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Does Trade with China Can Make Growth in Pakistan More Inclusive? Pre and Post Empirical Impact of China-Pakistan Economic Corridor

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Abstracts
The main objective of this study is to analyze the impact of Pakistan trade relation with China, especially in the perspective of "China-Pakistan Economic Corridor" (CPEC), on the inclusive Growth in Pakistan. This study contains two phases. Phase-I elaborates the impact of Pakistan trade with China and its inclusive growth without the effect of CPEC during 1985 – 2017 by applying ARDL frame-work. The results of the study confirmed that the influence of Pakistan-trade with China and its impact on the inclusive growth of Pakistan is Positive and Significant. Granger Causality test also give robust evidence that the relationship between Pakistan trade with China enhances inclusive growth of Pakistan. Correspondingly, Phase-II, examined the impact of CPEC and Pakistan-trade with China on the inclusive growth of Pakistan during 1990 – 2017 by using Ordinary Least Square (OLS). The results argue that the Impact of CPEC and Trade volume of Pakistan with China encourages inclusive growth of Pakistan. Beside the main variables, the control variable like, (foreign direct investment, government expenditure, financial development, trade openness and inflation) also positive and significant effect on inclusive growth but in some cases the impact is insignificant.
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I- Introduction

Many countries reported strong growth in 1960's and 1970's, however, by the start of 1980's it was clear that the fancy numbers of growth are not going to take care of major economic issues such as poverty, inequality, unemployment and productivity etc. (Fritz et al., 2009). Despite strong growth rates, the trickledown effect was very weak. Some pockets, especially rich and well connected, benefited more from growth while the life of poor and underserved did not change much (Acemoglu and Robinson, 2012). This pattern of exclusive growth kept resources underutilized and did not allow productivity to flourish with positive changes in economic growth. In order to ensure that the benefits of growth are properly trickled down the marginalized are equally facilitated in pursuing dreams, the concept of inclusive growth was vigorously pursued. Since then, inclusive Growth is a major economic policy objective and it is taking over the public policy debates of how to alleviate poverty and sustain development (Martin, 2001). Inclusive growth means growth with equitable breach to earn and nurture (Ali et al., 2007). The booming economic environment before 2007-08 financial crisis put the concept of inclusive growth in the back burner for some time, however, in the backdrop of increasing disparity, lack of employment opportunities, increase in poverty and declining productivity the issue of inclusive growth in developing countries like Pakistan has been reignited (Ifzal and Ali 2007). Pakistan economy grew by 4.1% in 2000-10 and 5.5% in 2011-2016 but economic growth did not change the pattern of unemployment, the level of inequality and standard of living of people in general. From the experience of Pakistan and other developing countries, it can be inferred that high economic growth was a good news for a struggling economy but it does not guarantee desired out comes on macro level until and unless growth is inclusive in nature (Khan et al., 2016).

In theory, International trade and trade openness is closely linked with growth (Greenaway et al., 2002). Trade openness is considered one of the important variables that not only promote growth but make it more inclusive as well. Trade, both exports and imports, increases efficient allocation of resources, improves productivity, increases standard of living and provides better opportunities to people from different segments of life to escape poverty trap. In simple, trade is an effective tool that can fix the problem of inclusiveness in growth (Chang et al., 2009). Almeida and Fernades (2008) stated that trade openness endows business possibilities and investment climate which is vital for catalyzing domestic and foreign investment based upon new advanced technology. This will in turn raise the productivity, employments generation and per capita incomes. Findings also pertaining to China and India recommended the dynamic apprehension of small and medium enterprises to inclusive growth though direct and indirect linkages of infrastructure. The authors have highlighted transport, education and communication to

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achieve inclusive growth. The results of the author were also supported by the study of Zhuang, (2008); Ghosh (2005).

Pakistan external sector performance is closely linked to growth, however, Pakistan external sector performance, especially trade, did not receive proper scrutiny to understand how it affected inclusive growth in Pakistan. Similarly, the impact of leading trade partner (such as China) and increasing regional connectivity (such as CPEC) is missing from the picture of inclusive growth in Pakistan particularly at a time when Pakistan seems to connect all her hope with booming economic relation with China. Some expect Pakistan close economic relation in the fields of trade, investment and infrastructure is going to diversify economic activities and promote inclusive growth in Pakistan. It is considered that Pakistan will attract investment from Chinese firms who face it difficult to cope with the increasing cost of production in China. Pakistan is also supposed to be a transit for the Chinese import of raw material and exports of finished products vis a vis Middle East and Africa. At the same time investment in infrastructure under CPEC will improve local as well as international connectivity. Resultantly, inter-regional and international merchandise trade in Pakistan will increase will promote quality growth (Ali, 2016).

