Analysis of the Influence of CPEC on Monetary Policy Decision in Pakistan

Majid Ali Sanghro[1], Farhanzeb Khaskhelly[2] and Prof. Dr. Ambreen Zeb Khashkelly[3]*

[1]M.Phil Student Department of Economics University of Sindh Jamshoro, Sindh, Pakistan.

[2]PhD Scholar and Lecturer of Business Administration at University of Sufism and Modern Sciences, Bhitshah, Sindh, Pakistan.

[3]Professor at Department of Economics University of Sindh, Jamshoro, Sindh, Pakistan.

Abstract

The purpose of this research is to extent to which the China- Pakistan Economic Corridor (CPEC) can impact monetary policy decisions in Pakistan. This is in response to further research in previous studies. A robust econometric model was applied to economic data procured from the financial and statistical institutions in Pakistan and China. The analysis suggests the potential of the economic cooperation to inure to the benefit of both Pakistan and China in terms of economic development. Return on the analysis indicated that financial sector in Pakistan in particular is more susceptible to risk based on the influx of Chinese funds into the system. Specifically it is concluded the inflation and foreign exchange volatility are the most vulnerable areas of concern. Based on this knowledge it is proposed that the financial regulatory authorities in Pakistan must develop appropriate response strategies to safeguard the stability of the entire financial system on a constant basis.

Keywords: CPEC; Economic; Cooperation; Monetary Policy; Financial System.

*)Corresponding Author.
Email: drambreenzeb@gmail.com

1. Introduction

The era of globalization, particularly in the 21st Century has changed the way countries, businesses and individuals share information across the world. There is increasing inter-dependence among national economies through global trade and this has advanced the course of economic growth in both developed and developing countries (Chow, 2015). The proliferation of several multilateral and bilateral economic cooperation attest to the widely acknowledged fact economic cooperation has the potential to promote national development and achieve the collective good of all citizens (Tiezzi, 2014).

In the micro economic sense also, there is ample evidence that multilateral and bilateral economic cooperation can facilitate domestic business development particularly, small and medium ones in the developing economies from the knowledge acquired from cooperation with their counterparts in advanced economies (Sachdeva, 2006). The extant literature presents a plethora of studies that assert the importance of multilateral and bilateral economic cooperation or trade agreements between the countries. Notable in this area is the effect of multilateral and bilateral economic cooperation on indicants of economic growth and social welfare. There is also a strand of studies that outlines some of the negative externalities associated with multilateral and bilateral economic cooperation on minor partners. Indeed both advanced economies in the West and the Far East equally stand accused for perpetuating economic injustices through multilateral and bilateral economic cooperation.

According to Yellen (2007) a key factor in promoting a bilateral economic cooperation is relative advantage. This refers to a country's belief that adoption of bilateral trade cooperation can providing greater national and institutional benefits than maintaining the status quo (Alsaad, Mohamad, & Ismail, 2017). Several empirical researchers have identified relative advantages as essential motivating factor for both macro and micro interest in economic cooperation such as CPEC. For example according to Ball (2014) economic cooperation such as CPEC potentially increases trade opportunities for both Pakistani and Chinese firms, enhances access to high level capital and access to favourable terms of trade. CPEC also has the potential to increase

profits for domestic firms, increase access to market for domestic firms, improve productivity, increase competitiveness of domestic products on the international market and access to high technical resources needed to build capacity to improve services (OHussain, 2016).

A study by Sin et al. (2016) on the influence of bilateral trade cooperation and competitive pressure towards implementation of e-commerce confirmed that relative advantage is a significant predictor of bilateral trade cooperation. Similarly, other studies that focused on bilateral trade cooperation confirmed that relative advantage has a positive correlation in the quest to participate in NAFTA, SADC, ECOWAS, ASEAN, the Commonwealth and MENA (Aziz & Jamali, 2013). This notwithstanding some studies found relative advantage to be an insignificant factor in multilateral and bilateral economic cooperation relative to the political gains.

At the micro level, Brzezinski et al. (2013) report that involvement in multilateral and bilateral economic cooperation for the development of SMEs continues to attract the interest of such entrepreneurs because they stand the chance to benefit from the largesse of the partner country to support their feeble establishments. Indeed evidence from Sub-Saharan Africa suggest that the China-Africa Economic Cooperation has helped to turn the fortunes of several hitherto struggling SMEs in Africa (Alamro & Tarawneh, 2011; El-Gohary, 2012). Thus whenever domestic business owners/managers see that the benefits to derive from their government's participation in multilateral and bilateral economic cooperation will outweigh the associated risks, there is a greater possibility to put pressure on the state to ratify such agreements.

