RESEARCH PAPER

Analyzing the Effectiveness of Fiscal Decentralization in Economic Growth: The Role of Institutions

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Abstract

Decentralization is expected, theoretically, to be a route to efficient provision of the local public services. This efficient utilization of scarce resources is further expected to boost economic growth. Despite solid theoretical footings, the existing empirical literature presents mixed results for the presumed positive relationship between decentralization and economic growth. It is important to note here that the second-generation theories of fiscal federalism talk about the enabling environment for decentralization to yield positive results; talking explicitly, an enabling institutional setup is required. Therefore, the current study examines the complementarity between fiscal decentralization and institutions stimulating growth. A sumptuous cross-country panel data from 1990 to 2018 is used for analysis. Results suggest that fiscal decentralization and institutions both are instrumental in economic growth, and there is complementarity between the two. However, over-exposure of local representatives seems to divert their attention from service provision to countering opponents' strategies.
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Introduction

Most societies have a primary objective to serve their people efficiently and effectively, and they perform this task through different tiers of government along with the collaboration of the private sector and civil societies. The efficiency objective of the government makes the discussion of fiscal federalism relevant and exciting. For the past few decades, there is a growing trend in favor of decentralization. The distribution of responsibilities among different tiers of the government seems plausible because the federal government takes responsibility for issues that have a public domain. While the lower tiers of government focus mainly on service provision. Resource transfer from the national to sub-national government is essential for the enhancement of the welfare of the public at the local level. The national government is not in a position to achieve Pareto efficiency directly; instead, the sub-national tiers of government are the source of efficiency because their representatives are located near to the local people and are aware of local preferences and needs. Thus decentralization helps in efficient resource allocation leading to greater local participation, faster market development and in turn better economic growth.

The First Generation (FG) Theory of fiscal decentralization states that due to the fiscal decentralization economic performance can enhance by ensuring economic proficiency in the

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delivery of the public services. The given theory is based on different theoretical contributions in favor of local government.[1] Nevertheless, empirical studies show a mix effect of fiscal decentralization (FD) on economic growth in developing and developed countries. Though several studies indicate a positive association between FD and economic growth (Martinez-Vazquez and McNab, 2003; Malik et al., 2006; Oates, 1993; 1995; Yilmaz, 1999) inter alia. Yet many studies have found insignificant or even negative relationship between FD and economic growth.[2]

There are two widely used measures of fiscal decentralization, namely the revenue decentralization and the expenditure decentralization based on 'Budget Data'. Revenue decentralization (RD) is measured as a ratio of the sub-national government revenue to the total government revenue (national plus sub-national). Expenditure decentralization (ED) is measured as a ratio of sub-national government expenditures to the total government expenditures (national plus sub-national). Oates (1972) defines expenditure centralization as the share of the central government spending in the total public spending and revenue centralization as the share of central government revenue in the total revenue. Davoodi and Zou (1998) measure fiscal decentralization as the expenditure/revenue of the sub-national government as a fraction of total government expenditure/revenue.

Woller and Phillips (1998) re-define fiscal decentralization measures after making few adjustments. First, in measuring revenue decentralization, 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 decentralization, they exclude social security and defence spending from the total public spending as these are considered to be the main part of non-decentralized government spending. After these adjustments, Woller and Phillips (1998) measure fiscal decentralization in the following four ways. First, the ratio of sub-national government revenues to the total government revenues. Second, the ratio of sub-national government revenues less grant-in-aids to the total government revenues. Third, the ratio of sub-national government spending to the total public spending. Fourth, the ratio of sub-national government spending to the total public spending less spending on defence and social security.

Nevertheless, this mismatch between the theoretical and empirical results can still be explained in the literature. For these unexpected results, literature has identified many reasons as discussed in the second generation (SG) theories of fiscal federalism. SG theories summarise that there are certain risks associated with fiscal decentralization; if it is not designed properly. Like fiscal decentralization can result in: increased regional inequality and encourage corruption (Rahman et al., 2012), weak democracy in developing countries hampers efforts (Tanzi, 1996), low growth performance due to bad institutional setup (Akai and Sakata, 2002; Iqbal et al., 2013) and difference in true extent of decentralisation prevalent during different periods. SG theories also focused on many economic theories like theory of principal agent problem, theory of contract, theory of firms (Oates, 2005). Thus the SG theories has emerged as the sufficient condition for the success of decentralization process and explains that difference in results can be expected for even a similar policy undertaken in different political scenarios. So, the extensions of FG with the SG theories talk about the integration of fiscal decentralization and institution and bring these in one dimension.

