



Decentralization, Institutions and Economic Growth: Further Investigation

Muhammad Jehangir Khan¹, Amir Nadeem², Iftikhar Ahmad², Muhammad Zeeshan Arif⁴

Keywords:

Decentralization,

Institutions,

Economic Growth,

Panel data JEL classification:

H77, H11, O40, C22

ABSTRACT

Decentralization improves the public provision of local public goods and services through efficient utilization of scarce resources, which result in enhanced economic growth. But the empirical literature lacks consensus on the association between decentralization and economic growth. In this context, the second-generation theories of fiscal federalism highlighted the need for robust institutional structure. Hence, in this study we investigate the effect of institutions and its interaction with decentralization on growth, using panel data from 1984 to 2012. We found that the complementarity between institutions and decentralization are instrumental for economic growth. Furthermore, the findings reveal that local representatives' over-exposure to voice and accountability results in lower service delivery.

INTRODUCTION

Decentralized decision making is viewed to be important for improved service delivery to the local communities (Oates, 1972; Musgrave, 1959; Kosec and Mogue, 2018). In true essence, administration at the local level is better informed and motivated to efficiently and effectively respond to peoples' needs. Different tiers of the government along with the collaboration from the private sector and civil society primarily perform this task.

The division of governance responsibilities between the upper and lower tiers of the government is plausible in the sense that the federal government takes care of the macro aspects of the economy. Whereas, the lower tiers focus on service provision in accordance with local and territorial needs for greater efficiency as peoples' representatives are stationed in the local communities who are aware of local needs and preferences. Thus, decentralization enhance resource allocation efficiency; leading to greater local participation, faster market development and growth.

The contemporary literature about decentralization rests on two major theoretical discourses; the First Generation (FG) and Second Generation (SG) theories. The FG theories of fiscal federalism states that due to decentralization, economic performance can be enhanced by ensuring economic expertise in public service delivery (Hayek, 1945; Tiebout, 1956; Oates 1972; Musgrave, 1959; Olson, 1969). But the empirical literature lacks consensus on the association between decentralization and economic growth in developed and developing countries. Some studies indicate a positive association between decentralization and economic growth (including Malik, et al. 2006; Martinez-Vazquez and McNab, 2003; Oates, 1993; Oates, 1995; Yilmaz, 1999; Ding et al, 2019) inter alia. Nevertheless, there are many studies that have found insignificant or even negative relationship between decentralization and economic growth (Oates, 1972; Oates, 1985; Baskaran and Feld, 2009; Davoodi and Zou, 1998; Rahman, et al, 2012; Akai and Sakata, 2002; Tanzi, 1996; Wang, 2018).

This unexpected evidence has been elaborated on in the Second Generation (SG) theories. SG theories asserts that decentralization is prone to several risks due to weak design and implementation. Decentralization can: increase regional inequality and corruption (Rahman, et al., 2012), hampers efforts in weak democracies

¹Assistant Professor, Pakistan Institute of Development Economics, Islamabad Email: Jehangir@pide.org.pk

²Associate Professor, Management Sciences Department, City University, Peshawar

³Assistant Professor, Pakistan Institute of Development Economics, Islamabad Email: Iftikhar@pide.org.pk

⁴Alumni, Pakistan Institute of Development Economics, Islamabad

(Tanzi, 1996) and result in low growth due to bad institutional setup (Iqbal et al, 2013; Akai and Sakata, 2002). Besides, SG theories also focused on many economic aspects such as; the principal-agent problem, theory of contract and the theory of firms to explain the divergence from expectations (Oates, 2005). Thus, SG theories emerged as a sufficient condition for the success of decentralization which proclaims that the effect of decentralization may not be the same in a given context due to difference in institutional quality. So, the extensions of FG with the SG theories talk about the integration of decentralization and institution. Hence, there is a need to examine the role of institutions in the success of decentralization.

In the words of Acemoglu & Robinson, “Nations sometimes adopt inefficient institutions and achieve poverty”. Similarly, North (1990) mentioned that “Institutions are generally defined as the constraint that human beings impose on themselves”. Hence, well-managed institutions are the major channel through which decentralization can influence long-run economic growth. Though, talking specifically of institutions, plethora of literature on the institutional mechanism is available that has tried to investigate the direct relationship between institutions and economic growth (Rodrik et al, 2004; Acemoglu et al, 2012; Sarwar, et al, 2013; Vijayaraghavan and Ward, 2001; Potrafke, 2011; Knack and Keefer, 1995; Nawaz, 2015; Ahmad and Hall, 2012; Bilan et al, 2019). Only a few have looked at their interaction . In this study we focus on whether complementarity between institutions and decentralization is instrumental for economic growth. Main questions that this study seeks to find answers to are: Does role of institutions matter to enhance economic growth through the channel of decentralization?

