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Trade Openness Transmission Channels for Pakistan

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Abstract

Trade openness is a very popular economic policy among developing countries. At the moment over 95% of the world trade is being done among the members of the World Trade Organization (WTO 2013). Trade liberalization is not only related to the trade of goods and services but liberalization of the entire economy. There are a number of studies which investigate the effect of trade openness, however, research on the transmission mechanism between trade openness and Economic growth is very rear. The objective of the paper is to check that trade liberalization policy affects GDP growth through some channel variables. The study assumes five-channel variables, i.e., Budget Deficit, Foreign Direct Investment, Gross Fixed Capital Formation, Exchange Rate and Manufactured Exports. First trade openness policy affects these variables, which then affect GDP growth. For this purpose, we have taken the case of Pakistan and use data for the period 1978 to 2018 and check the hypothesis through VAR methodology. The granger causality confirms that there is no channel variable involve in the trade liberalization policy which affects growth.

JEL Classification: F14, F59, C32

Key words: international trade, WTO, trade openness, Exchange Rate, Foreign Direct Investment, Channel Variables, Vector Auto Regression, Granger Causality test

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Introduction

Trade liberalization is very much common policy initiative of the developing countries. Through this policy, they are trying to achieve the objective of high growth. Over 95% of the world trade is being done among the members of the World Trade Organization (WTO 2013). The objective of the WTO is to have liberalized trade all over the world. The non-members of the WTO have already applied for WTO membership and following the commitments of trade openness for getting the membership. Trade liberalization is not only related to the trade of goods and services but liberalization of the entire economy. There are many studies which investigate the effect of trade openness, however research on the transmission mechanism between trade openness and Economic growth is very rear, some of them are Siddiqui (2012), Rattso (2012), Wacziarg (2001) and Tavares (2001). All these studies have used the 3SLS technique only. The limited research and econometric technique has encouraged us to investigate the trade openness transmission mechanism for a single country (Pakistan).Keeping this view, it is needed to check whether trade liberalization affects economic growth directly or through some channel variables.

Objective:

As mentioned above trade liberalization is not just related to trade openness, this covers the entire economy. The members of the WTO also have various commitments related to subsidies, trade facilitation, environment, etc.. All the members of the WTO, either developed or developing countries have to follow the WTO commitments. Therefore, trade liberalization affects growth through some channel variables (Wacziarg 2001; Siddiqui 2012). It implies that trade openness first affect a particular economic variable, a channel, and that variable effect GDP or economic growth.

Research Question:

The research question of our study is whether trade openness affects economic growth through channel variables or not, in the case of Pakistan.

Hypothesis:

The hypothesis of the study is that trade openness affects GDP growth through the following channel variables:

- 1. Exchange rate
- 2. FDI
- 3. Fiscal Deficit
- 4. Manufactured Exports
- 5. Gross Fixed Capital Formation

Based on the above the study is allocated in the following sections; (1) Introduction, (2) Literature review, which also includes, theoretical framework, (3) Data (4) Methodology, (5) estimation results and (6) conclusion and policy suggestion.

Literature Review:

Theoretical background: The first known theory of international trade is named as Mercantilist Theory. The theory states that the purpose of the export is to earn gold and precious items which are used for financing import and the development of the nation. Therefore a nation should export more and import less.

However, Adam Smith rejected this theory and stated that gold and precious items are not wealth. Production of goods and services is the wealth of the nation. Further, he stated that the export of a country is the import of another country. If every country tries to import less no country can export more. Therefore there should be no barrier to import and export. The problem is that which products a country should produce and export and which should import. For this purpose, he gave the concept of absolute advantage. A country should produce the products in which it has absolute advantage and trade freely with other nations. Through this, the country will specialize in the products wherein it has an advantage and would produce more goods at a lower price which will benefit the consumers. He stated that specialization will be achieved through an efficient division of labour and other factors of production. This division of labour will not be utilized in producing those products which have a lower advantage. If each country has an efficient division of labour, then it will produce and export those commodities having higher production advantage and import those which have lower production advantage.

David Ricardointroduced the idea of comparative advantage and stated that a country can produce and export even that product where it has a lower advantage, by employing the resources on producing the products which have a greater comparative advantage. This can be explained through the following table.