It is the contention of Fiedler et al. (2016) that the idea of the China–Pakistan Economic Corridor had been on the drawing board for a considerable period of time but it was not until 2016 that it became an effectual tool. This followed the conclusion of broad national level consultation between the two countries. This was followed subsequently by the smooth passage of Chinese cargo overland to Gawadar Port for onward maritime shipment to Africa and Western Asia (Hommes, et al., 2015). The CPEC is designed on four cardinal areas of economic cooperation but skeptics believe it is not a full disclosure of the intended objective. The

areas of cooperation include infrastructural development, agricultural cooperation, technological support and trade cooperation. As reported by Chow (2017) the CPEC has an ambitious budget of $62 billion dedicated to different types of infrastructural development in Pakistan. This will ultimately help to create major trade routes between the two countries and the rest of the world (Rey, 2015). In essence the objective of CPEC is to establish a mechanism by which trade arrangements between China and Pakistan can be facilitated. This is only possible by investing a significant amount of resources into infrastructural development to create access route to both countries and beyond

According to Erickson et al. (2010) also central to the agenda of the CPEC cooperation is the need to rejuvenate agricultural and energy production and transfer to nearby regions. Under the project, the Chinese government is expected to assist Pakistan to construct high speed pump machines and gas pipelines to entrench China's role as a leading supplier of energy to the rest of ASEAN under the Belt and Road initiative. Even though issues about national security is not engraved in the clauses of the CPEC cooperation, Markey & West (2016) suggest that CPEC encapsulated China's desire to be indirectly involved in the politics in the Arab land. It's also believed to be a strategic support for Pakistan in their quest to call off the bluff of India. This idea is reiterated by Rustamli & Abbas (2017) when they explain that India is a major factor in the huge investments being made through the CPEC and the larger Belt and Road initiative.

Even though the CPEC is still at its embryonic stage, it has already attracted a lot of criticisms similar to other multilateral and bilateral economic cooperation across the globe. For example there are still issues relating to how CPEC will address the demands of KPK Provincial Assembly, the Baloch Nationalist, the concerns of the Gawadar residents and the other Indian objection (Shaikh, et al, 2016). For example CPEC has been described by Phunchok Stobdan (an Indian Diplomat) as an avenue for China and Pakistan to develop a corridor for their economic concerns and build strategic base to target India for attacks (Irshad, M2015). It is in this regard that the India Ministry of External Affairs summoned the Chinese envoy in the New Delhi in 2015, to lodge India's official opposition to the CPEC project. The complexities and anxieties of the nearest neighbors have largely dominated most

academic researches and discussions on the CPEC at the expense of its economic viability. This is because there are much larger issues on the financial effect of the CPEC on the Pakistan after two years of implementation.

At its onset the CPEC was designed to offer several stimulus packages for Pakistan but very little is mentioned about what China stands to gain in terms of finance. In the cooperation China agreed to offer concessionary loans to different sectors of Pakistan to boost macro and micro economic development. This can help Pakistan reduce its dependence on their neighbors for some of its core needs. This is as important as the provision of interest free loans, private consortia and facilitating assistance funding from the Asian Development Bank.

Even though the security and infrastructural concerns are important for the development of Pakistan, the overbearing effect of these engagements on monetary policy remains an issue in dire need of research. There are speculations and uncertainties about the sustainability of this positive benefit of CPEC considering the potential effect on the monetary policy. For example there are fears that the over involvement of Chinese money can cause rapid decline in the value of currency with its damaging ramifications. Similar observations have been made with respect to interest rates, money supply, consumer and producer price index, Broad Money as % GDP is bank deposits as % of GDP, domestic credit by the private credit as % GDP etc.

The current literature documents several existing studies on the positive effect of regional trade cooperation and the financial sector development while others have also debunked that claim. For example recent studies by Su & Moaniba (2017), Zhang et al., (2017); Wilson (2018) attests to these factors. The same is applied in the case of Piketty (2015); Novokmet, et al., (2017); Milanovic, (2011) who have examined the influence of regional cooperation on monetary policy in OECDs countries.

