

Impact of Trade Liberalization on the Government Consumption Expenditures of Pakistan

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Abstract

This study has investigated the trade openness impact on the government consumption expenditures of the Pakistan. This has utilized Vector Error Correction Model (VECM) for statistical analysis. The results show that increase in trade liberalization leads to increase in the government consumption expenditures and proves the Rodrik (1998) and Cemarón (1978) compensation hypothesis in Pakistan. This result concludes that Pakistan government consumption expenditures reduce volatility and risks which creates through the trade liberalization.

Introduction

Government spending has become a hot topic for debate after the recession of the 2008. But it's still a controversy among the economists. Some economists favor role of government in the economy for balance of economic shocks, whereas others consider that government generate shocks and instability in economy.

Keynes was first who introduced government involvement in economy after the recession of 1930. Theories of Keynes regarding the government spending have again taken attention in the financial crisis of 2008 in America, which has spread all over the world through trade openness. This financial crisis has decreased the economic growth and employment rate in whole world especially in the developed countries. Thus some economist suggests that the revision and application of Keynesian theories in the overall world economies can be reduced the effects of this financial crisis.

The connection between trade openness and government spending was established by the Rodrik (1998) with the idea of compensation hypothesis. According to this hypothesis, open economies are exposed to greater risks and volatility imposed by global markets which can affect their domestic economy. To smooth out this volatility and mitigate the risks, governments have to increase its expenditures. Compensation hypothesis support the positive link between the trade openness and government spending, for the compensation of loser from trade openness. But some analytical studies also favor the negative relation of government spending and trade openness through the efficiency hypothesis. According to efficiency hypothesis trade openness reduce the total revenue of the government with cut in tariff rate and taxes which reduce the government efficiency to support the welfare programs for domestic economy (Breton and Ursprung 2002). Even though many studies still prove that trade exposure increases the government expenditures.

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This study investigate that either there is positive or negative relationship exist between the trade openness and government consumption expenditures in the Pakistan.

Review of Literature

The link between trade openness and government spending was first inspected by Cameron (1978), indirectly, in his study "The Expansion of Public Economy". He found that expansion of OECD government's tax revenue between 1960 and 1975 was due to the liberalization. He explored that globalize economies have higher rates of industrial concentration, which leads to increase the scope of unionization for collective bargaining and strong labor cartel. Thus its increase demand for government transfers social security pensions, unemployment insurance, job training and so forth which compensate external risk.

Then Rodrik (1998) argued that in more globalized economies citizens experience more external risks. Therefore the greater external risk also increases the volatility in total income which negatively affects the economic security. He said that government sector is the "safe" sector in the sense of employment and incomes. Government can be mitigated external shocks by having a larger government sector. This process has known as the compensation hypothesis. Later other works have also supported the positive relationship between the trade liberalization and government expenditures Vaidya (2002). Katzenstein (1985) said that the strategy of compensation may be effective only for small, historically open European states.

Trade liberalization also brings loss of power of the nation states. Trade liberalization of factor mobility indirectly equalize factor price which ascent to a global tax race to the underside. Thus it decreases the tax gross and reduces the power of authorities to finance welfare activities. This downward burden on the supply side of government revenue diminishes the efficiency of generous governments (Breton and Ursprung 2002, Garrett and Mitchell 2001).

Later Kaufman and Ubiergo (2001) described that Trade liberalization has participated to increasing demand for skilled workers rather than for low-skill ones, so all the LDCs where existing large pool of rural and informal sector worker creates a surplus in the labor market that cannot be reduced quickly, that's why in these countries return of labor and bargaining power is not increase as describe in the theoretical base of Hecksher-Olin theorem. Moreover in LDCs unions are notoriously weak, thus the cross topic differences within the portion are extremely difficult to measure systematically. Rudra (2002) also investigate on global sample distribution of LDCs, she founds that sociable security disbursement varies positively with the ratio of skilled to unskilled working class and negatively with the pool of excess working class, so trade openness can be positively or negatively related with the government spending which depend upon the dominance effect of compensation or efficiency hypothesis. If efficiency effect equal to the compensation effect with trade openness then there would exist no relation between the trade openness and government spending Iversen and Cusack (2000) and Dreher, Sturm and Ursprung (2006).

