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Is Fiscal Decentralization Growth Enhancing? A Cross-Country Study in Developing Countries over the Period 1990–2014

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Abstract: For several decades, many scholars have widely debated the nexus between devolution of fiscal powers and efficiency. However, several studies have neglected the role of institutions and other institutional settings in fiscal decentralization. This study augments the literature by revisiting the fiscal decentralization–growth nexus regarding institutional quality in 24 developing countries over the period 1990–2014. By using estimators of fixed effects (FE), random effects (RE), and the system generalized method of moments (GMM), it is shown that growth depends on the level of fiscal authority and its interaction with institutions. In this case, increasing the extent of cosharing has a detrimental effect on growth in countries with poor governance, a high risk of corruption, and nondemocratic governments. However, shared rule contributes to growth by enhancing the degree of law and order and the quality of bureaucracy.

Keywords: fiscal decentralization; economic growth; institutional quality; developing countries

1. Introduction

Fiscal decentralization is a political-economic phenomenon. Generally, it is perceived as a part of reform programs to expedite growth, increase efficiency in the public sector, and stimulate competition amongst subnational governments regarding the delivery of public goods (Bird and Wallich 1993). As one of the three core dimensions of decentralization, namely fiscal, political, and administrative, Rondinelli (1981) defines fiscal decentralization as allocating to subnational governments the authority to make decisions regarding the assignment of revenue and expenditures.

In order to promote economic growth, many developing countries have devolved their fiscal powers to their subnational governments. The report states that more than 120 developing countries have been carrying out some types of decentralization since 2008 (Ivanyna and Shah 2014). These investigations indicate that the birth of decentralization depends on both economic and political dynamics in developing countries (Smoke 2001). However, centralized bureaucracies in some developing countries may have failed to live up to expectations related to growth promotion (Martínez-Vázquez and McNab 2003). Some prospects of growth enhancement involve the efficiency of allocation (Oates 1972), while others depend on the improvement of productivity in the subnational government (Martínez-Vázquez and McNab 2003).

In view of the growing degree of fiscal decentralization in developing countries, many scholars try to link the relationship between fiscal decentralization and growth to different objects of analysis. However, their results are far from conclusive, even regarding the same object of analysis. For instance, in developing countries, Davoodi and Zou (1998) detect a negative and significant relationship between fiscal decentralization and growth, while in the study of Woller and Phillips (1998), such a relationship becomes insignificant. These mixed results in the study of developing countries may be related to differences in methodology (Martínez-Vázquez and McNab 2003). Some believe that the nexus between fiscal decentralization and growth is direct (Davoodi and Zou 1998). Others argue that

such a relationship is indirect, depending on the quality of institutions, as in the case of institutional void in Russia (Libman 2010), of corruption and informality in some OECD countries (Huynh and Tran 2021), and of democratic governance in some developing countries (Martínez-Vázquez and McNab 2003). Hence, in this study, I aim to augment the literature by empirically investigating the nexus between fiscal decentralization and economic growth across the varying institutional quality of 24 developing countries (see Appendix A) over the period 1990–2014.

To some extent, the role of institutional quality in clarifying the fiscal decentralization–growth nexus has received wide attention since Riker's (1964) seminal work on federalism. According to him, decentralization may discourage development in countries whose subnational governments lack accountability. Along with Riker, both Seabright (1996) and Enikolopov and Zhuravskaya (2007) argue that the effect of decentralization on growth depends on whether local officials are appointed by central government or elected democratically through local elections. In a different vein, the combination of democratic decentralization and party centralization plays a significant role in producing the most efficient provision of public goods and services (Ponce-Rodriguez et al. 2018). However, employing democracy and political accountability to gauge institutional quality can be misleading. Rothstein and Teorell (2008) argue that these metrics do not account for how authority is exercised. My paper, therefore, aims to fill this gap by testing whether the fiscal decentralization–growth nexus can, to some extent, be explained through other measures of institutional quality.

Unlike previous literature, I argue that the devolution of fiscal powers is not related solely to the preference-matching mechanism by which subnational governments implement decisions to tax and borrow independently (i.e., self-rule). However, this study should also analyze the capacity of subnational governments to codetermine the central government's decisions (Elazar 1987). In this context, both local and central governments can work and decide together on efficiency issues (i.e., shared rule). Nevertheless, the different institutional settings of fiscal decentralization are expected to have more significant effects on growth through different channels of institutional quality.

