



Impacts of Fiscal Decentralization and Economic Growth: A Meta-Analysis Approach

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Abstract: Fiscal decentralization over the past few years remains as a central agenda when it comes to regional development around the world and economic growth. This paper entails both positive and negative effects of fiscal decentralization on economic growth. We analyze 60 estimates from 10 studies that examine the effect of fiscal decentralization on economic growth. Overall studies imply a positive and statistically significant effect, but the individual estimates vary widely. Results also suggest that certain common factors are more conducive to the economic growth. This paper also highlights the inhibitors of economic efficiency at the local governance level and possible solutions to the challenges facing both central and local governments when putting fiscal decentralization into practice. Through the overall review, the measures are suggested that can be put in place to ensure economic efficiency by both central and local governments and enhance the government's response to the needs of its citizens by the use of fiscal decentralization. Considering that there are a number of studies that have quantitatively highlighted the impact of fiscal decentralization on economic growth, this research will offer the overall analysis of the current models, their similarities, and values.

Keywords: Fiscal federalism, Fiscal decentralization, Economic growth, Sub-national government, Autonomy

1. Introduction

Within the past years, it has been reported that there is a growing interest in the issue of decentralization of political, administrative, economic and financial dimensions. Its concern has come in the context of the trend which aims to expand the participation of citizens and their role in the process of governance which tries to reduce the role of the state in producing and directing the management of its institutions. It allows giving the private sector and civil society institutions a greater role in the process of development. This attention has been expressed by the UN. The World Bank reports on world development under such headings as decentralization and re-thinking (making the state closer to people and turning to localities).

Decentralization is a process of delegating activities of an organization or a state, which mainly entail planning, and decision-making from a central system of governance to an authoritative group under socialistic principles. It is an administrative method for the rule of the region where the central authority transfers some of its legislative, judicial and executive powers to the regions. The constitution establishes the relationship between the state and the regions so that the state exercises sovereignty over it through its basic functions of maintaining security, justice, and defense. It can also be said that decentralization is an act by which the central government transfers authority and responsibility formally to actors and institutions at a lower level in a political, administrative and spatial hierarchy.

Moreover, a large part of the responsibility for planning and the management is transferred. Then, it collects and distributes money from the central government to subordinate or semi-autonomous governmental organizations which include field units of ministries, units or sub-levels of the government, semi-autonomous public authorities or units of regional or functional powers.

The attention of many countries towards decentralization has been taken into consideration in adopting these policies which take one or more forms of decentralization. The main concept of decentralization is to encourage public participation in matters regarding institutional management. One of the key elements of decentralization is fiscal decentralization. This research will give emphasis on Fiscal decentralization and its effects on economic growth. Fiscal decentralization is a form of decentralization whereby revenue and expenditure are transferred from a central source to sub-national governments. It plays a major role in the promotion of economic growth. It is for this reason that the World Bank adopted it as its major agenda on the reformation of governance (World Bank, 2000). Fiscal decentralization is also regarded as a key agent in the efficiency of the public sector, which creates a positive impact on economic growth. Over the last few years, a majority of countries around the world have adopted fiscal decentralization with attempts to promote their rate of economic growth. By early 2000, eighty percent of the world's developing countries were in the process of devolving authority according to German et al. (2000). The devolvement of authority to sub-national government translates to efficiency in the public sector because the sub-national governments play a major role in delivering goods and services on behalf of the central government to the public. Improving the public sector in any given nation may solely rely on fiscal decentralization (Vazquez, Sacchi & Lago-Penas, 2016.) Fiscal decentralization affects a variety of socio-economic aspects which include; improving public the sector's efficiency and governance, achievement of macroeconomic stability and fiscal sustainability (Vazquez, Sacchi & Lago-Penas, 2016.) These three aspects are often referred to as the Millennium Development Goals.

2. Impacts of Fiscal Federalism on Economic Growth

Fiscal decentralization can be referred to as Fiscal Federalism. Fiscal federalism has often been associated with economic growth than the unitary system of governance. Different studies have however questioned the persistence experienced in economic growth which results from Fiscal Decentralization. The difference created in the growth rate, which results from fiscal federalism, is said to be temporary. With the growth rate appreciation, the level of income of a country is also being appreciated. This means, in simple terms, that fiscal federalism affects the rate of income positively. The link between technology and economic growth can ensure a persistent impact of fiscal federalism on economic growth. Technology is one aspect that contributes a higher percentage to the changes that we experience in the modern day world. It is necessary that these two aspects be integrated to ensure that the economic growth that comes as an impact of fiscal federalism is steady. Considering that, the main objective of fiscal federalism is to enhance economic growth, studies done on the relationship between fiscal federalism and economic growth is timely (Oates, 1999).

Fiscal federalism's other objective is efficiency. There are two categories of efficiency about fiscal federalism which include; consumer efficiency and producer efficiency (Oates, 1999). Consumer efficiency refers to public spending at the sub-national level (Oates, 1999). With fiscal federalism, consumer efficiency is assured by enhancing the responsiveness of the federalized government to its citizens at the sub-national level. This translates to individual welfare which results to economic growth. Producer efficiency, on the other hand, can be ensured at the sub-national level by either the federal governments producing high lowering the cost of public goods and services on a certain budget or producing quality goods and services in relatively larger quantities (Oates, 1999). The efficiency of public goods in sub-national level translates to economic efficiency, hence economic growth. The economic efficiency occurred because the federal governments are in a better position to enhance its efficiency due to the information advantage as they interact more often with natives as compared to the central government (Davoodi and Zou, 1998).