DATA AND METHODOLOGY

Theoretical Model

Extending the Barro’s (1990) endogenous growth model, Davoodi and Zou (1998) analyzed the impact of decentralization and economic growth. Davoodi and Zou (1998) highlighted the possibility of efficiency gains when government spending is undertaken by different tiers of government i.e. federal, subnational and local. Further, referring to the literature on institutions (North, 1990; Nawaz, 2015), the current study adds to this model by incorporating institutions. Specifically, we analyze the effect of institutions and its interaction with decentralization on economic growth.

Empirical Model and Data

We used equation (1) to analyze the relationship between decentralization, institution, and economic growth using cross country panel data.

$$git = \beta_0 + \beta_1 GE_{it} + \beta_2 FD_{ijt} + \beta_3 INS_{ikt} + \beta_4 FD_{ijt} * INS_{ikt} + \beta_5 X_{it} + u_{it} \dots \dots \dots (Eq.1)$$

Where $t(=1 \dots N)$ and $i(=1 \dots I)$, refers to the time t and country I ; as I denotes the number of the countries while N represents the time period. Similarly, the beta coefficients represent the scalar parameters including β_0 , β_1 , β_2 , β_3 , β_4 , and β_5 . The dependent variable git is the growth rate of per capita GDP for country i at time t . The explanatory variables include GE , following Nawaz (2015), which is the total government expenditure (as percentage of GDP); expresses the fiscal policy. FD_{ijt} represent the measures of decentralization (where j indicates the revenue and expenditure indicators for decentralization), INS_{ikt} represents variables for institutional quality (k indicates three main variants to proxy good institutions i.e. Government stability, Control over corruption, Democratic accountability) and lastly X indicates the vector of other important control variables explaining growth. It consists of trade openness, human capital, physical capital, inflation, growth rate of population and urbanization. U_{it} is the error term. In this model, the center of attention is the $FD*INS$, representing the interaction term. Table1 provides basic definitions for each variable along with 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)	WDI
Trade Openness	Op	Imports plus Exports (as % of GDP)	WDI
Human Capital	Hc	School enrolment, secondary (% gross)	WDI
Physical Capital	K	Gross Fixed Capital Formation (as % of GDP)	WDI
Inflation	Inf	% change in CPI (consumer price index) annual	WDI
Growth rate of population	pgr	Population growth % (annual)	WDI
Urbanization	urb	Urban population as percent of total population	WDI
Government stability	Gs	Government's ability to stay in office The proxy takes values between 0 – 12, representing very high to very low risk	ICRG
Control Over Corruption	Cc	Proxy measuring control on corruption. The proxy takes values between 0 – 6 representing very high to very low risk	ICRG
Democratic accountability	Da	Measures how responsive government is to its people. The proxy takes values between 0 – 6 representing very high to very low risk	ICRG

Data availability on decentralization is a constraint, however, in the year 2014 the World Bank launched a rich cross-country data on decentralization indicators, with observations ranging from 1972-2014 with gaps or limited coverage. We use the same dataset for the estimation of equation (1). As data for institutions in the dataset ranges from 1984 to 2012, therefore, we used the same in our analysis. Bridging these issues, we end up with 43 countries. Further, the descriptive statistics for each variable are provided in Table 2. The list of sample countries is presented at Appendix-I.

Table 2: Descriptive Statistics of Variables used in the Analysis

Variable description		Mean	Standard Deviation	Minimum	Maximum	Observations
GDP Per Capita Growth Rate (<i>git</i>)	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 (<i>decentralization_{exp}</i>)	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 (<i>decentralization_{rev}</i>)	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 (<i>ge</i>)	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 (<i>op</i>)	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 (<i>hc</i>)	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 (<i>k</i>)	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 (<i>inf</i>)	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 (<i>pgr</i>)	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 (<i>urb</i>)	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 (<i>gs</i>)	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 (<i>cc</i>)	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 (<i>da</i>)	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

Estimation Methodology

We used an unbalance panel due to missing data for the available countries. The technique that fits best with such data is the Baltagi and Wu (1999) estimation technique. The model estimates both fixed effects and random effects results. The estimator also considers the panel heteroscedasticity and the panel specific error autocorrelation. Therefore, we used the Baltagi and Wu (1999) technique for estimation.