I conducted a two-step system, general method of moments (GMM), to achieve the objectives. I discovered that different types of fiscal authorities in developing nations might considerably contribute to economic growth. Growth will be reduced if subnational governments use a shared-rule structure in developing nations. The concrete consequence is valid when they have a lesser degree of government quality, a higher risk of corruption, and opt to remain in nondemocratic settings. Meanwhile, shared-rule implementation will boost growth if subnational governments in developing nations maintain a higher level of law and order and enhance the quality of bureaucracy.

The following parts of this paper are organized as follows: Section 2, based on the literature review, discusses the relationship between fiscal decentralization and growth, as well as the mediating effect of institutional quality; Section 3 describes the data and methodology used in this study; Section 4 explores and analyzes the results; Section 5 provides the conclusion and limitations of the study.

2. Review of Literature

Several scholars have tried to disentangle the relationship between fiscal decentralization and economic growth. After a cross-country analysis, drawing from a panel dataset regarding 19 developed countries and 27 developing countries over the period 1970–1989, Davoodi and Zou (1998) reported that the subnational share of total government spending is statistically and negatively correlated with economic growth for all sample and developing countries. A contrasting result was found for the sample of developed countries.

In a more detailed study, Woller and Phillips (1998) investigated the fiscal decentralization–growth nexus in 23 less developed countries from 1974 to 1991. They found no significant relationship between fiscal decentralization and growth using a combined decentralization indicator. Later on, Iimi (2005) used an instrumental variable technique and data on 51

countries in the period 1997–2001 to describe the effect of decentralization on economic growth. Iimi discovered that the subnational share of total government expenditure is significantly and positively correlated with per capita growth.

Some scholars try to narrow the object of analysis to countries that are members of the Organization for Economic Co-operation and Development (OECD). Thornton (2007) used a cross-sectional dataset in 19 OECD member countries in the period 1980–2000 to see whether revenue autonomy affects economic growth. However, his result was not statistically significant. In a larger sample, Rodriguez-Pose and Ezcurra (2011) observed the relationship between revenue and expenditure decentralization and economic growth in a cross-sectional dataset of 21 OECD member countries in 1990–2005. They found a negative and significant association between these two variables.

Meanwhile, Baskaran and Feld (2013) inspected the effect of revenue autonomy and expenditure on economic growth in a panel dataset of 23 OECD member countries over 1975–2008. They reported a negative and statistically insignificant effect based on a GFS-style measure. However, the effect was significant when they used an OECD-style measure. In a different study, Gemmell et al. (2013) employed a panel dataset in 23 OECD member countries in 1972–2005 to examine whether several revenue and expenditure indicators affect economic growth. They confirmed that expenditure decentralization tends to be associated with lower economic growth, while revenue decentralization is associated with higher growth.

None of the cross-country evaluations described above included the issue of institutional quality in the equation. Filippetti and Sacchi (2016) investigated the relationship between fiscal decentralization, as defined by the percentage of local government tax collection, and growth in 21 OECD nations from 1970 to 2010. They discovered that when combined with high (low) administrative and political decentralization, fiscal decentralization leads to higher (lower) economic growth rates. The idea that administrative and political decentralization is a proxy for institutional quality, on the other hand, has a methodological fault. Whether administrative, fiscal, or political, decentralization should be regarded as the uniting factor.

Meanwhile, over the period 2002–2016, Huynh and Tran (2021) examined how expenditure decentralization and tax revenue decentralization affected economic growth and how these effects were influenced by corruption and informality in 23 OECD nations. They found that both expenditure decentralization and tax revenue decentralization had a beneficial impact on economic growth. Furthermore, corruption affected both economic growth and the beneficial impact of expenditure decentralization on growth. Similarly, informality had a detrimental influence on both economic growth and the beneficial impact of tax revenue decentralization on economic growth. The findings suggested that the efficiency of fiscal decentralization would not be achieved as planned until governments controlled corruption and informality. However, governance quality cannot be characterized purely in terms of the lack of corruption, as it is influenced by a variety of other activities not typically associated with corruption, such as clientelism, patronage, and elite capture (Rothstein and Teorell 2008).