Further, there is a need to examine the role of institution and that of asymmetric information on the success of the decentralization process. Well-managed institutions are the major channel through which decentralization can influence long run economic growth. In the words of Acemoglu and Robinson, "Nations sometimes adopt inefficient institutions and

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1. See for example Hayek, 1945; Tiebout, 1956; Musgrave, 1959; Olson, 1969; Oates 1972.
2. See for example Oates, 1972; 1985; Davoodiand Zou, 1998; Baskaran and Feld, 2009; Akai and Sakata, 2002; Rahman et al., 2012; Tanzi, 1996.

achieve poverty*". Similarly North (1990) mentioned that "Institutions are generally defined as the *"constraint that human beings impose on themselves"*. Though, talking specifically of institutions, plethora of literature on the institutional mechanism is available that have tried to find out the direct relationship between institutions and economic growth.[1]

Although several studies focuses on investigating the relationships between the fiscal decentralization and economic growth, however, this article contributes to the existing literature by assessing the role of institutions in the effectiveness of fiscal decentralization which ultimately is believed to lead towards economic growth. Furthermore, our study takes a rich sample of 43 economies for panel data analysis. Beyond that, we apply Fixed effects and Random effects models to estimate our panel data coefficients.

Despite the fact that there is huge literature available on the fiscal decentralisation as well as institutions for their impact on economic growth, only a few [2] has looked at their interaction. There is a need to analyse the situation for the fact that whether the fiscal decentralisation and institutions, in isolation, impacts the economic growth or these are complements to each other. Therefore, this study tries to explore the effectiveness of fiscal decentralization relating it to the quality of institutions. Main questions that this study seeks to find answers to are: Does role of institutions matter to enhance the economic growth through the channel of decentralisation?

Overall, the objective of this study is to find out the empirical relationship regarding the effectiveness of fiscal decentralization especially considering the role of institutions. This study targets to find out that whether or not it is the difference in institutional quality that has resulted in differing results related to the effect of fiscal decentralisation on economic growth. Thus this study will examine the role of fiscal decentralisation and institution in achieving higher economic growth.

Literature Review

In recent decades, the rapid rise in the sovereignty and responsibilities of sub-national government tiers are one of the most notable trends in governance, especially in emerging and transition economies. There is decent literature available examining the growth effects for different countries emerging through fiscal decentralization and institutions, with direct and indirect effect. This section presents a brief review of the existing studies that separately analysed the link between fiscal decentralisation and institutions with economic growth. A tabulated summary of the literature discussed is also given in Table I, at Appendix.

Fiscal Decentralization and Economic Growth

Most of the studies theoretically as well as empirically examined the positive association between FD and economic growth. Some of these are reviewed below.

Fiscal Decentralization in Favour of Economic Growth

Oates (1993) was in favour of fiscal decentralization. According to author, FD is more growth improving if carried out by the local government tiers in social and infrastructure sector than central government which may ignore the variation in the preferences. So, to test the theoretical relationship between FD and economic growth indirectly Martinez-Vazquez and

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1. See for example Acemoglu et al., 2012; Rodrik et al., 2004; Sarwar et al., 2013; Vijayaraghavan and Ward, 2001; Potrafke, 2011; Knack and Keefer, 1995; Nawaz, 2015; Ahmad and Hall, 2012.
2. Like, Iqbal et al. (2013) focused on the role of democratic institution on the process of FD in single country case. Iimi (2005) also tested the hypothesis with international cross sectional data that political freedom and fiscal decentralization are complementary.

McNab (2001) empirically analyse the positive association between FD and economic growth through macroeconomic stability. This study explored that decentralization does not seems to present a danger to price stability in the developing as well as developed countries but in reality revenue decentralization leads to more stable prices. Decentralization allows mobilizing revenue at different level which leads to less pressure on consolidated budget and more stable prices. Furthermore, Martinez-Vazquez and McNab (2003) also argued that there is unidirectional or bi-directional relationships exist between FD and economic growth. This study found that FD and economic growth has relationship through distribution of the resources, consumer efficiency, the geographical producer efficiency, less resources captures by the elites, macroeconomic stability, less corruption and concluded that there is unidirectional non-monotonic relationships exists between decentralization and economic growth. Further, Iimi (2005) empirically examined in his cross country study by concluding that fiscal decentralization and economic growth is positively related. This study used the data from time period 1997 to 2001 by employing instrumental variable technique in analysis. By continuing the empirically examination process Malik et al. (2006) showed in his study that fiscal decentralization and the economic growth have positively related. This study used secondary source of data for Pakistan over period 1971-2005 and employed Ordinary Least Square (OLS) method for estimation by using moving average and autoregressive method to tackle the problem of the auto correlation.

Fiscal Decentralization and Economic Growth: No Relationship

The relationship between fiscal decentralization and economic growth has been constantly challenged so it is difficult to measure the precise relationship. Various studies have tried to find the relationship but unable to find the exact relationship.