RESULT AND DISCUSSION

Regression results for equation (1) are presented in Tables 3 and 4. The Hausman test indicates that fixed effect produces consistent estimates for our model and therefore, the same are presented in the Tables. While explaining the results, we focus on the variables of interest, whereas, the other explanatory variables are discussed at the end. We estimated two regression models for each set of decentralization and institution indicators. The first model considers these indicators separately, whereas, the second model includes their interaction terms to check the complementarities between decentralization and institution for economic growth.

Estimation Result with Government Stability

Model 1 in Table 3 presents results for expenditure decentralization proxy. Decentralization has a positive and statistically significant impact on economic growth, showing that higher level of decentralization (on the expenditure side) results in higher growth. Whereas, the effect of government stability on economic growth is also positive, indicating that government's ability to retain its office (to carry out its manifesto) will result in higher growth.

Results of Model 1 (Table 3) are according to expectations that government stability is important for the different actors in the economy. It will encourage the entrepreneurs to invest freely and confidentially without any fear of the unanticipated shift in the government's policies. Also, foreign investors prefer less uncertainty with stable government atmosphere. Hence, the current study confirms the earlier results. However, when interaction term is included in Model 2, the coefficient for interaction term unexpectedly yields negative sign although the coefficient is quite low.

Similarly, revenue decentralization also has a positive relationship with economic growth (Model 1 and 2 in Table 4). Domestic revenue-raising responsibilities of local governments are found conducive for the economic growth. Moreover, government stability also has statistically significant and positive impact on economic growth. In addition, when interaction term is included in the model, its coefficient is statistically significant and negative (Model 1 and 2 in Table 4). Thus, the result are contrary to our expectation, showing that government stability is not complementary to decentralization for enhanced economic growth in this sample.

Estimation Result with Control over Corruption

Models 3 and 4 (in Tables 3) report the empirical result of decentralization and control over corruption. Table 3 presents the expenditure decentralization with control over corruption and the results show that expenditure decentralization is positively related to the GDP growth. Similarly, control over corruption is also positively and significantly related to the GDP growth.

These findings suggest that control over corruption reflects a healthier institutional framework and scales up economic activities. When corruption is low, political bureaucratic systems generate more economic growth. Our findings are similar to Mauro, (1995) and Podobnik et al., (2008). Adding interaction term to the model of expenditure decentralization, it appears positive and significant. Given positive result is supported over argument that decentralization and control over corruption are complementary in case of expenditure decentralization. This shows that the process of decentralization is effective when control over corruption is robust. In other words, with less corrupt regime, decentralization is more effective.

Moreover, we could not get similar results for revenue decentralization models (Model 3 and 4 in Table 4). The revenue decentralization proxy has remained insignificant although control over corruption has come up with a significantly positive effect. Similarly, the result of the interaction term is positive but insignificant. In brief, overall it can be said that control over corruption is important for decentralization to affect 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			
<i>fdexp</i>	0.0525*	0.2296***	0.0566*	0.0341		0.3833***			
<i>gs</i>	0.2193*	0.7786***							
<i>fdexp*gs</i>		-0.0212***							
<i>cc</i>			0.6028**	0.4345					
<i>fdexp*cc</i>				0.0080*					
<i>da</i>					0.6750	2.3162***			
<i>fdexp*da</i>						-0.0702**			
<i>ge</i>	-1.1166***	-1.1815***	-1.1415***	-1.1343***	-1.1844***	-1.2515***			
<i>k</i>	0.3289***	0.3119***	0.3333***	0.3347***	0.3347***	0.3219***			
<i>hc</i>	0.0234	0.0227	0.0246	0.0242	0.0275	0.0148			
<i>op</i>	0.0642***	0.0636***	0.0617***	0.0612***	0.0553***	0.0529***			
<i>pgr</i>	-1.8285***	-1.9761***	-1.7992***	-1.8015***	-1.7801***	-1.8508***			
<i>inf</i>	-0.0001	-0.0084	-0.0154	-0.0156	0.0013	-0.0063			
<i>urb</i>	0.0067	0.0118	0.0139	0.0113	0.0008	-0.0401			
<i>Constant</i>	5.5672**	3.8886	4.9431**	5.3963**	5.5487**	3.6461			
<i>Total Obs.</i>	451	451	451	451	451	451			
<i>Countries</i>	43	43	43	43	43	43			
<i>Minimum Obs.</i>	1	1	1	1	1	1			
<i>Average Obs.</i>	11	11	11	11	11	11			
<i>Maximum Obs.</i>	16	16	16	16	16	16			
<i>Hausman test</i>	117.01	93.51	116.42	115.09	110.72	114.94			
<i>chi2 (P-value)</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			