Data and Methodology

The sample period covers yearly data from 1979 to 2009. All the relevant data is obtained from International Financial Statistics (IFS) and State Bank of Pakistan (SBP).

This study has used the Johansen technique for time series analysis of variables because all variables of this study are cointegrated of orders one. Johansen technique is also known as the vector error correction model (VECM). Kaufman(2001) also used the VECM for cross sectional analysis to check the impact of Globalization on Social Spending in Latin America.

Unit Root Test

The stationarity of the variables is determined by carrying out the Unit root test. Unit root test examine whether a time series variables are non-stationary or stationary by using an autoregressive model. This study utilized the ADF unit root test to check the stationarity of variables instead of Dickey-Fuller unit root test because in case of large sample DF test have low statistical power because often cannot distinguish between true unit-root processes ($\delta = 0$) and near unit-root processes (δ is close to zero). For solution of this problem Dickey and Fuller (1981) introduced the augmented version of the test which includes extra lagged terms of the dependent variable in order to eradicate autocorrelation.

ADF unit root has same procedure way as for the DF test, with the test statistics provided by the t statistics of the α_1 coefficient. If $\alpha_1 = 0$ then there is a unit root. The same reasoning can be extended for a generic AR (p) process. Therefore to perform a Unit Root test on an AR (p) model the following regression should be estimated:

$$\Delta Y_t = \mu + \beta Y_{t-1} - \sum_{j=1}^p \alpha_j \Delta Y_{t-j} + \varepsilon_t \quad (3.1.1)$$

The Standard Dickey-Fuller model has been augmented by $\sum_{j=1}^p \alpha_j \Delta Y_{t-j}$. In this case the regression model and the t test are mentioned as the ADF test. The optimal lag length is determined by using the Akaike Information criterion (AIC).

Cointegration

Cointegration is an econometric technique for analyzing the correlation between non stationary variables. A linear combination of two or more non-stationary variables is stationary, then the variables are called co integrated.

Two test are used to check the cointegration vectors among the variables

- Engel granger cointegration test
- Johansen Maximum Likelihood test

Johansen Maximum Likelihood

Engle and granger test is appropriate only for two non-stationary variables of I(1). Engle and granger test cannot deal with multivariate model, so to deal with multivariate model Johansen (1988) introduced maximum likelihood estimation.

Johansen and Jeselius (1990) introduced multiple time series which is called Johansen approach for multiple equations. In this case simple equation model will be extended to multivariate model.

The Johansen's methodology starts with the vector autoregression (VAR) of order p given by

$$y_t = \mu + A_1 y_{t-1} + \dots + A_p y_{t-p} + \varepsilon_t \quad (3.3.1)$$

where y_t is an $n \times 1$ vector of variables that are integrated of order one which is commonly denoted with I(1) and ε_t is an $n \times 1$ vector of innovations. This VAR can be re-written as

$$\Delta y_t = \mu + \Pi y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta y_{t-i} + \varepsilon_t \quad (3.3.2)$$

where

$$\Pi = \sum_{i=1}^p A_i - I \text{ and } \Gamma_i = -\sum_{j=i+1}^p A_j$$

If the coefficient matrix Π has reduced rank $r < n$, then there exist $n \times r$ matrices α and β each with rank r such that $\Pi = \alpha\beta'$ and $\beta'y_t$ is stationary. Number of cointegrating relationships is denoted with r , the elements of α are known as the adjustment parameters in the vector error correction model and each column of β is a cointegrating vector.

Vector Error Correction Model

$$\Delta RGCE_t = \beta_0 + \sum_{i=1}^m \gamma_i \Delta TOP_{t-i} + \sum_{i=1}^m \delta_i \Delta RPCGDP_{t-i} + \sum_{i=1}^m \eta_i \Delta UR_{t-i} + \gamma Z_{t-1} + \varepsilon_t \quad (3.4.1)$$

Where

RGCE = Government Consumption Expenditures

TOP = Trade Openness (export plus imports as share of GDP)

RPCGDP = Real Per Capita GDP

UR = Unemployment Rate

Results and Discussion

Two lag is selected for estimation according to Akaike Information criterion (AIC)

Unit root test

This study has utilized ADF test to examine the stationarity of variables. Its checks the stationarity with null hypothesis of unit root. Following table describes ADF unit root test for stationarity of all variables and null hypotheses of all variables are accepted at level because probability of all variables are greater than 0.05.