The last group of researchers however found a negative influence of regional economic cooperation and bilateral trade agreement on domestic monetary policy of the less developed partner. This is particularly in the case where one of the partners is perceived as having strong capacity This particular study seek to contribute to the extant literature by researching on how economic

cooperation that involves a major and minor partner can positively or negatively influence financial sector development and eventually the growth of their respective economies based on recent data (Novokmet, et al., 2017). The focus of the study is with the perceived minor partner in the cooperation which is Pakistan due to the amount of the financial and infrastructural commitment it is making in the project relative to that of China.

In term of the methodological contribution of this research, the study predominantly employs recent econometric model namely the dynamic ordinary least square regression model as well as the Prai-Winsten regression model to establish better analysis of the relationships among financial development, economic growth, inequality and other identified explanatory factors. This study pioneers research that assessed the efficacy of different forces whilst investigating the effects of financial development, economic growth, economic inequality, population growth and other factors in a transition country. The subsequent sections of the paper discuss related literature, data, methodology, results and discussion and then conclusion.

2. Methodology

2.1 Data

Data for the research was sampled from the World Bank Indicators, the Chinese Statistical Yearbook and the Central Bank of Pakistan. The data include broad money as a percentage of the GDP (M2), the amount of domestic credit by private credit as a percentage of GDP and the Firms using banks to finance working capital as a percentage of firms. Additionally information on consumer price index, inflation rate annual exchange rate was also selected as proxy for monetary policy. Regarding the explanatory variables the amount of Chinese outbound FDI to Pakistan, Net Trade Balance between China and Pakistan, Percentage of Pakistani students accessing the CSC Scholarship. The study regressed broad money as a percentage of the GDP (M2), the amount of domestic credit by private credit as a percentage of GDP and the Firms using banks to finance working capital as a percentage of firms, inflation, consumer price index and annual exchange rate independent variables to identify how they respond to changes in the explanatory factors identified. The study used

mathematical models using econometric programs including Eviews, Excel and Stata to run tests using sector datasets. Panel data will be used to construct the Prais-Winsten estimation regression models to the selected data.

2.2 Econometric Model

The establish causality among the independent variables, the study conducted the Boostrap Granger Causality test was used to estimate the Vector Error Correction Model based and this is expressed mathematically as follows:

$$(1-L)[\ \ ] = \begin{bmatrix} INR_{1t} \\ \mathrm{CPI}_t \\ GDPPCI_t \\ M2\mathrm{GGP}_t \\ PCGDP_t \\ BDGDP_t \\ etc \end{bmatrix} + \sum_{i=1}^{p} (1-\mathrm{L}) \begin{bmatrix} d_{11i}d_{12i}d_{13i}d_{14i}d_{15i}d_{16i}d_{16i} \\ d_{21i}d_{22i}d_{23i}d_{24i}d_{25i}d_{26i}d_{16i} \\ d_{31i}d_{32i}d_{33i}d_{34i}d_{35i}d_{36i}d_{16i} \\ d_{41i}d_{42i}d_{43i}d_{44i}d_{45i}d_{46i}d_{16i} \\ d_{51i}d_{52i}d_{53i}d_{54i}d_{55i}d_{56i}d_{16i} \\ d_{61i}d_{62i}d_{63i}d_{64i}d_{65i}d_{66i}d_{16i} \\ d_{16i}d_{16i}d_{16i}d_{16i}d_{16i}d_{16i}d_{16i} \end{bmatrix} \begin{bmatrix} INR_{1t-i} \\ CPI_{t-i} \\ GPCI_{t-i} \\ GGP_{t-i} \\ PC_{t-i} \\ BD_{t-i} \\ etc \end{bmatrix} + \begin{bmatrix} \lambda_1 \\ \lambda_2 \\ \lambda_3 \\ \lambda_4 \\ \lambda_5 \\ \lambda_6 \\ etc \end{bmatrix} [ECM_{t-1}] \quad (1)$$

2.3 Prais-Winsten Estimation

This study also uses the Prais-Winsten estimation model as described by Prais & Winsten (1954). This type of regression explore analyses factors in serial correlation of type AR (1) in a linear model structure. This is a preferred option over the Cochrane & Orcutt (1949) model which has received its fair share of criticisms (Sial, 2014). The study adopted the original model but recalibrated the parameters to suit the variables of interest in this study. Thus the final Prais-Winsten equation used in this study is expressed mathematically as follows:

$$Y_{it} = \alpha_0 + X_t\beta + \varepsilon_{it} (2)$$

Where $Y_{it}$the time series at time *t* is, β is the vector of coefficients, X_t is the matrix of explanatory variables. The error term can be serially correlated overtime

$$Y_{it} - pY_{t-1} = \alpha_t(1-p) + \beta(X_t - pX_{t-1)} + \varepsilon_{it} \quad (3)$$

