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Fiscal Decentralisation and Economic Growth: Role of Democratic Institutions

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This study attempts to analyse the impact of fiscal decentralisation on economic growth. It also examines the complementarity between fiscal decentralisation and democratic institutions in promoting growth. The modelling framework is the endogenous growth model augmented with measures of fiscal decentralisation through democratic institutions. To capture the multidimensionality, three different measures of fiscal decentralisation are used. The overall analysis shows that revenue decentralisation promotes economic growth while expenditure decentralisation retards economic growth. Composite decentralisation positively influences economic growth implying that simultaneous decentralisation of revenue and expenditure reinforce each other to promote economic growth. Analysis also shows that democratic institutions play a significant role in realising the benefits of fiscal decentralisation. Various policy implications emerge from this study.

JEL Classification: C26, E02, H11, H72, O11
Keywords: Fiscal Decentralisation, Democracy, Economic Growth, Pakistan

1. INTRODUCTION

Over the past three decades, there has been a growing tendency towards fiscal decentralisation (FD) in emerging and developing economies. FD occurs through devolution of fiscal responsibilities for public spending and revenue generation or collection from the central government to the provincial or local governments. FD is an effective strategy to promote economic growth by increasing the efficiency of the public sector. FD promotes sound macroeconomic management through: (i) efforts that streamline public sector activities, (ii) reducing operational and informational costs of service delivery, and (iii) increasing competition among sub-national governments in providing public services. This process strengthens government accountability towards its citizens by involving them in monitoring its performance and demanding corrective measures. This process also makes governments responsive and accountable, leading to curbing corruption and improving delivery of public services.

The implicit assumption behind the positive contribution of FD is the existence of a well-defined institutional mechanism. This increases the accountability and

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transparency in the political system and hence lowering corruption. That ultimately leads to efficient allocation of public resources and hence economic growth. The recent advancement in the field of FD strengthens this assumption and gives a role to institutions in the theorem of fiscal decentralisation.

The government of Pakistan has taken various steps towards strengthening the process of FD. The process of revenue sharing started right from the inception of Pakistan. Since independence, the Niemeyer Award 1947, the Raisman Award 1952, the One Unit Formula 1961 and 1965 and seven NFC awards based on the 1973 Constitution for revenue sharing have been announced. Recently, government of Pakistan has undertaken two major developments by signing the 7th National Finance Commission (NFC) award (through which a bulk of resources has been transferred to the provinces) and by passing the 18th Constitutional Amendment (through which a wide range of fiscal responsibilities have been shifted from the centre to the provinces). These developments would result in a fundamental shift in the division of powers between the centre and the provinces. The latter would have more autonomy in performing various functions like the provision of public goods and services, and macroeconomic management.

Consequently, various questions arise: What would be the effect of implementing FD in Pakistan? Can Pakistan, with a weak institutional framework, attain its objective of bringing prosperity to Pakistani people through FD? Can each province with its particular local receipts generate and expand the economy? Malik, *et al*. (2007) and Faridi (2011) investigate the growth effects of FD in Pakistan and find positive contributions of FD. However, these studies suffer from various shortcomings. Firstly the studies ignore the possibility of reverse causality and endogeneity among fiscal variables as pointed out in the literature [see e.g. Zhang and Zou (1998); Xie, *et al*. (1999); Thiessen (2003); Jin, *et al*. (2005); Iimi (2005)]. Secondly, the studies ignore the multidimensional perspectives of FD [see e.g. Martinez-Vazquez and McNab (2003)]. Thirdly, the studies ignore the potential role of democratic institutions in making FD process effective and growth enhancing [see e.g. Iimi (2005); Neyapti (2010)].

This study offers an empirical assessment of the growth effects of fiscal decentralisation using various measures of decentralisation. Secondly, the role of democratic institutions in explaining the growth effects of fiscal decentralisation is examined. To the best of our knowledge, no study to date has investigated the role of democratic institutions in explaining the growth process of fiscal decentralisation. This study's modelling framework is the endogenous growth model augmented with the measures of fiscal decentralisation and democratic institutions. The possibility of reverse causality and endogeneity among fiscal measures leads to the use of a GMM approach to estimation.

The rest of this paper is structured as follows: Section 2 summarises the existing literature concerned with the growth effects of FD; Section 3 provides an overview of the FD process in Pakistan; the modelling framework and the data and econometric issues are explained in Section 4 and Section 5 respectively; Section 6 presents the results of this study and Section 7 the conclusion.

2. LITERATURE REVIEW: THEORETICAL AND EMPIRICAL

Before proceeding with this study, it is important to have a broad idea of the current developments in the theoretical and empirical literature on FD.

The impact of FD on economic growth is derived from the traditional theory of fiscal federalism which presents a general normative framework for the assignment of functions to different levels of governments. Under the traditional theory, the process of FD may generate greater economic efficiency in the allocation of resources in the public sector.[1] There are various theoretical explanations available in the literature that spell out how FD generates economic efficiency in public sectors.

First, economic efficiency can be generated through resource mobilisation which occurs through FD. FD grants greater autonomy and funds to the sub-national governments. With the availability of more funds and autonomy in decision making process, sub-national governments are compelled into mobilising the available resources in their own jurisdictions, rather than waiting for the provision of public goods and services to come from the central government. This leads to greater emphasis on economic efficiency across jurisdictions within a country and also to tapping into what otherwise may have been untapped potential [Rodriguez-Pose and Ezcurra (2010)].

Second, the "Theorem of Decentralisation" provides a well-known mechanism through which FD may lead to greater economic efficiency. According to this theorem, the preferences for public goods and services differ across individuals and regions. The level of welfare achieved by a national government through providing uniform public goods and services is always inferior to that which can be achieved by providing public goods and services in a decentralised setup which allows for provision of goods and services across the different regions [Oates (1972)]. It is because the sub-national governments are better informed about the preferences of citizens than the national government. Therefore, sub-national governments always perform better in providing public goods and services according to the needs of local communities.

Similarly economic efficiency can be enhanced if the citizens are mobile so that they can locate themselves to the jurisdictions that best match their preferences [Tiebout (1956)]. Oates (1993) argues that expenditures for social and infrastructure sectors are likely to be more growth enhancing if carried out by sub-national governments than the central government which may ignore the differences in preference. The growth enhancing advantages linked with the FD process are more visible in larger and more heterogeneous countries. In a small country with homogenous characteristics the informational advantages of implementing policies and providing different public goods and services at the regional or local level may be limited. The benefits of FD increase because internal heterogeneity causes the preferences of individuals to be more diverse. Hence the benefits of FD can only be realised beyond a certain threshold of country size [Rodriguez-Pose and Ezcurra (2010)].

Third, the competition among the jurisdictions is seen as an important mechanism to encourage efficiency in taxation, regulation and supply of goods and services [Tiebout (1956); Brennan and Buchanan (1980)]. In the Public Choice Approach, FD may lead to competition among the jurisdictions for mobile factors of productions. This forces discipline upon public officials who tend to pursue their own interest and seek to maximise their revenues. Similarly, fiscal competition among different levels of government leads to a market-preserving federalism which minimises the extent of government interventions, hence maintaining market efficiency [Weingast (1995)].

[1]According to Giugale and Webb (2000) efficiency means satisfying the needs and preferences of taxpayers at the lowest possible cost.

The positive impact of FD has been challenged in the previous literature [see for example Prud'homme (1995); Tanzi (1996)]. The critiques are based on the assumptions that underlie the decentralisation models and the problems faced by local governments. The proponents of decentralisation claim that local governments have an informational advantage over the central government. However, this assumption can be challenged on the grounds that central governments can and do assign government officials to local offices. Apparently there is no compelling reason to believe that the information obtained by these representatives will be less accurate than the ones gathered by the local governments [Tanzi (1996)]. Similarly, it is also argued that local governments take into account the needs and preferences of the local population and provide public goods and services accordingly. Tanzi (1996) criticizes this assumption by saying that the local populations may not have the power to actually influence the actions of the local officials. This may result in local goods being produced without taking into account the needs and preferences of the local population. This is because local democracy is relatively weak and ineffective especially in developing countries. Prud'homme (1995) also argues that local preferences are complex and manifold. They cannot be expressed in a single vote. The outcomes of local elections generally depend on personal and/or political loyalties and rarely reflect the preferences of the local population.

