

## Determinants of Revenue Generation Capacity in the Economy of Pakistan

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Received: April 30, 2014

Accepted: June 23, 2014

### ABSTRACT

The objective of the study is to investigate the sources of resource mobilization in the economy of Pakistan. More specifically, the study has looked into the determinants of central government revenues. Linear regression has been used to find out the relationship between revenue-to-GDP ratio and its determinants over the period from 1981-2010. The results indicate that inflation has significant and negative relationship with revenue collection. GDP per capita has significant and positive relationship with revenue collection. Population growth has insignificant impact on revenue collection that is it indicates no impact on revenue volume. Debt is statistically significant and strong determinants of revenue performance in the model. Trade is also having significant impact on revenue performance. Practical implication of this study is that there is need of good policy measure such as broadening the tax and improve institutional quality to address this issue. The limitation of this study is that further work can be done on an institutional quality and agriculture value added in Pakistan.

**KEYWORDS:** inflation, Revenue Generation Capacity, resource mobilization.

### 1. INTRODUCTION

Revenue generation is very important factor in every country for economic growth. Every country needs excessive revenue to fulfill its policies, expenses and also government budget deficit. Every government tries to increase its revenue using different sources and efficient revenue system. Different policy makers have investigated that revenue-to-GDP has been very important problem which economies are facing from last three decades. Developing countries put more focus on domestic revenue generation because domestic income is very essential for the economic growth. Through some studies investigate some factors like institutional and governance effect on tax collection and tax revenue. For revenue purposes, governments focus on the contribution of tax able sources such as cash received from tax, social contribution and non tax sources such as fee, fine, rent and income from property or sale. Tax revenue collection is very important for economic development and also very important source of government revenue. Decline in the tax-to-GDP ratio is a big issue which influences the development of economy. First problem which cause low tax-to-GDP ratio is production on high level and import which is the reason of low tax and other is poor management of taxation system and also corruption through that tax-to-GDP ratio reduce or decline (Munir & Chaudhry, 2010). So, for economic and social development, tax generation is very important way and tax generation can increase through proper development of tax administration or tax system. The World Bank indicates in the world development report (1997) that taxation and expenditure are very important factor for revenue generation and economic growth sustainability. Some countries focus on good tax system to generate revenue and fulfill government needs. The United Nation report on financing for development (2002) show that many developing countries should create effective tax system if they want to generate maximum revenue. Trade tax revenue and trade openness effect on each other and show positive relationship so that trade tax generate revenue through income tax, sale tax, custom tax and excise duties. Trade tax influence import and export and play an essential role in the development of country economy and also generate tax revenue. Agricultural taxation is very important source for development of economic growth and for revenue generation and also important for reducing poverty, so extra agriculture products are export in such areas which are not agricultural through export government get tax and generate revenue. Main purpose of agriculture taxation is to generate maximum revenue and deliver spare agriculture product in non agriculture areas which is very important for the development of country economy.

The study has investigated the sources of resource mobilization in Pakistan. The study is presenting an empirical investigation into the revenue potentials during the 1980s to 2000s. More specifically, the study has looked at the determinants of revenues of the central government, and analyzes the extent to which factors explain their variation. The study has analyzed the fiscal capacity and fiscal effort in Pakistan from 1980 to 2010. The

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current study gives analysis of fiscal capacity and fiscal effort of Pakistan. The current study examines an idea of taxable potential and tax effort by extending to measure (fiscal) revenue potential and (fiscal) revenue effort. Total fiscal revenue is sum of both tax and non-tax sources such as fines, fees, rent, and income from property or sales.

### 1.1 Research Objective

The objective of the study is to investigate the sources of resource mobilization in Pakistan. The study is presenting an empirical investigation into the revenue potentials from 1970s to 2000s. More specifically, the study looked into the main determinants of revenues of the central government, and analyzes the extent to which factors explain their variation.

## 2. LITERATURE REVIEW

This section provides the review of an empirical literature on issue of revenue potential and revenue effort in developing Asian countries.