Same procedure has been done at 1st difference where all variables are stationary because at 1st difference probability of all variables is less than 0.05.

variables	Level		1 st difference	
	Test statistic	Probability	Test statistic	Probability
LRGCE	-1.646025	0.4475	-5.84404	0.0000
LTOP	-2.408625	0.1479	-6.398927	0.0000
LRPCGDP	-0.16663	0.9325	-4.452370	0.0015
LUR	-5.313768	0.4738	-1.646025	0.002

Cointegration Test

Cointegration test is employed to check that how many types of cointegration vector exist in the model I. Following Table 6.2 describes that there are two cointegration vector exist in the model I because the null hypothesis of $r = 0$ and $r = 1$ both are rejected with the respectively probability 0.0002 and 0.0483 which are less than 0.05 and its critical values are also less than trace statistic.

Null hypothesis	$r=0$	$r=1$	$r=2$	$r=3$
Alternative Hypothesis	$r \geq 1$	$r \geq 2$	$r \geq 3$	$r \geq 4$
Trace Statistics	69.08038	29.92978	7.308203	1.209195
Eigen Value	0.75968	0.554213	0.195731	0.042266
Critical Value	47.85613	29.79707	15.49471	3.841466
Probability	0.0002	0.0483	0.5421	0.2715

Vector Error Correction Model

$$\text{LRGCE} = 4.089 - 0.28 \text{ECT}_{-1} + 1.28 \text{LTOP}_{-1} + 1.25 \text{LRPCGDP}_{-1} - 0.02 \text{LUR}_{-1}$$

(0.141)	(0.343)	(0.217)	(0.151)
[2.035]	[3.725]	[5.593]	[0.111]

Note: Standard errors in () & t-statistics in []

Above equation of the VECM shows the long run relationship of independent variables with dependent variable. In the equation ECT_{-1} is error correction term of the model which is negative and significant, confirms the long run equilibrium between the variables. The ECT_{-1} coefficient designates discrepancy of short run variables to equilibrium. The coefficient of ECT_{-1} is equal to (-0.28) for short run model and implies that deviation for the long-term government spending or government expenditures is corrected by -0.28

The sign of coefficient of trade openness is positive and significant which shows that trade openness is positively related with government consumption expenditures. It is concluded that 1.28 rise in government spending is accompanied with 1 percent rise in trade openness. Positive relation between trade openness and government consumption expenditures proves the Rodrik (1998) and Cemarón (1978) compensation hypothesis in Pakistan. It also shows that compensation hypothesis is dominated over the efficiency hypothesis in Pakistan economy. According to compensation hypothesis trade openness increases the risks and bargaining power of labor which increases the government consumption expenditures for compensation of this risks and volatility. Trade openness also creates the income inequality, so government consumption spending also increases for compensation of loser from trade openness.

The real per capita GDP has also positive and significant coefficient. It shows 1.26 percent elasticity with government consumption expenditures which means that 1 percent increase in the real per capita GDP, rise the 1.26 percent of government consumption expenditures and it's proves the Wanger's law of public expenditures. Wagner recognized three main causes for increased government spending. First, managerial and protective role of government will increase as a country's economy grows. Secondly, with the development of economy, government spending on "cultural and welfare" would increase. He indirectly presumed that the income elasticity of demand for public goods is more than unity. Finally, the technological development of the industrialized countries needs government to carry out certain economic services for which private sector is reluctant (Khan 1990).

Finally unemployment rate is negatively and insignificantly related with the government consumption expenditures which indicate that unemployed labor force is not compensated with government consumption expenditures in Pakistan.

Conclusion

This study has evaluated the impact of trade liberalization on government consumption expenditures of Pakistan. Empirical results show that trade liberalization is positively associated with the government consumption expenditures of Pakistan due to the compensation hypothesis of Rodrick (1998).

But according to recent situation Pakistan economy cannot afford the high government consumption expenditures because Pakistan has been suffering persistently high fiscal deficit from past several years. Pakistan should use its resources efficiently and also reduce its consumption expenditures with trade liberalization policy because Pakistan is a developing country. She has not efficient tax system which generate enough tax revenue for government

expenditures therefore more trade liberalization in future through the cut in the tariff rate will reduce the government revenue.

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