The opponents of decentralisation argue that there is a lack of capacity to execute the responsibility for public services at sub-national levels. The sub-national governments are usually less efficient than the national government and this may undermine the benefits of decentralisation [Tanzi (1996)]. There are problems like low investment in technology and innovation because of the limited capacity, both financially and technically, of the sub-national governments [Prud'homme (1995)]. Due to the inefficiency of local bureaucracies, local governments often lack good public expenditure management systems to assist them in their tax and budget choice [Tanzi (1996)].

Another potential problem usually associated with FD is the raiding of the fiscal commons by the local governments due to the presence of a soft-budget constraint.[2] In the case of a decentralised system, sub-national governments may expect that their fiscal deficits are covered by the central government. This in turn undermines the incentive for sub-national governments to behave responsibly in handling finances. The soft budget constraints have "a multiplicity of sources that are associated with the prevailing fiscal institutions, with the existing political structure, the weakness or even absence of various important markets, and more importantly, the historical background of intergovernmental fiscal affairs in the country" [Rodden, *et al*. (2003)].

Most of the criticism against decentralisation does not dismiss the idea of decentralisation per se, but is rather meant to highlight the need for augmenting the decentralisation process with certain types of institutions. According to the critics, only when these institutions are present does decentralisation bear the fruits that are promised by its proponents. The benefits of decentralisation largely depend on institutional arrangements that govern the design and implementation of decentralisation.

[2]The idea of soft budget constraint was introduced by Kornai (1979) to analyse the behaviour of state owned firms. The SBC is used in a decentralisation system to refer to lower level governments that look to a higher level government to recover or bailout their excessive deficits. The term bailout refers to the additional funding that the higher level government provides the lower level governments when it would otherwise be unable to service its obligations. On the other hand, hard budget constraint (HBC) implies that lower level governments have to face the full costs of their expenditure decisions.

Given the lack of theoretical consensus on the impact of FD, numerous studies have empirically examined the impact of FD on economic growth.There are numerous studies that find a positive and significant relationship between FD and economic growth [Oates (1995); Yilmaz (1999); Thiessen (2003); Iimi (2005)]. However, various other studies, have found a negative or even no relationship between FD and economic growth [Oates (1972, 1985); Davoodi and Zou (1998); Woller and Phillips (1998); Martinez-Vazquez and McNab (2006); Thornton (2007); Baskaran and Feld (2012); Rodriguez-Pose and Ezcurra (2010)].

There are at least five possible reasons why the studies have failed to come up with conclusive results on the role of FD. First, the differences in the outcomes of these studies may be because different studies have employed different measures of FD. The literature indicates that it is difficult to measure the allocation of authority with precision. If ambiguous or inappropriate measures of FD are employed, wrong judgments about the growth effects of FD can be made [Ebel and Yilmaz (2003)]. Akai and Sakata (2002) argue that studies which find a negative association between FD and economic growth employ incorrect measures of FD. Second, the differences in the outcome of empirical studies that are based on a cross-country analysis may be due to the differences in the economic, cultural, geographical and institutional set-ups. In order to overcome these difficulties, single-country studies have also been conducted. However, the outcome of these studies is still inconclusive: some find a positive and significant association [see e.g. Akai and Sakata (2002); Malik, *et al*. (2007); Carrion-i-Silvestre, *et al*. (2008); Samimi, *et al*. (2010); Nguygen and Anwar (2011)] while others find a negative or even no relationship between FD and economic growth [see e.g. Xie, *et al*. (1999)]. Third, different countries have different levels of FD, making it difficult to get consistent and robust estimates based on a cross-country analysis. Fourth, the literature identifies the possibility of reverse causality and endogeneity among FD and economic growth [see e.g. Zhang and Zou (1998); Xie, *et al*. (1999); Lin and Liu (2000); Thiessen (2003); Jin, *et al*. (2005)]. Martinez-Vazquez and McNab (2003) argue that reverse causality occurs because efficiency gains from FD emerge as the economy's growth or more decentralisation is demanded at relatively higher level of development. However, existing literature does not control endogeneity due to small sample sizes or the difficulty in finding valid instruments with the only exception of Iimi (2005). Last, existing literature mainly ignores the role of democratic institutions in making the FD process effective with a few exceptions. For example, Iimi (2005) incorporates the role of political institutions in analysing the role of FD. That study finds that political institutions and FD complement each other in promoting economic growth.

There is thus a clear need to re-examine the growth effects of FD, especially at the country level using appropriate estimation methodology and measures of FD.

3. FISCAL DECENTRALISATION IN PAKISTAN: AN OVERVIEW

The need for FD arose due to the mismatch between expenditure requirements and the revenue generation capacity. This mismatch necessitates the inter-governmental transfer among the federation and provinces which is a vital part of the decentralisation process. The horizontal as well as vertical mismatch between revenue and expenditure requires legislative arrangement on financial transfers among different levels of

government. In both developed and developing countries, the difference between revenue generation and actual expenditure across national and sub-national governments is commonly observed. Cross-country data on revenue and expenditure shows that there is a huge mismatch between the revenue generation capacity of the national government and the sub-national governments. A similar mismatch is observed between national and sub-national government from the point of view of expenditures. In the case of Pakistan, there is a serious imbalance in the sub-national expenditures and revenue generation. The statistics indicate that the revenue generation capacity of provincial governments is nearly 13 percent of the total revenue. On the other hand, the expenditure needs of provincial governments are approximately 28 percent of the total expenditure (Table 1).

Table 1

National vs. Sub-National Revenue and Expenditure Shares: International Comparison

	Revenue Share		Expenditure Share	
Country	National	Sub-National	National	Sub-National
Australia	69	31	54	46
Brazil	69	31	54	46
Canada	44	56	37	63
India	66	34	45	55
South Korea	95	05	50	50
Pakistan	92	08	72	28

Source: Watt (2005).

These imbalances between expenditure obligations and revenue among federal and provincial governments leads to a large amount of transfers of financial resources from the former to the latter level. Such transfers and sharing of resources are embedded within the constitution and supported by a series of legislative rules and regulations. Inter-governmental transfers typically include revenue shares, grants, straight transfers, loans and provincial revenues collected by federal government and transferred to provinces after deducting collection charges (e.g. royalties on gas and crude oil). There is a well-defined mechanism for the distribution of resources from the federation to the provinces in Pakistan. The resources are transferred from the federal to the provincial level through the National Finance Commission (NFC). NFC is an autonomous body established under the Constitution of Pakistan for the re-distribution of resources from the federation to the provinces. The resources are collected by the federal government and distributed among the provinces according to their needs.

The amount of resources transferred from the central government to the lower level government is determined on the basis of a certain agreed formula. In Pakistan, the only criterion for resource distribution has been the population since independence up to 2009. For the first time a new criterion was designed for resource distribution among the provinces in the 7th NFC award. In this award, four different indicators are used to define the share of each province in the total share to provinces, including (i) population, (ii) backwardness/poverty, (iii) revenue generation/collection capacity, and (iv) inverse population density (IPD) (Table 2).

Table 2

Sharing Criterion in Various NFC Awards

Award	Sharing Criteria (Weight)
NFC 1990	Population (100%)
NFC 1996	Population (100%)
NFC 2006	Population (100%)
NFC 2009	Population (82%), Poverty (10.3%), Revenue (5%), IPD (2.7%)

In this formula, the population, once again, has the major share of 82 percent in total while poverty/backwardness has 10.3 percent share, revenue generation/collection has 5 percent and inverse population density (IPD) 2.7 percent.

