

From Fiscal Decentralisation to Economic Growth: The Role of Complementary Institutions

IFTIKHAR AHMAD, MUHAMMAD ZEESHAN ARIF, and MAHMOOD KHALID

Decentralisation is theoretically expected to be a platform towards efficient provision of the local public goods and services. This is expected to boost economic growth due to efficient and effective utilisation of scarce fiscal resources. Nevertheless, the existing empirical studies present mixed results on this expected positive relationship among decentralisation and economic growth. Recently, the theories of fiscal federalism have also pressed upon the enabling environment for effective decentralisation; talking explicitly, an enabling institutional setup is required. The current study explores the complementarity between fiscal decentralisation and other institutions for stimulating growth and the study uses rich cross-country panel data for the period 1984 to 2012, covering both the developing and developed countries of the world. The results suggest that positive relationship exist between fiscal decentralisation and economic growth for the developed countries while evidence was not found in the case of developing countries. Further, it was found that fiscal decentralisation and quality institutions are complementary for economic growth.

JEL Classification: C22, H11, H77, O40

Keywords: Fiscal Decentralisation, Institutions, Economic Growth, Panel Data, unequally spaced panel data

1. INTRODUCTION

Over the past few decades, there is an increasing trend towards decentralisation. Federal system provides the working environment to both the federal and lower tiers of the government (i.e. sub-national governments) to function within their domain for the betterment of their people. The history of federalism relates back to the American state and after World War II this debate became even more popular around the world. Federalism was basically looked upon as a replacement for the Imperial system that was prevalent till early 19th century. Linking the history, 13 states of the US felt weaker to the British Empire after the World War II, hence joined hands as a federation to achieve the common goal i.e. independence from foreign occupation [Khalid (2013)]. This provided the world with a new system, where the responsibilities are shared among different tiers of government and the nation stands united.

The division of functions among different levels of government seems justified because the federal government bears the responsibility for issues that have a national

Iftikhar Ahmad <iftikhar@pide.org.pk> is Assistant Professor, Pakistan Institute of Development Economics (PIDE), Islamabad. Muhammad Zeeshan Arif is MPhil scholar, Pakistan Institute of Development Economics (PIDE), Islamabad. Mahmood Khalid <mahmood.khalid@pide.org.pk> is Research Economist, Pakistan Institute of Development Economics (PIDE), Islamabad

domain, while the lower tiers of government can focus mainly on her service provision role. Nevertheless, in many countries, the sub-national revenue sources are not sufficient to undertake the desired public services. Therefore, resource transfer from the top tier of government to lower tiers is essential for the increase in the welfare of the people at grass root level. In economic terms the national government is unable to achieve Pareto efficiency directly; instead the lower tiers of governments are the source of such efficiency because representatives are located near to their domain people and are cognizant of local preferences and needs. Thus decentralisation facilitates efficient resource allocation, thus leading to much bigger local participation, faster market development and this in turn improves economic growth.

Studying the literature of fiscal decentralisation, it is built on two important assumptions: (1) local governments are better placed than the national government to deliver community services as a result of information advantages regarding local preferences; through this, decentralisation will enhance economic efficiency (2) competition and population mobility among local governments in favour of better community services will ensure the convergence of preferences of local communities [Tiebout (1956)].

In terms of the First Generation (FG) Theory of fiscal decentralisation, it can enhance economic performance by ensuring economic proficiency regarding delivery of public services. These theories are based on different assumptions which favour local government for an optimal public financial system. The one presented by Hayek (1945) states that local government is in the better position to match the preferences of the local citizen. Similarly the idea of stabilisation, redistribution of income and efficient provision of public good has been given by Musgrave (1959). On the other hand, Olson (1969) gave the concept of "Fiscal Equivalence" in the process of fiscal decentralisation. Making a significant contribution, Oates (1972) supported the argument that the subnational government is in the position to deliver goods and services to local community according to their preferences. Hence, the FG theories discuss the positive implication of decentralisation and suggest that it will further enhance competition, efficiency and resultantly will promote economic growth.

Nevertheless, existing empirical studies present mixed effects of fiscal decentralisation (FD) on economic growth both in developing and developed countries. There are a number of studies indicating a positive relation between FD and economic growth [Martinez-Vazquez and McNab (2003); Malik, *et al.* (2006); Oates (1993); Oates (1995); Yilmaz (1999) and Thiessen (2003)] *inter alia*. Still there are many studies which have found insignificant or in certain cases even negative relationship between FD and economic growth.¹

However, this gap between the theoretical and empirical results can still be explained from the literature. The SG theories are the extension of the FG theories of fiscal federalism that focus on the behaviour of the political agents in the political process. This work required to model the political institutions within the theories of fiscal decentralisation and also expands the literature on the problem like the asymmetric information, incentives and limitations of political processes [Vo. (2009)]. SG theories

¹See for example Oates (1972); Oates (1985); Davoodi and Zou (1998); Baskaran and Feld (2009); Akai and Sakata (2002); Rahman, *et al.* (2012); Tanzi (1996).

also focused on many economic rationales like principal-agent problem, theory of contract, theory of firms [Oates (2005)]. Thus the SG theories explain that difference in results can emerge for even a similar policy undertaken in different political scenarios.

Further, there is a need to examine the role of relevant institutions and the presence of asymmetric information related to the success of the decentralisation process. Hence, well-managed institutions are the major policy handles through which decentralisation can influence long run economic growth objectives. In the words of Acemoglu and 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”. Though, talking specifically of institutions; plethora of literature on the institutional mechanism is available that tried to explore the direct relationship between institutions and economic growth.² Yet very few studies have linked institutions with decentralisation and thus this study will make a contribution to the literature in this context.