So, First of these studies has been focused on fiscal decentralization and economic growth by Davoodi and Zou (1998). The given study's objective is to provide an analytical framework and empirical practise to test the existence and size of the efficiency enhancements from the fiscal decentralization. This study used the panel data set of 46 countries over five and ten year's intervals by using time period 1970-1989 and concluded that the relationship between FD and economic growth is negative in developing economies but none for developed economies. This study explored the reasons i.e. why this study have failed to turn up with final result of the FD role on economic growth. The reasons are decentralization measure used in this study does not express what a subnational government bargains, wrong revenue assessment, revenue collection and expenditure decisions by the local authority is the constrained by the central government and in practice local authority may not responsive to local people's needs and preference. Second study conducted by Baskaran and Feld (2009) this study is basically extension of the Thornton (2007) study. They applied the true measure of fiscal decentralization by capturing the true amount of sub-federal autonomy by using 23 OECD countries over the time period 1975 to 2001. New panel data has been used in this literature and explored negative but insignificant relationship between the FD and economic growth. They employed the similar data with some extension, slightly large number of countries and more detailed specifications and also found that RD is unrelated to economic outcome. On the other hand a high degree of political instead of fiscal autonomy of sub-federal units seems to hamper economic growth. Thus, Iqbal et al. (2013) showed in single country study revenue decentralization promote economic growth while expenditure decentralization hinders the economic growth in Pakistan. This is mainly due to the low institutional quality which public representatives make less accountable and also may rise the corruption level. Lack of human and physicals capabilities can also lead to ineffective outcome of expenditure decentralization in Pakistan. This study used endogenous growth

model to investigate the relationship between the FD and economic growth by using time series data covering from the period of 1972 to 2010.

Therefore, multiple studies have debated on the issue of the negative relationships between FD and economic growth. So, It is argued that the local governments is fully aware about the local needs and preferences and provides goods and services accordingly to the their preferences but Tanzi (1996) criticized this assumption by saying that local population have not power to impact the action of the local authorities that's why local goods have not produced according to the local needs and preferences. Thus, in the developing countries local democracy is relatively weak and ineffective as compare to developed countries. Next Akai and Sakata (2002) argued in their study that due to the use of incorrect measures of the fiscal decentralization the relationship between FD and economic growth doesn't exist. This study has applied Ordinary Least Square (OLS) method for 50 US states. Similarly, Rahman et al. (2012) also explored the negative relationships between fiscal decentralization and economic growth. This study used panel data set of 30 provinces of Indonesia from the time period 2004 to 2009 by using fixed effect model and concludes that the decentralization process has some weaknesses especially they focused on the result that due to the decentralization regional inequality promotes and encourage corruption which may result the lower economic growth.

Institution and Economic Growth

Institution plays a vital role on the domestic economic environment through political stability, high stock of social capital, protection of property rights, well-organizing judiciary system, low risk of expropriation Jutting (2003), so the body of literature determined the economic growth-institutions nexus directly and indirectly.

Institution and Economic Growth: Direct Relationship

First, Vijayaraghavan and Ward (2001) used four important measures of institution i.e. institutional infrastructure, security of property rights, political freedom, governance and government consumption as proxies of the institutional quality. They concluded that institution is the most significant source of the variation in the growth rates of the countries. They focused on the neoclassical growth model with 43 nations from the time period of 1975-1990 and concluded that size of the government and security of property rights are most important institutions for the variation in the economies. While, Rodrik et al. (2004) used index of the "rule of law" as a proxy of institutions. This study found the determinants of the level of income i.e. trade, geography and institution and explore institutions exercise influence strong and positive on the income level of the country while geography and trade are not much impressive and showed insignificant result. Acemoglu et al. (2001) argued in his study that Europeans have very different colonization policies and have very different types of institution in these colonies. The reason behind the different institutions is the mortality rate that's why this study used European mortality rate as an instrument of the institutions. For those colonies that have high mortality rate are more extractive institutions and found large effect on the income per capita. Iqbal et al. (2013) argued in the study that expenditure decentralization has negative effect on the growth rate of per capita. So this study employed SGT in the analysis by using interaction term of ED and RD with democratic institution and found positive outcome on the economic growth.

It is stated that in developing countries lack of institution quality is one of the major issues. Without enforcement of the power and implementation of any policy the country cannot be run in the way of development corridor. Sarwar et al. (2013) found in his study the case of the South Asia. This study argued that average quality institutions are prevailing in the

developing country that's why south Asian region is under developed while in developed countries through institution's performance long run economic growth exists. They used fixed effect model and Generalize Method of Movement (GMM) by using panel data over the period of time 1995-2010. This study used more comprehensive measure i.e. institution and GDP index and found positive and significant effect on the economic growth. Nawaz (2015) in favour of investment level and argued in the study that institution and economic growth relationship is different in the development stages of the country. This study examined the impact of the institution and economic growth at aggregate level by showing the result that institutions are positively linked with economic growth and also find that quality of bureaucracy, law and order and control over corruption, are high in the industrialised countries as compare to emerging countries. Impact of the investment level is more growth enhancing in low income countries as compare to high income countries.