The share of each province in the divisible pool has also changed over time (Table 3). The share of Punjab was 57.87 in the 1990 NFC award based on its population, whereas there was a minor decrease in 2006. However, after the 7th NFC award in 2009, the share of Punjab has gone down to 51.74 percent, mainly due to a change in the distribution formula. The share of Sindh was 23.29 percent in 1990 on the basis of its population; now it has increased to 24.55 percent in 2009. The share of KPK was 13.54 in 1990 which has increased to 14.62 in 2009. Similarly the share of Balochistan has increased from 5.3 percent in 1990 to 9.09 percent in 2009 on the basis of the revised formula.

Table 3

The Share of Each Province in the Divisible Pool (Percent)

Province	NFC-1990	NFC-1996	NFC-2006	NFC-2009
Punjab	57.87	57.37	57.37	51.74
	(57.87)	(57.87)	(57.36)	(57.36)
Sindh	23.29	23.29	23.71	24.55
	(23.29)	(23.29)	(23.71)	(23.71)
KPK	13.54	13.54	13.82	14.62
	(13.54)	(13.54)	(13.82)	(13.82)
Balochistan	5.30	5.30	5.11	9.09
	(5.30)	(5.30)	(5.11)	(5.11)
TOTAL	100.00	100.0	100.0	100.0

Note: Population shares are reported in parenthesis based on Census conducted before the NFC Award.

4. MODELING FRAMEWORK

Fiscal decentralisation, the subject matter of this study, refers to the devolution of policy responsibilities for public spending and revenue collection from the central to the provincial governments. Davoodi and Zou (1998) use the endogenous growth framework to analyse the growth effects of FD. This study extends Barro's (1990) endogenous growth model by assuming that public spending is carried out at three levels of government: federal, state, and local. Later on, various studies use this analytical framework to quantify the impact of FD on economic growth [see e.g. Xie, *et al*. (1999); Iimi (2005)]. In Pakistan, there are two levels of government: the federal and the

provincial which carry out public spending. Thus total government spending is divided into two components: federal level and provincial level government spending.

The benefits of FD can only be realised if the process is complemented with good institutions which enhance the efficiency of the public goods and services by meeting the preferred needs of the local citizen; by increasing competition among provincial governments; by reducing corruption and by enhancing accountability The role of institutions is very crucial in making the theorem of decentralisation applicable. Iimi (2005) further extends this framework by incorporating the interactive term of FD and political institutions in the model. Following Iimi (2005), the following model is defined to capture the link among FD, democratic institutions and economic growth:

$$GDPg_t = \delta_0 + \delta_1,\tau_t + \delta_2 FD_t + \delta_3 INS_t + + \delta_4 FD_t * INS_t + \delta X_t' + \varepsilon_t$$

Where *GDPg* is the per capita output growth rate,τ is the tax rate, *FD* is the measure of fiscal decentralisation, *INS* represents democratic institutions, *X* is the vector of control variables, ε is the disturbance term that is assumed to be serially uncorrelated and orthogonal to the explanatory variables and t (=1,2… … … .*N*). δ_0, δ_1,δ_2,δ_3 and δ_4 are the scalar parameters while δ is the vector of parameters to be estimated. The vector *X* consists of control variables that have frequently been used in growth literature as identified by Mankiw, *et al*. (1992), Levine and Renelt (1992), Barro and Lee (1996) and Sala-i-Martin (1997).

In this model, the interaction term, $FD * INS$ should be of particular interest since it allows us to test the hypothesis of *FD* and democratic institutions being complementary. Based on this model, we aim to empirically examine the following hypotheses:

(i) Fiscal decentralisation influences the evolution of per capita output.
(ii) Fiscal decentralisation and democratic institutions are complementary.

5. DATA AND ECONOMETRIC ISSUES

Our empirical analysis is based on time series data covering the period 1972-2010. Data on fiscal decentralisation variables is collected from the Fifty Year Economy of Pakistan and various annual reports published by the State Bank of Pakistan. Data on other economic variables is mainly taken from the Economic Survey of Pakistan (various issues). Data on human capital is taken from the Barro and Lee Dataset 2011 and data on democratic institutions is taken from the Polity IV Dataset.

5.1. Fiscal Decentralisation Measures

To empirically examine the role of FD, it is necessary to develop measures of FD. There are two widely used measures of fiscal decentralisation, namely the revenue decentralisation and the expenditure decentralisation based on 'Budget Data'. Revenue decentralisation (RD) is measured as a ratio of the sub-national government's revenue to the total government revenue (national plus sub-national). Expenditure decentralisation (ED) is measured as a ratio of sub-national government's expenditures to the total government expenditures (national plus sub-national). Oates (1972) defines expenditure centralisation as the share of the central government spending in the total

public spending and revenue centralisation as the share of central government revenue in the total revenue. Woller and Phillips (1998) re-define fiscal decentralisation measures after making a few adjustments. First, in measuring revenue decentralisation, they subtract the grant-in-aid given to sub-national government from the total revenue and treat it as an expense to avoid double counting. Second, in measuring expenditure decentralisation, they exclude social security and defence spending from the total public spending as these are considered to be the main parts of the non-decentralised government spending.

These standard indicators have been used in a number of studies to quantify the impact of FD.[3] However, the approaches to measure the degree of FD and the reliability of the data have long been debated in theoretical as well as in empirical literature. The data for FD measures are obtained from the Government Finance Statistics (GFS) of the International Monetary Fund (IMF). Ebel and Yilmaz (2003) identify three major issues with GFS data. First, it is not possible to identify the degree of local expenditure autonomy because the expenditures are reported at the level of government that receives the amount. In this way, the local spending that is directed by the central government is added in the sub-national spending. Second, it is not possible to identify the main source of revenues of the sub-national government, whether collected through shared taxes, own taxes or piggybacked taxes. Third, GFS does not distinguish between the different types of intergovernmental transfers, whether these are conditional or distributed according to some criteria. Therefore, the GFS data ignores the degree of control of the central government over the revenues and expenditure of the sub-national governments. These shortcomings considerably overestimate the degree of FD [Stegarescu (2005)].

According to Martinez-Vazquez and McNab (2003), these measures are defined on the basis of a single dimension of FD—expenditures going through the sub-national budgets or revenue generated by the sub-national governments. FD, however, is a multidimensional phenomenon and it requires multidimensional measures to depict a true picture of decentralisation. Martinez-Vazquez and Timofeev (2010) develop a composite indicator of FD that captures the multidimensionality nature of the FD process. The 'Composite Ratio', developed by Martinez-Vazquez and Timofeev (2010), essentially combines the information contained in expenditure and revenue ratios. Taking into account the existing literature and availability of data, three indicators are constructed to measure the level of FD for Pakistan.[4]

Revenue Decentralisation (RD)

The revenue decentralisation (RD) is measured as the ratio of the provincial government's revenue to the total government revenue (federal plus provincial)

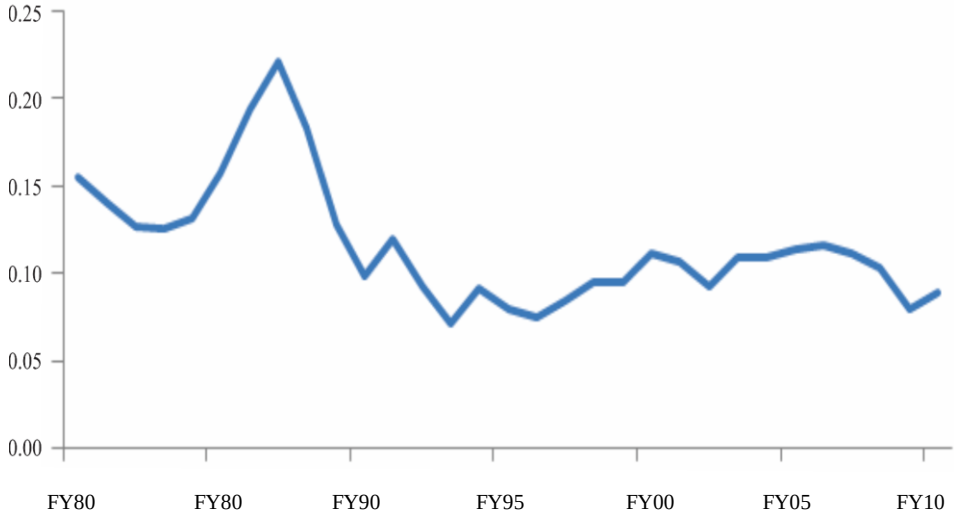
$$RD = \frac{PR}{PR+FR}$$

[3]See for example [Oates (1995); Zhang and Zou (1998); Xie, *et al*. (1998); Yilmaz (1999); Lin and Liu (2000); Thiessen (2003); Akai and Sakata (2002); Eller (2004); Iimi (2005); Feltensteina and Iwata (2005); Cantarero and Gonzalez (2009); Neyapti (2010)].