Economic efficiency is regarded as the central argument in the application of fiscal federalism because it directly affects the macroeconomic stability (Martinez-Vazquez and McNab, 2001). Local communities' preferences are ensured by the application of fiscal federalism because there are population mobility and competition among federal governments in delivering public goods and services (Davoodi and Zou, 1998). For example, in a study on fiscal federalism in China, Zhiqiang Liu and Justin Yifu Lin stated, "Fiscal decentralization may harden the budget constraints of local enterprises and consequently increase their efficiency which may lead to a higher and more sustainable economic growth (Liu and Lin, 2000). With economic growth, dynamic gains in the economy occur as a result. In their study, Liu and Lin challenge the importance of information advantage in favor of the federal governments whereby they state, "First, the alleged information advantage of local governments may in fact not be significant" (Liu and Lin, 2000).

The figure below illustrates the relationship in governance can be solved by the creation of an effective governance system. The challenges can be solved by delegating political, economic and administrative management to federal states. The management role delegated to the state will entail coming up with social, economic and environmental policies that

will ensure efficiency in the system, which will, in turn, reduce the role of the central government. With effective management of resources at the local level, communal needs are easily attended to and the community issues can be solved effectively. The figure mainly highlights the factors, which determine the economic growth rate when fiscal decentralization is applied in a certain governance system.

Regarding the flowchart, it is clear that some factors cut across both levels of governance. The two aspects are population growth and the information revolution. These two aspects directly affect the economic growth of a country at the central government and zeros down to the local governance level. These aspects can be referred to as shared responsibilities.

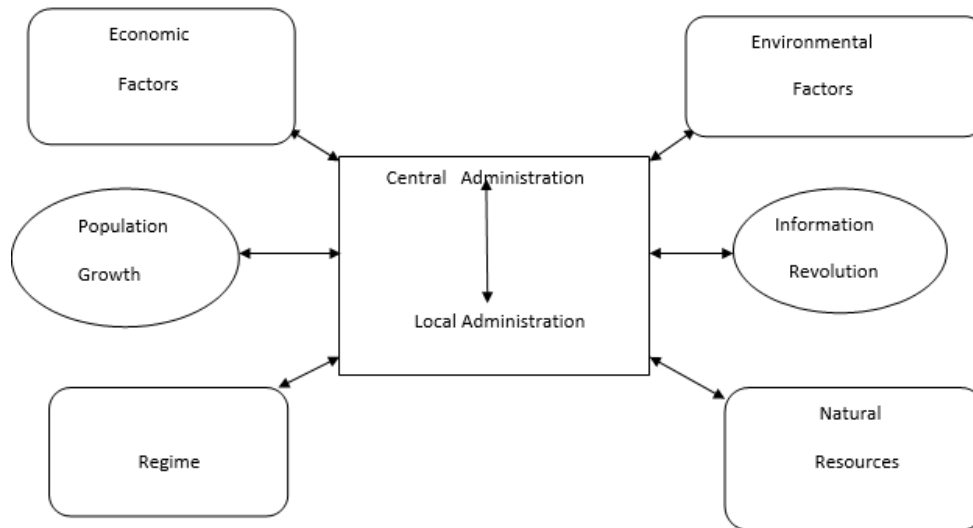


Figure 1

Different studies have produced mixed results on the impacts of fiscal decentralization. For example, in Spain, it was found that fiscal decentralization affected the aggregate economy-wide level negatively but at the same time affected communities with a high degree of fiscal autonomy positively (Carrion-i-Silvestre et al., 2008). The main reason behind the mixed results is because fiscal decentralization is measured in different ways (Robert, 2000). Fiscal autonomy, revenue decentralization, and expenditure decentralization are the key elements in measuring fiscal decentralization (Robert, 2000). Research has proven that it is rare to arrive at specific conclusions on the effects of fiscal decentralization on economic growth (Scott, 2009). This is the reason behind limited qualitative studies on the relationship between fiscal decentralization and economic growth.

It is evident from the studies that fiscal decentralization can influence the public sector negatively due to a variety of reasons. Inadequate resources, inadequate staff, and inexperienced personnel at the local governance level are the main inhibitors of economic growth with regards to fiscal federalism. Administrative capacity, on the other hand, plays a major role in the in promoting economic growth. Lack of administrative capacity may affect economic growth negatively along with other aspects, which go hand in hand with one another. These aspects include undefined roles, responsibilities, and poor investment decisions. The clarity of roles at the local governance level positively defines economic growth. These roles are supposed to be delegated to individuals with strict adherence to the qualifications of each staff member. Observing these aspects translates to efficiency in which appropriate personnel carries out roles.

The flowchart below illustrates Britain’s local governance system, which is a perfect example of delegation of roles by the central government to the local governance level.

The figure above illustrates various roles delegated by Britain’s central government system which includes; the judiciary, the legislature (parliament), the crown and the central government itself. A local voter in Britain stands between the local government and the legislature.