1.1. Motivation of the Study

There is huge literature available on the fiscal decentralisation, as well as institutions for their impact on economic growth, only a few studies³ have looked at their interaction and the corresponding impact on economic growth. Thus there is a need to analyse the situation for the fact that whether it is the ‘fiscal decentralisation’ or ‘institutions’ in isolation for considering the impact on the economic growth or these are complements to each other. Hence, there is need to contribute to the existing literature by providing evidence about the role of institutions in the effectiveness of the fiscal decentralisation process.

This study tries to explore the effectiveness of fiscal decentralisation, while relating it to the quality of institutions. Main questions that this study seeks to find answers are: Does fiscal decentralisation attains the objective of enhancing economic growth? Does the role of complementary institutions matter to enhance the economic growth of the country? Does incorporating the role of other institutions into the model help us find explanation for otherwise unexpected results?

Overall, the contribution of this study is in finding out the empirical relationship regarding the effectiveness of fiscal decentralisation considering the role of other⁴ complementary institutions in developing and developed countries. Complementary institution, i.e. quality of governance is considered for this study and two proxies including “control over corruption” and “democratic accountability” are used to represent it. This study targets to find out that whether or not the differences in institutional quality 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 complementary institution in achieving higher economic growth.

²See for example Acemoglu, *et al.* (2006); Rodrik, *et al.* (2004); Sarwar, *et al.* (2013); Vijayaraghavan and Ward; Kalonda, *et al.* (2014); Potrafke (2011); Knack and Keefer (1995); Nawaz (2015); Ahmad and Hall (2012).

³Like, 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 decentralisation are complementary.

⁴Because decentralised set up, too, represent a specific institution.

Specifically, the objectives of this study are:

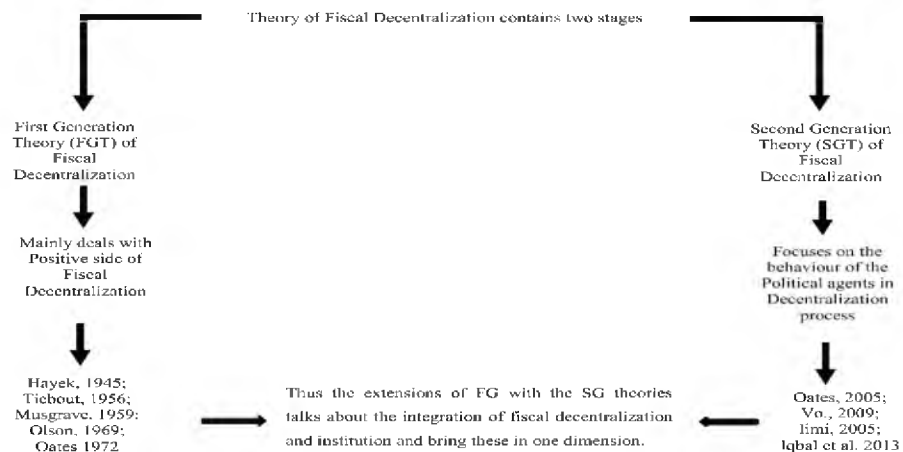
- (i) To investigate the relationships between the fiscal decentralisation and economic growth using the recently available rich cross country panel data.⁵
- (ii) To analyse the role of complementary institutions in materialising the link between fiscal decentralisation and economic growth.

This study improves onto the existing literature by analysing the role of institutions in the effectiveness of fiscal decentralisation, which, ultimately is believed to lead towards economic growth. Current study takes benefit from World Bank's panel data regarding the fiscal decentralisation indicators that is recently made available. Given study is based upon the endogenous growth model and used appropriate econometric technique like Baltagi and Wu (1999) that especially deals with unequally spaced panel data. In addition, this study also yield some policy suggestions on the basis of the results analysing that whether fiscal decentralisation and quality of governance are complementary so as to bring better economic growth.

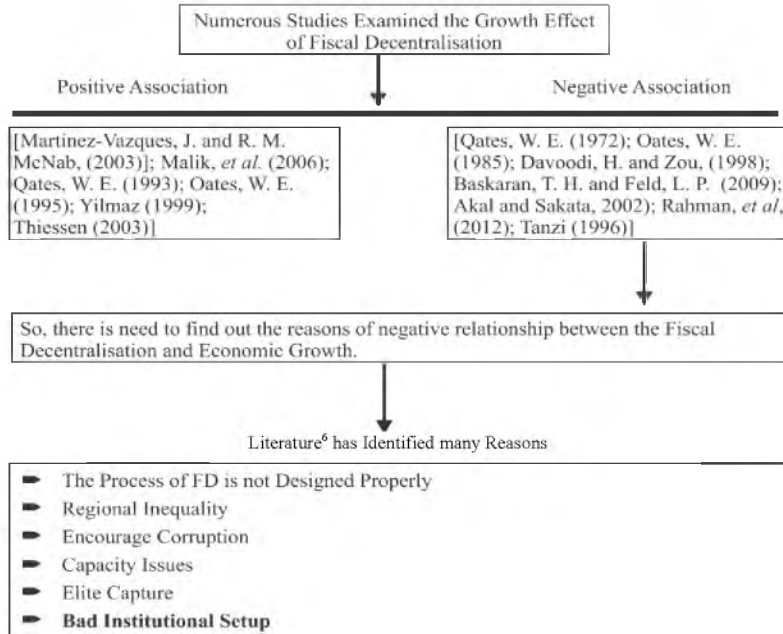
The rest of the paper is organised as follows: Section 2 summarises the literature concerned with the growth effect of Fiscal Decentralisation and Institutions. The 3rd section of this study presents the theoretical link. Section 4 contains econometric model, empirical methodology and data. Section 5 includes result and discussion, while, Section 6 contains conclusion of the study and presents the major policy implications.