[4]Due to unavailability of fiscal data at local level, this analysis only focuses at aggregate level using time series data. This analysis also ignores the other dimension of decentralisation namely administrative and political dimensions of the decentralisation because of the same reason.

Where *RD*, *PR* and *FR* are the 'Revenue Decentralisation', 'Provincial Revenue' and 'Federal Revenue' respectively. Figure 1 shows the trend in revenue decentralisation in Pakistan. The share of provincial government revenue in total government revenue ranges from 10 to 25 percent. The share of provincial governments' revenue was 15 percent in total government revenue in 1980, thereafter showing an increasing trend to reach 23 percent in 1987. After this period, there is a decreasing trend in revenue decentralisation whereby provincial revenue share in total government revenue reaches 10 percent in 2010.

Fig. 1.Revenue Decentralisation in Pakistan



Source: Author's own calculation.

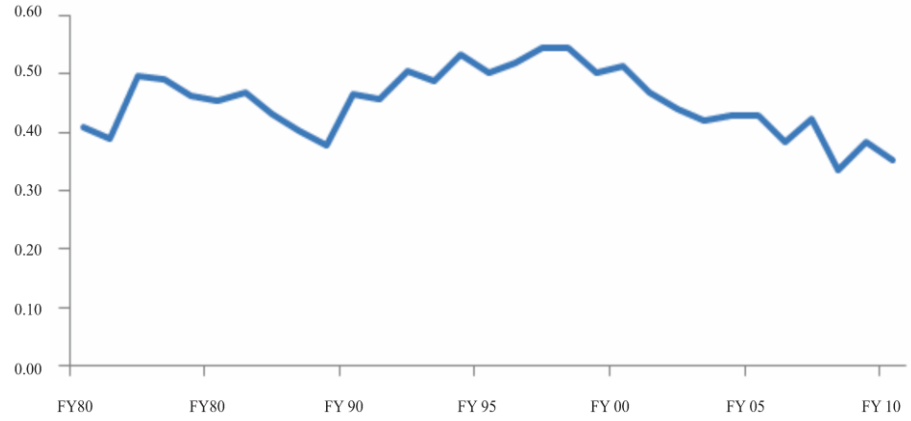
Expenditure Decentralisation (ED)

The expenditure decentralisation (ED) is defined as the ratio of provincial government expenditures to the total government expenditures (federal plus provincial) less the defence expenditures and interest payments on debt. These expenditures are mainly considered to be part of the non-decentralised government expenditures.

$$ED = \frac{PE}{PE+FE-(DE+IE)}$$

Where *ED*, *PE* and *FE* are the 'Expenditure Decentralisation', 'Provincial Expenditure' and 'Federal Expenditure' respectively. While *DE* and *IE* are defence expenditure and interest payments respectively. Figure 2 represents the historical trend in expenditure decentralisation in Pakistan. The share of provincial government expenditure in total government expenditure ranges from 30 to 60 percent during the last three decades. After reaching 50 percent in 1982, the share of provincial government expenditure shows a declining trend reaching 39 percent in 1989. For the greater part of the 1990s, expenditure decentralisation shows an increasing trend. However, after 1998 once again, provincial shares in total expenditure show a decreasing trend, declining from 55 percent in 1998 to 35 percent in 2010.

Fig. 2.Expenditure Decentralisation in Pakistan



Source: Author's own calculation.

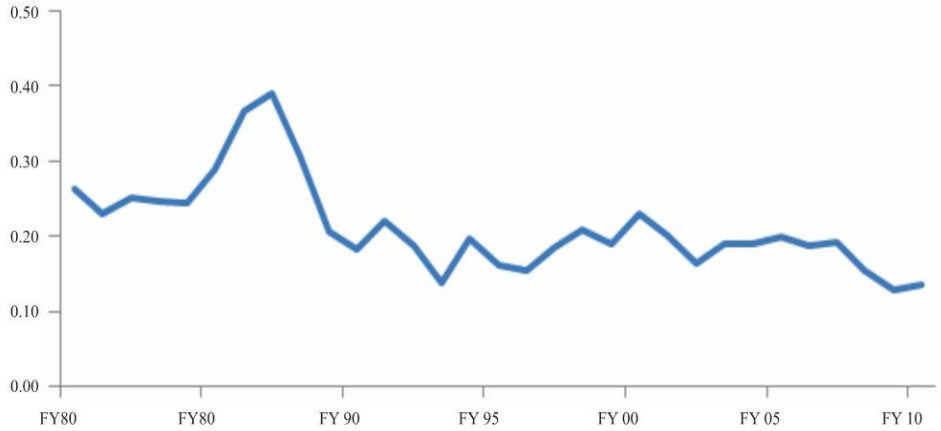
Composite Decentralisation (CD)

Composite decentralisation is measured using both revenue decentralisation and expenditures decentralisation. It is more useful in terms of analysing the impact of FD on economic growth.

$$CD = \frac{RD}{1 - ED}$$

Where *CD*, *RD* and *ED* are the 'Composite Decentralisation', 'Revenue Decentralisation' and 'Expenditure Decentralisation' respectively. Figure 3 shows the composite of revenue and expenditure decentralisation in Pakistan. This represents the combined outcome of both processes. The trend shows that the 'Composite Decentralisation' measure ranges from 13 to 40 percent.

Fig. 3.Composite Decentralisation in Pakistan



Source: Author's own calculation.

5.2. Other Control Variables

The dependent variable is GDP per capita growth rate. Descriptive statistics show that the average GDP per capita is 451 US$ at constant 2000 prices. The average growth rate of GDP per capita is 2.234. Human capital (HC) is measured using total secondary school enrolment without considering age and gender composition. The average human capital is 20.02 and it moves from 7.1 in 1972 to 34.6 in 2010. Openness (OPN) is defined as the ratio of total trade (imports plus exports) as percent of GDP. Trade openness varies from 27 percent to 42 percent with the average of 34 percent. Tax to GDP ratio is measured as the ratio of the total consolidated tax receipts of government to GDP. The average tax to GDP ratio is 12 percent with the range of 9 to 15 percent. The contribution of taxes in economic growth crucially depends upon the structure of the taxes. The impact of taxation on economic growth is positive if private capital is less productive than public capital and is negative if additional taxation is very expensive (Iimi, 2005). Inflation is measured as the growth rate of CPI. The average inflation rate is 9.6 varying from 3.1 percent to 30 percent. The overall budget deficit (BD) fluctuates between 2.3 and 10.2. On average the overall budget deficit is 6.5 in Pakistan. Democracy is used as a proxy for measuring the quality of institutions in Pakistan. The data on democracy is taken from the Polity IV dataset published by Marshall and Jaggers (2011). The democracy index ranges from +10 (full democracy) to -10 (full autocracy). The descriptive statistics show that the average quality of institution is 0.85 with the range of -7 to +8 in Pakistan.