Thus the research work framed the Prais-Winsten model as:

$$\sqrt{1-p^2}lnM2_{it} = \alpha_t + \beta_1\sqrt{1-p^2}lnCFDI + \beta_2\sqrt{1-p^2}lnCSCP + \beta_3\sqrt{1-p^2}lnNTBCP \quad (4)$$

$$\sqrt{1-p^2}lnIN_{it} = \alpha_t + \beta_1\sqrt{1-p^2}lnCFDI + \beta_2\sqrt{1-p^2}lnCSCP + \beta_3\sqrt{1-p^2}lnNTBCP \quad (5)$$

$$\sqrt{1-p^2}lnFX_{it} = \alpha_t + \beta_1\sqrt{1-p^2}lnCFDI + \beta_2\sqrt{1-p^2}lnCSCP + \beta_3\sqrt{1-p^2}lnNTBCP \quad (6)$$

$$\sqrt{1-p^2}lnFWC_{it} = \alpha_t + \beta_1\sqrt{1-p^2}lnCFDI + \beta_2\sqrt{1-p^2}lnCSCP + \beta_3\sqrt{1-p^2}lnNTBCP \quad (7)$$

$$\sqrt{1-p^2}lnDCPC_{it} = \alpha_t + \beta_1\sqrt{1-p^2}lnCFDI + \beta_2\sqrt{1-p^2}lnCSCP + \beta_3\sqrt{1-p^2}lnNTBCP \quad (8)$$

where the natural logarithms of $lnDCPC_{it}$, $lnFWC_{it}$, $lnFX_{it}$, $lnIN_{it}$ and $lnM2_{it}$were regressed as dependent factors of monetary policy (The variables used are broad money as a percentage of the GDP (M2), the amount of domestic credit by private credit as a percentage of GDP and the Firms using banks to finance working capital as a percentage of firms, consumer price index, inflation rate annual exchange rate was also selected as proxy for monetary policy). Similarly, the ρ serial correlation between the parameters and the other variables, *ln* means the natural log of the variables and *t* represent year**.** The Beta values (ß , … ß) represent the influencing coefficient of the variables.. Regarding the explanatory variables the amount of Chinese outbound FDI to Pakistan was represented by $lnCFDI$, while Net Trade Balance between China and Pakistan was represented as $lnNTBCP$, Finally, the percentage of Pakistani students accessing the CSC Scholarship was represented as $lnCSCP$.

3. Results

Table 1 Relationship between CPEC and broad money

M2	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
CFDI	2.41e-06	2.22e-06	1.09	0.283	-2.06e-06	6.88e-06
CSCP	-.9027834	.1356591	-6.65	0.000	-1.176366	-.6292007
NTBCP	-8.487429	1.857108	-4.57	0.000	-12.23264	-4.742213
_cons	31.81218	39.46834	0.81	0.425	-47.78332	111.4077

The information in table 1 represents the outturn of the regression analysis establishing a relationship between broad money as a percentage of the GDP (M2) and proxies of CPEC (the amount of Chinese outbound FDI to Pakistan, Net Trade Balance between China and Pakistan, Percentage of Pakistani students accessing the CSC Scholarship). From the analysis it is observed that total supply of all the forms of a country's money (currency and coins, accessible deposits) negative reacts to net trade balance between China and Pakistan and at the same time the amount of Chinese assisted human capital development. This suggests persistence of the negative balance of payment deficit and inability of the developed human capital to economic development. This observation is not surprising because of the increase rate of graduate unemployment in Pakistan. According to Novokmet, et al (2017) most returning graduates from China and other parts of the world struggle to get jobs and make enough money to support the economy. On the contrary the positive relationship between Chinese FDI and M2 indicates the importance of Chinese FDI to the economic development of Pakistan. The FDIs are credit worthy hence the willingness of the banks to make money available for their development. This observation is consistent with the earlier observation of Novokmet, et al., (2017); and Khan (2014) whose studies were conducted in related countries that share the same socio-political-cultural profile as that of Pakistan.