Chaudhry and Munir (2010) have studied the causes of low tax revenue in Pakistan. The objective of the study was to analyze the determinants of low tax revenue in Pakistan. The study considered the various variables such as tax-to-revenue ratio, share of agriculture sector in GDP, share of service sector in GDP, share of manufacturing sector in GDP, money supply, inflation rate, exchange rate and etc. in an econometric model. Regression has been employed for analysis of data. The results of the study indicate that broad money, external debt, foreign aids are the significant determinants of tax potentials. Agricultural sector, manufacturing sector and service sector have significant results. The study concluded that the determinants of low tax revenue in Pakistan are narrow tax base dependence on agricultural sector and informal nature of economy of Pakistan.

Gupta (2007) has focused on the determinants of tax revenue efforts of developing countries. The objective of the study was to analyze the reasons that could affect resource mobilization. Variables such as tax revenue, political stability, economic stability, law and order etc. are considered as the determinants of government revenue. Findings of the study indicate that foreign aid improves revenue performance. External debt has no relationship with taxation in developing countries. On other hand, corruption, political and economic stability significantly affects revenue performance.

Javid and Arif (2010) have studied the fiscal performance and revenue performance among developing Asian countries for the time from 1984 to 2010. Revenue generation is very important factor for the development of any country economy. The main purpose of this study was to analyze factors through which revenue can be generated. The study discusses that low revenue is a big problem in developing Asian countries so they try to understand that how can they increase revenue in developing countries. The findings of the study indicates that revenue performance depend on variables like per capita GDP, foreign debt, trade openness, inflation, and population growth. This study concludes that these variables play a very important role in the revenue generation of developing Asian countries.

## 3. METHODOLOGY

### 3.1 Model

The present study analyzes revenue performance by estimating revenue potentials for Pakistan Asian countries over the period of 1984 to 2010. The revenue potential refers to the predicted revenue-to-GDP ratio that can be estimated with the regression, taking into country's specific macroeconomic, institutional features. The empirical specification of the model that measures the revenue potential by estimating the determinants of revenue is express as:

$$RGDP = \alpha + \beta_1 GDPPC + \beta_2 TRADE + \beta_3 DEBT + \beta_4 POPG + \beta_5 INS + \beta_6 INF + \varepsilon$$

*RGDP* = Revenue-to-GDP ratio in Pakistan

*GDPPC* = GDP per capita in Pakistan

*TRADE* = Trade-to-GDP ratio in Pakistan

*DEBT* = Debt-to-GDP ratio in Pakistan

*POPG* = Population growth rate in Pakistan

*INS* = Institutional quality

*INF* = Rate of inflation

### 3.2 Data

The study covers the time period of 30 years i.e. 1980-2010 and 30 years is a reasonable time period for time series analysis. Special care has been taken while developing data set for time series analysis. The most current reports

have been utilized for developing data set. The data is gathered from various issues of Pakistan Economic Survey, Federal Bureau of Statistics (FBS), publications of State Bank of Pakistan (SBP) on economy of Pakistan i.e. 'Handbook on Statistics of Economy of Pakistan' and World Bank. The econometric estimations are implemented by EViews 5.