Hussain (2016) and Ashraf (2015) argued that "China-Pakistan Economic Corridor" CPEC will increase social connectivity and trade among the people of advanced and lagging behind regions. It is significant for Pakistan as well as China as it will increase trade and economic activities in Pakistan to fall off the decade's trend of poverty and inclusiveness. In this regard it was decided to prepare a Master Plan of "China-Pakistan Economic Corridor" CPEC by 2015 in four main areas of cooperation, i.e., infrastructure, energy, industrial cooperation and transport which will give breath to over dwindling economy and trade which will leads to increase inclusive growth in Pakistan as well as of China. Similarly, Irshad et al., (2015) and Ahmar (2015) contended that industrialization in 'Special Economic Zone' along the "China -Pakistan Economic Corridor" CPEC will help in rehabilitation of Pakistan's deteriorated industrial units and trade while, Sial (2014) expected that employment generation and openness will take place mostly from the local community rather from China or from any specific province of the country. It is also analyzed that because of so many projects via "China-Pakistan Economic Corridor" CPEC, the employment generation will also take place in a massive amount to take out the people of Pakistan from the circle of the poverty. Since Pakistan is a small economy as compared to China, it will have to seek special protections for its local industries.

Therefore, in this study our main objective is (i) to understand how trade, particularly with China, is contributing to inclusive growth in Pakistan. (ii) Does CPEC makes any difference to the contribution of trade with China in inclusive growth of Pakistan? And if not then what are the main hurdles that stop trade with our leading business partners to contribute to the quality growth. We consider this research work very important in a time when Pakistan is over exposed to trade relation with China without showing any sign to increase exports and cash on the booming business market in China.

The rest of the study is organized as; the trend of Pakistan trade with China and its inclusive growth is adjusted in section-II. Section-III consist of construction of the inclusive growth index. Section-IV comprises the data collection and source of the study. Section-V shows research methodology. Section-VI presents Results and discussions while conclusion is accommodated in Section-VII.

II- Trend of Pakistan's trade with China and its Inclusive Growth in Pakistan: The inclusion of CPEC initiative

China has become Pakistan's largest trading partner for four consecutive years, the largest source of import and the third largest export destination. In the FY2017 to FY2018, China-Pakistan trade volume totalled US$13.2 billion, accounting for 16.4% of Pakistan's total trade volume (see figure 1). From 2002 the trade of Pakistan with china is increasing (see figure 1). Pakistan's exports to China mostly consist of grains (rice), cotton products, slag and calx, mineral sands, garments, photographic and medical equipment, optical, accessories, animal leather, lime and cement. China's exports to Pakistan largely contains like, electrical machinery, electrical and audio-visual equipment and accessories, nuclear reactors, boilers, mechanical tools and parts, iron and steel, chemical fibber filaments, organic chemicals, iron and steel products, plastics and their products (Government of Pakistan, 2017).