legend: *p<.1; **p<.05; ***p<.01

#Fixed effects model estimated with Baltagi and Wu (1999), between cluster robust standard errors along with ARI errors

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

legend: *p<.1; **p<.05; ***p<.01

#Fixed effects model estimated with Baltagi and Wu (1999), between cluster robust standard errors along with AR1 errors

Estimation Result with Democratic Accountability

Strong democratic institutions coupled with decentralization are expected to yield positive effect on economic growth. The current study checks the role of institutions in the decentralization process (Model 5) and the interactive term of democratic accountability is also added (Model 6) at Tables 3 and 4 for expenditure decentralization and revenue decentralization, respectively. The estimation results show that expenditure decentralization has statistically significant positive impact on economic growth. Similarly, democratic accountability too has shown positive and statistically significant effects on economic growth (Model 5, Table 3).

The positive sign of democratic accountability (Model 6, Table 3) indicates that the countries with strong democratic institutions perform better. Similar results were obtained by Helliwell, (1994), Rodrik, (2000) and Nawaz (2015). Rodrik, (2000) stated that with strong democratic institutions, countries can promote economic growth by allowing stability along with accountability in the system. However, in Model 6 (having the interaction term), the coefficient of the interactive term becomes negative. Hence, the results once again are not according to the expectation.

Similarly, the revenue decentralization model (Model 5, Table 4) showed that revenue decentralization and democratic accountability (DA) have positive impact individually, though statistically insignificant. Nevertheless, with the addition of the interaction term in the model, the result seems to be different as the individual coefficient for decentralization and DA becomes positive and significant. However, the interaction term's coefficient turns negative (and statistically significant). Iimi (2005) found a similar result for the interaction of decentralization and Political freedom and concluded that decentralization and political freedom are not complementary. It is noteworthy that Iimi showed political freedom in terms of accountability.

The negative effect of democratic accountability may be interpreted in the way that excessive freedom of the people makes it hard for the local tiers to internalize the economies of scale, hence restricts their ability to optimally provide the local public goods. This indicates that when elected representatives become excessively accountable to the local population, such a situation hampers their ability for policy coordination and reduces *de facto* collaboration among the officeholders. Over-exposure of local representatives might divert their attention from service provision to countering opponents' strategies. Excessive accountability might hinder the ability of the elected local representatives to plan independently as they have to take into account various factors (like opponents' propaganda, bureaucratic delays, legal formalities). These factors delay the process of planning and execution. This explains the reason for non-complementarities between decentralization and democratic accountability.

Other Control Variables

Having discussed the variables of interest, Tables 3 and 4 also presents estimates for rest of the control variables. Regarding other control variables, an increase in public spending slows down the economic growth. Iimi, (2005) showed similar results for a major source of government expenditure i.e. tax and conclude that higher tax to GDP ratio (reflecting higher government expenditures) 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) and Davoodi and Zou, (1998) showed similar results of negative relationship between the two. Physical capital is positively associated with GDP growth rate, indicating that countries can improve their GDP growth by increasing investment in the physical capital. Iqbal *et al.* (2013) and Nawaz (2015) also presented similar impact for physical capital on the GDP growth rate. Similarly, trade openness also has positive and statistically significant relationship with economic growth. The positive relationship is because of the associated benefits evolving from the competition, economies of scale and specialization. Multiple studies showed similar positive relationship (Iqbal *et al.*, 2013). The rest of the independent variables i.e. (inflation, urbanization and human capital) remained insignificant in the analysis. Overall, the set of control variables remained consistent across different models which shows stability of the base model.