Table 4

Descriptive Statistics

Variables	Obs.	Mean	Std. Dev	Min	Max
Revenue Decentralisation (RD)	39	0.130	0.041	0.071	0.221
Expenditure Decentralisation (ED)	39	0.465	0.067	0.336	0.686
Composite Decentralisation (CD)	39	0.247	0.089	0.129	0.494
Inflation (INF)	39	9.587	5.748	03.10	30.00
Budget Deficit (BD)	39	6.464	1.805	02.30	10.20
GDP per Capita (Constant 2000 US$)	39	451.7	113.3	279.1	668.6
GDP per Capita Growth Rate	39	2.234	2.002	-1.950	6.570
Human Capital (HC)	39	20.02	7.111	10.54	34.60
Openness (OPN)	39	0.338	0.037	0.273	0.432
Tax to GDP Ratio (T/GDP)	39	0.123	0.015	0.095	0.145
Democratic Institution (INS)	39	0.846	6.745	-7.000	8.000

There are several studies that have used the Ordinary Least Squares (OLS) estimation technique to empirically investigate the impact of FD on economic growth. A number of studies identify the possibility of reverse causality and endogeneity among FD and economic growth [see e.g. Zhang and Zou (1998); Xie, *et al*. (1999); Lin and Liu (2000); Thiessen (2003); Jin, *et al*. (2005)]. Martinez-Vazquez and McNab (2003) argue that reverse causality exists because efficiency gains from FD emerge as economies grow or more decentralisation is demanded at relatively higher levels of development. However, the existing literature does not control endogeneity due to small sample sizes or

the difficulty in finding valid instruments with the only exception of Iimi (2005). Under this situation, OLS estimates become biased and inconsistent. To tackle endogeneity, the instrumental variables (IV) methods are used in the empirical estimations. The IV methods are used to solve the problems of simultaneity bias between explanatory variables, the dependent variable and the error measurement.

The application of the generalised method of moments (GMM) can be considered as an extension of the IV estimation method. The main advantage of the GMM estimation method is that the model need not be serially independent and homoscedastic. Another benefit of the GMM estimation technique is that it generates parameters through maximising the objective function which includes the moment restrictions in which correlation between the lagged regressor and the error term is zero. Keeping the advantages of the GMM estimation technique to overcome endogeneity and omitted variable bias, the GMM estimation procedure developed by Arellano and Bond (1991), Arellano and Bover (1995) has been applied to estimate growth and stability equations using lagged values of the variables as instruments. The STATA v11 has been used for estimation.

The standard approach to determine the stationarity of the time series data is checking the existence of unit roots in the given series. The most commonly employed test for unit root analysis is called Augmented Dickey Fuller (ADF) test [Dickey and Fuller (1981)]. The results of the ADF test are reported in Table 5. The test statistics indicate that inflation, budget deficit, GDP per capita growth rate, openness and M2 to GDP ratio are stationary at level. While revenue decentralisation, expenditure decentralisation, composite decentralisation, macroeconomic instability index, human capital, capital stock per worker, tax to GDP ratio and democratic institutions are non-stationary at level and become stationary at first difference which implies that these variables are difference stationary with one order of integration.

Table 5

Unit Root Test (ADF Test)

	Level			First Difference		
Variables	No Trend	With Trend	Result	No Trend	With Trend	Result
Revenue Decentralisation (RD)	–2.13	–3.24	NS	–4.63	–4.56	S
Expenditure Decentralisation (ED)	–1.72	–2.48	NS	–7.19	–7.02	S
Composite Decentralisation (CD)	–1.69	–3.41	NS	–5.49	–5.43	S
Inflation (INF)	–4.02	–3.62	S			
Budget Deficit (BD)	–2.95	–3.77	S			
GDP per Capita Growth Rate	–5.72	–5.63	S			
Human Capital (HC)	1.29	–2.26	NS	–4.19	–5.23	S
Openness (OPN)	–2.93	–3.56	S			
Tax to GDP Ratio (T/GDP)	–1.32	–2.02	NS	–5.12	–5.71	S
Democratic Institution (INS)	–1.97	–1.91	NS	–5.71	–5.76	S

Note: 5 percent critical value is –2.87 for the case of no-trend, and –3.42 when a trend is included. AIC is used for lag selection. S stands for stationary series and NS stands for non-stationary series.

6. EMPIRICAL RESULTS

This study has estimated the impact of various dimensions of FD on economic growth. In Table 6, the impact of revenue decentralisation on economic growth is shown. Various specifications to test the robustness of results have been used.

Revenue decentralisation has a positive and significant impact on economic growth in all specifications which are consistent with the theory of decentralisation. This positive association indicates that the higher the level of decentralisation on revenue side, the higher the GDP per capita. The transfer of revenue enhancing responsibilities to provincial governments is conducive for economic growth in Pakistan. As shown in table 6, this result is robust, regardless of the inclusion of other control variables; the estimated impact of revenue decentralisation on economic growth remains positive and significant.

Table 6

The GMM Estimates: Dependent Variable (GDP per Capita Growth)

Variables	(1)	(2)	(3)	(4)	(5)
RD	0.0206*	0.0455***	0.0461***	0.0487***	0.0530***
	(0.0120)	(0.0167)	(0.0176)	(0.0160)	(0.0173)
OPN		0.0414**	0.0705**	0.0625*	0.0245
		(0.0204)	(0.0327)	(0.0337)	(0.0317)
T/GDP		0.0475*	0.0592*	0.0675**	0.0808**
		(0.0274)	(0.0312)	(0.0276)	(0.0348)
HC		0.0505***	0.0515***	0.0381**	0.0426**
		(0.0159)	(0.0190)	(0.0157)	(0.0185)
INF			–0.00966*		–0.00687*
			(0.00529)		(0.00399)
BD				–0.0292***	–0.0337***
				(0.00852)	(0.00939)
Constant	0.0658**	0.113*	0.112*	0.243***	0.251***
	(0.0263)	(0.0642)	(0.0640)	(0.0690)	(0.0698)
Observations	37	37	37	37	37
R-squared	0.247	0.409	0.408	0.532	0.546
Wald Chi2 Test	3.92	10.31	11.67	31.41	36.38
Normality Test	0.97(0.61)	0.70(0.71)	0.71(0.70)	0.77(0.68)	0.88(0.64)
Endogeneity Test	0.0685	0.0885	0.0711	0.0625	0.0305
Over Identification test	0.7070	0.9423	0.9638	0.5625	0.6446
D. W. Test	1.89	2.42	2.43	2.59	2.71

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

The impact of expenditure decentralisation on economic growth is measured using five different specifications and results are reported in Table 7. Expenditure decentralisation has a negative and significant impact on economic growth in all specifications.[5] As shown in Table 7, these results are robust, regardless of the inclusion of other control variables; the estimated impact of ED on economic growth remains negative and significant. The negative association between ED and economic growth implies that *ED* has growth retarding effects in Pakistan. These results are in contrast to

[5]In terms of the negative association of expenditure decentralisation with economic growth, our findings are in line with the findings of other empirical studies such as Davoodi and Zou (1998), Zhang and Zou (2001), Rodriguez-Pose and Kroijer (2009) and Nguygen and Anwar (2011).

the theory of decentralisation. Davoodi and Zou (1998) find similar results for developing countries. There are several justifications that explain the negative association of expenditure decentralisation with economic growth in Pakistan.

First, the composition of public spending carried out by provincial governments may explain the growth retarding effects of *ED*. The expenditure decentralisation measure in this dissertation does not indicate the composition of the public spending of the provincial governments. Provincial governments generally allocate excessive amounts to current expenditure instead of capital and infrastructure spending. The literature suggests that the growth effects of capital and infrastructure spending are positive and that of current spending are negative.

Second, the institutional weaknesses at the provincial level may lead to more corruption and hence lower economic growth. The third reason may be the lack of autonomy in decision making by the provincial governments that in turn can lead to inefficient outcome. The process of FD may not materialise in its true sense because the decisions by provincial governments may still be influenced by the federal government. Fourth, the provincial governments may be unable to execute proficient policies and organise efficient governance due to lack of human as well physical resources. Fifth, the provincial government may not be able to achieve economies of scale for the reason that they may be too small to efficiently carry large scale infrastructure development projects. Finally, the provincial governments often lack the institutional framework that is required to gain the benefits of FD. The lack of institutional framework can contribute to more corruption, less accountability and inefficiency in the policy making processes, causing a slowdown in the growth process. Similar arguments are put forward by Martinez-Vazquez and McNab (2006) to explain the negative relationship between expenditure decentralisation and economic growth for developing countries.