At the same time, Pakistan is also China's largest investment destination in South Asia. By the end of 2017, China's direct investment stock in Pakistan was US$5.71 billion. According to the statistics of Pakistan, China's direct investment in Pakistan in the 2017-2018 fiscal year was US$1,585.8 million, up 30.9% year-on-year, accounting for 57.3% of the foreign investment in Pakistan and ranking the first in Pakistan's source countries of foreign investment for five consecutive years. In terms of the investment fields, in addition to the traditional energy and infrastructure, China's capital steadily spreads to communications, home appliances and finance (Government of Pakistan, 2017).
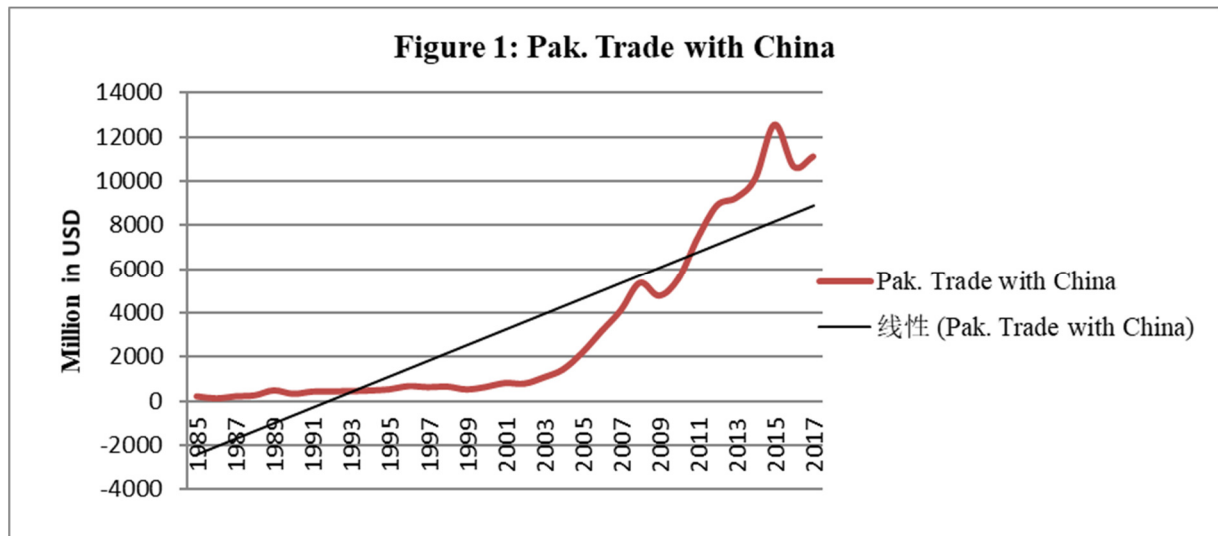
Source: State Bank of Pakistan
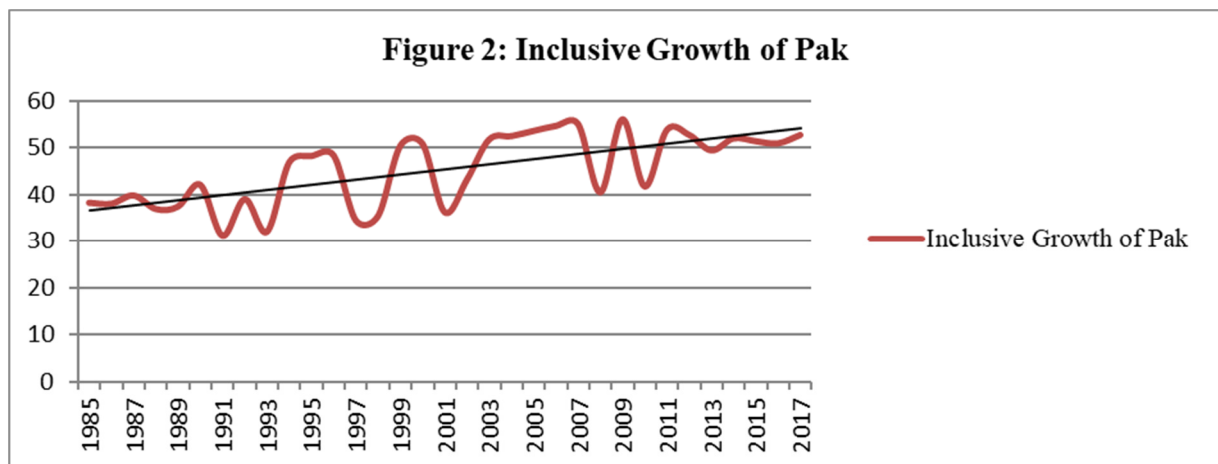
Source: State Bank of Pakistan

Economic survey of Pakistan 2013-14 reported estimates of poverty headcount for 2007-2008 and 2010-2011 of 17.2 percent in 2007-08, which meant that the proportion of poor had declined a further 5.1 percent between 2005-06 and 2007- 08. A further decline of 4.8 percentage points is observed in the official numbers in 2010-11; when the poverty headcount declined further to 12.4 percent. Furthermore, Pakistan has an average growth rate of 3.8% in 2010-2017. During this mentioned year's macroeconomic conditions as are required to achieve inclusive growth of the country. For example, due to turbulence of economic growth of Pakistan has always been facing the challenge of achieving rather more inclusive growth that has its benefits spreading to all classes of society (Ahmar and Hong 2017). To achieve the provision of basic services such as education, health, sanitation, and housing for all the segments of population, and social security schemes to ensure social protection are critical for long run (see figure-2). In this regard, (Ali 2016) the "China - Pakistan Economic Corridor" CPEC initiative is good opportunity for millions of Pakistanis out of poverty trap and misery and prop up trade between China and Pakistan as well as other countries of the world. The project embraces the construction of textile and apparel industry, industrial park projects, construction of dams, the installation of nuclear reactors and creating networks of road, railway line which will generate employment and people will also take ownership of these projects. Fully equipped hospitals, technical and vocational training institutes, water supply and distribution in undeveloped areas will also improve the quality of life of the masses and availing trade opportunities in lagging behind regions of Pakistan and west of China (Sial, 2015).