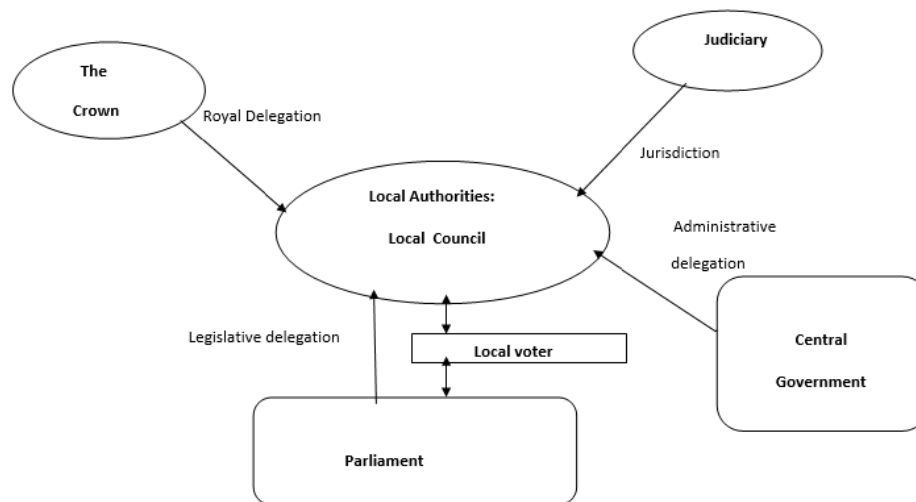


Figure 2

This is because the local voter gives authority to members of parliament and the decision-makers at the local government levels. In relation to economic growth and development, the government is able to respond to the issues affecting its citizens through the information gathered at the local level with the help of local governments and in turn take appropriate action towards the issues. The system works for hand in hand with other public institutions and administrative branches to with different types of authority. There are three types of authority with reference to the diagram above which include; central government authority, joint power authority, and local government authority. The authority given to the local government is provided by the law and cannot be ignored by the central system. With regards to the figure above, the local governance system in Britain has developed significantly in the consolidation of local governments which translates to a natural response in the ever-rising number of roles of the government.

3. Research Methodology

The data in the articles entails researches, which sought to identify the effects of fiscal decentralization on economic growth. Numerous research papers compare the application of fiscal decentralization in different countries around the world. The individual studies, however, vary substantially, and their study's empirical methodology characterizes their reports. The studies on the effects of fiscal decentralization may vary in methodology, but their findings are similar because in most cases, the application of fiscal decentralization is not determined by the geographical location of the society it is applied upon, but the management and governance assigned to ensure its effectiveness.

Fiscal decentralization is crucial because, some authors have identified a positive relationship between fiscal decentralization and economic growth (Oates, 1993; Yilmaz 1999; Limi, 2005). A number of studies identify negative effects of fiscal decentralization on economic growth in developing countries as opposed to the positive effects on economic growth that are as a result of fiscal decentralization in developed countries (Davoodi and Zou, 1998; Wooller and Philips, 1998). The empirical research is extensive and non-homogeneous regarding the results. Thus, we had better analyze the studies individually so that we choose the main arguments and findings to summarize them for our evaluation. Our broad research led us to 10 studies on the influence of the financial decentralization on economic growth.

The result consists of approximately 60 individual assessments since each of them analyzes a number of economic models. Our primary target is to evaluate these results quantitatively rather than making a traditional analysis. Analysis of the quantitative findings of the relationship between economic growth and financial decentralization is conducted.

For such an assessment, modern techniques of meta-analysis have been used. Meta-analysis is common in various research fields and is used in the financial sector more and more for research purposes (for instance, see Card and Krueger, 1995; Disdier and Head, 2008; Doucouliagos and Stanley, 2009; Daniskova & Fidrmuc, 2012). However, there is still a gap on this subject since there have not been conducted enough studies on the finance-growth relationship. That is the reason why we have conducted this research. The closest study to our paper, which belongs to Bumann et al. (2013), involves a documented meta-analysis on the fiscal decentralization but it concludes that it has a relatively weak influence on the economic growth.

In our data search, overall 70 studies including 'fiscal decentralization', 'financial decentralization', and 'economic growth' keywords had been sourced. We sorted out these papers by reading their abstracts so that we keep the ones containing empirical estimations regarding the relationship between finance and economic growth. As a result, we held ten studies in our literature search, which ended on May 15, 2018.

4. Analysis Results

Firstly, we gathered data from the related literature for analyzing many models for the economic growth: One of the suggested models in the reviewed studies can be depicted by the following equation:

$$G_{it} = \alpha + \beta F_{it} + \gamma X_{it} + \delta t + \eta_i + \varepsilon_{it} \quad (1)$$

where i and t indicate country and time respectively; G is a measure of economic development; F is a measure of financial growth, and X is a vector of control variables explaining some other significant determinants in the economic expansion processes (for instance, human capital, initial income, macroeconomic and political stability or international trade); δt captures a common time-specific influence; η_i represents an unobserved country-specific influence; and finally, ε denotes the error term. Specifically, (1) can collapse to time-series or cross-sectional models as it describes a general panel data setting. There are also plenty of models which are evaluated based on the time-series and cross-sectional models in the following parts.

The independent variables of the model and their effects are depicted in the tables below. Table 1 illustrates the beta-coefficients of each variable calculated with regression analysis in the observed study. The levels of significance for t -test indicators are indicated by *.