Institution and Economic Growth: Indirect Relationship

Institution can indirectly influence the growth performance of the country. The body of literature has developed indirect relationship between institution and economic growth. So, one of the study conducted by Knack and Keefer (1995) argued in the study about conditional convergence in per capita income of the countries and found the result that the proxies of quality of institutions are political violence, Gastil political and civil liberties are inefficient for the protection of the property rights. While, security of the property rights has positive effect not only on investment level but also allocated efficiency of inputs. They concluded that conditional convergence will achieved through well organize institutions. Thus, One of the studies has been examined in the favour of the investment i.e. investment is more growth enhancing in the development of the countries. Potrafke (2011) explored the result in his study by using the cross sectional data and concluded that those countries with high IQ populations enjoys less corruption. Through security of contractual property rights, investment and effectiveness of the provision of the public goods countries can grow faster. Insecure contractual property rights may discourage the investment of the country. Ahmad and Hall (2012) focused on the East Asian countries and experienced a fabulous economic growth since 1990s but due to the financial crisis in the 1997-1998 the results are; growth process has abruptly end and severe recession has been happened then the recovery process has been delayed. They concluded that institutions may matter in the developing countries via total factor productivity. Similarly, Nigar (2013) argued in study by exploring the indirect relationship between the institutional quality and economic growth through inequality. This study found the institutions effect positively on the economic growth. Inequality is considered harmful for the countries especially in the lower-middle income countries. This study especially focused on the interaction of institutional quality and inequality and found negative impact on the economic growth. One of the studies has been carried the indirect effect of the institution through intelligence. Kalonda et al. (2014) found the effect of intelligence on the quality of institutions by using regulatory quality, political stability, voice and accountability, government efficiency and rule of law as proxies of institutions and show that intelligence has strong and positive impact on the institutional quality and ultimately foster the economic growth.

Canavire et al. (2020) take the sample of world economies to analyze the dynamic effects of fiscal decentralization and economic growth. The result of study confirms positive link such that 10% increase in the subnational expenditures casues to increase the GDP by 0.82%. Likewise, Ding et al. (2019) also conclude that decentralization plays a significant role in triggering the economic growth in China. Another study by Elheddad et al. (2020) determine that there is positive association between fiscal decentralization and economic growth in China.

On the basis of presented literature review, current study come up with this conclusion that the under lying causes of the weak or no relationship between FD and economic growth are; economic, cultural, geographical and institutional setups are weak, so one of the major constraints in the FD process of economic growth is weak institutions. Without effective institution growth process of the country is difficult to run in the way of development corridor. Therefore, current study incorporates institutions in the growth enhancing process of the fiscal decentralization and fills the missing gap.

Data and Methodology

Theoretical Model

Endogenous growth model is in fashion to capture the impact of fiscal decentralization and economic growth following Davoodi and Zou (1998) and the same is followed for analysis in this study with few adjustments. The said study extendBarro's (1990) endogenous growth model by assuming that public spending is carried out by three level of government: federal, local and state. The level of fiscal decentralization is defined as the fraction of spending by the subnational government to total government spending i.e. Fiscal decentralization increases if spending by state and local government rises relative to spending by the federal government (Davoodi and Zou, 1998). Now following literature on institutions (North, 1990; Nawaz, 2015), this study modifies the model by incorporating institutions into the empirical model to analyse it influence on the effectiveness of fiscal decentralisation for better economic growth.

Econometric Model

The relationship between fiscal decentralization and economic growth discussed in the theoretical studies help us to express the empirical version of the model.It is noteworthy that the contribution of this study isit introduces institutional quality to the Davoodi and Zou (1998) model to judge the enabling environment for fiscal decentralization to be effective. Hence to capture the true effect of fiscal decentralization, this study will incorporate institutions as a complement in the process of fiscal decentralization at cross-country level. This study will use three main variants of the existence of good institutions (i.e. Government stability, Control over corruption, Democratic accountability). So, accordingly their interaction terms with fiscal decentralization will be used to analyse the effectiveness of fiscal decentralisation for better economic growth.

Thus, the empirical equation to analyse the model for fiscal decentralization, institution and economic growth can be defined as:

$$g_{it} = \beta_0 + \beta_1 GE_{it} + \beta_2 FD_{ijt} + \beta_3 INS_{ikt} + \beta_4 FD_{ijt} * INS_{ikt} + \beta_5 X_{it} + U_{it} \quad (1)$$

where i(=1...I) and t(=1....N) refers to the country *i* at time *t*; *I* denotes the number of the countries while *N* represents the time period; $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ and β_5 are the scalar parameters; g_{it} is the GDP per capita growth rate for country i at time t. Even though, the prior studies deploy government expenditures (GE) and taxes as a proxy of fiscal policy, however, this study prefers to employ only *GE* to measure fiscal policy. The primary reason is the availability of sufficient data for GE to satisfy the requirement of our sample of 43 (developed and emerging) countries, while the data of tax rate were limited. Besides the list of the selected economies is given in the Appendix-I.

Furthermore, Nawaz (2015) used GE/GDP ratio in the growth regression,FD_{ijt}represent the measures of fiscal decentralization (where *j* indicates the revenue and expenditure indicators

for fiscal decentralisation), INS_{ikt} represents variables for institutional quality (k indicates the above mentioned three distinct variables) and lastly X indicates the vector of other important control variables affecting growth. U_{it} is the error term while X consists of the variables i.e. trade openness, human capital, physical capital, inflation, growth rate of population and urbanization. In this model the interaction term $FD*INS$ is the focus of attention and allow us to test the hypothesis that whether or not fiscal decentralization and institution are complementary. Table1 provides basic definitions for each variable alongside the sources of data.

