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Title: **Probing Real Economic Growth through Institutional Quality and Fiscal Policy in Pakistan**

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Probing Real Economic Growth through Institutional Quality and Fiscal Policy in Pakistan

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Abstract

The current study examined the effect of institutional development and fiscal policy on real economic growth. It employed Generalized Method of Moments (GMM) technique to address the issue of potential endogeneity, which may arise in the presence of political institutions. Principal Component Analysis (PCA) was used to construct an index of institutional quality. The real economic growth in Pakistan covering the period from 1984 to 2020 provides ample evidences that (i) tax rates have negative and insignificant impacts on real economic growth (ii) government expenditures on social indicators helps in augmenting real growth (iii) link between institutional quality and real economic growth is positive but insignificant (iv) increase in investment pushes up real growth as well as lagged value of Gross Domestic Product (GDP) also helps in promoting growth, and (v) trade openness restricts real growth. Accordingly, the study suggested that government should enhance expenditures on social indicators. To fulfill this purpose, there is need to increase tax-to-GDP ratio through expanding the tax base; not the tax rate. Furthermore, there is also a need to restructure certain main political institutions which help to improve economic growth, accountability, equity, security, and transparency.

***Keywords*:** real economic growth, institutional quality, fiscal policy, taxes, GMM

Introduction

Economic growth shifts production possibility curve, creates jobs, and boasts businesses of nations. Without an increase in Gross Domestic Product (GDP), it is not possible to create jobs, reduce poverty, and to minimize the extent of inequality among the masses. Since 2005, GDP in Pakistan has been increasing at an average rate of 5% a year which is not enough to meet the requirements of ever-growing population. Moreover,

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economic growth does not show pattern of sustainability. Table 1 shows that the growth path of Pakistan's economy fluctuates over time. In some decades, it showed an impressive growth, while in other decades this momentum was lost. To avoid significant economic problems in the future, there is a dire need to study the determinants of real growth in the context of fiscal policy and institutions.

Neoclassical and endogenous growth models provide theoretical basis to examine the link amongst fiscal policy variables and economic growth. Fiscal indicators including tax revenues play a vital role for the sustainability of a country, as they are the main source of government revenue and fulfill public and social requirements by providing government goods and services. Total tax revenues and non-tax revenues and fiscal deficit are shown in Table 1. It is very clear that the tax-to-GDP ratio is quite low in Pakistan and it requires to be increased in order to meet the basic living standards. One should, however, be careful about the elevated level of government expenditure and taxes. This is because distortionary taxation reduces economic growth after certain threshold levels. Tax bases are not fixed; they can be developed or damaged (Bird, 2008). Thus, there is a need to enhance tax-to-GDP ratio in Pakistan without having any negative influence on real economic growth.

An ample body of literature is available which has focused on the relationship among taxes and growth. Results differ across nations due to fiscal variables involved, methodologies used, and furthermore across time span in the same country. Barro (1990) presented strong evidence in favor of the view that higher taxes are growth-impending. The results were confirmed in some studies, while in others, they were rejected. For instance, findings of Engen and Skinner, (1996) and Engen and Skinner, (1992) confirmed that growth rate is hampered by taxes, while studies, such as Mendoza et al. (1997), Koester and Kormendi (1989), and Katz et al. (1983) did not identify the significant impact of taxes on growth. The current study analyzed the impact of tax rates on real economic growth of Pakistan since there is a contradictory debate among economists in this regard. Moreover, the study also prescribed policies in which tax-to-GDP ratio can be increased in Pakistan.

Table 1

Fiscal Indicators (% of GDP) (add 1970's)

	Edu. Exp.	Health Exp.	Total Exp.	GDP growth	Total Revenue	Tax Revenue	Non tax	Fiscal deficit
1970's	1.92	0.52	21.9	5.00	13.7	11.4	2.3	8.6
1980's	2.33	0.89	24.62	6.34	17.02	13.82	3.21	6.98
1990's	2.68	0.84	24.26	4.46	16.98	13.49	3.49	6.89
2001-2005	1.93	0.58	17.63	5.07	13.97	10.72	3.25	3.82
2006-2010	2.58	0.54	19.20	4.03	13.85	9.66	4.19	5.36
2011-2015	2.39	0.49	19.93	3.85	13.45	10.12	3.33	6.87
2016	2.49	0.76	19.90	4.56	15.30	12.60	2.70	4.60
2017	2.76	0.91	21.30	5.22	15.40	12.40	3.00	5.80
2018-2020	1.80	0.49	21.80	5.50	15.20	13.00	2.20	6.50

Note. Source: Pakistan Economic Survey (Various Years) and World Bank (2002).