2. LITERATURE REVIEW

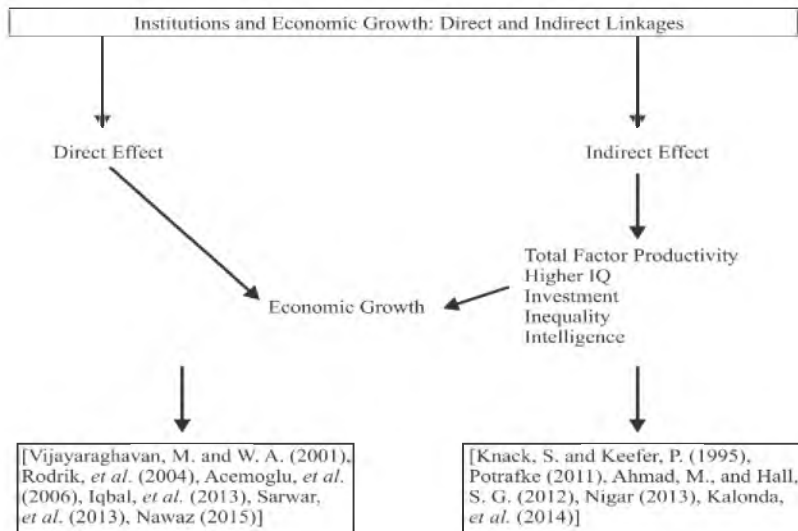
In recent decades, the rapid rise in the sovereignty and responsibilities of sub-national government tiers are one of the most notable trends in governance, especially in emerging and transition economies. There is decent literature available examining the growth effects for different countries emerging through fiscal decentralisation. The overtime development suggested in the literature can be summarised in figure as below:



⁵The previous version of the GFS was contained the data from 1972 to 2012 but current study is using rich cross country data from the period 1972 to 2014. As this study incorporates institutions and the data on institutions is available from 1984 to 2012 for this reason current study is using same time period.



All these risks are discussed in the Second Generation Theories (SG) of fiscal federalism that has emerged as the sufficient condition for the success of fiscal decentralisation process. It is obvious that Institutions play vital role on the domestic economic environment ensuring political stability, high stock of social capital, protection of property rights, well-organised judiciary system, low risk of expropriation [Jutting (2003)]. So the body of literature determined the economic growth-institutions nexus directly and indirectly.



⁶[Oates, W. E (1972); Oates, W. E (1985); Davoodi, H. and H. Zou (1998); Baskaran, T. H. and Feld, L. P. (2009); Akai and Sakata (2002); Rahman, et al. (2012); Tanzi (1996); Iqbal, et al. (2013)].

On the basis of presented literature review, this section come up with the conclusion that the under lying causes of the weak or no relationship between FD and economic growth are imbedded in weak economic, cultural, geographical and institutional setup. Hence, one of the major constraints in the FD process to promote economic growth is weak institutions. Without effective institutions, growth process of the country is difficult to run in the way desired. Therefore, current study incorporates institutions in the growth enhancing process of the fiscal decentralisation and tries to fill the missing gap.

3. THEORETICAL MODEL

The discussion in the previous section shows that the fiscal decentralisation and economic growth nexus needs more effort to get explained. The growth effect of fiscal decentralisation can realise from both the direct and indirect channels. So, on the basis of the previous section, a theoretical model is developed here to conceptualise the relationship between the fiscal decentralisation and economic growth, incorporating the role of complementary institutions in the process.

3.1. Decentralisation Categories

Decentralisation is the process of transfer of authorities and responsibilities from national to sub-national government. According to the definition, there are three categories of decentralisation.

(i) Political decentralisation, (ii) Administrative decentralisation, (iii) Fiscal decentralisation

Political decentralisation is how opinion of citizens is unified into policy decision, and how civil society can hold powers and officials to account at the different levels of the government. Similarly, administrative decentralisation is how responsibilities and authorities for policies and decisions are shared among different level of the government. While, fiscal decentralisation is how expenditure, revenues and borrowing shared among different level of the government. To keep the comparison with other studies simple, this study uses the 3rd definition namely fiscal decentralisation and theoretical model is presented as below.

3.2. Theoretical Explanation

In this study, endogenous growth model has been used to capture the impact of fiscal decentralisation and economic growth. Davoodi and Zou (1998) explained how fiscal decentralisation can be instrumental for economic growth. By using the same model, the said study extended Barro'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 decentralisation is defined as the ratio of spending by the subnational government to total government spending i.e. Fiscal decentralisation increases if spending by state and local government rises relative to spending by the federal government [Davoodi and Zou (1998)]. Current study further extends the Davoodi and Zou (1998) model by including other institutions in the productions function, assuming that fiscal decentralisation and institutions are complementary. If institutional quality is better than the process of fiscal decentralisation can be effective and ultimately promote growth.

4. EMPIRICAL METHODOLOGY AND DATA

The objective of this section is to design the econometric model which is based on the theoretical model. Moreover, an empirical methodology is used to test the hypotheses of the model developed to examine the relationship between fiscal decentralisation and economic growth.

4.1. Estimation Model

The relationship between fiscal decentralisation and economic growth elaborated in the last section helps us to develop the empirical version of the model. It is noteworthy that the contribution of this study is that it introduces institutional quality to the Davoodi and Zou (1998) model in judging the enabling environment for fiscal decentralisation for it being effective. The main assumption of this study is that without the role of institution, the benefits of the fiscal decentralisation will remain limited. So, to capture the true impact of fiscal decentralisation, this study will incorporate the quality institutions playing a complementary role in the process of fiscal decentralisation using data from developed and developing countries.