Table 1. Variables Names, Definition and Sources of Data

Variable	Names	Definition	Source
Dependent Variable	g_{it}	GDP per capita growth rate (annual %)	World Development Indicator (WDI)
List of independent Variable			
Expenditure Decentralization	fd_{exp}	Percentage of Sub-National Expenditure/ Total Expenditure(National plus sub-national)	GFS-World Bank
Revenue Decentralization	fd_{rev}	Percentage of Sub-National Revenue / Total Revenue(National plus sub-national)	GFS-World Bank
Government Expenditure	Ge	Government expenditure as % of GDP	World Development Indicator (WDI)
Trade Openness	Op	(Imports plus Exports) as % of GDP	World Development Indicator (WDI)
Human Capital	Hc	School enrolment, secondary (% gross)	World Development Indicator (WDI)
Physical Capital	K	Gross fixed capital formation as % of GDP	World Development Indicator (WDI)
Inflation	Inf	% change in CPI(consumer price index) annual	World Development Indicator (WDI)
Growth rate of population	pgr	Population growth % (annual)	World Development Indicator (WDI)
Urbanization	urb	Urban population as % of total	World Development Indicator (WDI)
Government stability	Gs	"This captures risk linked with the government's ability to stay in office and carry out its declared programs through governmentunity, legislative strength and public support. Ranges between 0 (very high risk) and 12 (very low risk)".ICRG Definition	PRS Group International Country Risk Guide (ICRG)
Control over Corruption	Cc	"This is an assessment of corruption within the political system that causes distortion in the economic and financial system, reduces the efficiency of public as well as private sector by enabling the people to hold positions of power through patronage rather than ability and creates instability in political system. Ranges between 0 (very high risk) and 6 (very low risk)".ICRG Definition	PRS Group International Country Risk Guide (ICRG)
Democratic accountability	Da	This is an assessment of how responsive government is to its people, by assuming that the less responsive it is, the more likely it is that the government will fall, peacefully in a democratic society, but possibly violently in a non-democratic one. Ranges between 0 (very high risk) and 6 (very low risk).ICRG Definition	PRS Group International Country Risk Guide (ICRG)

Data

There are a several studies that investigated the effect of fiscal decentralisation on economic growth; however data availability is always indicated as a constraint. For the sample selection at cross country, data availability played an important role. In year 2018 the World Bank launched a rich cross country data of the fiscal decentralization indicators, having observations from 1972-2018; however, the data coverage is not universal.This data set is used for the current study. However, as discussed earlier, this study also incorporates institutions in the analysis and as data for institutions is available in the range of 1990 to 2018 therefore, the data range reduces to that available for institutions. Bridging issues, this study end up with 43 countries, while Table 2 provides the descriptive statistics for the variables. The list of the sample countries is presented in the Appendix.

Table 2. Descriptive Statistics

Variable		Mean	Std. Dev.	Min	Max	Observations
GDP Per Capita Growth Rate (git)	overall	1.91	3.37	-14.57	18.62	N = 1187
	between		1.05	-0.23	5.41	n = 43
	within		3.23	-18.08	18.01	T-bar = 27.60
Fiscal Decentralization Expenditure (FD_{exp})	overall	25.89	16.02	1.03	97.74	N = 542
	between		15.92	1.19	60.14	n = 43
	within		5.08	-11.04	65.82	T = 12.60
Fiscal Decentralization Revenue (FD_{rev})	overall	27.58	15.48	1.03	98.27	N = 530
	between		16.07	1.15	60.81	n = 43
	within		4.77	-3.44	65.04	T = 12.32
Government Expenditure (ge)	overall	17.83	4.56	2.98	38.23	N = 1187
	between		4.12	9.63	27.16	n = 43
	within		2.01	10.25	28.90	T-bar = 27.60
Openness (op)	overall	76.52	45.35	12.34	352.90	N = 1187
	between		42.57	22.68	244.21	n = 43
	within		16.78	9.75	185.21	T-bar = 27.60
Human Capital (hc)	overall	94.77	21.04	28.88	160.62	N = 1089
	between		19.50	43.24	142.03	n = 43
	within		10.48	59.59	139.12	T-bar = 25.32
Physical Capital (k)	overall	21.89	4.00	11.46	52.94	N = 1187
	between		2.73	15.26	29.14	n = 43
	within		2.98	11.12	50.28	T-bar = 27.60
Inflation (inf)	overall	22.58	352.04	-4.48	11749.60	N = 1141
	between		72.36	0.57	466.37	n = 42
	within		344.28	-442.86	11305.81	T-bar = 27.17
Population Growth Rate (pgr)	overall	0.83	0.88	-2.57	6.02	N = 1245
	between		0.77	-0.53	2.73	n = 43
	within		0.43	-1.30	4.58	T-bar = 28.95
Urbanization (urb)	overall	55.95	25.53	5.03	100.00	N = 1247
	between		25.52	7.93	100.00	n = 43
	within		3.88	32.24	72.69	T = 29
Government Stability (gs)	overall	7.94	1.83	2.00	11.50	N = 1197
	between		0.76	6.75	10.41	n = 43
	within		1.67	1.94	12.19	T-bar = 27.84
Control Over Corruption (cc)	overall	4.05	1.36	1.00	6.00	N = 1197
	between		1.19	2.03	5.99	n = 43
	within		0.68	2.01	6.15	T-bar = 27.84
Democratic Accountability (da)	overall	5.09	1.17	1.00	6.00	N = 1197
	between		0.93	2.94	6.00	n = 43
	within		0.72	2.01	7.28	T-bar = 27.84

Source: Research finding.