Table 2: Relationship between CPEC and domestic credit by private credit

DCPC	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
CFDI	6.75e-06	4.78e-06	1.41	0.165	-2.88e-06	.0000164
CSCP	-2.756322	.2920736	-9.44	0.000	-3.345345	-2.167299
NTBCP	-17.7729	3.998347	-4.45	0.000	-25.83634	-9.709465
_cons	4.257343	84.9752	0.05	0.960	-167.1115	175.6262

On the other hand the table 2 shows that all the three proxies of CPEC positively and significantly influence the amount of domestic credit by private credit as a percentage of GDP. This has both positive and negative implications. This implies a number of factors. For example it may imply that even though China is providing support for the education or labour training for Pakistani youth, a substantial number of them still depend on additional resources from home to survive in China. There have to family

look for credit to finance the high cost of staying abroad. This is a persistent problem among beneficiaries of CSC scholarship most of whom believe that the scholarship packages are significantly insufficient to meet their needs. In the same regard, the positive relationship between FDI and Net trade balance also gives some indication that domestic capital is important in an international multilateral of bilateral cooperation. As pointed out by Fallon (2015), it is impossible to establish a respectable agreement without reciprocal contribution.

Table 3: Relationship between CPEC and firms using banks to finance working capital

FWC	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
CFDI	.0000809	.0000318	2.54	0.015	.0000167	.000145
CSCP	-31.89727	1.945175	-16.40	0.000	-35.82009	-27.97445
NTBCP	-97.37317	26.62851	-3.66	0.001	-151.0747	-43.67167
_cons	-763.0611	565.9245	-1.35	0.185	-1904.357	378.2344

Table 3 also present the results of the effect of firms using banks to finance working capital as a percentage of firms. The positive effect of the net trade balance may indicate that an upward adjustment of the Chinese foreign direct investment leads to an increase in bank finance working capital. This is closely related to the two other factors discussed in earlier sections. It indicates that the domestic capital in multilateral or bilateral economic cooperation is very critical.

Table 4: Relationship between CPEC and Inflation

IN	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
CFDI	.0000288	.0000343	0.84	0.405	-.0000403	.000098
CSCP	2.847358	2.098254	1.36	0.182	-1.384174	7.07889
NTBCP	-11.85297	28.72409	-0.41	0.682	-69.78061	46.07467
_cons	-487.9558	610.461	-0.80	0.428	-1719.068	743.1561

Regarding the effect of proxy for CPEC on inflation, the analysis equally indicates a positive relationship. Thus any positive change in the Chinese led FDI and net trade balance with China has the propensity to engender inflationary conditions. This is one of the warnings of Tiezzi (2014) when he argued that in bilateral

agreement between a super power and a small power, there is the potential to dilute the economy as Chinese products and service influx the economy of Pakistan

Table 5: Relationship between CPEC and Foreign Exchange

FX	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
CFDI	-7.61e-07	8.20e-07	-0.93	0.359	-2.41e-06	8.93e-07
CSCP	.0773886	.0501397	1.54	0.130	-.0237277	.178505
NTBCP	.3243498	.6863883	0.47	0.639	-1.059884	1.708584
_cons	15.62394	14.58752	1.07	0.290	-13.79461	45.04248

The finally the analysis has also noted the effect of CPEC on foreign exchange. This has been the fears of a significant number of critics of the Chinese public policy. There is the danger that when given the opportunity, the country will take over the destinations economy because they can offer very attractive incentives to enable free trade arrangement with its citizens. The results are consistent with this fear as all the proxy of CPEC positively influences volatility in the foreign exchange.

4. Conclusions

The objective of this research was to analyse the effect of the China- Pakistan Economic Corridor (CPEC) on the monetary policy in Pakistan. The study employed an ensemble of more sophisticated econometric models to establish the relationship between proxy for CPEC and monetary policy. Consistent with earlier studies that international multilateral or bilateral economic cooperation brings substantial benefit to less developed countries, this research has established the potential for CPEC to stimulate the economic emancipation of Pakistan. However the result also indicates some negative externalities along the path to economic prosperity with fare reaching consequences. Some of these include negative effects on inflation, exchange rate volatility, and broad money. There is the need to develop policy responds to control of avoid the dangers posed by these aberrations of economic cooperation in order to safeguard the future of the corridor.

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