Number of units produced by Labour Unit

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	Country-A	Country-B
Product-X	6	1
Product-Y	4	3

Above table shows that County-A has absolute advantage over Country-B in production of both products "X" and "Y". According to the theory of Absolute advantage of Adam Smith these two countries cannot trade because Country-A has absolute advantage in producing both commodities. However, according to Ricardo both countries can trade and specialize in production of one commodity. In Country-A the product X is produced more than product Y employing same labour input, which implies that the county has higher comparative advantage in producing X. therefore Country-A should specialize in production of X and leave the production of Y for other country. Similar position exists in the country-B, which has comparative advantage in production of commodity Y. Both countries should produce only those products wherein they have higher comparative advantage and import the product wherein they have lesser comparative advantage.

The theory further developed by Heckscher and Ohlin. The traditional trade theories of absolute and comparative advantage assume labour as the only input. While Heckscher-Ohlin trade model deals with the factor abundance and its relative prices in different countries.

All these theories explain why a country produces and exports a particular commodity. This is, in fact, explaining that free trade effect production level through the channel of specialization. This is the simplest view of two-countries, two-products and two-factors production model. However, in the modern age of globalized economy there involve several channels through which free trade affects production level and economic growth.

Empirical studies: As mentioned above that there is no rich empirical material is available on the transmission mechanism of trade liberalization and economic growth. Our literature review, therefore, focuses on the channel between trade ad growth and the methodologies of estimating transmission mechanism.

Wacziarg, Romian (2001) investigated the channels involved between Trade liberalization and Economic Growth. He selected 57 developing countries and divided the period into 4 different periods. In his structured model, there were 6 channel variables. The model consisted of 7 different equations. All six-channel variables have trade liberalization as an independent variable, while the equation which has dependent variable GDP does not have trade liberalization as an independent variable an independent variable but involves

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all 6 channel variables. He has created an index of trade liberalization consists of three different variables; trade as a share of GDP, Non-Tariff Barriers Coverage and Such & Varner dummy of trade liberalization date. For addressing the econometric issues he also used various instrument variables to overcome the problem of Identification. The 3SLS estimate shows that liberalization affected all 6 channel variables and these variables further effected GDP growth.

Tavares J. and Wacziarg R. (2001) in another study investigated the channels for effect of Democracy on GDP growth. The authors adopted the same methodology adopted by Wacziarg (2001). The 3SLS estimation confirmed that democratic institution enhance the human capital accumulation which then increase the Economic growth.

Siddiqui (2012) adopted the structured model to research the channel variables in trade liberalization policy and growth nexus for Pakistan. The author used time-series data for six-channel variables and GDP growth. While for trade liberalization an index (through principal component approach) is created, which involves export plus import as % of GDP, import duty collection as a share of import and import duty collection as a share of total government revenue. The structured model consists of seven equations, where the trade policy index was included in the GDP growth equation. The trade policy index was included in the GDP growth equation. The trade policy index was included in all 6 channel variable equations as an independent variable. The 3SLS estimate confirmed that all 5 out of 6 channel variables were affected by trade liberalization; however, all of the 6 channels were affecting GDP growth.

Bjørnland and Jacobsen (2010) investigated the transmission mechanism of monetary policy in housing prices. The transmission mechanism was calculated through impulse response function and variance decomposition for the monetary policy. This is done through a structured Vector Auto Regressive model. The scholars choose 3 countries, UK, Norway and Sweden and used time series quarterly data for the period 1983 to 2006. The study confirmed that the monetary policy changes the interest rate which then changes the housing price.

Baig (2011) examined the effectiveness of market based monetary mechanism and involvement of 4 traditional channels of MTM for Pakistan during the period 1993 to 2009. The channels were interest rate, credit, exchange rate and asset price channel. The author used Granger Causality, Vector Auto Regression (VAR) impulse response function and variance decomposition to check the involvement of these Channel in the effectiveness of the Monetary Policy. For the estimation of these four channels, the author employed VAR methodology. He estimated these four channels of monetary

policy transmission with and without interest as monetary policy instruments. The author has further taken the interest rate and broad money as monetary shock to check the fourchannel variable for monetary transmission mechanism. The findings of the study were that all traditional channels were ineffective largely but interest rate and asset price channels were more ineffective than the other two channels.

Ludvigson S., Steindel C., and Lettau M. (2001) investigated Channels through which Monetary Policy affects real economic variables like consumption. Their study suggests that wealth channel has a very minor role, while the interest rate plays a more strong role which affects private consumption. The authors used VAR technique, and through impulse response functions they determined the channel involvement of Monetary Policy on Private Consumption.

However, there are various literature discusses link between trade liberalization and economic growth. Some very latest studies are follows. Manwa (2019) investigated the potential association between trade liberalization and economic growth for South African Customs Union member countries – Swaziland, South Africa, Namibia, Lesotho and Botswana. The authors used a panel data for 30 years. They introduce various indicators for estimating liberalization, these were tariffs, real effective exchange rates (REER), and adjusted trade ratios. The fixed effect regression models showed a positive impact of trade liberalization on economic growth for all member countries.