Estimation Methodology

The extensive data sets usedfor this studyhave both benefits and risks. Benefits can be considered as the rich and improved data coverage across the countries and time while issue can be highlighted as the missing observations in the series. Due to missing data issue this study come up with unbalanced panel for available countries.In the given situation, where we have to tackle the unbalanced panel data which has missing observation issue, the one to fit best can be pointed out as the Baltagi and Wu (1999) method. The Baltagi and Wu (1999) method is specially designed for the unbalanced panel and produces resultsboth for the fixed effects and random effects models. The estimators also account for the panel heteroscedasticity and for the panel specific error autocorrelation (Chishti, in press; Chishti et al., 2020; Ullah et al., 2020). Therefore, the Baltagi and Wu (1999) model suites this data set the best.

Result and Discussion

Empirical result for the estimation of the different institutional indicators and different fiscal decentralization measures on the GDP per capita growth rate are shown in the Tables 3 and 4. The evidence from the Hausman test is in the favour of the fixed effect, indicating that fixed effect produces consistent results for our models and the same are presented in Tables below.

The Result for the effect of the different Fiscal Decentralization indicators along with multiple measuresfor institutions, on the economic growth is discussed as under. The main focus remains on the variables of interest, while the set of the other explanatory variables are discussed at the end. For the analysis two regression models are run for the each set of the FD and institutions measures. The first model adds the two indicators separately while the second model includes the relevant interaction terms to check the complementarities between the two for economic growth.

Estimation Result with Government Stability

Model 1 at Table 3 presents results of Expenditure Decentralization, which has positive and significant impact on the economic growth, which is consistent with the fiscal decentralization theory. This positive association indicate that higher level of fiscal decentralization (on the expenditure side) leads to higher GDP per capita. The result of the Government stability on the economic growth is also positive indicating that more the government's ability to stay in office and carry out its declared programme, more the growth will be.

Furthermore, the positive impact of the government stability is important for the entrepreneurs. It will encourage the entrepreneurs to invest freely and confidentially without anyfear of loss or change in government's policies. It is argued that foreign investors prefer less uncertainty with stable government atmosphere[1]. So in line with the expectations, the current studyalso finds that more stable government is associated with high GDP growth rate.However,when interaction term is included in model 2, the coefficient for interaction term unexpectedly yields negative sign.[2]

Similarly, the impact of the revenue decentralization on economic growth is also positive and supportive with the expenditure decentralization theory on the economic growth. The transfer of the revenue promoting responsibilities to local governments is conducive for the economic growth. Moreover, the government stability also influence positively and

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1. Nawaz, (2015) found similar result for the positive relationship of the GS and economic growth.
2. Despite this surprisingly unexpected result, the individual coefficient for FD and GS still remain positive. Hence there is need for separate study to thoroughly investigate the factors influencing negative interaction term.

significantly on economic growth. In addition when interaction term included in the model the coefficient of the interaction term is also negative and significant (Models 1 and 2 of Table 4). Thus, theresult is not supportive of our expectation that government stability is complementary to decentralization in order to enhance the economic growth.

Table 3. Regression Result for Expenditure Decentralization
(Dependent Variable: GDP per capita Growth Rate (annual %))

Variable	Government Stability		Control over Corruption		Democratic Accountability	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
fdexp	0.0525*	0.2296***	0.0566*	0.0341	0.0504*	0.3833***
gs	0.2193*	0.7786***				
fdexp*gs		-0.0212***				
cc			0.6028**	0.4345		
fdexp*cc				0.0080*		
da					0.6750	2.3162***
fdexp*da						-0.0702**
ge	-1.1166***	-1.1815***	-1.1415***	-1.1343***	-1.1844***	-1.2515***
k	0.3289***	0.3119***	0.3333***	0.3347***	0.3347***	0.3219***
hc	0.0234	0.0227	0.0246	0.0242	0.0275	0.0148
op	0.0642***	0.0636***	0.0617***	0.0612***	0.0553***	0.0529***
pgr	-1.8285***	-1.9761***	-1.7992***	-1.8015***	-1.7801***	-1.8508***
inf	-0.0001	-0.0084	-0.0154	-0.0156	0.0013	-0.0063
urb	0.0067	0.0118	0.0139	0.0113	0.0008	-0.0401
Constant	5.5672**	3.8886	4.9431**	5.3963**	5.5487**	3.6461
Total Obs.	451	451	451	451	451	451
Countries	43	43	43	43	43	43
Minimum Obs.	1	1	1	1	1	1
Average Obs.	11	11	11	11	11	11
Maximum Obs.	16	16	16	16	16	16
Hausman test	117.01	93.51	116.42	115.09	110.72	114.94
chi2 (P-value)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
legend:						*[1]

Source: Research finding.