It is important to note here that Iimi (2005) have used this framework by using the interactive term of fiscal decentralisation and political freedom in the model. This study will instead use the two main variants of the existence of good institutions (i.e. Control over corruption, Democratic accountability) and accordingly their interaction term with fiscal decentralisation will be considered to analyse the effectiveness of fiscal decentralisation for better economic growth. The empirical equation to analyse the model for fiscal decentralisation, institution and economic growth can be defined as:

$$g_{it} = \beta_0 + \beta_1 GE_{it} + \beta_2 FD_{it} + \beta_3 INS_{ikt} + \beta_4 FD_{it} * INS_{ikt} + \beta_5 X_{it} + u_{it} \quad \dots \quad (4.1)$$

Where i ($=1 \dots I$) and t ($=1 \dots N$) refers to the country i at time t ; I denotes the number of the countries while N represents the time period; β_0 , β_1 , β_2 , β_3 , β_4 and β_5 are the scalar parameters; g_{it} is the GDP per capita growth rate for country i at time t , GE is the government expenditure as percentage of GDP. FD_{it} represent the measures of fiscal decentralisation, INS_{ikt} represents variables for institutional quality (k indicates the above mentioned two distinct variables) and lastly X indicates the vector of other key 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 urbanisation*. 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 decentralisation and institution are complementary. So, this study ends up with given equation for the analysis. Further, the control variables included in this model are those that have been used in the literature as identified by Mankiw, *et al.* (1992), Levine and Renelt (1992), Barro and Lee (1996) Nawaz (2015) Martinez-Vazquez and McNab (2001).

Table 4.1 provides basic definitions for each variable alongside the sources of data. While expected relationship of explanatory variables with economic growth are elaborated in Section 4.2.

4.2. Relationship of Explanatory Variables with Economic Growth

Fiscal Decentralisation

In this current study, our main variable of interest is fiscal decentralisation. When policy regarding the resource allocation is better it will positively affect the GDP per capita. Current study has used Expenditure approach (ED) to measure fiscal decentralisation which is captured as a ratio of sub-national government share of expenditure to total government expenditure (national plus sub-national). This indicator has been used in multiple studies to quantify the effect of FD.⁷

Government Expenditure

Government expenditure is the basic explanatory variable of the FD model. Government expenditure is measured as the percentage of GDP and the expected sign is positive.

Institutional Quality

Institutional quality is expected to positively affect economic growth. This is our main variable and it is considered as the powerful tool behind the economic growth. Better institutional quality helps the country to catch the path of the economic development. Current study used two proxies to capture the true picture of institutional quality. These proxies are 'control over corruption' and 'democratic accountability'. Multiple studies have found and confirmed the positive relationship.⁸ Jointly these proxies are expected to give us an appropriate environment for growth and stability of the country.

FD*INS

The interaction term will show the complementarity between the institutions, and FD. FD, if combined with better institutions is expected to deliver better results and hence the interaction term will capture the effect of this interaction on the economic growth. However the positive relationship depends both on FD and IQ measures. If institutional quality is low it will worsen the impact on the economic growth and vice versa. On the other side, due to the issues in the FD, economic growth may not get improved. Therefore, it is necessary to look at the interaction / joint impact of (FD x INS) on the economic growth.

The vector X_{it} consists of a set of independent variables which is identified by many authors⁹ as the important control variables for the cross country growth regression.

Inflation

Inflation can bring both the negative and positive influence on the economic growth. There are two schools of thought on the relationship between inflation and economic growth. One argues that there is negative relationship between the two on the basis of Real Business Cycle (RBC) theories. Kydland and Prescott (1990) argued that supply shocks are responsible for the negative relationship rather the demand shocks and

⁷See for example Davoodi and Zou (1998); Iimi (2005); Rodríguez-pose and Kroijer (2009).

⁸See for example Acemoglu, *et al.* (2004); Hall and Jones (1999); Knack and Keefer (1995); Rodrik, *et al.* (2004); Nawaz (2015); Nigar (2013).

⁹See for example Levine and Renelt (1992); Davoodi and Zou (1998); Iimi (2005); Iqbal, *et al.* (2013); Nawaz (2015); Martínez-Vázquez and McNab (2001).

argued that after the certain threshold level, inflation is harmful for the growth. While the other school of thought, argues that inflation can influence positive on the economic growth the said positive relationship is based on the Philips curve [see e.g. Paul, *et al.* (1997) and Mallik and Chowdhury (2001)]. So, the study will reveal whether inflation causes positive or negative effect on the economic growth.

Human Capital

Human capital is measured by using secondary school enrolment gross percentage without using age and gender configuration and expected sign of the human capital is positive.

Physical Capital

Physical capital is measured by gross fixed capital formation as percentage of GDP and expected sign is positive. Thus, the physical capital promotes economic growth.

Table 4.1

Variables Names, Definition and Sources of Data

Variable	Names	Definition	Source
Dependent Variable	g_a	GDP per capita growth rate (annual %)	World Development Indicator (WDI)
List of independent Variable			
Expenditure Decentralisation Government Expenditure	fd_{exp}	Percentage of Sub-National Expenditure/ Expenditure(National plus sub-national)	Total IMF- Government Financial Statistics
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)
Urbanisation	urb	Urban population as % of total	World Development Indicator (WDI)
Control Over Corruption	Cc	<i>"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</i>	PRS Group International Country Risk Guide (ICRG)
Democratic accountability	Da	<i>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</i>	PRS Group International Country Risk Guide (ICRG)

Openness

Trade openness is defined as the total trade (i.e. sum of the Import and Export) as percentage of GDP and it is expected that due to the trade openness economic growth will stimulate.

Urbanisation

Urban population enjoy better infrastructure and facilities as compared to rural population. Urbanisation is defined as the urban population as percentage total population and it is expected to have positive effect on the GDP growth rate per capita.