The current study aimed to capture the impact of social indicators on real growth of Pakistan. Social indicators refer to the welfare of human beings or societies, and an aggregate measure of government expenditures on education and health. Table 1 shows that expenditures on social indicators have never been the main focus of economic planning in Pakistan. In our country, one-third of the children do not have any access to school in order to acquire basic education. This is contrary to the article 25-A of the Constitution, which ensures education as a basic right for every child for age ranging between 5-16 years. On the other hand, health expenditures in Pakistan are low, although they are rising persistently. Health is the basic right of every citizen and is a vital precondition of development and growth. Pakistani government does not consider health as a priority area (Akram & Khan, 2007). Over the past ten years, the economy is disbursing 0.5-0.8 % of GDP on health services. According to World Health Organization (WHO), countries should spend the minimum of 6% of GDP on lifesaving and basic services (PES 2016-17). These percentages are much lower than the desired level. Since there is an inverted U-shaped relationship between government expenditures and growth, this analysis is remarkably significant for Pakistan. This is because given the resource constraint, it would help policymakers to gauge whether the government expenditures on social indicators are growth promoting or not.

One of the functions of the state is to maintain social order, that is, to build institutional quality. In Solow model, Ramsey-Cass-Koopmans model, and New Endogenous growth models, the explanatory variables,

such as institutions, infrastructure, and culture have not been given much importance. This is because they are not considered leading variables. However, these variables have gained ample importance in the analysis of recent research; particularly North (1990) emphasized it considerably. It is also well-known that the doctrine of evolutionary theory has linkages with the New Institutional Economics (NIE) as stated by Nelson and Winter (1985) and North (1990).

Nobel laureates, Douglass North, Oliver Williamson, and Ronald Coase, changed the early intuitions of new institutional economics into strong theoretical and logical tools that laid a strong base of experimental research. According to institutional economics, institutions are of vital importance to determine the destiny of the country. Unlike the neoclassical theories, it does not take institutions as given. The logic behind this claim is that some countries have developed since their institutional framework enhances agent efficient behavior, while others are facing problems because their institutional framework does not put off abusive behavior and methods that are ineffective. Therefore, there is frustration in investments, and economic agents face hesitation to make contracts or agreements. Rodrik (2008) examined that countries without or poor quality institutions cannot develop.

There is a strong cross-country empirical evidence that the significance of institutions cannot be neglected to evaluate development level around the world (Acemoglu et al., 2001, Hall & Jones, 1999). Institutional framework plays an important role in economic activities. Effective institutions promote investment, growth, human resources, good governance, as well as help to overcome conflicts, ethnic tensions, and social aggression (Chu, 2001; Aron, 2000; Dollar & Kray, 2003; Jütting, 2003; North, 1990; Rodrik et al., 2002; World bank, 2002). The weak institutional framework leads towards poor governance as highlighted by Hassan (2002); Government of Pakistan (1999), and DRI/ McGraw-Hill (1998). The current study focused on whether Pakistan has witnessed improved governance overtime or serious work needs to be undertaken to augment real growth.

From the above discussion, it is clear that the importance of institutions cannot be neglected to boost growth. Ample literature has analyzed the role of institutions in economic growth (Assane & Grammy, 2003; Hare, 2001; Knack & Keefer, 1995). This study is the first endeavor to explore the joint

effect of institutions and fiscal policy on real economic growth of Pakistan as well as it also prescribed policy implications for the same.

Theoretical Framework

This section investigates the joint influence of institutions and fiscal policy on real economic growth. Barro (1990) derived a model for closed economy in which households lived infinitely and they maximized their utility as follows:

$$U=\int_0^{\infty} u(C)e^{-\rho t}dt \quad (1)$$

where, C denotes the consumption of individual person and ρ is greater than 0 and it shows that the time preference is constant. If the population rate is also kept constant, then the utility function would be written as;

$$u(C) = \frac{C^{1-\sigma}-1}{1-\sigma} \quad (2)$$

Here σ > 0,

Production function of each household can be written as follows:

$$Y=f(k) \quad (3)$$

where, Y represents the output of each worker and k depicts capital per worker. Each individual works in a certain period of time with no labor-leisure choice. The growth rate of consumption per person is obtained by first order condition for utility maximization given in equation 1 subject to the budget constraint of equation 3.

$$\frac{\dot{C}}{C} = \frac{1}{\sigma}(f' - \rho) \quad (4)$$

In equation (4), f' shows marginal product of the capital. Rebelo (1991) assumed rate of return on capital as constant, so

$$Y=Ak \quad (5)$$

where, A is greater than 0, and represents 'stable net capital marginal product'.