Estimation Result with Control over Corruption

Models 3 and 4 (at Tables 3 and 4) report the empirical result of the Fiscal decentralization with control over corruption on the economic growth. The impact of the fiscal decentralization on the economic growth is again captured by using two measures. Empirical evidence showed it clearly that different fiscal decentralization measures have different consequences for the decentralized setup if we take the control over corruption into account. Table 3 presents the expenditure decentralization with control over corruption and result showed that expenditure decentralization is positively related with the GDP growth rate of the per capita and control over corruption is also positively and significantly related with the GDP per capita.

These findings suggest that control over corruption with healthier institutional framework scales up the economic activities. When corruption is minimum then the political bureaucratic systems generates more economic growth. Our findings are similar to Mauro (1995) and Podobnik et al. (2008). By adding interaction term in model of expenditure decentralization the coefficient of this interaction term has become positive and significant. Given positive

result is support over theory that fiscal decentralization and control over corruption are complementary.This shows that the process of fiscal decentralization is effective when control over corruption is high in the economies or with less corrupt countries the fiscal decentralization is effective. However, we could not get similar results for decentralization models.The result of the interaction term is positive as expected but remained insignificant. So, overall it can be said that control over corruption is instrumental for the decentralization.

Table 4. Regression Result for Revenue Decentralization (Dependent Variable: GDP per capita Growth Rate (annual %))

Variable	Government Stability		Control over Corruption		Democratic Accountability	
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
fdrev	0.0254	0.2295***	0.0274	-0.0396	0.0237	0.3258**
gs	0.2119*	0.8947***				
*fdrev*gs*		-0.0245***				
cc			0.6410**	0.0839		
*fdrev*cc*				0.0240		
da					0.6181	2.1758**
*fdrev*da*						-0.0639*
ge	-1.1794***	-1.2593***	-1.2056***	-1.2157***	-1.2392***	-1.2697***
k	0.3367***	0.3179***	0.3419***	0.3494***	0.3429***	0.3274***
hc	0.0204	0.0187	0.0208	0.0211	0.0241	0.0128
op	0.0646***	0.0655***	0.0623***	0.0618***	0.0556***	0.0537***
pgr	-1.8626***	-1.9734***	-1.8436***	-1.8246***	-1.8297***	-1.8777***
inf	-0.0006	-0.0103	-0.0162	-0.0190	0.0022	-0.0040
urb	0.0252	0.0074	0.0322	0.0328	0.0194	-0.0209
Constant	6.5861***	4.1175	5.8674**	7.1551***	6.7025***	4.4010
Total Obs.	440	440	440	440	440	440
Countries	43	43	43	43	43	43
Minimum Obs.	1	1	1	1	1	1
Average Obs.	10.7317	10.7317	10.7317	10.7317	10.7317	10.7317
Maximum Obs.	16	16	16	16	16	16
Hausman test	114.11	100.30	116.18	117.80	110.72	114.94
chi2 (P-value)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
legend:						*

Source: Research finding.
Note: #Fixed effects model estimated with Baltagi and Wu (1999), between cluster robust standard errors along with AR1 errors

Estimation Result with Control over Corruption

Models 3 and 4 (of Tables 3 and 4) report the empirical result of the Fiscal decentralization with control over corruption on the economic growth. The impact of the fiscal decentralization on the economic growth is again captured by using two measures. Empirical evidence showed it clearly that different fiscal decentralization measures have different consequences for the decentralized setup if we take the control over corruption into account. Table 3 presents the expenditure decentralization with control over corruption and result showed that expenditure decentralization is positively related with the GDP growth rate of the per capita and control over corruption is also positively and significantly related with the GDP per capita.

These findings suggest that control over corruption with healthier institutional framework

scales up the economic activities. When corruption is minimum then the political bureaucratic systems generates more economic growth. Our findings are similar to Mauro, (1995) and Podobnik et al., (2008). By adding interaction term in model of expenditure decentralization the coefficient of this interaction term has become positive and significant. Given positive result is support over theory that fiscal decentralization and control over corruption are complementary.This shows that the process of fiscal decentralization is effective when control over corruption is high in the economies or with less corrupt countries the fiscal decentralization is effective. However, we could not get similar results for decentralization models.The result of the interaction term is positive as expected but remained insignificant. So, overall it can be said that control over corruption is instrumental for the decentralization.

Estimation Result with Democratic Accountability

It is expected that with strong democratic institutions,fiscal decentralization will yield positive effect on the economic growth. Current study check the role of institutions in the fiscal decentralization process (Model 5) and the interactive term of democratic accountability is also added (Model 6) at Tables 3 and 4. The estimation results indicate that expenditure decentralization is positive and have significant impact on the economic growth. Democratic accountability also has shown positive and significant impact on the economic growth in the Table 3, model 4.