The relationship between the level of fiscal decentralization and economic growth rates across 16 Central and Eastern European countries over the 1990-2004 period had been studied by employing a panel data approach with dynamic effects (Rodríguez-Pose and Krøijer, 2009).

The results show that there is a significant negative relationship between two out of three fiscal decentralization indicators included in the analysis and economic growth. Another research paper showed that there is a direct relationship between fiscal decentralization and output; growth and some evidence were found to support the hypothesis that a medium degree of fiscal decentralization is positively related to growth in the capital stock and the level of human capital (Bodman and Ford, 2006).

After applying the model to the US economy, it can be derived that further decentralization in public spending will rather damage the growth potential. With growth maximization, current spending shares for state and local governments have been consistent (Xie, Zou, Davoodi, 1999).

The research results by Baskaran suggested that there is a relationship between fiscal decentralization and economic growth for 23 OECD countries from 1975 to 2001 by utilizing new panel data on sub-federal tax autonomy. As the preliminary estimations suggested that fiscal decentralization causes low-growth rates, the result is not robust to alternative specifications. Thus, fiscal decentralization is considered not to be related to the economic growth (Baskaran, 2009).

Additionally, a set comprising 46 countries panel data in the 1970-1989 period had been utilized to explore the relationship between fiscal decentralization and economic growth. Davoodi and Zou (1998) found a negative relationship between fiscal decentralization and growth in developing countries, while none in developed countries. Another research studied 19 OECD member countries, where it was found that when the measure of fiscal decent is limited to the revenues over which sub-national governments have full autonomy, its impact on economic growth statistically significant (Thornton, 2006). Akai and Masayo Sakata (2002) used the dataset of 50 states of the US. This study showed that fiscal decentralization contributes to economic growth, which corresponded to theoretical work.

Table 1: Summary of Beta coefficients

VARIABLES	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL
STUDY 1											
GROWTH											
FDEXP	-0.0029	-0.0168	-0.0179	-0.0191	-0.0214	-0.0226	-0.0240	-0.0237	-0.0215		
FDTAX	-0.0028	-0.0049	-0.0027	0.0005	0.0047	0.0067	0.0077	0.0074	0.0085		
FD TRANS	-0.0015	-0.0151	-0.0136	-0.0118	-0.0093	-0.0087	-0.0080	-0.0079	-0.0069		
POP	0.1439	0.2934	0.3017	0.3159	0.3333	0.343	0.3506	0.3389	0.3293		
ILLIT	-0.0121	-0.0862	-0.0897	-0.0915	-0.0953	-0.1023	-0.1125	-0.113	-0.1089		
INVEST	0.1949	0.9098	1.1096	1.2602	1.412	1.4264	1.6338	1.2575	1.1837		
GDP90	0	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001		
DEFLAT	-0.0224	-0.0361	-0.0312	-0.0514	-0.818	-0.104	-0.116	-0.1039	-0.1067		
IT	0.0001	-0.0004	-0.0004	-0.0003	-0.0003	-0.0002	-0.0001	-0.0002	-0.0004		
EU	0.0185	0.2692	0.2838	0.2927	0.3051	0.3204	0.3283	0.3176	0.2886		
CONS	0.4284	1.7599	1.6086	1.3853	1.1507	1.1622	1.2007	1.281	1.0399		
STUDY 2											
RI	0.07	0.14									
PI			0.16	0.22							
Aii					-0.07	-0.08					
Aiii							-0.06	-0.07			
PRI									0.11	0.19	
POP	-0.87	-0.82	-0.88	-0.87	-0.89	-0.86	-0.89	-0.86	-0.87	-0.83	
ΔGSP(-1)	1.16	1.03	1.04	0.96	1.17	1.05	1.17	1.05	1.11	0.99	
EDUC	0.01	-0.02	-0.01	-0.03	-0.01	-0.06	-0.01	-0.06	0.003	-0.02	
LIB vs. CON	-0.08	-0.08	-0.07	-0.07	-0.1	-0.13	-0.1	-0.13	-0.07	-0.07	
GINI	-0.08	-0.07	-0.08	-0.07	-0.08	-0.07	-0.08	-0.07	-0.08	-0.07	
PATENTS	0.01		0.007		0.01		0.01		0.009		
OPENNESS	-0.003		-0.003		-0.004		-0.004		-0.003		
SOUTHERN	0.01	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.01	
Constant	-1.09	-1.3	-1.36	-1.54	-1.08	-1.33	-1.07	-1.34	-1.19	-1.4	
STUDY 3											
C	0.035496	0.033225	0.030109	0.024483	0.023514	0.043493	0.028765	0.028283			
FD	-0.00042	-0.000358	-0.000265	5.73E-05	8.79E-06	-0.000208	-4.71E-05	-2.98E-05			
Δ ln(k)	0.6218	0.518121	0.511229	0.580819	0.516467	0.636676	0.541745	0.589435			
Δ ln(h)	-0.01462	-0.006672	-0.00755	0.005244	-0.005964	-0.039289	-0.01226	-0.001796			
Δ ln(GC- GDP)	-0.317723	-0.320726	-0.316075	-0.388285	-0.31811	-0.31144	-0.320378	-0.385568			
Δ ln(DEF)	-0.317723	-0.194766	-0.188316	-0.377812	-0.184066	-0.205025	-0.190944	-0.272928			
STUDY 4											
Constant	0.05	0.01	0.3	0.24	0.33	0.27	0.07	0.05			
Average tax rate	-0.15	-0.03	-0.67	-0.53	-0.72	-0.6	-0.22	-0.18			
State government spending share	0.04	0.07	0.44	0.37	0.54	0.47	0.15	0.25			
Local government spending share	0.06	0.04	-0.77	-0.64	-0.91	-0.77	-0.06	-0.12			
Labor growth rate	0.07	0.07	0.55	0.74	0.52	0.65	-0.06	-0.06			
Dlog (Private physical capital investment)	0.12	0.11	0.11	0.1	0.09	0.09	0.13	0.12			
D(Openess)	0.52	0.15			0.99	0.59					
D(Average tariff rate)			-1.57	-0.61			-1.23	-0.68			
Inflation rate	-0.49	-0.5					-0.44	-0.49			
D(Log(Price of energy))			-0.12	-0.11	-0.14	-0.13					
D(Gini)		-0.01		-0.02		-0.01		-0.01			
STUDY 5											
Investment share	0.059**	0.04	0.056	0.041	0.035	0.037	0.027	0.028	0.027		
Secondary Education	0.005	0.003	0.005	0.004	0.003	0.003	0.004	0.003	0.003		
Population growth	-17.63	-9.301	-13.576	-4.593	-0.005	0.301	10.852	10.483	10.808		
Lag GDP per worker	-0.045	-0.046	-0.044	-0.075	-0.077	-0.078	-0.119	-0.119	-0.12		
Tax/GDP	-0.03	-0.04	-0.032	-0.063	-0.068	-0.068	-0.117	-0.12	-0.116		
Openness	0.01	0.011	0.01	0.016	0.016	0.016	0.016	0.016	0.016		
Inflation	-0.068	-0.068	-0.068	-0.053	-0.052	-0.052	-0.041	-0.041	-0.042		
Federation dummy	-0.45	-0.895	-0.554	-0.731	-1.091	-1.005	-0.977	-1.23	-1.044		
Rev. decentralization 1	-0.014		-0.012	-0.009		-0.005	-0.019		-0.02		
Rev. decentralization 2		0.018	0.006		0.022	0.018		0.004	0.007		