**4. Analysis and discussion of the results:**

The study has estimated an equation; different macro-economic indicators have been included collectively to assess the influence of macro-economic variables on level of government revenues in Pakistan. Lagged trading volume of country and government debt have been found significantly impacting future revenue collection in Pakistan in the specification of an equation included in the study. The variable of population growth rate included in study has been found insignificant in a specification of an equation for revenue collection and macro-economic variables. Inflation is also the part of an equation and it has been found significant with negative sign in specification of an equation for revenue collection and macro-economic variables. The coefficient for GDP per capita is having positive sign which is statistically significant. The coefficient for government debt in an equation indicates that 1 percent increase in government debt decrease the revenue volume of Pakistan by 0.253 percent. The negative and significant magnitude of inflation rate of Pakistan means that revenue volume has been badly influenced due to the depreciation of currency and one can anticipate and expected decrease performance of revenue collection in Pakistan. The negative impact of inflation rate can also be interpreted in the sense that investor is making its investments in other countries instead of Pakistan. The magnitude of inflation is negative. The negative sign of inflation is indicating the crowding out of investment in Pakistan due to the reduced investment power in the economy. The literature suggests that inflation crowd out investment in an economy. However, the population growth rate is insignificant, thus indication no impact on revenue volume or performance of revenue collection in an economy of Pakistan. Lagged revenue volume has been included in an equation for to analyze whether previous trend of revenue is at play. The lagged revenue volume is included to capture effect of previous trend in Pakistan. The indicator of past trends in revenue collection i.e. lagged revenue-to-GDP ratio is showing a significant results and indicate the 1 percent increase in lagged revenue volume of Pakistan increase the future revenue volume in Pakistan by 0.655 percent. This negative magnitude of debt ratio proves the disturbance in performance of economy which means the devaluation and depreciation of Pakistani currency i.e. Rupee results in increased import bills of Pakistan. Diagnostic tests for equation have been performed to check for the presence of autocorrelation and heteroscedasticity. DW statistics are also mentioned with the results. F-statistics for the specification of an equation is reasonably significant showing model fitness. R<sup>2</sup> and adj. R<sup>2</sup> for the specification of an equation are quite high which means that model is explaining relationship quite well among the level of revenue volume and macro-economic variables of Pakistan.

**Table 1**  
 $RGDP = f(GDPPC, TRADE, DEBT, POPG, INF, RGDP(-1))$

Variable	Coefficient	Std. error	t-Statistic	Prob.
C	0.746201	0.936917	0.796443	0.4287
GDPPC	0.242403	0.100774	2.405426	0.0191
TRADE	-0.008398	0.004162	-2.017971	0.0478
DEBT	-0.253514	0.111885	-2.265844	0.0121
POPG	-0.000813	0.274255	-0.002965	0.9976
INF(-1)	-0.162704	0.057692	-2.820199	0.0064
SI(-1)	0.655818	0.085517	7.668870	0.0000

R<sup>2</sup>=0.887091 Adj. R<sup>2</sup>= 0.878270 DW stat=1.800940 F-statistic=100.5658 Prob (F-statistics) =0.000000

The value of both LM statistic and F-statistic are insignificant at 5 % level which means rejection of alternative hypothesis of serial correlation and acceptance of null hypothesis of no sautocorrelation. This shows that disturbance terms relating to any variable are not been influenced by lagged disturbance terms of that variable.

**Table 2**  
**Breusch-Godfrey Serial Correlation LM Test**

F-statistic	2.025073	Probability	0.140623
Obs*R-squared	4.292348	Probability	0.116931

To investigate the heteroskedasticity, the White Heteroskedasticity Test is applied and results have been reported in Table 3. The value of both LM statistic and probability values are insignificant at 5 % level which means rejection of

alternative hypothesis of at least one of the variance terms different from zero and acceptance of null hypothesis of constant variances. This shows that disturbance terms relating to any variables are having constant variances.

**Table 3**  
**White Heteroscedasticity Test**

<b>F-statistic</b>	<b>1.272036</b>	<b>Probability</b>	<b>0.275164</b>
<b>Obs*R-squared</b>	10.00571	Probability	0.264625