Population Growth Rate

Population growth rate is also used in the regression equation to find its effects on the GDP growth.

4.3. Data

For the sample selection at cross country level, data availability played an important role. In year 2014 the World Bank launched a rich cross country data of the fiscal decentralisation indicators providing observations from 1972-2014; however, the data coverage is not universal. However, as discussed earlier, this study also incorporates institutions in the process of the FD as suggested by the SG theory of fiscal federalism. But the data for institutions is available for countries ranging from 1984 to 2012 therefore, the same data range to be used for this study's. On the progressive sideway, the availability of new rich cross country panel data provides a chance to outspread research on this topic and helps in re-estimating the evidence with upgraded data.

The updated fiscal decentralisation dataset gives the information for 96 countries. However, due to the unavailability of data for other indicators, current study end up with 43 countries which includes 29 developed counties and 14 developing countries. The list of the sample countries included in the Table A1, at Appendix. The sample countries are not the same but nearly similar to that used by the prior studies [Davoodi and Zou (1998); Iimi (2005)]. Current study combined the two groups (lower middle income and upper middle income) countries into one sub-group i.e. "Developing Countries". The other group contained the High income OECD countries refer to as "Developed Countries".

This study has used unbalanced panel data set because for some countries there were gaps within the series. The main variable (i.e. Fiscal Decentralisation) has gaps within the series, though rest of the indicators are complete/balanced including the dependent variable. Missing values within the fiscal decentralisation indicator leaves us with the unbalanced panel data. The data sources for variables are the World development indicators published by the World Bank. To measure the quality of institution, this study uses different indicators of the institution from the ICRG data set and Government Financial Statistics (GFS).

4.4. Estimation Methodology

Using extensive data set for this study have both benefits and risks. Benefits can be mentioned as the rich and improved data coverage across the countries and time while

issue can be highlighted as the missing observations in the series resulting in unbalanced panel for available countries. Moreover, the differences exist in the countries due to level of; basic infrastructure, development, endowments, public preferences, governance etc. However, panel data methodology is able to cater with these kinds of issues and is used universally to conduct the policy analyses.

There are number of the estimation methods available to calculate the panel data sets which can handle the cross country heterogeneity. As highlighted by Akai and Sakata (2002), a critical problem with panel data is that it is difficult to measure the cultural and institutional differences among countries. Evidently, high income countries have higher degree of development and governance than low income countries while growth rate in developed countries is also relatively high as compare to developing countries. What is right between “Fixed effect” and “Random effect” model, the Hausman Specification Test was conducted and the evidence suggested that result of fixed effects model is consistent and efficient. So, the current study uses “Fixed effect” to capture the individual cross country differences.

There are many methods with balanced panel to capture the growth effect of fiscal decentralisation with different scenario but based on the given information 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 for the analysis. The Baltagi and Wu (1999) method is specially designed for the unbalanced panel. This method can give better results when disturbance term is first order autoregressive and can estimate both the fixed effects and random effects models. The estimator also account for the panel heteroscedasticity and for the panel specific error autocorrelation. Therefore, the Baltagi and Wu (1999) model suites this data set the best.

5. RESULTS AND DISCUSSION

Empirical results for the estimation of the different institutional indicators and fiscal decentralisation measures on the GDP per capita growth rate are shown in the Tables 5.1 and 5.2. The discussion about the Baltagi and Wu (1999) models with FE and AR 1 disturbance are in more detail below.

5.1. Fixed Effect Estimation Result

The results for the effect of the Fiscal Decentralisation indicator with institutions indicators on the economic growth are 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 models 1, 3 include two indicators (FD and Institutions) separately while the others models 2, 4 include the relevant interaction terms to check the complementarities between the two for economic growth.

5.1.1. Estimation Result with Control over Corruption

Tables (5.1) and (5.2) report the empirical result of the Fiscal decentralisation with control over corruption on the economic growth. The impact of the fiscal decentralisation on the economic growth is captured by using FD measure both on developing and developed communities. Empirical evidence in Table (5.1) presents the expenditure

decentralisation with control over corruption. Result showed that expenditure decentralisation as well as control over corruption is positively and significantly related with the growth rate of per capita GDP in developed countries.

The findings suggest that control over corruption i.e. better institutional framework scales up the economic events. When the corruption is minimum, the political and bureaucratic system helps in economic growth. Our findings are in conformity with the literature e.g. Mauro, (1995) and Podobnik, *et al.* (2008). Adding interaction term in model 2 of expenditure decentralisation, the coefficient of this interaction term has positive and significant effect. This indication is in the favour of the developed countries and also supported the proposition that fiscal decentralisation and control over corruption are complementary. This shows that the process of fiscal decentralisation is effective when control over corruption is high in the economies.

Talking about the developing countries, the results seem different. Expenditure decentralisation has significantly negative impact on the EG. This negative association implies that the expenditure decentralisation has growth retarding impact in the developing countries. This result is divergent to what was expected from the expenditure decentralisation theory. However, Davoodi and Zou (1998) found similar results for the emerging economies. Control over corruption indicator shows the positive and significant result on the economic growth separately. By adding, the interaction term in the model 2, Table (5.2), show that there is negative association between the interaction term and economic growth. This negative association tells us that in the developing expenditure decentralisation and control over corruption are not complementary and not helping each other. The reason of this negative relationship is that the developing countries have less control over corruption and officials are involved in the rent seeking activities.