III- Construction of the Inclusive Growth Index:
a) Construction of variables:
The estimation of inclusive growth stands on four pillars. They are (i) Economic Growth, Employment, and Infrastructure (ii) Inequality, Poverty and General Equity (iii) Accessibility (iv) Social Protection and Governance. These pillars are assigned weights. Weight reflects the proportion of each indicator in the construction of inclusive growth. We present the pillars and their weight as following. The devised index takes seven components including,

(Economic Growth, Employment level, Infrastructure Development, Inequality, Poverty, Accessibility and social protection and Governance) into consideration in order to cover all the important dimensions of Inclusive growth. In the original data sets, different scales are used for inclusive growth indicators where some components are time invariant. However, after transformation, the single variable of inclusive growth became time variant in which is more suitable for time-series analysis. This method is also employed by Khan et al., (2016) in the construction of their economic freedom index.

b) Measurement of the Inclusive Growth Index:

Following the procedure established by (Terry McKinley 2010) construction of inclusive growth index has the following steps:

First, choice the dimensions and indicators.

Assume the evaluation dimension collection of inclusive growth index is U={u1,u2,u3,……..un) evaluation area collection is U={uj1,uj2,uj3,……..ujn} and evaluation index collection is U={uj11,uj21,uj31,……..ujim} where j refers to evaluation dimension, I is evaluation area and m is evaluation indicator.

Second, set target weight.

Weight is the proportion of each indicator in the collection, reflecting the importance of each indicator. Assume the weight is W, W={w1,w2,w3,……..wi}

Third, conduct uni-variate standardization.

After building the evaluation indicators, conduct quantitative evaluation of indicators one by one. After that, we have a matrix R.

$UR = \{r111, r112, \ldots\ldots\ldots r11m\}$

Fourth, weighted sum to have inclusive growth index (IGI) U_R

$$IGI = \sum_{i=1}^{m} (\sum_{J=1}^{n} U R * wj) * Wi$$

Where

UR Standardized single index score

wi weight of single indicator at this level

Wi Dimensional layer weight

Table 1: Construction of Index:

Dimension Index		Area index		Indicators	
Indicators	Weight	Indicators	Weight	Indicators	Weight
Economic Growth, Employment, and Infrastructure (U1)	0.30	Economic growth (U11)	0.15	GDP per capita growth rate (U111)	0.15
		Employment (U12)	0.1	Employment in industrial sector (U121)	0.05
				Employment in services sector (U122)	0.05
		Infrastructure (U13)	.05	Energy use (U131)	0.05
Inequality, Poverty and General Equity (U2)	0.30	Income inequality (U21)	0.1	Gini index (U211)	0.1
		Poverty (U22)	0.1	Poverty headcount ratio at $2 a day (PPP) (U221)	0.1
		Gender equity (U23)	0.1	Ratio of female to male Labour force participation rate (U231)	
Accessibility	0.25	Education (U31)	.09	Primary school enrollment rate (U311)	0.07
		Health (U32)	.09	Mortality rate, under-5 (U321)	0.07
		Access to water, sanitation (U33)	.07	Improved water source (U331)	0.03
				Improved sanitation facilities(U332)	0.03
Governance (U4)	0.15	Governance (U42)	.15	Government Effectiveness(U421)	0.08
				Corruption perception index (U422)	0.07

IV- Data Collection and Source:

Table 2: Data Collection & Source:

Variable	Abbreviation Used	Source
Pakistan-Trade with China (Import +Export)	TR	State Bank of Pakistan
Foreign Direct Investment	FDI	World development indicators
Financial Development (as a proxy for Domestic Credit to private sector)	DF	World development indicators
Stability (as a proxy for inflation-GDP deflator)	INF	World development indicators
trade-openness (trade as % of GDP)	TO	World development indicators
General Government final consumption expenditure	GE	World development indicators
Inclusive Growth of Pakistan	IG	The variables used in the construction of this index are taken from World development indicators

Note: The data range for this study is from 1985 – 2017. And all the data of the selected variables are converted into logarithmic form

V- Research Methodology:

This paper is divided into two phases. The first phase explores the impact of Pakistan trade (export plus imports) with China and its inclusive growth without the announcement of CPEC and the second Phase examines with the effect or the inclusion of CPEC project. As CPEC started for the first time in 2015, we treat the twenty-four years' period from 1990 – 2014 as the pre-strategy period, and correspondingly the three years' period from 2015 – 2017 as the post-strategy period. The four-years post-strategy period may be not sufficiently long to incorporate the changes in the inclusive behavioral patterns of the Pakistan economy (the project of CPEC was started for the first time in 2015) instead we are trying to give true picture of CPEC impact on the inclusive growth of Pakistan's economy. We take CPEC as a dummy variable in the selected model in this study. For example, 3 years post strategy period (0) and correspondingly the pre-strategy period (0).

In Phase-1, the present study investigates, long and short-run relationship between regresand i.e. Inclusive growth and regressor Pakistan trade with China (export + imports) by using ARDL technique of co-integration. ARDL co-integration technique was developed by Pesaran and Shin (1999) and Pesaran, Shin, and Smith (2001). This method is valid irrespective of whether the underling variables are stationary at level I(0), first difference I(1) or mix of both. Further, the error correction term may easily be derived from simple linear transformation (Banerjee 1993). Moreover, the additional advantages of the ARDL approach are (a) it can be used in time-series studies that have employed relatively small sample size and (b) this approach is more effective as compared to Johansen and Juselius's co-integration technique for small samples and also provides the short-run adjustment without losing the long-run information (Pesaran and Shin 1999). To assess the association between dependent and independent variables, the ARDL technique estimates the following unrestricted ECMs:

$$\Delta \log IG_t = \alpha_{0IG} + \sum_{i=1}^{p} \psi_{iIG} \Delta \log IG_{t-i} + \sum_{i=1}^{p} \phi_{iIG} \Delta \log TR_{t-i} + \sum_{i=1}^{p} \delta_{iODi} \Delta \log FDI_{t-i} + \sum_{i=1}^{p} \varpi_{iIG} \Delta \log DF_{t-i}$$

$$+ \sum_{i=1}^{p} \partial_{iIG} \Delta \log GE_{t-i} + \sum_{i=1}^{p} \theta_{iIG} \Delta \log INF_{t-i} + \sum_{i=1}^{p} \pi_{iIG} \Delta \log TO + \gamma_{1IG} \log IG_{t-1} + \gamma_{2IG} \log TR_{t-1} + \gamma_{3IG} \log FDI_{t-1} + \gamma_{4IG} \log DF_{t-1} + \gamma_{5IG} \log GE + \gamma_{6IG} \log INF + \gamma_{7IG} \log TO + \mu_{1t} --------Equation(1)$$

The study employs bound testing procedure for estimating the long-run relationship between dependent and independent variables. The bound testing method is based on the Wald test; a test of the hypothesis of no co-integration between the variables against the presence of co-integration between the variables. Following are the null and alternative hypothesis for long-run relationship.

Two critical values (lower and upper) are provided by Pesaran, Shin, and Smith (2001) for the co-integration test. When the estimated F-statistic is greater than the upper bound critical value, then the null hypothesis (H0) (i.e. no co-integration among variables) is rejected. If the estimated F-statistic lies below the lower bound critical value, then the null hypothesis (H0) cannot be rejected and the outcomes are inconclusive if the computed F-statistics remain between the lower Groenewold and Tang (2007) point out that irrespective of the order of integration Granger causality tests are valid if long run equilibrium relationship is confirmed among the variables under consideration. However, Granger causality test requires us to rely on VECM to determine the short-run dynamic of system among the cointegrated variables (Narayan and Smyth 2004). Engle and Granger (1987) argue that the traditional Granger causality tests using the first differences of variables through a VAR may cause ambiguity in results in the presence of co-integration among variables. Hence, an improved form of traditional Granger causality test including the error correction term is formulated in VECM as follows:

$$\Delta \log IG_t = \alpha_1 + \omega_{11}^p(L)\log IG_t + \omega_{11}^q(L)TR_t + \omega_{11}^q(L)FDI_t + \omega_{11}^q(L)DF_t + \omega_{11}^q(L)GE_t + \omega_{11}^q(L)INF_t + \omega_{11}^q(L)TO_t + \theta_1 ECT_{t-1} + \mu_{1t} --E(2)$$

where ECT$_{t-1}$ is first lag of error correction term.

