longer sample period would help create a much more accurate study.

6.0 Conclusion

In summary, as countries change and evolve from lower-middle income countries to upper-middle income countries the factors that create growth start to change. The results in this paper suggest that lower-middle income countries should focus on creating a positive business environment to encourage FDI. Once countries get a foothold on development and become upper-middle income economies, they should shift their attention to trying to increase trade openness. Upper-middle income countries should also be conscious of how government revenue is being spent to ensure an overspending is not distorting prices or negatively affecting markets through crowding out businesses.

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