CONCLUSION AND POLICY IMPLICATIONS

In this study we examine the effect of institutions and its interaction with decentralization on growth. Decentralization improves the public provision of local public goods and services through efficient utilization of scarce resources, which result in enhanced economic growth. Institutions play a significant role in development. The current study interacted with different proxies of institutions with the decentralization to quantify effects as suggested by second-generation theories of fiscal federalism. This study used rich panel data of 43 countries, (covering the period 1984-2012) and applied Baltagi and Wu (1999) method to investigate whether decentralization (in interaction with institutions) has any growth impact.

The empirical analysis shows that decentralization has growth-enhancing effects. Decentralization (i.e. expenditure capabilities and the revenue generation capacity) results in positive externalities, due to which the per capita income of the countries increases. It can be concluded that decentralization is instrumental in promoting economic growth. Furthermore, the analysis reveals that factors such as government stability, control over corruption and democratic accountability had positive and statistically significant impact on economic growth.

Moreover, analysis reveals that decentralization is instrumental in the development process. When decentralization is complemented with better institutions (as observed with the significance of interaction term of expenditure decentralization and control over corruption), it produces positive and significant effects for the economic growth. However, non-complementarity exists between decentralization, government stability and democratic accountability. Yet, the negative effect of democratic accountability may be interpreted in the way that excessive freedom of the people makes it hard for the local tiers to optimally provide the local public goods. When elected representatives become excessively accountable to the local population, it hampers their ability for policy coordination and reduces de facto collaboration among the officeholders. Thus, over-exposure of local representatives might divert their attention from service provision to countering opponents' strategies.

Overall, decentralization and institutions both play their role in achieving enhanced economic growth, however, there is a need to bring a balance. The optimal level of decentralization, coupled with efficient institutions can enhance economic growth, even though this effect is not necessarily complemented or conditional upon each other.

POLICY RECOMMENDATIONS

Basing upon the empirical analysis, the following policies recommendations can be suggested:

- i) The internal enabling environment plays a significant role in determining the development path of the country. Therefore, countries should take benefit from the decentralization to achieve long term economic growth.
- ii) For a sustainable high rate of economic growth, the institutions play an important role, hence, their quality should be improved.
- iii) Countries should focus on the stable government and make officials accountable without compromising their ability to work so that the benefit of decentralization can be achieved. When subnational governments have adequate administrative capacity then decentralization can be effective.

REFERENCES

- Acemoglu, D., Robinson, J. A., & Woren, D. (2012). *Why nations fail: the origins of power, prosperity and poverty* (Vol. 4). New York: Crown Business.
- Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). *Reversal of fortune: Geography and institutions in the making of the modern world income distribution* (No. w8460). National bureau of economic research.
- Ahmad, I., M. Z. Arif and M. Khalid (2016). From Fiscal Decentralization to Economic Growth: The Role of Complementary Institutions in Developed and Developing Countries. *The Pakistan Development Review*, Vol. 55(4), 761-780.
- Ahmad, M., & Hall, S. G. (2012). Do institutions matter for growth? Evidence from East Asian countries. *MPRA Paper Series* No. 42158, 19:26 UTC.
- Akai, N., & Sakata, M. (2002). Fiscal decentralization contributes to economic growth: evidence from state-level cross-section data for the United States. *Journal of urban economics*, 52(1), 93-108.
- Baltagi, B. H., & Wu, P. X. (1999). Unequally spaced panel data regressions with AR (1) disturbances. *Econometric Theory*, 15(6), 814-823.
- Barro, R. J. (1990). Government spending in a simple model of endogenous growth. *Journal of Political Economy*, 98(5), 108-125.
- Baskaran, T., & Feld, L. P. (2009). Fiscal Decentralization and Economic Growth in OECD Countries Is There a Relationship?. Working Paper No, 2721.
- Bilan, Y., Vasilyeva, T., Lyeonov, S., & Bagmet, K. (2019). Institutional complementarity for social and economic development. *Business: Theory and Practice*, 20, 103-115.
- Davoodi, H., & Zou, H. F. (1998). Fiscal decentralization and economic growth: A cross-country study. *Journal of Urban economics*, 43(2), 244-257.
- Ding, Y., McQuoid, A., & Karayalcin, C. (2019). Fiscal decentralization, fiscal reform, and economic growth in china. *China Economic Review*, 53, 152-167.
- Helliwell, J. F. (1994). Empirical linkages between democracy and economic growth. *British journal of political science*, 24(02), 225-248.
- Hayek, F. A. (1945). The use of knowledge in society. *The American economic review*, 35(4), 519-530.
- ICRG (2014) International Country Risk Guide, The Political Risk Services (PRS), USA.
- Iimi, A. (2005). Decentralization and economic growth revisited: an empirical note. *Journal of Urban Economics*, 57(3), 449-461.
- Iqbal, N. (2013) Fiscal Decentralization, Macroeconomic Stability and Economic Growth (Ph.D), *Pakistan Institute of Development Economics*, Islamabad.
- Iqbal, N., Din, M. U., & Ghani, E. (2013). *Fiscal Decentralization and Economic Growth: Role of Democratic Institutions* (No. 2013: 89). Pakistan Institute of Development Economics.
- Knack, S., & Keefer, P. (1995). Institutions and economic performance: cross-country tests using alternative institutional measures. *Economics & Politics*, 7(3), 207-227.
- Kosec, K., & Mogue, T. (2018). Public goods provision in developing countries: a research agenda for New Institutional Economics. *A Research Agenda for New Institutional Economics*, 42.
- Malik, S., Mahmood-ul-Hassan, & Hussain, S. (2006). Fiscal Decentralization and Economic Growth in Pakistan. *The Pakistan Development Review*, 45(4), 845-854.
- Mauro, P., 1995. Corruption and growth. *Q. J. Econ.* 110 (3), 681-712.
- Martinez-Vazquez, J., & McNab, R. M. (2003). Fiscal decentralization and economic growth. *World development*, 31(9), 1597-1616.
- Nawaz, S. (2015). Growth effects of institutions: A disaggregated analysis. *Economic Modelling*, 45, 118-126.
- North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge university press.
- Oates, W. E. (1972) Fiscal Federalism, *New York, Harcourt Brace Jovanovich*.
- Oates, W. E. (1985). Searching for Leviathan: An empirical study. *The American Economic Review*, 75(4), 748-757.