VI- Results and Discussions:

Phase-I

Prior to examine the potential long-run relationship between trade with china and Inclusive growth of Pakistan. It is essential to create the order of integration among the selected variables because if the variables are integrated of order I(2) or above the computed F-statistics do not remain valid (Ouattara 2004). For this purpose, ADF and DF-GLS test is applied to examine the order of integration among the chosen variables.

It can be seen from the Table 2 that all the selected variables are either integrated of order I(0) or I(1) and no one of the variables is integrated of order I(2) or above, which support the ARDL estimation procedure rather than other alternative co-integration methods. The Wald based-bound test is employed to explore the presence of a long-run relationship between the variables our interest. Selection of optimum lag length (p) for assessing the models is based on AIC. The reported results in Table 4 show a long-run relationship between the variables of our interest. The estimated F-statistics for Equations 1 are greater than the upper bound critical value at 1% level of significance. Thus we reject the null hypothesis of no co-integration among the variables.

Table 3: Unit Root Test Results				
Variables	**ADF Test**		**DF-GLS Test**	
	Intercept(t-statistic)	Intercept and trend(t-statistic)	Intercept(t-statistic)	Intercept and trend(t-statistic)
LogIG	-3.523***	-5.659***	-3.380***	-5.810***
LogTR	-0.141	-2.265	-0.121	-2.138
LogFDI	-1.130	-2.137	-0.871	-2.190
LogDF	-1.573	-2.006	-1.404	-2.083
LogGE	-1.338	-1.385	-1.319	-1.490
LogINF	-4.717***	-4.616***	-3.638***	-3.892***
LogTO	-1.324	-2.599	-1.447	-2.567
ΔlogIG	-6.058***	-5.938***	-6.126***	-6.162***
ΔlogTR	-7.751***	-7.564***	-1.638	-5.916***
ΔlogFDI	-5.115***	-5.028***	-5.195***	-5.202***
ΔlogDF	-4.232***	-4.123***	-3.774***	-4.157***
ΔlogGE	-4.991***	-4.953***	-4.871***	-5.019***
ΔlogINF	-6.973***	-7.242***	-7.752	-6.951
ΔlogTO	-6.968	-7.132	-6.552***	-7.338***

Note: *** denotes significance level at 1%

Table 4: Long Run Results		
Variables	**F-statistic**	**Critical Values Upper - Lower**
logIG/LogTR	12.742***	6.84 - 7.84
logIG/logTR/logFDI	9.249***	5.15 - 6.36
logIG/logTR/logFDI /logDF	6.751***	4.29 - 5.61
logIG/logTR/logFDI/logDF/logGE	7.301***	3.74 - 5.06
logIG/logTR/logFDI/logDF/logGE/logINF	5.806***	3.41 - 4.68
logIG/logTR/logFDI/logDF/logGE/logINF/logTO	4.720***	3.15 - 4.43

Note: *** denotes significance level at 1%

Table 5: Granger Causality Results							
Dependent Variable	Long Run (F-Statistics)						ECT$_{t-1}$
	logTR	logFDI	logDF	LogGE	logINF	LogTO	
ΔlogIG	9.215***						-0.91
ΔlogIG	1.382	6.441***					-0.95
ΔlogIG	0.928	5.142***	4.900***				-0.93
ΔlogIG	0.679	2.530**	2.804**	4.874***			-0.94
ΔlogIG	0.650	2.434**	2.643**	4.653***	3.908***		-0.96
ΔlogIG	0.698	2.346*	2.013*	2.417**	2.236**	3.368***	-0.97

*Note: ***, ** & * denotes significance level at 1%, 5% & 10%*

Table 6: ARDL Results							
Dependent variable	Constant	Long Run coefficients					
		LogTR	logFDI	logDF	LogGE	logINF	LogTO
ΔlogIG	1.396*** (0.060)	0.080*** (0.018)					
ΔlogIG	1.345*** (0.078)	0.054* (0.032)	0.045 (0.046)				
ΔlogIG	0.011*** (0.427)	0.107 (0.072)	0.006 (0.078)	0.234 (0.296)			
ΔlogIG	1.468*** (0.474)	0.080 (0.067)	0.001 (0.070)	0.129 (0.276)	0.235** (0.129)		
ΔlogIG	1.460*** (0.493)	0.082 (0.070)	0.002 (0.073)	0.136 (0.295)	0.234** (0.132)	0.002 (0.030)	
ΔlogIG	1.402*** (0497)	0.085 (0.070)	0.007 (0.073)	0.207 (0.308)	0.172 (0.155)	0.009 (0.034)	0.332 (0.447)