Here, to justify the statement of constant returns, capital includes both human and physical capital. Certainly, in the production process, both these capitals must not be the perfect substitutes. Hence, production generally indicates constant returns when both of these capitals are considered jointly,

however, shows diminishing returns to scale when one of the inputs is taken separately. Now replacing $f' = A$ in the equation (4) imparts:

$$f = \frac{C\cdot}{C} = \frac{1}{\epsilon}(A - \rho) \quad (6)$$

Here, f shows per capita growth rate.

When government sector is included in the study, then it is assumed that (ga) is the extent of government amenities and these government amenities are considered as inputs in private sector production. Production exhibits constant returns in ga and k is considered jointly, however, depicts diminishing returns to scale when k is considered independently. The production function is written as follows:

$$y = \Phi(k, ga) = k.\Phi(\frac{ga}{k}) \quad (7)$$

In the equation, Φfulfills the requirement of diminishing and positive marginal products. It is presumed that production function is Cobb-Douglass, and it is given as:

$$\frac{y}{k} = \Phi(\frac{ga}{k}) = A(\frac{ga}{k})^{\alpha} \quad (8)$$

Here, $0 < \alpha < 1$. After simplifying, we get

$$y = Ak^{1-\alpha}ga^{\alpha} \quad (9)$$

Here, y depicts the output per capita; A is the factor of productivity, k stands for private per capita capital, and ga shows government amenities. If public spending is backed by a flat rate of income tax then;

$$G = R = ty = t.\Phi(\frac{G}{k}) \quad (10)$$

where, R depicts revenue of the government, t shows tax rate, and G stands for aggregate spending. Equation 10 shows balanced budget constraint. However, in emerging economies, balanced budget is hard to observe, so Kneller et al. (1999) assumed unbalanced budget of government in certain periods. Now rephrasing equation (10) as,

$$nG + Cg + u = Lt + \tau n y \quad (11)$$

In the above equation, u depicts budget surplus/deficit in a specified period. Lt and Cg stands for lumpsum taxes and government financed consumption (non-productive). Both are assumed to have zero influence on economic growth. G represents government productive expenditures.

Distortionary taxes are denoted by (τ). The expected signs of τ and G are negative and positive. Ricardian equivalence holds if u is zero, otherwise it may not be zero (Bleaney et al., 2000).

In theory, private investment is not influenced by lumpsum tax, however, proportional tax does influence private investment. Concerning this model, Barro and Sala-i-Martin (1992) obtained growth in the long-term as follows:

$$\gamma = \delta(1-\tau)(1-\alpha)A^{\frac{1}{1-\alpha}}\left(\frac{gp}{y}\right)^{\frac{\alpha}{1-\alpha}} - \sigma \quad (12)$$

where, δ and σ are the parameters in the desired utility function. This equation shows that growth rate is negatively related to distortionary tax rate τ and positively related to productive government expenditures (gp). In the above equation, gp/y shows the ratio of useful government spending to GNP. If we have a Cobb-Douglas production function for government services with an exponent α, then growth rate would be maximized when gp/y = α.

Both institutional (v_{it}) and fiscal (x_{jt}) variables in line with Kneller et al. (1999) are considered and, hence growth equation becomes,

$$y_i = \alpha + \sum_{i=1}^{k} \beta_i v_{it} + \sum_{j=1}^{m} \gamma_j x_{jt} + \epsilon_{it} \quad (13)$$

To study the effect of institutions and fiscal policy on real economic growth, the general equation is written as follows:

$$Y = \beta_0 + \beta_1 FV_t + \beta_2 V_t + \mu \quad (14)$$

In the equation (14), FV symbolizes the fiscal variables and V shows the institutional variables along with control variables. Hence, following specific equation was derived on the basis of previous studies:

GDP = f (TAXRATE, OPEN, INVEST, IQ, GESI, LAG1RGDP)

Description of Variables

The data in this study covered the time period 1984-2020. The data for variables was drawn from World Development Indicators, Pakistan Economic Survey (various issues), International Country Risk Guide, and Handbook of Statistics on Pakistan Economy. The study employed Generalized Method of Moments (GMM) regressions to deal with the potential endogeneity, which may arise in the presence of institutions.