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STUDY 6																			
Initial human Capital			-0.01	-0.01	-0.01														
Initial per capita GDP				-11.09	-10.59														
Investment share of GDP					0.12														
Constant	1.53	4.41	5.53	48.78	51.95		1.51	2.52	5.14	60.76	60.5	3.79	5.27	10.5	58.38	58.6			
Average tax rate	-0.04	-0.06	-0.04	-0.06	-0.01		-0.04	-0.05	-0.07	-0.11	-0.08	-0.22	-0.22	-0.34	-0.33	-0.29			
Fiscal decentralization	-0.07	-0.07	-0.06	-0.06	-0.08		-0.1	-0.1	-0.09	-0.07	-0.07	-0.11	-0.11	-0.09	-0.08	-0.08			
Dummy for 1975-79	-1.09	-1.21	-1.01	-0.13	-0.17	Dummy for 1980-89	-1.3	-1.34	-1.07	1.05	1.1			-1.58	-1.64	0.36	-1.36	1.34	
Dummy for 1980-84	-2.34	-2.54	-2.45	-0.77	-0.6														
Dummy for 1985-89	-1.19	-1.45	-0.98	0.99	1.39														
Population growth		-1.14	-1.43	-1.93	-2.91			-0.41	-1.14	-2.65	-2.74		-0.64	-1.42	-2.89	-3.01			
Initial human Capital			-0.04	-0.04	-0.06				-0.04	-0.05	-0.05			-0.11	-0.11	0.11			
Initial per capita GDP				-5.88	-6.17											-6.15	-6.26		
Investment share of GDP					0.23						0.06								0.06
STUDY 7																			
Constant	-5.7199	-6.0156	-5.8377																
Y80	-1.4099	-1.4807	-1.5758																
I/Y	3.5331	3.5309	3.5356																
ΔWPOP	0.9407	0.9454	0.8033																
SCHOOL	2.1111	2.3137	2.4898																
OWNREV	0.2767	0.2401	-0.0078																
(OWNREV) * (OWNREV)	-0.0922	-0.0819																	
FDUM	-0.1435																		
STUDY 8																			
FD	0.0372	0.0503	0.0217	0.0315		0.0254													
FDAVG					0.119	0.0082													
HRS	0.0387	0.0411	0.0374	0.0379	0.0397	0.0389													
GI	0.0489	0.0484	0.0478	0.0479	0.0483	0.0481													
FISCAP	-0.144	-0.147	-0.143	-0.143	-0.142	-0.145													
NSOESH	0.145	0.159	0.138	0.138	0.155	0.157													
FPMP	0.00974	0.00948	0.0105	0.0106	0.0103	0.0101													
POPSHR	0.0417	0.0376	0.0426	0.0416	0.039	0.038													
TPOP	-0.206	-0.208	-0.207	-0.206	-0.253	-0.243													
STUDY 9																			
Constant			0.104	0.01	0.163	0.203	0.298												
L (Labor)	0.088	0.863	-0.225	0.53	0.262	0.239	0.278												
CT Central Tax Rate	0.38	-0.262			-0.331	-0.533	-0.606												
PT (Provincial tax rate)	-0.204	-0.054	-0.076	-0.004	-0.315	-0.3	-0.232												
DC cbe					-0.095														
DC be	-0.011	-0.066	-0.003	-0.02		-0.022	0.001												
DC ebe							-0.09												
R (Inflation Rate)				0.194															
F (Openness)				0.153															
I (Investment)				0.14															
STUDY 10																			
Average tax rate	-0.087	-0.078																	
Fiscal Decentralization	0.067	0.037																	
Av. Degree of political rights	-4.789	-5.564																	
Avg. Population Growth Rate	-0.59	-1.007																	
Initial Human Capital	0.025	0.017																	
ln(Initial GDP)	-0.768	-0.719																	
Low Income Countries	-4.944	-5.358																	
Lower Middle Income Countries	-3.987	-4.604																	
Upper Middle Income Countries	-1.359	-1.885																	
Asia	-1.494	-1.394																	
Sub-Saharan Africa	2.199	2.501																	
Constant	11.245	13.261																	