*Note: ***, ** & * denotes significance level at 1%, 5% & 10%, the value in braces shows standard error*

Table 7: Diagnostic Test Results:			
Variables	Breusch-Godfrey Serial Correlation LM Test	Breusch-Pagan-Godfrey Test (Heteroskedasticity)	Ramsey RESET Test
logIG/LogTR	0.5034 (0.9510)	2.7396 (0.081)	0.8806 (0.3560)
logIG/logTR/logFDI	0.3578 (0.0725)	1.6686 (0.1963)	1.3090 (0.2626)
logIG/logTR/logFDI /logDF	0.3129 (0.7341)	1.2135 (0.3281)	1.4211 (0.2440)
logIG/logTR/logFDI/logDF/logGE	1.2135 (0.3281)	1.2135 (0.3281)	0.3260 (0.5755)
logIG/logTR/logFDI/logDF/logGE/logINF	0.3793 (0.6884)	1.7315 (0.1627)	0.3126 (0.5838)
logIG/logTR/logFDI/logDF/logGE/logINF/logTO	0.5470 (0.5860)	1.5122 (0.2150)	0.3901 (0.5416)

The empirical findings of ARDL bound test reveal that there is stable long-run association between Pakistan's trade with China and its inclusive growth. Results of Granger Causality in Table 5 clarify the existence of short-run and long-run relationship between dependent and independent variables. The findings indicate that coefficient of error correction term (ECT) is highly significant at all the regression of trade with China and Inclusive growth of Pakistan. These findings suggest that long-run relationship exist in the dependent and independent variables including (FDI, DF, GE, INF and TO) in Pakistan. The results are consistent with the observation that despite political disorder during the last four decades in Pakistan engaged with China in export and import in large amount (see figure 1) and its inclusive growth was consistent (see figure 2) . These results are similar to the findings of Khan et al., (2016); Habito and Cielito (2009).

The results of ARDL table 6 confirmed that the impact of independent variables i.e. Pakistan trade with China and dependent variables (i.e. Inclusive growth) is positive and significant at 1% but it is insignificant when we apply other control variables (such as Foreign Direct Investment, Financial Development, Inflation, Government

Expenditures and Trade Openness). The results are in the line of Falvey et al., (2012); Azghar and Javed (2011). Furthermore, we can see from table 6 that under mentioned control variables have not so significant impact on inclusive growth. It is due to the reason that government of Pakistan is developing country which has no potential to spend on social and consumption expenditure. Also due to low quality of institutions and infrastructure (Shah et al., 2015) Pakistan's unable to attract FDI which leads to less growth.

It can be seen in table 7 that the F-statistics of all Diagnostic Tests are insignificant which clearly which show that the models are correctly specified. For example, the Breusch-Godfrey Serial Correlation LM Test F-statistic value is insignificant in all cases which show that the models have no Serial correlation problem. The F-statistics of Breusch-Pagan-Godfrey Test for Heteroskedasticity show that the models are not effected by Heteroskedasitictity and the Ramsy RESET tests do not indicate misspecification or nonlinearity problem in the models. Moreover, the stability of the models is confirmed by recursive estimation (i.e. CUSUM tests, plot of the recursive residuals, given in Appendix A). All the statistics suggest that statistically valid inference can be drawn from the models. Here in all Diagnostic tests, we reject the alternative hypothesis of (the models have no above under mentioned Econometrics problem).

Table 8: Ordinary Least Square (OLS) Results (TR is Dependant Variable)					
Dependent Variable	Long Run (Co-efficient)				
	Constant	logCPEC	logTR	LogFDI	logTO
logIG	1.6009*** (0.0262)	0.5328*** (0.0630)			
logIG	0.4836*** (0.1703)	0.3262*** (0.1103)	0.3612*** (0.0536)		
logIG	0.0349 (0.1794)	0.2460*** (0.0931)	0.2650*** (0.0762)	0.2607*** (0.1027)	
logIG	0.3540 0.3731	0.1881** 0.1005	0.2084*** 0.0728	0.2106*** 0.0943	0.0560 0.8931

*Note: ***, ** & * denotes significance level at 1%, 5% & 10%, the value in braces shows standard error*