Table 2

Description of Variables

Abbreviations	Detail
RGDP	Log of real GDP. Data is in million rupees
TAXRATE	Log of real tax revenues as percentage of real GDP is used as a proxy for tax rate (Chuma, (2015) has used ratio of tax revenues to GDP as proxy for tax rate)
OPEN	Log of real trade where trade is (imports + exports)/2/GDP
INVEST	Log of per capita real investment (private + public)
IQ	The data of institutional quality (IQ) variable was obtained by compiling various components of political risks from International Country Risk Guide (ICRG). These components are ethnic tensions, law and order, and external conflict. All these variables range from 0-10. Where greater values indicate improved institutional framework and lesser values suggest poor quality. By taking all these variables, an index of IQ was developed by Principal Component Analysis (PCA). In PCA technique, a single weight index is created from uncorrelated and different variables.
LAG1RGDP	Log of GDP with one period lag. (GDP is taken at constant factor cost. Here data is in million rupees).
GESI	It is an aggregate measure of government expenditures on social indicators, that is, education and health.

Testing the Unit Root Hypothesis

Augmented Dickey Fuller (ADF) test was applied to identify the unit root and order of integration. Results showed that some of the variables were stationary at first difference, while others were stationary at level. The estimated results are given in the Table 3 below. It is clear that order of integration is different for variables. Several variables are integrated at first difference, while others are integrated at level.

Table 3
Results of Unit Root Test (ADF)

	Level		1st DIFF.	
	Intercept	Trend & Intercept	Intercept	Trend & Intercept
RGDP	-1.01	-3.52**	-4.48*	-4.37*
TAXRATE	-0.95	-1.75	-6.79*	-6.77*
IQ	-3.97*	-3.90**	-6.07*	-5.97*
GESI	-3.48**	-3.76**	-4.19*	-4.16*
OPEN	1.38	-1.04	-5.86*	-6.35*
INVEST	-0.99	-2.74	-4.69*	-4.62*
LAG1RGDP	-1.19	-3.41***	-4.44*	-4.42*

Note. *,**,***shows significance at 1%,5% and 10% level, respectively

The Estimator

Many authors, for instance, Aghion et al. (2004) and Greif and Latin (2004) consider institutions as endogenous. Since institutions were taken as independent variables in the model, therefore GMM regressions were applied to deal with potential endogeneity. According to Omri and Chaibi (2014), GMM estimators solve the potential endogeneity issues in independent variables by introducing instrumental variables. The first lag of the independent variables would be used as instruments in the model. GMM is predicated on the assumption that Laws of Large Numbers can be applied to sample averages and the Central Limit Theorem may be applied to scaled sample averages. Hansen's (1982) original presentation assumes that the data is stationary and ergodic, and conditions hold that allow the application of these limit theorems. Estimations regarding GMM would be covered in next section.

GMM Results

The impact of tax rates on real economic growth was negative, however, the coefficient was insignificant. According to Barro (1990), higher tax rate tends to reduce growth. Arisoy and Unlukaplan (2010) noted that an increase in tax rates would lead towards lower returns from investment of both human capital and expected profitability of research and development activities.

Pasha (2018) noticed that an increase in tax-to-GDP ratio of over 3% of GDP from the time period 2013-2017 is attributable to higher rates of taxes. He is of the view that high tax rates have serious repercussions for

the economic growth. To prove this finding, he quoted some examples as follows:

- It was observed that the telecommunication sector remains susceptible to excessive taxation. This includes a sales tax of 17% and apart from that withholding tax is also levied on mobile phone cards and telephone bills. The combined rate of tax is almost 32% which leads towards a decline in the growth rate of mobile phone numbers to 2% from 8%. In recent times, the Supreme Court of Pakistan has given a decision against high rate of taxes on mobile phone cards.
- Rates of sales tax and import duty have been enhanced on furnace oil which is considered as an important fuel in electricity generation. Sales tax was enhanced from 17%-20% and import duty increased from 0%-11%. This has resulted in a greater price of electricity. Such scenario has significantly decreased the competitiveness of products in international markets. As such, one of the reasons of reduction in exports after 2014 is the hike in taxes of furnace oil.
- According to Pasha (2018), the announcement of withholding tax on cash dealings in 2015 was an imprudent move. This step led to a steep fall in the growth rate of bank deposits and consequently increased significant money in circulation.

Apart from that, Pasha (2018) quoted other examples showing that an increase in tax rates results in narrowing the tax base. He pointed out that the further enhancement of tax rates must be averted and efforts should be made to slowly move/shift them down.

Negative link between tax rates and real growth is justifiable on many grounds. For instance, according to FBR's year book in 2016, more than 72% of tax proceeds were accumulated from the industrial units. However, during the same year, the contribution of services sector in revenue generation was 25% and the share of agriculture sector was below 3%. Clearly, the burden of taxes on industry is unjust, hampering the real growth in Pakistan.