Table 7

The GMM Estimates: Dependent Variable (GDP per Capita Growth)

Variables	(1)	(2)	(3)	(4)	(5)
ED	–0.0922**	–0.116***	–0.129***	–0.115***	–0.122***
	(0.0400)	(0.0392)	(0.0317)	(0.0341)	(0.0338)
OPN		0.0385*	0.0274*	0.0251*	0.0238*
		(0.0215)	(0.0162)	(0.0135)	(0.0127)
T/GDP		0.0371*	0.0387*	0.0497*	0.0498*
		(0.0196)	(0.0201)	(0.0285)	(0.0291)
HC		0.0241*	0.0183*	0.0266*	0.0279*
		(0.0128)	(0.0103)	(0.0144)	(0.0149)
INF			–0.00980*		–0.00598*
			(0.00577)		(0.00332)
BD				–0.0368***	–0.0346***
				(0.0118)	(0.0130)
Constant	–0.0509*	0.0289*	0.0547	0.190***	0.194***
	(0.0300)	(0.0171)	(0.0581)	(0.0552)	(0.0555)
Observations	37	37	37	37	37
R-squared	0.207	0.421	0.493	0.451	0.537
Wald Chi2 Test	5.32	11.54	27.28	19.73	25.22
Normality Test	0.31(0.85)	0.67(0.72)	0.37(0.70)	0.24(0.88)	0.16(0.92)
Endogeneity Test	0.0395	0.0154	0.0265	0.0495	0.0028
Over Identification test	0.6341	0.6149	0.5225	0.7243	0.7903
D.W Test	2.29	2.52	2.54	2.68	2.65

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

Similar to RD and ED, the impact of composite decentralisation (CD) on economic growth can be estimated. In CD, revenue decentralisation and expenditure decentralisation reinforce each other. Table 8 presents the results obtained from GMM estimation. The impact of composite decentralisation on economic growth is positive and significant in all models. The positive association reveals that composite decentralisation (CD) is beneficial for Pakistan.

Table 8

The GMM Estimates: Dependent Variable (GDP per Capita Growth)

Variables	(1)	(2)	(3)	(4)	(5)
CD	0.0190*	0.0444***	0.0452**	0.0478***	0.0528***
	(0.0113)	(0.0166)	(0.0176)	(0.0159)	(0.0171)
OPN		0.0392*	0.0382*	0.0285*	0.0207
		(0.0218)	(0.0222)	(0.0158)	(0.0317)
T/GDP		0.0494*	0.0514	0.0692**	0.0837**
		(0.0273)	(0.0316)	(0.0276)	(0.0344)
HC		0.0519***	0.0532***	0.0403**	0.0455**
		(0.0162)	(0.0193)	(0.0157)	(0.0185)
INF			–0.0108**		–0.00713**
			(0.00517)		(0.00379)
BD				-0.0283***	–0.0330***
				(0.00821)	(0.00890)
Constant	0.0570***	0.0953	0.0940	0.218***	0.227***
	(0.0215)	(0.0610)	(0.0611)	(0.0665)	(0.0661)
Observations	37	37	37	37	37
R-squared	0.248	0.420	0.419	0.538	0.553
Wald Chi2 Test	2.85	10.48	11.69	33.15	39.10
J.B. Normality Test	0.91(0.63)	0.69(0.71)	0.69(0.71)	0.72(0.69)	0.81(0.66)
Endogeneity Test	0.0462	0.0733	0.0613	0.0548	0.0767
Over Identification test	0.7536	0.8955	0.9176	0.5239	0.5983
Durban Watson Test	1.88	2.39	2.40	2.55	2.68

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Numerous control variables have been used to estimate the impact of FD on economic growth. Tax to GDP ratio (T/GDP) has a positive and significant relationship with economic growth. This implies that the higher the tax to GDP ratio, the higher the GDP per capita growth. Trade openness (OPN) has a positive and significant impact on economic growth, implying that trade is beneficial for economic growth in Pakistan. The positive association of trade openness and economic growth is due to the benefits emerging from specialisation, competition and economies of scale. It is also due to productivity improvements made possible through the access to advanced technologies [Din, *et al*. (2003)]. Various empirical studies also provide evidence that trade promotes economic growth in Pakistan [Khan, *et al*. (1995); Iqbal and Zahid (1998); Din, *et al*. (2003)]. Human Capital (HC) has a positive and significant impact on per capita GDP

growth, implying that Pakistan could increase its per capita growth rate by investing more in human capital. This finding confirms the traditional view that the countries that invest more in their human capital do better in terms of economic growth. These results are broadly in line with the other studies that have found a positive association between human capital and economic growth in Pakistan [Abbas (2001); Abbas and Foreman-Peek (2008); Qadri and Waheed (2011)]. Inflation has a negative and significant impact on economic growth, implying that inflation hurts the growth process. A negative and significant relationship between budget deficit and economic growth has been found.

6.1. Role of Democratic Institutions

The literature suggests that FD may positively affect economic growth in the presence of strong democratic institutions. In order to check the role of institutions in FD process, the interactive term of democratic institutions is added. Neyapti (2004, 2010) similarly suggests the use of expenditure decentralisation with other institutions, such as central bank independence, local accountability, and governance quality, to test for the effectiveness of expenditure decentralisation. In Table 9, democratic institutions and interactive term of democratic institutions is added with FD.

Table 9

The GMM Estimates: Dependent Variable (GDP per Capita Growth)

	(1)	(2)	(3)	(4)
RD	0.00426		0.0271	
	(0.0117)		(0.0194)	
ED		–0.117***		–0.151***
		(0.0305)		(0.0387)
INS	0.00117**	0.00150*	0.000813*	0.00162*
	(0.000491)	(0.000836)	(0.000492)	(0.000894)
RD*INS	0.0132***		0.00914**	
	(0.00330)		(0.00412)	
ED*INS		0.0449***		0.0446***
		(0.0129)		(0.0156)
OPN			0.0463	0.00304
			(0.0369)	(0.0506)
T/GDP			0.0409*	0.0205
			(0.0246)	(0.0268)
HC			0.0397**	–0.0150
			(0.0164)	(0.0138)
Constant	0.0450*	–0.0546**	0.108*	0.00899
	(0.0231)	(0.0245)	(0.0614)	(0.0606)
Observations	37	37	37	37
R-squared	0.250	0.240	0.318	0.224
Wald Chi2 Test	29.18	33.54	51.22	29.00
J.B. Normality Test	1.02(0.60)	0.17(0.91)	0.45(0.80)	0.23(0.89)
Endogeneity Test	0.0376	0.0064	0.0144	0.0012
Over Identification test	0.6695	0.8442	0.6302	0.5745
Durban Watson Test	1.93	2.24	2.36	2.29

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

The interactive term of revenue decentralisation and expenditure decentralisation with democratic institutions has a positive and significant impact on economic growth implying that FD and democratic institutions are complemented by each other. However, Brambor, *et al*. (2006) shows that it is incorrect to decide on the inclusion of the interactive term simply by looking at the significance of the coefficient of the interactive variable. The marginal effect of FD on economic growth should be observed by constructing confidence intervals for the estimates of coefficient of ED and interactive term of ED and institutions over the possible values of the institutions. Similarly for RD, if the interval lies above the zero line, then the effect is significantly positive and vice versa. Through this, the range of institutional values for which the effect of RD and ED can be said to be significant, can be found.