5.1.2. Estimation Result with Democratic Accountability

With strong democratic institutions, fiscal decentralisation can positively affect the economic growth. Current study find the interactive term of FD with democratic accountability. The estimation results indicate that expenditure decentralisation has positive and significant impact on the economic growth for the developed countries. Democratic accountability also showed positive and significant association with the growth rate of per capita GDP in Table 5.1, model 3 and 4. This positive result indicates that those countries with strong democratic institutions are performing well. Helliwell, (1994), Nawaz (2015) and Rodrik, (2000) have found same result as this study found. Rodrik, (2000) argued that presence of strong democratic institutions the countries can stimulate economic growth by allowing accountability and stability in the system. However, the coefficient of the interactive term shows negative result when added the interaction term in the model. Therefore, the result is not supportive of the expectation that democratic accountability as being significantly complementary in catalysing the growth effect of fiscal decentralisation.

The estimation result for the developing countries in the expenditure decentralisation model 3 showed that expenditure decentralisation and democratic accountability have negative and significant association with the economic growth rate, without adding the interaction term in the model. With the weak democratic institutions, the officials and the politicians have lesser checks on their authority and through this

these officials and politicians can easily engage in the rent seeking activities. By addition the interaction term of FD and DA in the model 4 the result seems to be different. The coefficient of the interaction term becomes negative and insignificant.

5.1.3. Reasons of the negative effect of the Expenditure Decentralisation and Democratic Accountability on the Economic Growth

The reasons of the negative sign of the expenditure decentralisation are that in the developing countries the provincial governments allocates excessive amount to the current expenditure instead of the capital and infrastructure outlay. Secondly, the decision of the provincial government about the spending does not always ensure efficiency and this result in unproductive outcomes. Third, there is the lack of the commitment in the both the governments (national and sub-national) about the expenditure. Fourth, provincial governments may have inefficient policies about the administrative training programs and also lack of the appropriate physical and human resources. Fifth, inappropriate revenue transfer is carried out among sub-national tiers of the government by using the central government tax instrument. Finally, the sub-national tiers of the governments have lack of the institutional infrastructure and they often lack the institutional setup to control corruption, ensure accountability and rent seeking activities which negatively impacts the economic growth.

There are other angles of the analysis as well. The negative effect of the democratic accountability can be interpreted as the excessive liberty of the people makes it harder for the sub-national tiers to internalise the economies of scale in local public goods provisions. Further, the elected office-holders are more accountable for the local population; this might hamper the policy coordination and collaboration among the office holders. Iimi (2005) found similar result of interaction of FD and Political freedom and concluded that FD and political freedom are not complementary. It is noteworthy that Iimi (2005) showed the political freedom in term of accountability. This is the reason of the non-complementarity between the fiscal decentralisation and democratic accountability.

After discussing the main variables of concern, the other control variables are also explained here. An increase in the public spending slows the economic growth both in developed and emerging economies. Iimi, (2005) showed similar result with tax to GDP ratio and conclude that higher tax to GDP ratio slows down the economic growth. Moreover, it is showed in the basic growth theory that higher population leads to lower GDP growth rate of per capita. So, current study also showed negative impact of the population growth rate on GDP per capita growth rate for the developed countries. Mahyudin and Hall (2012), Iimi (2005) and Davoodi and Zou, (1998) showed same result of negative relationship between the two. Physical capital is positively associated with growth rate of per capita. The current study also showed positive result between physical capital and GDP growth rate of per capita in the developed communities, implying that the countries can increase GDP per capita growth rate by investing more in the physical capital. Iqbal, *et al.* (2013) and Nawaz (2015) also presented similar impact on the GDP growth rate of per capita. For the developing countries, physical capital has negative significant impact on the growth rate per capita. This is the indication that the developing countries have less attention on the physical capital. The trade openness has significant

and positive impact on the economic growth rate per capita implying that trade is beneficial for the economies. This positive relation is associated with the benefits evolving from competition, economies of scale and specialisation. Multiple studies provided same result of this positive relationship [Iqbal, *et al.* (2013), Iqbal and Zaid (1998)]. Human capital is the determinant of the economic growth and theoretically have positive association between the two but current study found significant negative relationship between human capital and economic growth in the developing countries and insignificant for the developed countries. Rest of the independent variables i.e. (inflation and urbanisation) were found insignificant result.

Table 5.1
Result for the Effect of Fiscal Decentralisation on Economic
Growth in Developed Countries

Dependent Variable: GDP per capita Growth Rate (annual %) Variables	Control Over Corruption		Democratic Accountability	
	Model 1	Model 2	Model 3	Model 4
<i>Fdexp</i>	0.0719*	0.0063**	0.0531	0.7982***
<i>Cc</i>	0.3634*	0.1070*		
<i>fdexp*cc</i>		0.0221*		
<i>Da</i>			0.8732*	3.7915***
<i>fdexp*da</i>				-0.1265***
<i>Ge</i>	-1.0116***	-1.0086***	-1.0751***	-1.1874***
<i>K</i>	0.4225***	0.4337***	0.4197***	0.3396***
<i>Op</i>	0.0569***	0.0575***	0.0494***	0.0439***
<i>Pgr</i>	-2.4752***	-2.4749***	-2.5203***	-2.4842***
<i>Hc</i>	0.0265	0.0258	0.0253	0.0062
<i>Inf</i>	-0.0303	-0.0300	-0.0162	-0.0393
<i>Urb</i>	-0.0429	-0.0415	-0.0543	-0.1493*
<i>Constant</i>	5.5091**	6.5693**	5.3302**	0.4894
<i>Total Obs.</i>	376	376	376	376
<i>Countries</i>	29	29	29	29
<i>Minimum Obs.</i>	5	5	5	5
<i>Average Obs.</i>	12.9655	12.9655	12.9655	12.9655
<i>Maximum Obs.</i>	16	16	16	16
<i>R-Square</i>	0.32	0.33	0.33	0.34
<i>Hausman test</i>	100.40	113.83	130.46	143.73
<i>chi2 (P-value)</i>	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.