Levine and Renelt (1992) also did not succeed in finding a strong cross-country connection between fiscal policy variables and growth rates in the long-run. The outcome that Tax rates have insignificant effect on growth occurs possibly from two opposite effects of taxation. Firstly, the negative

effect results from disincentives and distortions created by taxes. This happens when tax revenues are spent on transfer payments. Secondly, if taxes are utilized to invest in public goods, then the taxes could have positive influence on growth rate.

Other possible interpretation may be incorporated by following Barro (1990) that when distortions are created from income tax then it indicates that equilibrium is not Pareto optimal, specifically, saving rate and growth level of the country is low from social point of view.

Results showed that investment has a positive and significant influence on the real growth. According to Ali et al. (2010), positive co-efficient shows that high level of investment raises the productivity and thus, speeds up the process of real growth.

The coefficient of trade openness is negative which may show uncompetitive prices of Pakistani products in the international market due to inflation rate and energy crisis in the nation. Moreover, Pakistan's exports are lower than imports and hence not much is gained from the policies of free trade.

The results showed a positive link between institutional quality and real growth, however, the coefficient of institutional quality was insignificant. This is due to fact that some institutions are strong and some are weak in Pakistan. According to Ishrat Husain (2018), there is a need to restructure certain main political institutions which help to improve economic growth, accountability, equity, security, and transparency. Insignificant contribution of institutions towards real economic growth is also due to limited access social order or extractive institutions in Pakistan.

Table 4

Estimated GMM Results for Real Economic Growth

Variables	Coefficient	*SE*	*t*-Statistic	Prob.
TAXRATE	-0.04	0.04	-1.06	0.30
IQ	0.02	0.01	1.48	0.15
GESI	0.01**	0.01	2.09	0.05
OPEN	-0.05**	0.02	-2.33	0.03
INVEST	0.11**	0.05	2.24	0.03
LAG1RGDP	0.58*	0.21	2.76	0.01
C	4.43***	2.46	1.80	0.08

R^2	0.98
DW	1.78
Prob(J-stat)	0.12

Note. The dependent variable is Real GDP. Institutional quality variable (IQ) is treated as endogenous. *,**and *** show significance at 1%,5% and 10% level respectively

As suggested by the theory, economic growth depends positively and significantly on its previous values. Next, the variable government expenditure on social indicators is an aggregate measure of government expenditures on education and health services and its coefficient comes out to be positive and significant. In Pakistan, the projected value of multiplier is nearby two and the multiplier effect of higher PSDP is boosting economic growth of the country (Pasha, 2018). Hence, the policy implication is that the government in Pakistan should focus to increase tax-to-GDP ratio through expanding the tax base; not the tax rate, so that welfare of human beings or societies is taken care of.

Conclusion

The current study examined the effectiveness of public spending, taxes, and institutional quality for economic growth. Literature on economic growth either throws light on the effect of tax rates or institutional development on economic growth. Previous studies have generally shown contradictory results regarding the impact of tax rates on economic growth, while institutional development is considered impetus in stimulating economic growth. The current study explored joint effect of institutional quality and tax rates on real economic growth of Pakistan. Moreover, study makes endeavor to capture the impact of social indicators on real economic growth because limited work has been done in this dimension.

The study applied GMM regressions to deal with potential endogeneity in the presence of institutions. The key outcomes of the empirical investigations can be summed up as follows: Firstly, the tax rates have a negative influence on real economic growth, however, the coefficient's value remains insignificant. Secondly, results showed that real economic growth is positively and significantly affected by social indicators in Pakistan. Thirdly, there is a positive and an insignificant link between institutional quality and real growth. Fourthly, the coefficient of trade openness is negative. Fifthly, the results illustrated that investment has a

positive and significant impact on the real growth. Lastly, as suggested by the theory, results showed a positive and robust connection between real economic growth and its previous values.

To achieve the national goal of inclusive growth and socio-economic development, there is also a dire need to increase public spending on social indicators, that is, quality health and education should be given due priority in Pakistan. Moreover, public policy should be devised with the sole objective to increase tax-to-GDP ratio through expanding the tax base, not the tax rate. Lastly, further restructuring of institutions can help to improve real economic growth.

Conflict of Interest

The authors of the manuscript have no financial or non-financial conflict of interest in the subject matter or materials discussed in this manuscript.

Data Availability Statement

The data associated with this study will be provided by the corresponding author upon request.

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