All the studies mentioned have similar patterns of analysis, in which the devolution of fiscal powers is found to influence subnational governments' allocative and production efficiency, which in turn affects economic growth. In the former (i.e., allocative efficiency), theoretical arguments are based on the fact that fiscal decentralization improves efficiency in the allocation of public goods since subnational governments have better knowledge and information regarding the preferences of local citizens (Hayek 1945). Similarly, Klugman (1994) refers to the diseconomies of scale argument that a further increase in government size and or expenditure will make the central governments' cost of producing public goods and services inefficient since they have minimal information, primarily in remote areas.

Further, Oates (1999) emphasizes diversification according to the preferences of local citizens. In this context, a uniform level of public goods and services across jurisdictions will be inefficient if tastes and preferences differ. Diversification also increases interjurisdictional

competition because it allows local citizens to 'vote with their feet' (Tiebout 1956). Even in a case where the Leviathan subnational governments behave like revenue maximizers, they still operate efficiently in the use of revenue because of this interjurisdictional competition (Brennan and Buchanan 1980).

Meanwhile, in the latter (i.e., production efficiency), decentralization contributes to a higher level of accountability to subnational governments, leading to a greater degree of production efficiency (Martínez-Vázquez and McNab 2003). Such efficiency motivates local governments to innovate their production processes and adjust public goods and services to the preferences of local citizens. Similarly, Putnam (1993) argues that because decentralization is viewed as the means to increase accountability among subnational governments, this empowers local people and generates strong institutions, such as trust, interaction, and networking between local governments and their citizens, which in turn, reduces the costs of transactions.

Based on the arguments above, it is clear that the nexus between fiscal decentralization and growth depends to some extent on institutional quality. I begin my argument by referring to the seminal work by Riker (1964). He argues that strong political parties can be drivers of political accountability. In this case, parties' political and financial support determines the careers of politicians in subnational governments, including both their possibilities of re-election in the next period and promotion to the national government. In return, parties want to extend their control over politicians' policies to maintain and even increase the size of their electoral vote in the future. Hence, the strength of a party can provide political incentives for local politicians to ensure that policies are implemented efficiently; this in turn strengthens outcomes of decentralization, such as economic growth.

Another perspective comes from the study of Ponce-Rodriguez et al. (2018). They conduct a political-economic analysis of the provision of local public goods, considering the combined influence of democratic (de)centralization and party (de)centralization. In nations with centralized parties, a system of elected local governments outperforms a centralized government structure, even when local public goods have interjurisdictional spillovers. Indeed, a significant conclusion of their theoretical model is that the combination of democratic decentralization and party centralization tends to generate the best effective provision of public goods. The former ensures that local governments respond to the aspirations of their residents, whereas the latter motivates local leaders to spend on items that may have spillover advantages. They also show that establishing locally elected governments can only be expected to improve public goods distribution when parties are centralized or when there are no interjurisdictional spillovers. Local governments governed by decentralized parties are unlikely to offer public goods that spill over into nearby constituencies. To summarize, their approach emphasizes the role of political institutions in deciding how efficient fiscal decentralization outcomes (i.e., economic growth) are.

In this study, I propose a simple premise: that local public officials should be elected by local citizens, as they are more accountable than officials appointed by the central government (Seabright 1996; Enikolopov and Zhuravskaya 2007). Thus, the effect of decentralization on economic growth is determined by democratically elected local officials. The effect of political accountability on the nexus between fiscal decentralization and growth shows some promising results. However, even if subnational officials are democratically elected, fiscal decentralization can reduce the efficiency of local governments in delivering public goods and services, which ultimately hinders economic growth (Blanchard and Shleifer 2001). Such a condition occurs either when local elites capture local official positions or when administrative control of the central government over local officials is substantial (Blanchard and Shleifer 2001). Those problems contribute to a greater level of inefficiency on the part of local government, which ultimately leads to high costs of providing goods and services and corruption. In addition, some believe that local governments may have constraints on administrative capacities, which make the provision and delivery of public goods and services inefficient (Rodriguez-Pose and Gill 2005; Prud'homme 1995).