Fig. 4. Determining the Range of Significance of the Marginal Effect of RD*INS (Dashed lines show the 95 percent confidence band)

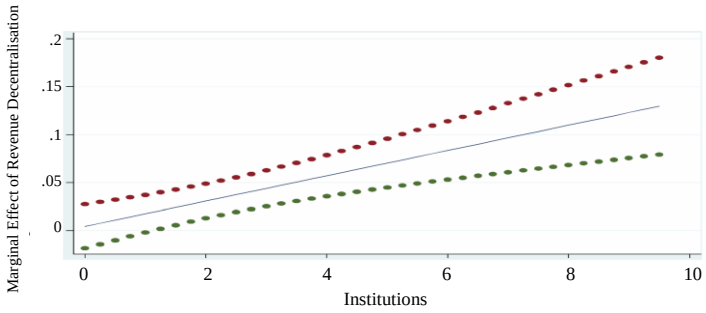
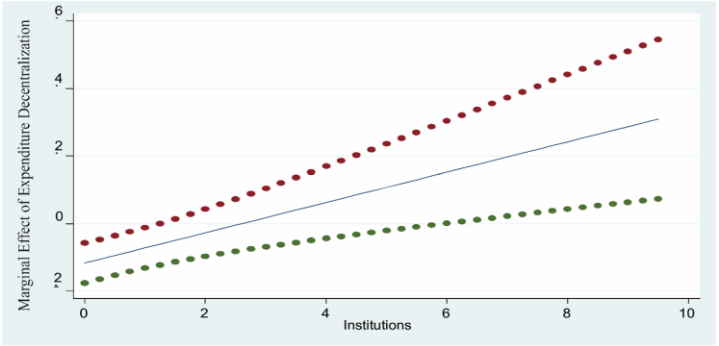


Figure 5 shows that with the low quality of institutions, the growth effect of expenditure decentralisation is negative. However, as the quality of institutions improves, the expenditure decentralisation exerts a positive impact on economic growth. The institutional school of thought argues that the quality of institutions increases the efficiency of the economic factors of production. It reduces the level of corruption and enhances the accountability of the governments.[6]

Fig. 5. Determining the Range of Significance of the Marginal Effect of ED*INS (Dashed lines show the 95 percent confidence band)



[6]See North (1981) for further elaboration on the role of institutions in economic growth.

7. CONCLUDING REMARKS AND POLICY IMPLICATIONS

In this study, the growth effects of fiscal decentralisation in Pakistan over the period 1972-2010 using the GMM estimation procedure have been analysed. The empirical analysis shows that revenue decentralisation is growth enhancing in Pakistan. Decentralisation of revenue generation responsibilities generates positive externalities which increase the per capita income of the country. On the other hand, it is found that expenditure decentralisation has a negative association with the growth rate of per capita income. This is mainly due to the low institutional quality which may increase the corruption level and make public officials less accountable. Lack of human and physical infrastructure may also lead to inefficient outcome of expenditure decentralisation in Pakistan. Composite decentralisation also has a positive association with growth mainly due to the positive effect of revenue decentralisation. This implies that if Pakistan focuses simultaneously on both types of decentralisation then it will be helpful in enhancing the per capita income. Only expenditure decentralisation is not helpful in achieving high and sustainable economic growth. The empirical analysis also reveals that the tax to GDP ratio has a positive association with economic growth. Trade openness has positive linkages with the growth rate of per capita income in Pakistan. Human capital also positively influences economic growth. Analysis reveals that FD becomes effective in the growth process if it is complemented with good quality institutions. It is observed that the interaction of expenditure decentralisation and revenue decentralisation with democratic institutions has a positive impact on economic growth.

Few policy implications emerge from the empirical analysis:

(i) The tax to GDP ratio has a positive association with economic growth. This finding has important implications for Pakistan. In Pakistan the tax to GDP ratio is very low as compared to other developed and developing countries. Due to a low tax base, Pakistan is consistently facing the problem of a high budget deficit. Increasing the tax to GDP ratio has two advantages: firstly, it directly contributes to economic growth and, secondly, it mitigates the negative impact of budget deficit on economic growth through reducing budget deficit. In Pakistan the main source of tax is the general sales tax on goods and services (GST) which is non-distortionary in nature. Taking into account the growth and stability effect of taxation, there is a need to further broaden the tax base and tax rates. To widen the tax base, all sources of income—including services, real estate and agriculture—must be brought under the tax net. The implementation of the Reformed General Sales Tax (RGST) can be an option for increasing the tax base and tax revenue. Implementation of RGST is essential to fully tap the revenue generation capacity as well as to help the documentation process in the economy.

(ii) The process of fiscal decentralisation, especially revenue decentralisation, is beneficial for the economy of Pakistan. To achieve long term economic growth, revenue decentralisation should be better streamlined through making the provinces more reliant on their own resources. The positive association of revenue decentralisation with economic growth has an important implication for the design of fiscal decentralisation in Pakistan because the process of restructuring government (which began with the passage of 7th NFC ward and

18th Constitutional Amendment) is in the early stage. This requires a serious effort both in terms of strengthening the institutions and promoting fiscal decentralisation to achieve the objective of better economic growth. The benefits of fiscal decentralisation can only accrue when provincial governments have a real fiscal autonomy, adequate accountability and sufficient capacity to respond to the local requirements.

(iii) Expenditure decentralisation can only be effective when the provinces have sufficient administrative capacity and have been made accountable and transparent through good institutions. The expenditure decentralisation can make positive contribution to economic growth if steps are taken to improve the administrative capacity of the provincial governments. This requires initiating programmes that provide technical and administrative skills to the public officials at the provincial level. These programmes are more likely to enhance the spending management skills of the provincial governments.

(iv) The present initiatives taken by the government in strengthening the provinces through providing more autonomy and resources have a clear implication for Pakistan's long term economic prosperity and macroeconomic stability. However, the outcome of these reforms crucially depends upon the institutional framework of the country. Strengthening of democracy is a pre-requisite for achieving the fruits of fiscal decentralisation.

REFERENCES

Abbas, Q. (2001) Endogenous Growth and Human Capital: A Comparative Study of Pakistan and Sri Lanka. *The Pakistan Development Review* 40:4, 987–1007.

Abbas, Q. and J. Foreman-Peck (2008) The Mincer Human Capital Model in Pakistan: Implications for Education Policy. *South Asia Economic Journal* 9:2, 435–462.

Akai, N. and M. Sakata (2002) Fiscal Decentralisation Contributes to Economic Growth: Evidence from State-Level Cross-Section Data for the United States. *Journal of Urban Economics* 52, 93–108.

Arellano, M. and O. Bover (1995) Another Look at the Instrumental Variables Estimation of Error-components Models. *The Journal of Econometrics* 68:1, 29–51.

Arellano, M. and S. Bond (1991) Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *Review of Economic Studies* 58:2, 277–297.

Barro, R. J. (1990) Government Spending in a Simple Model of Endogenous Growth. *Journal of Political Economy* 98:5, 108–125.

Barro, R. J. and J. W. Lee (1996) International Measures of Schooling Years and Schooling Quality. *American Economic Review* 86:2, 218–223.

Baskaran, T. and L. P. Feld (2012) Fiscal Decentralisation and Economic Growth in OECD Countries; Is there a Relationship? *Public Finance Review* doi: 10.1177/1091142112463726.

Brambor, T., W. R. Clark, and M. Golder (2006) Understanding Interaction Models: Improving Empirical Analysis. *Political Analysis* 14:1, 63–82.

Brennan, G. and J. M. Buchanan (1980) *The Power to Tax—Analytical Foundation of a Fiscal Constitutions*. Cambridge: Cambridge University Press.

Cantarero, D. and P. P. Gonzalez (2009) Fiscal Decentralisation and Economic Growth: Evidence from Spanish Regions. *Public Budgeting and Finance* 29:4, 24–44.

Carrion-iSilvestre, J. L., M. Espasa, and T. Mora (2008) Fiscal Decentralisation and Economic Growth in Spain. *Public Finance Review* 36:2, 194–218.

Davoodi, H. and H. Zou (1998) Fiscal Decentralisation and Economic Growth: A Cross-country Study. *Journal of Urban Economics* 43, 224–257.

Dickey, D. A. and W. A. Fuller (1981) Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root. *Econometrica* 49:4, 1057–1072.