- Oates, W. E. (1993). Fiscal decentralization and economic development. *National Tax Journal*, 46(2), 237-243.
- Oates, W. E. (1995). Comment on 'Conflicts and Dilemmas of Decentralization', by Rudolf Hommes. In *Annual World Bank Conference on Development Economics*, 351-353. Washington, DC: World Bank.
- Oates, W. E. (2005). Toward a second-generation theory of fiscal federalism. *International tax and public finance*, 12(4), 349-373.
- Olson, M. (1969). The principle of "fiscal equivalence": the division of responsibilities among different levels of government. *The American economic review*, 59(2), 479-487.
- Podobnik, B., Shao, J., Njavro, D., Ivanov, P., Stanley, H.E., 2008. Influence of corruption on economic growth rate and foreign investment. *Eur. Phys. J. B.* 63 (4), 547–550.
- Potrafke, N. (2011). Intelligence and corruption. *Economics Letters*, 114(1), 109-112.
- Rahman, Y. A., Bowo, P. A., Kusumantoro, & Pujiati, A. (2012) Fiscal Decentralization and Economic Growth: Case of Indonesia.
- Rodrik, D. (2000). Institutions for high-quality growth: what they are and how to acquire them. *Studies in Comparative International Development*, 35(3), 3-31.
- Rodrik, D., Subramanian, A., & Trebbi, F. (2004). Institutions rule: the primacy of institutions over geography and integration in economic development. *Journal of economic growth*, 9(2), 131-165.
- Sarwar, K., Afzal, M., Shafiq, M., & Rehman, H. (2013) Institutions and Economic Growth in South Asia, *Journal of Quality and Technology Management*, 9(2), 01–23.
- Tanzi, V. (1996) Fiscal Federalism and Decentralization: A Review of Some Efficiency and Macroeconomic Aspects. In *Annual World Bank Conference on Development Economics*, 295-316. Washington, DC: World Bank.
- Tiebout, C. M. (1956). A pure theory of local expenditures. *The journal of political economy*, 416-424.
- Vijayaraghavan, M., & Ward, W. A. (2001). Institutions and economic growth: empirical evidence from a cross-national analysis. *Centre for International Trade Working Paper* (1302). *Clemson University*.
- Wang, F. (2018). The Influences of Fiscal Decentralization on Economic Performance: Empirical Evidence from OECD Countries. *Prague Economic Papers*, 27(5), 606-618.
- WDI (2014) World Development Indicators, World Bank.
- Yilmaz, S. (1999). The impact of decentralization on macroeconomic performance. In *Proceedings. Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association* 251-260. National Tax Association.