Table 5.2
Result for the Effect of Fiscal Decentralisation on Economic
Growth in Developing Countries

Dependent Variable: GDP per capita Growth Rate (%)	Control Over Corruption		Democratic Accountability	
	Model 1	Model 2	Model 3	Model 4
<i>Fdexp</i>	0.0244	-0.6662**	-0.0003*	0.0362
<i>Cc</i>	0.9680**	0.0856***		
<i>fdexp*cc</i>		-0.2344*		
<i>Da</i>			-3.4498*	-3.2422
<i>fdexp*da</i>				-0.0081
<i>Ge</i>	-1.8286***	-1.7658***	-1.9840***	-1.9939***
<i>K</i>	0.0661	0.0267	-0.1213*	-0.1207*
<i>Op</i>	0.1553**	0.1641**	0.1815**	0.1825**
<i>Pgr</i>	-2.2528	-3.1478	-1.3791	-1.3862
<i>Hc</i>	-0.1433	-0.1316	-0.3360**	-0.3359**
<i>Inf</i>	-0.1928	-0.1899	-0.0256	-0.0314
<i>Urb</i>	-0.1535	-0.1803	0.6661	0.6495
<i>Constant</i>	30.1426	13.9130	25.0961*	25.2585*
<i>Total Obs.</i>	75	75	75	75
<i>Countries</i>	14	14	14	14
<i>Minimum Obs.</i>	1	1	1	1
<i>Average Obs.</i>	6.25	6.25	6.25	6.25
<i>Maximum Obs.</i>	12	12	12	12
<i>R-Square</i>	0.39	0.41	0.37	0.37
<i>Hausman test</i>	21.88	25.65	18.35	15.25
<i>chi2 (P-value)</i>	0.0093	0.0042	0.0313	0.0844
		legend: *	*p<.1; **p<.05; ***p<.01	

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

6. CONCLUSION AND POLICY IMPLICATIONS

The relationship between the fiscal decentralisation and economic growth has significant consideration from the previous years. Multiple studies have shown positive as well as negative impact of the fiscal decentralisation on the economic growth. Therefore, current study examined the growth effect of fiscal by using endogenous growth model.

Institutions plays significant role in the way of development corridor. Thus, current study incorporates different institutional measures in the process of fiscal decentralisation as suggested by SG theories of fiscal federalism and these measures are: control over corruption and democratic accountability. Current study used rich cross country panel data of 43 countries including 29 developed and 14 developing countries over the period 1984-2012, using unbalanced panel method given by Baltagi and Wu (1999) to investigate whether fiscal decentralisation has any growth impact and whether fiscal decentralisation and institutions are complementary.

The empirical examination shows that expenditure decentralisation is growth enhancing for the developed country but has no effect for the developing world. Decentralisation in responsibilities creates positive externalities and due to this positive externalities per capita income of the countries increases. It is concluded that fiscal decentralisation are instrumental in promoting economic growth for the developed countries. Furthermore, the analysis reveals that the impact of control over corruption on the economic growth is significantly positive both for the transition and developed economies while democratic accountability has positive association with economic growth for the developed countries and support for the growth enhancing strategies but not for the developing countries.

Moreover, analysis shows that the process of fiscal decentralisation effective in the development process if it is complemented with institutions. Therefore, it is showed that the control over corruption and fiscal decentralisation both are complementary for the developed countries not for the developing countries and non-complementarity exists between fiscal decentralisation and democratic accountability.

Furthermore, current study want to draw attention for the policy implication and the policy implication are: First, Developing countries should allocate excessive amount to the development and infrastructure project instead of the current expenditure. Therefore, the benefit of the fiscal decentralisation can achieve for the long term economic growth. Secondly, for the high and sustainable development of the developing the institutional quality needs to be strengthened. Thirdly, countries should make officials accountable without bargaining their ability to work and should focus on attention for the stable government policies. Fourth, Developing countries should specially focus on the corruption and should take step to control over corruption. Fifth, developing countries should broaden the tax base, due to this the capacity of revenue generation increase and it will also help to increase the documentation process in the country.

APPENDIX

Table-A1

List of Sample Countries

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

REFERENCES

- Acemoglu, D., J. A. Robinson, and D. Woren (2012) *Why Nations Fail: The Origins of Power, Prosperity and Poverty* (Vol. 4). New York: Crown Business.
- Acemoglu, D., S. Johnson, and J. A. Robinson (2000) *The Colonial Origins of Comparative Development: An Empirical Investigation* (No. w7771). National Bureau of Economic Research.
- Acemoglu, D., S. Johnson, and J. A. Robinson (2001) *Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution* (No. w8460). National Bureau of Economic Research.
- Ahmad, M. and S. G. Hall (2012) Do Institutions Matter for Growth? Evidence from East Asian Countries. (MPRA Paper Series No. 42158). 19:26 UTC.
- Aisen, A. and F. J. Veiga (2013) How Does Political Instability Affect Economic Growth? *European Journal of Political Economy* 29, 151–167.
- 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* 52:1, 93–108.