Din, M., E. Ghani, and O. Siddique (2003) Openness and Economic Growth in Pakistan. *The Pakistan Development Review* 42:4, 795–807.

Ebel. R. D. and S. Yilmaz (2003) On the Measurement and Impact of Fiscal Decentralisation. In Jorge Martinez-Vazquez and James Alm (eds.) *Public Finance in Developing and Transitional Countries*. Cheltenham: Edward Elgar.

Eller, M. (2004) The Determinants of Fiscal Decentralisation and Its Impact on Economic Growth: Empirical Evidence from a Penal of OECD Countries, Diploma in Economics, Vienna University of Economics and Business Administration.

Faridi, M. Z. (2011) Contribution of Fiscal Decentralisation to Economic Growth: Evidence from Pakistan. *Pakistan Journal of Social Science* 31:1, 1–13.

Feltenstein, A. and S. Iwata (2005) Decentralisation and Macroeconomic Performance in China: Regional Autonomy has Its Costs. *Journal of Development Economics* 76:2, 481–501.

Giugale, M. and S. B. Webb (2000) *Achievements and Challenges of Fiscal Decentralisation: Lessons from Mexico*. World Bank Publications.

Iimi, A. (2005) Decentralisation and Economic Growth Revisited: An Empirical Note. *Journal of Urban Economics* 57:3, 449–461.

Iqbal, Z. and G. M. Zahid (1998) Macroeconomic Determinants of Economic Growth in Pakistan. *The Pakistan Development Review* 37:2, 125–148.

Jin, H., Y. Quian, and B. Weingast (2005) Regional Decentralisation and Fiscal Incentives: Federalism, Chinese Style. *Journal of Public Economics* 89:9-10, 1719–1742.

Khan, A. H., A. Malik, and L. Hasan (1995) Exports, Growth and Causality: An Application of Co-integration and Error-correction Modelling. *The Pakistan Development Review* 34:4, 1001–1012.

Kornai, J. (1979) Resource-constrained versus Demand-constrained System. *Econometrica* 47:4, 801–819.

Levine, R. and D. Renelt (1992) A Sensitivity Analysis of Cross Country Growth Regressions. *American Economic Review* 82:4, 942–963.

Lin, J. Y. and Z. Liu (2000) Fiscal Decentralisation and Economic Growth in China. *Economic Development and Cultural Change* 49:1, 1–21.

Malik, S., M. Hassan, and S. Hussain (2006) Fiscal Decentralisation and Economic Growth in Pakistan. *The Pakistan Development Review* 45:4, 845–854.

Mankiw, G. N., D. Romer, and D. N. Weil (1992) A Contribution to the Empirics of Economic Growth. *Quarterly Journal of Economics* 107:2, 407–437.

Marshall, M., T. Gurr, and K. Jaggers (2013) Polity IV: Political Regime Characteristics and Transactions, 1800–2012. Centre for Systematic Peace, Polity IV.

Martinez-Vazquez, J. and A. Timofeev (2010) Decentralisation Measures Revisited. *Public Finance and Management* 10:1.

Martinez-Vazquez, J. and R. M. McNab (2003) Fiscal Decentralisation and Economic Growth. *World Development* 39, 1597–1661.

Martinez-Vazquez, J. and R. M. McNab (2006) Fiscal Decentralisation, Macrostability and Growth. *Hacienda Publica Espanola/Revista de EconomiaPublica* 179:4, 25–49.

Neyapti, B. (2004) Fiscal Decentralisation, Central Bank Independence and Inflation: A Panel Investigation. *Economics Letters* 82:2, 227–230.

Neyapti, B. (2006) Revenue Decentralisation and Income Distribution.*Economics Letters* 92:2, 409–416.

Neyapti, B. (2010) Fiscal Decentralisation and Deficit: International Evidence. *European Journal of Political Economy* 26:2, 155–166.

Nguyen, L. P. and S. Anwar (2011) Fiscal Decentralisation and Economic Growth in Vietnam.*Journal of the Asia Pacific Economy* 16:1, 3–14.

North, D. C. (1981) *Structure and Change in Economic History*. New York: Norton and Co.

Oates, W. E. (1972) *Fiscal Federalism*. New York: Harcourt Brace Jovanovich.

Oates, W. E. (1985) Searching for Leviathan: An Empirical Study. *American Economic Review* 75:4, 748–757.

Oates, W. E. (1993) Fiscal Decentralisation and Economic Development. *National Tax Journal* 46:2, 237–243.

Oates, W. E. (1995) Comment on 'Conflict and Dilemmas of Decentralisation' by Rudolf Hommes.In M. Bruni and B. Pleskovic (eds.) *Annual World Bank Conference on Development Economics*. 351–353.

Oates, W. E. (2005) Toward a Second-Generation Theory of Fiscal Federalism. *Journal of International Tax and Public Finance* 12:4, 349–373.

Prud'homme, R. (1995) On Danger of Decentralisation. *World Bank Research Observer* 10:2, 201–220.

Qadri, F. S. and A. Waheed (2011) Human Capital and Economic Growth: Time Series Evidence from Pakistan. *Pakistan Business Review* 12:4, 815–833.

Rodden, J., G. S. Eskeland, and J. Litvack (2003) *Fiscal Decentralisation and the Challenges of Hard Budget Constraints*. Cambridge and London: MIT Press.

Rodriguez-Pose, A. and A. Kroijer (2009) Fiscal Decentralisation and Economic Growth in Central and Eastern Europe. *Growth and Change* 40:3, 387–417.

Rodriguez-Pose, A. and R. Ezcurra (2010) Is Fiscal Decentralisation Harmful for Economic Growth? Evidence from the OECD Countries. *Journal of Economic Geography* 11:4, 619–644.

Sala-i-Martin, X. (1997) I Just Ran Two Million Regressions. *American Economic Review* 87:2, 178–183.

Samimi, A. J., S. K. P. Lar, G. K. Haddad, and M. Alizadeh (2010) Fiscal Decentralisation and Economic Growth in Iran, Australian. *Journal of Basic and Applied Sciences* 4:11, 5490–5495.

Stegarescu, D. (2005) Public Sector Decentralisation: Measurement Concepts and Recent International Trends. *Fiscal Studies* 26:3, 301–333.

Tanzi, V. (1996) Fiscal Federalism and Decentralisation: A Review of Some Efficiency and Macroeconomic Aspects. In M. Bruno and B. Pleskovic (eds.) (1995) *Annual*

World Bank Conference on Development Economics. Washington, DC: World Bank. 295–316.

Thiessen, U. (2003) Fiscal Decentralisation and Economic Growth in High Income OECD Countries. *Fiscal Studies* 24, 237–274.

Thornton, J. (2007) Fiscal Decentralisation and Economic Growth Reconsidered. *Journal of Urban Economics* 61:1, 64–70.

Tiebout, C. M. (1956) A Pure Theory of Local Expenditures. *Journal of Political Economy* 64:5, 416–424.

Treisman, D. (2000) Decentralisation and Inflation: Commitment, Collective Action, or Continuity. *American Political Science Review* 94:4, 837–857.

Weingast, B. R. (1995) The Economic Role of Political Institutions: Market-preserving Federalism and Economic Development. *Journal of Law, Economics and Organisations* 15:1, 1–31.

Woller, G. M. and K. Phillips (1998) Fiscal Decentralisation and LDC Economic Growth: An Empirical Investigation. *Journal of Development Studies* 43, 139–148.

Xie, D., H. Zou, and H. Davoodi (1999) Fiscal Decentralisation and Economic Growth in the United States. *Journal of Urban Economics* 45, 228–239.

Yilmaz (1999) The Impact of Fiscal Decentralisation on Macroeconomic Performance, National Tax Association. Proceedings of the 92nd Annual Conference on Taxation, US. 251–260.

Zhang, T. and H. Zou (1998) Fiscal Decentralisation, Public Spending and Economic Growth in China. *Journal of Public Economics* 67:2, 221–240.