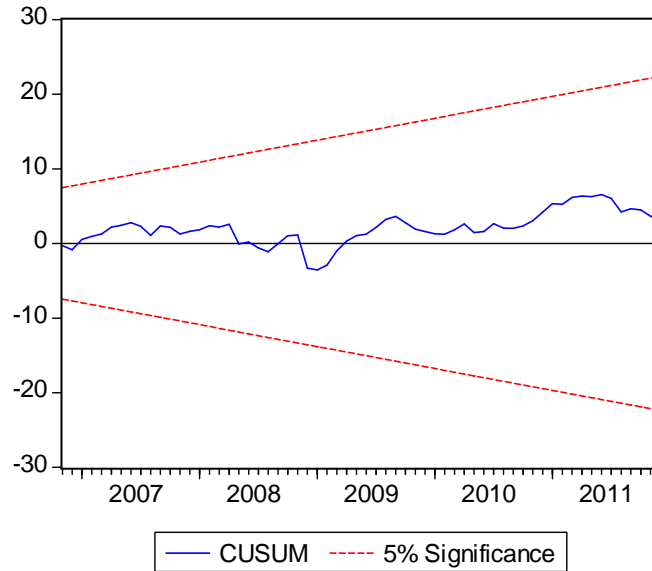
To investigate the model stability, the Ramsey RESET Test is applied and results have been reported in Table 4. The value of both LL ratio and F-statistic are insignificant at 5 % level of significance which means rejection of alternative hypothesis of model instability/ general misspecification and acceptance of null hypothesis of stability of model. This shows that variables included in the model are correctly specified.

**Table 4**  
**RAMSEY Reset Test**

<b>F-statistic</b>	<b>0.077486</b>	<b>Probability</b>	<b>0.781645</b>
<b>Log likelihood ratio</b>	0.086043	Probability	0.769270

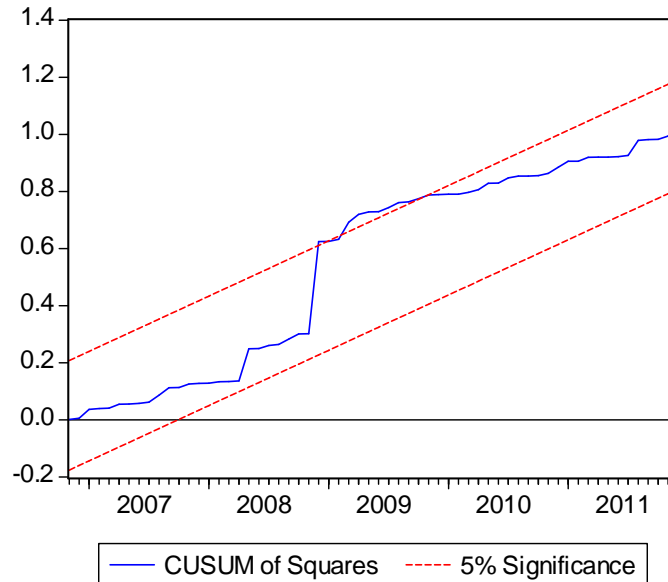
In next step, stability of long run coefficients which are obtained by estimation of equation (1) is tested through employing cumulative sum of recursive residuals (CUSUM) and cumulative sum of recursive residuals of square (CUSUMSQ) test. This test utilizes CUSUM and CUSUMSQ, which are plotted against break points in broken sample points to test the null hypothesis that coefficients of model are stable. The graphical representation of test is shown in Figure 1 and 2. The plot of CUSUM and CUSUMSQ does not cross 5 % critical limit which is indicative of absence of any proof of any structural instability in public policy variables which determine growth of economy. So, any policy targeting these macro economic variables would generate stable results in long run.

**Figure 1**  
**Plot of cumulative sum of recursive residuals (CUSUM) statistics for stability of coefficients**



**Figure 2**

Plot of cumulative sum of recursive residuals squares (CUSUMSQ) statistics for stability of coefficients



## 5. CONCLUSIONS

This study investigates revenue performance by estimating revenue potential and revenue effort in Pakistan for the period of 1970 to 2010. The results indicate that inflation has significant and negative relationship with revenue collection. GDP per capita has significant and positive relationship with revenue collection. Population growth has insignificant impact on revenue collection that indicates no impact on revenue volume. Debt is statistically significant and strong determinants of revenue performance in almost all specification of the model. Trade is also having significant impact on revenue performance. The analysis shows that high revenue performance is very important for the development of country economy because every country need excessive revenue to fulfill their expenses. This study gives boarder picture of revenue performance but detailed analysis of country revenue. This study suggests that there is need of good policy measure such as broadening the tax and improve institutional quality to address this issue.

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