- Baltagi, B. H. and P. X. Wu (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. and L. P. Feld (2009) Fiscal Decentralisation and Economic Growth in OECD Countries Is There a Relationship? (Working Paper No. 2721).
- Cutler, D., D. Acemoglu, and A. Finkelstein (2006) Did Medicare Induce Pharmaceutical Innovation? *American Economic Review* 96:2, 103-107.
- Davoodi, H. and H. F. Zou (1998) Fiscal Decentralisation and Economic Growth: A Cross-country Study. *Journal of Urban Economics* 43:2, 244-257.
- De Mello, L. R. (2000) Fiscal Decentralisation and Intergovernmental Fiscal Relations: A Cross-country Analysis. *World Development* 28:2, 365-380.
- Feld, L. P. and T. Dede (2005) Fiscal Federalism and Economic Growth: Cross-country Evidence for OECD Countries. In EPCS 2005 Conference.
- Geoffrey, B. and J. M. Buchanan (1980) *The Power to Tax: Analytical Foundations of a Fiscal Constitution*. Cambridge University Press.
- Hayek, F. A. (1945) The Use of Knowledge in Society. *The American Economic Review* 35:4, 519-530.
- Helliwell, J. F. (1994) Empirical Linkages between Democracy and Economic Growth. *British Journal of Political Science* 24:02, 225-248.
- ICRG (2014) International Country Risk Guide, The Political Risk Services (PRS), USA.
- Iimi, A. (2005) Decentralisation and Economic Growth Revisited: An Empirical Note. *Journal of Urban Economics* 57:3, 449-461.
- International Monetary Fund (n.d.) Government Finance Statistics, Washington, DC
- Iqbal, N. (2013) Fiscal Decentralisation, Macroeconomic Stability and Economic Growth (PhD). Pakistan Institute of Development Economics, Islamabad.
- Iqbal, N., M. U. Din, and E. Ghani (2013) Fiscal Decentralisation and Economic Growth: Role of Democratic Institutions. Pakistan Institute of Development Economics, Islamabad. (No. 2013: 89).
- Johannes, J. (2003) Institutions and Development: A Critical Review. OCDE, Centre de développement, WP, 210.
- Kanyama, I. K. (2014) Quality of Institutions: Does Intelligence Matter? *Intelligence* 42, 44-52.
- Khalid, I. (2013) Politics of Federalism in Pakistan: Problems and Prospects. *South Asian Studies* 28:1, 199.
- Knack, S. and P. Keefer (1995) Institutions and Economic Performance: Cross-country Tests Using Alternative Institutional Measures. *Economics and Politics* 7:3, 207-227.
- 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., Mahmood-ul-Hassan, and S. Hussain (2006) Fiscal Decentralisation and Economic Growth in Pakistan. *The Pakistan Development Review* 45:4, 845-854.
- Mallik, G. and A. Chowdhury (2001) Inflation and Economic Growth: Evidence from four South Asian Countries. *Asia-Pacific Development Journal* 8:1, 123-135.

- Martinez-Vazquez, J. and R. M. McNab (2001) Cross-Country Evidence on the Relationship between Fiscal Decentralisation, Inflation, and Growth. In Proceedings. Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association, 42–47.
- Martinez-Vazquez, J. and R. M. McNab (2003) Fiscal Decentralisation and Economic Growth. *World Development* 31:9, 1597–1616.
- Mauro, P. (1995) Corruption and Growth. *Q. J. Econ.* 110:3, 681–712.
- Mugrave, R. A. (1959) *The Theory of Public Finance: A Study in Public Economy*. London and New York: McGraw-Hill.
- Nawaz, S. (2015) Growth Effects of Institutions: A Disaggregated Analysis. *Economic Modelling* 45, 118–126.
- Neyapti, B. (2004) Fiscal Decentralisation, Central Bank Independence and Inflation: A Panel Investigation. *Economics Letters* 82:2, 227–230.
- Nigar, N. (2013) The Composite Impact of Institutional Quality and Inequality on Economic Growth (MPhil). Pakistan Institute of Development Economics, Islamabad.
- 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 Decentralisation and Economic Development. *National Tax Journal* 46:2, 237–243.
- Oates, W. E. (1995) Comment on ‘Conflicts and Dilemmas of Decentralisation’, 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., J. Shao, D. Njavro, P. Ivanov, and H. E. Stanley (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., P. A. Bowo, Kusumantoro and A. Pujiati (2012) Fiscal Decentralisation and Economic Growth: Case of Indonesia.
- Rodriguez-pose, A. N. D. R. É. S. and A. Krøijer (2009) Fiscal Decentralisation and Economic Growth in Central and Eastern Europe. *Growth and Change* 40:3, 387–417.
- 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., A. Subramanian, and F. Trebbi (2004) Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development. *Journal of Economic Growth* 9:2, 131–165.

- Sarwar, K., M. Afzal, M. Shafiq, and H. Rehman (2013) Institutions and Economic Growth in South Asia. *Journal of Quality and Technology Management* 9:2, 01–23.
- Summers, Robert and Alan Heston (n.d.) The Penn World Table.
- Tanzi, V. (1996) Fiscal Federalism and Decentralisation: A Review of Some Efficiency and Macroeconomic Aspects. In *Annual World Bank Conference on Development Economics*, 295-316. Washington, DC: World Bank.
- Thießen, U. (2003) Fiscal Decentralisation and Economic Growth in High-income OECD Countries. *Fiscal Studies* 24:3, 237–274.
- Tiebout, C. M. (1956) A Pure Theory of Local Expenditures. *The Journal of Political Economy*, 416–424.
- Todd, R. M. (1990) Vector Autoregression Evidence on Monetarism: Another Look at the Robustness Debate. *Federal Reserve Bank of Minneapolis Quarterly Review* 14:2, 19–37.
- Vijayaraghavan, M. and W. A. Ward (2001) Institutions and Economic Growth: Empirical Evidence from a Cross-national Analysis. Clemson University. (Centre for International Trade Working Paper 1302).
- Vo, D. H. (2010) The Economics of Fiscal Decentralisation. *Journal of Economic Surveys* 24:4, 657–679.
- WDI (2014) *World Development Indicators*. World Bank.
- Williamson, C. R. and C. B. Kerekes (2011) Securing Private Property: Formal Versus Informal Institutions. *Journal of Law and Economics* 54:3, 537–572.
- Yilmaz, S. (1999) The Impact of Fiscal Decentralisation 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.