The positive sign of the democratic accountability indicates that the countries with strong democratic institutions perform better. Helliwell (1994), Nawaz (2015), and Rodrik (2000) have found same result as current study found. Rodrik (2000) argued that with strong democratic institutions, countries can promote economic growth by allowing accountability and stability in the system. However, with the inclusion of the interaction term in the model, the coefficient of the interactive term becomes negative. Thus, the result is not supportive of the expectation that democratic accountability is complementary in catalysing the growth effect of fiscal decentralization.

Similarly, the revenue decentralization model showed that revenue decentralization and democratic accountability have positive impact individually. When the interaction term is added in the model the result seems to be different.[1] The coefficient of the interaction term becomes negative but significant. Iimi (2005) found similar result for the interaction of FD and Political freedom and concluded that FD and political freedom are not complementary. It is noteworthy that Iimi showed the political freedom in term of accountability.

The negative effect of the democratic accountability may be interpreted as that excessive freedom of the peoples makes it difficult for the sub-national tiers to internalize the economies of scale and optimize in the local public goods provisions. It shows that when officials elected become more accountable to the local population, such a situation hampers their ability for policy coordination and reduces *de facto*collaboration among the office holders. This explains the reason for non-complementarities between the fiscal decentralization and democratic accountability.

Having discussed the variables of interest, Table 3 and 4 also contain the estimation result for the rest of the control variables.Regarding other control variables, an increase in the public spending slows the economic growth. Iimi (2005) showed similar result with tax to GDP ratio and conclude that higher tax to GDP ratio slows the economic growth.The current study also showed negative impact of the population growth rate on GDP growth which is consistent with the basic growth theory. Iimi (2005); Davoodi and Zou (1998) showed similar result of negative relationship between the two. Physical capital is positively associated with growth rate of per capita implying that countries can increase GDP per capita growth rate by

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1. As the individual coefficient for FD and DA becomes positive and significant.

investing more in the physical capital. Iqbal et al. (2013) and Nawaz (2015) also presented similar impact for physical capital on the per capita GDP growth rate. The result of the trade openness is also positive and significant implying that trade is beneficial for the economies. The positive relation associated with benefits evolving from the competition, economies of scale and specialisation.Multiple studies showed similar positive relationship (Iqbal et al., 2013). Rest of the independent variables i.e. (inflation, urbanization, and human capital) remained insignificant in the analysis.

Conclusion and Policy Implications

The relationship between fiscal decentralization and economic growth has attracted significant consideration in previous years. Plethora of the studies has shown positive impact of the fiscal decentralization on the economic growth while a number of studies also have shown negative impact of fiscal decentralization on the economic growth. So, in this study, the growth effect of the fiscal decentralization is examined by using endogenous growth model.

Moreover, Institutions plays significant role in development. Thus, current study incorporated different measures of institutions along with the process of fiscal decentralization as suggested by SG theories of fiscal federalism.This study used rich cross country panel data of 43 countries over the period 1984-2012 and applied Baltagi and Wu (1999) method for unbalanced panel data to investigate whether fiscal decentralization (in the presence of better institutions) has any growth impact.

The empirical analysis shows that decentralization is growth enhancing. Decentralization (i.e. expenditure capabilities as well as the revenue generation responsibilities) create positive externalities and due to this positive externalities, per capita income of the countries increases. It can be concluded that fiscal decentralization is instrumental in promoting economic growth. Furthermore, the analysis reveals that the impact of government stability, control over corruption and democratic accountability on the per capita GDP growth rate is also positive and in favour of the growth.

Moreover, analysis reveals that fiscal decentralization is effective in the development process if it is complemented with institutions as is shown that interaction term of expenditure decentralization with control over corruption has as positive and significant impact on the economic growth. However, non-complementarity exists between fiscal decentralization (expenditure and revenue decentralization) with government stability and democratic accountability.

From the empirical analysis the policies implications are follows as under. First, the domestic environment plays a significant role on the way of the economic development. Therefore, countries should take benefit from the fiscal decentralization to achieve long term economic growth. Second, for the high and sustainable development the institutional quality needs to be strengthened. Third, countries should focus on the stable government and make officials accountable without compromising their ability to work, so that the benefit of fiscal decentralization can be achieved. When provinces have adequate administrative capacity than the fiscal decentralization can be effective.

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Appendix:

Table I. List of Sample Countries

Sr. no	Name	Sr. no	Name	Sr. no	Name
1	Argentina	16	Germany	31	New Zealand
2	Australia	17	Greece	32	Norway
3	Austria	18	Honduras	33	Poland
4	Belgium	19	Hungary	34	Portugal
5	Bolivia	20	Iceland	35	Romania
6	Canada	21	Ireland	36	Russian Federation
7	Chile	22	Israel	37	South Africa
8	Columbia	23	Italy	38	Spain
9	Congo, Rep.	24	Jamaica	39	Sweden
10	Cyprus	25	Japan	40	Switzerland
11	Denmark	26	Lithuania	41	Turkey
12	El Salvador	27	Luxembourg	42	United Kingdom
13	Estonia	28	Malta	43	United States
14	Finland	29	Morocco		
15	France	30	Netherlands		