A panel data of 31 provinces of China from 1996–2005 had also been used to estimate the econometric model with some significant impacts (Jian Chu and Xiao-Ping Zheng, 2013). The study conducted by Zhanga and Zou (1998) revealed that the allocation of fiscal resources between the central and local governments had an influence on economic growth since reforms began in the late 1970s. This study also found that a greater degree of fiscal decentralization of government spending is associated with lower provincial economic growth over the past fifteen years.

The last study of the reviewed sample for analysis used the data for the period from 1997 to 2001. This study revealed that fiscal decentralization also influences per capita GDP growth. Thus, when the focus is placed the latest information on the economic situation in the later 1990s, decentralization, particularly on the fiscal expenditure side, is influential in the growth of the economy (Ilmi, 2004).

Table 2: Summary of T-test indicators

VARIABLES	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL	MODEL
STUDY 1												
GROWTH	(-2.11)**	(-2.93)***	(-2.88)***	(-2.87)***	(-3.01)***	(-3.01)***	(-3.02)***	(-2.59)**	(-1.99)**			
FDEXP												
FDTAX	(-2.80)***	(-1.30)	(-0.64)	(0.12)	(1.02)	(1.42)	(1.59)*	(1.47)	(1.53)*			
	(-1.54)	(-4.42)***	(-3.56)***	(-2.94)***	(-2.24)**	(-2.05)**	(-1.76)*	(-1.60)	(-1.25)			
FD TRANS												
POP	(5.23)***	(9.42)***	(8.97)***	(8.68)***	(8.58)***	(8.43)***	(8.05)***	(6.97)***	(5.81)***			
ILLIT	(-4.69)***	(-10.08)***	(-9.60)***	(-9.02)***	(-8.76)***	(-8.75)***	(-8.56)***	(-7.09)***	(-5.52)***			
INVEST	(+1.09)	(+1.59)	(+1.78)*	(+1.94)*	(+2.10)**	(+2.08)**	(+2.25)**	(+1.62)*	(+1.36)			
GDP90	(-3.64)***	(-3.53)***	(-3.46)***	(-3.39)***	(-3.48)***	(-3.76)***	(-3.74)***	(-3.19)**	(-2.35)**			
DEFLAT	(-2.48)**	(-1.70)*	(-1.42)	(-2.08)**	(-3.13)***	(-3.94)***	(-4.28)***	(-3.70)***	(-3.32)**			
IT	(+0.69)	(-0.94)	(-0.92)	(-0.76)	(-0.64)	(-0.50)	(-0.30)	(-0.52)	(-0.84)			
EU	(+0.61)	(1.58)*	(2.93)**	(2.91)***	(2.93)***	(2.91)***	(2.58)**	(2.27)**	(1.86)*			
CONS	(+3.71)	(+4.41)	(+3.57)	(+2.91)	(+2.32)	(+2.28)	(+2.14)	(+2.01)	(+1.41)			
STUDY 2												
RI	[0.90]	[1.86]*										
PI			[1.73]*	[3.00]***								
Aii					[0.85]	[0.99]						
Aiii							[0.79]	[0.86]				
PRI									[1.29]	[2.46]***		
POP	[2.74]***	[2.55]**	[2.86]***	[2.89]***	[2.80]***	[2.62]**	[2.81]***	[2.62]**	[2.77]***	[2.68]***		
ΔGSP(-1)	[3.38]***	[3.03]***	[3.04]***	[2.98]***	[3.42]***	[3.02]***	[3.41]***	[3.00]***	[3.23]***	[3.00]***		
EDUC	[0.16]	[0.44]	[0.19]	[0.63]	[0.16]	[1.14]	[0.13]	[1.11]	[0.04]	[0.47]		
LIB vs. CON	[1.02]	[1.15]	[1.00]	[1.03]	[1.43]	[1.89]*	[1.43]	[1.89]*	[0.98]	[1.05]		
GINI	[3.48]***	[3.05]***	[3.50]***	[3.42]***	[3.68]***	[3.06]***	[3.67]***	[3.04]***	[3.47]***	[3.22]***		
PATENTS	0.01	0.007	0.01	0.01	0.01	0.01	0.01	0.01	0.009			
OPENNESS	[0.25]		[0.32]		[0.43]		[0.40]		[0.27]			
SOUTHERN	[0.91]	[0.70]	[0.84]	[0.69]	[1.06]	[0.85]	[1.07]	[0.89]	[0.86]	[0.66]		
Constant	[3.58]***	[4.66]***	[3.96]***	[5.63]***	[3.57]***	[4.65]***	[3.55]***	[3.64]***	[3.76]***	[5.12]***		
STUDY 3												
C	[0.034705]	[4.121632]	[8.894614]	[5.882247]	[12.24666]	[11.72980]	[7.646469]	[11.82687]				
FD	(-0.000338)	(-1.205629)	(-2.500215)	[0.550293]	[0.316935]	(-6.090571)	(-1.234471)	(-1.644364)				
Δ ln(k)	[0.576006]	[4.437366]	[4.284765]	[5.144858]	[4.474011]	[5.273866]	[4.736837]	[5.293637]				
Δ ln(h)	(-0.008613)	(-0.311205)	(-0.350762)	[0.384908]	(-0.291906)	(-1.833635)	(-0.570852)	(-0.124302)				
Δ ln(GC- GDP)	(-0.318745)	(-6.396655)	(-6.257687)	(-7.497905)	(-6.316350)	(-5.965870)	(-6.381472)	(-7.189021)				
Δ ln(DEF)	(-0.193359)	(-4.023488)	(-4.136606)	(-6.299870)	(-4.201739)	(-5.034346)	(-4.449093)	(-6.201563)				
STUDY 4												
Constant	[0.41]	[0.10]	[2.09]	[1.59]	[2.23]	[1.80]	[0.65]	[0.54]				
Average tax rate	[-0.37]	[-0.07]	[-1.64]	[-1.17]	[-1.65]	[-1.32]	[-0.58]	[-0.49]				
State government spending share	[0.09]	[0.18]	[1.04]	[0.71]	[1.10]	[0.89]	[0.45]	[0.71]				
Local government spending share	[0.14]	[0.10]	[-1.51]	[-1.16]	[1.69]	[-1.38]	[-0.17]	[-0.34]				
Labor growth rate	[-0.12]	[0.13]	[0.84]	[1.07]	[0.77]	[0.96]	[-0.11]	[-0.12]				
Dlog (Private physical capital investment)	[3.74]	[3.61]	[3.25]	[2.94]	[2.90]	[2.86]	[4.74]	[4.72]				
D(Openess)	[1.16]	[0.32]			[1.95]	[1.05]						
D(Average tariff rate)			[-1.37]	[-0.48]			[-1.27]	[-0.71]				
Inflation rate	[-3.10]	[-3.41]					[-2.99]	[-3.42]				
D(Log(Price of energy))			[-2.13]	[-2.07]	[-2.45]	[-2.30]						
D(Gini)		[-2.43]		[-1.89]		[-1.62]		[-2.75]				