Table 9: Ordinary Least Square (OLS) Results (TR is Dependant Variable)					
Dependent Variable	Long Run (Co-efficient)				
	Constant	logCPEC	logIG	LogFDI	logTO
logTR	3.0469*** 0.0665	1.0055*** 0.1597			
logTR	0.1743 0.6994	0.5764*** 0.1111	1.7652*** 0.4242		
logTR	0.6586 0.5632	0.3671*** 0.0288	0.6329* 0.3992	0.4809*** 0.0760	
logTR	1.3994** 0.7371	0.2553*** 0.1032	0.4258 0.3840	0.3876*** 0.0683	0.3421 0.9330

*Note: ***, ** & * denotes significance level at 1%, 5% & 10%, the value in braces shows standard error*

Phase-II

The results in table 4 show that the impact of CPEC on inclusive growth of Pakistan is positive and significant. It means that the CPEC project is helpful to make Pakistan's growth more inclusive. In fact, CPEC is a big initiative to promotes infrastructure, trade and FDI (inflow from China) in Pakistan. For example, after the announcement of CPEC, the market to market and city to city connectivity and promoting trade activities. The CPEC project related investment in Pakistan for development of various sectors mainly; energy and infrastructure would predict in the creation of 700,000 direct jobs between 2015 to 2030 and add 2 to 2.5 percentage points to the country's annual economic growth (Sial 2014, 2015; Ahmad and Hong 2017) studied the impact of trade and infrastructure i.e., roads, telecommunication and electricity in the development of manufacturing industries and found the positive and significant impact of infrastructure on manufacturing sector, employment, poverty reduction and improving trade. Beside the main variables, the control variables (like, FDI, TO and TR) have positive and significant effect on inclusive growth. To check robustness of the variables' coefficients we regress the independent variable on dependent variable individual and then used control variables one by one. All the coefficients are consistent. Furthermore, we select less variables from the above (equation 1) but still the coefficients are consistent.

On the other hand, we replace TR on IG to check the robustness of the coefficient (see table 5). But The coefficients are still consistent with above table 4. It can be seen from table 5, that the impact of CPEC on trade of Pakistan with China is positive and significant. It clearly indicated that CPEC is a good opportunity for Pakistan to make more open their economy specially for China. It is also a good news for investors of Pakistan to invest in

CPEC to promotes the inclusive growth of Pakistan. Along with the main variables, the control variables (such as IG, FDI and TO) of our interest is also positive and significant.

VII- Conclusion

The rapid trade of Pakistan with China make growth of Pakistan more inclusive. Previous empirical studies mostly focused on aggregate trade of Pakistan with world. However, little research has been devoted to investigate this issue at the specific trade of Pakistan with China and its inclusive growth. This study contains two Phases. The Phase-I covers the impact of Pakistan trade with China and its impact on inclusive growth of Pakistan without the effect of CPEC and the Phase-II examines the impact of Pakistan trade with China and its effect on inclusive growth of Pakistan with the influence of CPEC project. Most importantly according to the best of our knowledge we are the first one to explore the impact of CPEC on inclusive growth of Pakistan empirically. Our study fills this gap by using CPEC as a dummy variable to judge the impact of Pakistan trade with China and its effect the overall growth (inclusive growth). We employed ARDL estimators on annual time series data during 1985–2017 to observes the long-run and short-run relationships in Phase-I. To get most efficient results, our empirical model controls for many important macroeconomic parameters that are very important to check the impact of the selected main dependent and independent variables, such as trade openness, FDI inflow, Financial development and stability. We establish strong evidence that Pakistan trade with China increase inclusive growth of Pakistan (the impact is positive in short and long run). The results are robust because we apply the main independent variable and then regress others control variables number by number which gives us consistent coefficients. These results are consistent with the idea that Pakistan trade with China can enhance inclusive growth of Pakistan's economy in short as well as in long run. We can also have concluded from the findings of the present study that control variables play an important role in defining the exact relationship between Pakistan trade with China and its impact on inclusive growth. Previous research, like (Asghar and Javed 2011), has ignored relevant variables and also failed to derive the accurate relationship between the variables of our interest. Beside Pakistan trade with China, CPEC also play positive and significant role in promoting inclusive growth of Pakistan. To observe the impact of CPEC on inclusive growth of Pakistan in Phase-II we apply Ordinary Least Square during 1990 – 2017. The current study is quantitative or empirical in nature which give us most robust and strong evidence that CPEC can make the Pakistan growth more inclusive.

Disclosure statement

Author A declares that he has no conflict of interest. Author B declares that he has no conflict of interest
Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors

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Appendices:

Appendix A: CUSUM and CUSUM of Square