Erkisi and Ceyhan (2019) examined both long-term and short-term relationships between economic growth and trade liberalization for 13 selected Europe countries. Their data set consist of various economic variables, including GDP, trade, gross capital formation, FDI, and human capital. The Granger Panel causality and Panel Cointegration estimation showed mixed results of uni-directional and bi-directional causality both in short run and long run. The main drawback of their study is that did not take any proxy variable for trade liberalization and took export and import separately. Sehrawat and Giri (2017) constructed a financial development index and alongwith trade openness the study sought its impact on economic growth for Indian economy. The results of the Auto Regressive Distributed lag approach confirmed long run relationship trade openness and economic growth. Keho (2017) analyzed a link between trade openness and economic growth for Cote d'Ivoire in a multivariate framework. The author used ARDL and Granger causality test for finding the relationship. The estimation results show a positive effect of trade openness on economic growth for both in the long run and the short run.

The above literature review shows that mostly two methodologies have been used to analyze the involvement of the Channel variables. These are 3 staged least square estimation, which suggests that a variable which affects channel variables appears only channel equation, and these channel variable appears as the independent variable in the main equation which explains the dependent variable. The other methodology is of Vector Auto Regression (VAR) which explains every variable as an independent variable. Through VAR we can calculate impulse response function and lag structure of the variables. After the determination of optimal lag length, we can test the causality through the Granger Causality test.

This study would apply the Vector Auto-Regressive (VAR) approach to check whether trade openness affects the GDP growth of Pakistan. Wacziarg (2001) employ 3SLS technique covering 56 developing countries, while Siddiqui (2012) also used 3SLS for Pakistan only, covering the period from 1972 to 2011. The VAR technique has not been used by any researcher for this issue.

Data and Methodology

The study would take Annual data from 1978 to 2018, of Pakistan. Data sources are State Bank of Pakistan and Economic Surveys. Data of Gross Domestic Products (GDP), Gross Fixed Capital Formation (GFCF), Budget Deficit (BD), Foreign Direct Investment (FDI), Manufactured Export (MFEXP) and Openness (OPEN), which is measured as Export plus Imports, are in billion Pakistani Rupees, while Exchange Rate (EXCN) is measured as Pak Rupees per US\$. We have taken the log of every variable and renamed the variable as:

GDP	=	lgdp
GFCF	=	lgfcf
BD	=	lbd
FDI	=	lfdi
MFEX	P=	lmfexp
OPEN	=	lopen
EXCN	=	lexcn

In this paper, we will use granger causality to check our hypothesis. It is already mentioned that Siddiqui (2012) has used the 3SLS approach to test the hypothesis. The

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main difference of this study is the time period and methodology. The period is taken from 1978 to 2018. The reason for the selection of this period is that before this Government has implemented the policy of nationalization. Most of the economic unit was nationalized during the period 1973 to 1977. However, after 1977 policymakers changed the policy and started the liberalization of the economy. Another difference is the methodology. Siddiqui (2012) used 3SLS technique, however, we have used the VAR approach for this study.

Since our objective of the paper is to check that trade openness first affects channel variable, therefore we first see which channel variable is affected by openness. Then after we check which channel variables are affecting GDP. This causal relationship would be checked through Granger Causality test.

Estimation Results

First stationarity is checked for satisfying the time-series properties and to run Vector Auto-Regressive (VAR) system. First, we started our analysis by checking stationarity by employing Augmented Dicky Fuller (ADF) test. All the variables were found significant at first difference 1% level of significance. The result of the ADF test is given in the following table. This is a basic requirement for employing VAR.

(Automatic SIC criterion using maximum lag length 9				
Variable	T -statistics	Order of	Probability	
		integration		
lgdp	-5.66482*	I(1)	0.00	
lbd	-5.966949*	I(1)	0.00	
lfdi	-5.672144*	I(1)	0.00	
lgfcf	-4.74405*	I(1)	0.00	
lexcn	-5.210616*	I(1)	0.00	
lmfexp	-6.02852*	I(1)	0.00	
lopen	-6.733917*	I(1)	0.00	
* means significant at	t 1% level of significan	ce	•	

ADF unit rate test (Automatic SIC criterion using maximum lag length 9

Further selected optimal lag through the lag length criteria, which result is given the following table:

VAR Lag Order Selection Criteria						
Endogenous variables: LBD LEXCN LFDI LGDP LGFCF LMFEXP LOPEN						
Exog	enous variables	s: C				
Lag	LogL	LR	FPE	AIC	SC	HQ
0	62.47948	NA	9.02E-11	-3.263499	-2.949248	-3.15633
1	274.0625	323.5976*	6.75e-15*	-12.82721	-10.31320*	-11.96986*
2	325.3143	57.28137	8.75E-15	-12.95966*	-8.245902	-11.3521
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						

Result shows that all lag criteria suggesting 1 lag except AIC which suggest 2 lag of the time period. Therefore we selected Lag 1 for testing the Granger causality. Result of the Granger Causality is given under:

Pairwise Granger Causality Tests				
Sample: 1978 – 2018				
Lags: 1				
		F-		
Null Hypothesis:	Obs	Statistic	Prob.	
LOPEN does not Granger Cause LBD	35	4.04482	0.0528	
LOPEN does not Granger Cause LEXCN	35	4.53375	0.0410	
LGFCF does not Granger Cause LOPEN	35	5.59586	0.0242	
LGDP does not Granger Cause LBD	35	3.30635	0.0784	
LGDP does not Granger Cause LEXCN	35	4.20778	0.0485	
LGDP does not Granger Cause LOPEN	35	7.11755	0.0119	

Granger Causality shows that only Openness granger causes Gross Fixed Capital Formation, however, this variable has no causality effect with GDP. Budget Deficit and Exchange rate granger cause GDP, and at the same time these two variables granger cause openness. Importantly Openness granger causes GDP.

The above results suggest that there is no variable, out of five-channel variables, which first caused by openness and then cause GDP. Therefore it can be concluded that there is no channel variable involve in openness and GDP. However, there is significant evidence that Openness granger cause GDP. This result is very much opposite of the result found in Siddiqui (2012) study where 3SLS methodology was adopted.

Conclusion:

The objective of the paper is to check that trade liberalization policy affects GDP growth through some channel variables. For this purpose, the study assumes that trade liberalization first affects five-channel variables, i.e., Budget Deficit, Foreign Direct Investment, Gross Fixed Capital Formation, Exchange Rate and Manufactured Exports. These variables then affect GDP growth. For this purpose, we use data for the period 1978 to 2018 and use VAR methodology. The granger causality confirms that there is no channel variable involve in trade liberalization policy which affects growth

References

SBP, Annual Reports of State Bank of Pakistan, various issues

Baig, Mirza Aqeel (2011) "The effectiveness of market-based monetary transmission mechanism in Pakistan", Pakistan Business Review April 2011.

Economic Survey of Pakistan, various issues

Erkisi, K., & Ceyhan, T. (2019). Trade Liberalization And Economic Growth: A Panel Data Analysis For Transition Economies In Europe. *Journal of Economics Finance and Accounting*, 6(2), 82-94.

- Hilde C. Bjørnland, Dag Henning Jacobsen (2010) "The role of house prices in the monetary policy transmission mechanism in small open economies", Journal of Financial Stability Vol.6, Issue.4 December 2010:218-229
- Keho, Y. (2017). The impact of trade openness on economic growth: The case of Cote d'Ivoire. *Cogent Economics & Finance*, 5(1), 1332820.
- Ludvigson S., Steindel C., and Lettau M. (2001) "Monetary Policy Transmissionthrough the Consumption-Wealth Channel" FRBNY Economic Policy Review / May 2002, pp 117-135.
- Manwa, F., Wijeweera, A., &Kortt, M. A. (2019). Trade and growth in SACU countries: A panel data analysis. *Economic Analysis and Policy*, *63*, 107-118.
- RattsøJørn and Hildegunn E. Stokke (2012) "Trade policy in a growth model with technology gap dynamics and simulations for South Africa", Journal of Economic Dynamics and Control, Vol.36, Issue.7 July (2012): 1042-1056
- Sehrawat, M., &Giri, A. K. (2017). Financial structure, interest rate, trade openness and growth: Time series analysis of Indian economy. *Global Business Review*, 18(5), 1278-1290.
- Siddiqui, Aamir Hussain (2012); "Trade Openness and Growth: A transmission n mechanism in Pakistan", Pakistan Business Review" Vol. 14, Issue (2), 259-290,
- Tavares Jose, and Wacziarg, Romain (2001), "How democracy affects growth", European Economic Review 45, pp 1341-1378
- Wacziarg, Romain (2001); "Measuring the dynamic Gains from Trade", The World Bank Econ Rev (2001) 15(3): 393-429.

World Trade Review (2019), World Trade Organization.