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STUDY 5																
Investment share	[0.026]	[0.029]	[0.031]	[0.029]	[0.029]	[0.030]	[0.029]	[0.029]	[0.029]							
Secondary Education	[0.008]	[0.008]	[0.008]	[0.009]	[0.009]	[0.009]	[0.008]	[0.008]	[0.008]							
Population growth	[23.986]	[32.193]	[29.703]	[23.068]	[24.077]	[24.577]	[34.870]	[34.867]	[23.914]							
Lag GDP per worker	[0.020]	[0.020]	[0.020]	[0.020]	[0.020]	[0.020]	[0.026]	[0.026]	[0.026]							
Tax/GDP	[0.021]	[0.023]	[0.023]	[0.022]	[0.022]	[0.023]	[0.037]	[0.037]	[0.037]							
Openness	[0.005]	[0.005]	[0.005]	[0.005]	[0.005]	[0.005]	[0.009]	[0.009]	[0.009]							
Inflation	[0.011]	[0.010]	[0.011]	[0.013]	[0.013]	[0.013]	[0.027]	[0.027]	[0.027]							
Federation dummy	[0.283]	[0.440]	[0.481]	[0.385]	[0.347]	[0.413]	[0.511]	[0.663]	[0.673]							
Rev. decentralization 1	[0.007]		[0.0008]	[0.008]		[0.009]	[0.023]		[0.023]							
Rev. decentralization 2		[0.012]	[0.014]		[0.010]	[0.013]		[0.042]	[0.042]							
STUDY 6																
Initial human Capital			[-0.25]	[-0.57]	[-0.72]											
Initial per capita GDP				[-4.82]	[-4.65]											
Investment share of GDP					[1.62]											
Constant	[0.69]	[1.55]	[1.80]	[3.60]	[3.98]		[0.80]	[0.89]	[1.48]	[4.56]	[4.51]	[1.58]	[1.47]	[2.35]	[3.53]	[3.46]
Average tax rate	[-0.58]	[-0.85]	[-0.49]	[-0.81]	[-0.14]		[-0.48]	[-0.54]	[-0.72]	[-1.36]	[-0.91]	[-1.64]	[-1.64]	[-2.35]	[-2.82]	[-2.17]
Fiscal decentralization	[-1.86]	[-1.85]	[-1.47]	[-1.56]	[-2.00]		[-2.18]	[-2.16]	[-1.75]	[-1.780]	[-1.85]	[-1.86]	[-1.79]	[-1.53]	[-1.71]	[-1.72]
Dummy for 1975-79	[-2.02]	[-2.24]	[-1.58]	[-0.20]	[-0.26]											
Dummy for 1980-84	[-4.00]	[-4.28]	[-3.23]	[-0.87]	[-0.26]											
Dummy for 1985-89	[-1.91]	[-2.26]	[-1.09]	[0.95]	[1.36]	Dummy for 1980 - 89	[-2.84]	[-2.85]	[-1.66]	[1.46]	[1.51]	[-2.58]	[-2.59]	[-0.37]	[1.39]	[1.34]
Population growth		[-1.61]	[-1.90]	[-2.63]	[-3.73]			[-0.48]	[-1.16]	[-3.03]	[-3.08]		[-0.57]	[-1.22]	[-2.69]	[-2.69]
Initial human Capital			[-1.05]	[-1.25]	[-1.68]				[-1.05]	[-1.72]	[-1.75]			[-1.82]	[-2.19]	[-2.12]
Initial per capita GDP				[-3.27]	[-3.58]					[-4.27]	[-4.26]				[-2.97]	[-2.94]
Investment share of GDP					[2.95]					[0.76]						0.57
STUDY 7																
Constant	[5.0274]	[4.8301]	[5.0148]													
Y80	[0.4639]	[0.4266]	[0.4376]													
I/Y	[0.8844]	[0.8559]	[0.8889]													
ΔWPOP	[0.2394]	[0.2315]	[0.2169]													
SCHOOL	[0.9092]	[0.7832]	[0.8032]													
OWNREV	[0.2170]	[0.1970]	[0.0955]													
(OWNREV) * (OWNREV)	[0.0631]	[0.0576]														
FDUM	[0.2935]															
STUDY 8																
FD	[2.750]	[3.633]	[2.510]	[2.422]		[1.607]										
FDAVG					[2.358]	[1.392]										
HRS	[1.831]	[1.938]	[1.774]	[1.788]	[1.863]	[1.839]										
GI	[3.865]	[3.858]	[3.822]	[3.829]	[3.854]	[3.848]										
FISCAP	[-5.298]	[-5.398]	[-5.266]	[-5.267]	[-5.206]	[-5.338]										
NSOESH	[3.216]	[3.433]	[3.097]	[3.087]	[3.313]	[3.386]										
FPMP	[1.049]	[1.019]	[1.136]	[1.147]	[1.149]	[1.117]										
POPSHR	[0.593]	[0.541]	[0.601]	[0.587]	[0.551]	[0.618]										
TPOP	[-1.593]	[-1.611]	[-1.599]	[-1.589]	[-1.915]	[-1.819]										
STUDY 9																
Constant			[4.130]	[0.195]	[4.992]	[5.446]	[7.188]									
L (Labor)	[0.221]	[2.448]	[-0.406]	[1.300]	[0.865]	[0.798]	[0.977]									
CT Central Tax Rate	[0.841]	[3.147]			[-0.839]	[-1.342]	[-1.603]									
PT (Provincial tax rate)	[-1.525]	[-0.285]	[0.523]	[-0.037]	[-1.898]	[1.946]	[-1.566]									
DC cbe					[-1.056]											
DC be	[-2.743]	[-3.147]	[-0.519]	[-2.85]		[-2.164]	[0.071]									
DC ebe							[-4.501]									
R (Inflation Rate)				[0.324]												
F (Openness)				[5.21]												
I (Investment)				[2.33]												
STUDY 10																
Average tax rate	[0.031]	[0.036]														
Fiscal Decentralisation	[0.024]	[0.022]														
Av. Degree of political rights	[1.021]	[1.670]														
Avg. Population Growth Rate	[0.287]	[0.347]														
Initial Human Capital	[0.012]	[0.018]														
ln(Initial GDP)	[0.161]	[0.153]														
Low Income Countries	[1.348]	[1.453]														
Lower Middle Income Countries	[0.865]	[1.249]														
Upper Middle Income Countries	[0.661]	[0.895]														
Asia	[0.647]	[0.659]														
Sub-Saharan Africa	[0.701]	[0.784]														
Constant	[1.782]	[2.834]														

5. Discussion and Implications

Different studies have highlighted the impacts of fiscal decentralization both from the negative and positive perspective. Most studies have highlighted the role of fiscal decentralization as enhancing public participation in decision-making with regards to regional development. However, the readiness and management capacity of an organization determines the effectiveness of fiscal decentralization. Either positive or negative, the effects of decentralization rely on an extensive institutional framework whereby its quality is guaranteed (Enikolopov and Zhuravskaya, 2007). The methodology of some studies may be inappropriate for that effect. The autonomy of the local government is a key element, which contributes to positive impacts of fiscal decentralization on economic growth (Sakata and Akai, 2002). The Autonomy Indicator is put in place to measure the degree of independence that a local government has. It is often considered as the amount of revenue that a local government gets from its total revenue (Sakata and Akai, 2007).

6. Conclusion

There is no robust result in our examinations on the significant positive impact of fiscal centralization on economic growth. However, by analyzing t indicators and beta coefficients, the majority of analyzed studies indicate some relationship between fiscal decentralization and economic growth. Further quantitative studies are suggested to test that relationship in various contexts empirically.

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