Therefore, strengthening the accountability of local officials is one of the prerequisites to guarantee optimal efficiency. However, it is essential to note that increasing fiscal authority without mitigating the risk of corruption and improving the capacity and competency of local officers, and increasing the political responsibility of local officials can be detrimental to growth-enhancing policies. In addition, the effect of fiscal decentralization on growth becomes more pronounced when the constitution allows both subnational and central governments to connect and decide together on efficiency issues towards more growth-promoting goals.

3. Data and Methods

To investigate the relationship between fiscal decentralization and economic growth over five periods, namely 1990–1994, 1995–1999, 2000–2004, 2005–2009, and 2010–2014, I utilized control variables compiled from various sources (see Table 1). I acquired the average growth rate of real GDP per capita and the natural logarithm of the initial level of real GDP per capita from the UNESCO Statistical Yearbook (2021). In addition, I obtained the human capital index from Penn World Table, version 9.0. I took the tax share of GDP, government expenditure's share of GDP, debt share of GNI, and population growth rate from the World Development Indicator (WDI) (World Bank 2021).

Table 1. List of variables in growth equation.

Variable Name	Description	Variable Source
gr	Average growth rate of real GDP per capita	UNESCO Statistical Year Book
lgdppc	Natural logarithm of initial level of real GDP per capita	UNESCO Statistical Year Book
tax	Tax to GDP ratio	World Development Indicator, the World Bank
gov	Government expenditure to GDP ratio	World Development Indicator, the World Bank
debt	Debt servicing as share of gross national income (GNI)	World Development Indicator, the World Bank
popgr	Population growth rate	World Development Indicator, the World Bank
hci	Initial human capital index	Penn World Table, Version 9.0
dem (polity)	Level of democracy where 0 represents autocracy and 10 constitutes democracy	Basic Quality of Government (QOG) dataset based on The Polity IV project
libdem	Liberal democracy lies between 0 and 1. Highest score represents highest level	Varieties of Democracy (V-Dem) dataset
elecdem	Electoral democracy lies between 0 and 1 intervals. Highest score represents highest level	Varieties of Democracy (V-Dem) dataset
pardem	Participatory democracy lies between 0 and 1. Highest score represents highest level	Varieties of Democracy (V-Dem) dataset
delibdem	Deliberative democracy lies between 0 and 1 intervals. Highest score represents highest level	Varieties of Democracy (V-Dem) dataset
qog	Government quality lies between 0 and 1. Highest score represents highest level	Quality of Government Basic Dataset
corr	Corruption has a six-point scale. Highest score represents greatest risk of corruption	International Country Risk Guide (ICRG)
lo	Law and order assigned a score between 0 and 6. Highest score represents highest level	International Country Risk Guide (ICRG)
bq	Bureaucratic quality has a four-point scale. Highest score represents highest level	International Country Risk Guide (ICRG)
fisauto	Sums of tax and borrowing autonomy	Regional Autonomy Index (RAI) dataset
fiscont	Sums of tax and borrowing control	Regional Autonomy Index (RAI) dataset

Source: Compiled by the author based on (UNESCO Statistical Yearbook 2021; World Bank 2021; Coppedge et al. 2019; Hooghe et al. 2016; Rothstein and Teorell 2008).

Moreover, to mediate the direct and indirect effect of institutional quality on growth, I employ the ICRG and the V-Dem dataset, as these are the only available indicators for a large group of countries and a long time-span. Murshed et al. (2015) argue that institutional quality can be viewed either as process-based or outcome-based. Basically, the degree of democracy can be a proxy to quantify a country's systemic characteristic; for this reason, I use the concept of liberal democracy by Coppedge et al. (2019). In principle, this emphasizes the importance of protecting individual and minority rights against the tyranny of the state and the majority. Such a model can be achieved by constitutionally protected civil liberties, a strict rule of law, an independent judiciary, and adequate checks and balances, which together constrain the exercise of executive power.

I also contemplate using a separate regression of electoral, participatory, and deliberative democracies. The electoral principle of democracy seeks to embody the core value of making rulers responsive to citizens, achieved through electoral competition for the electorate's approval under the circumstances when (1) suffrage is extensive, (2) political and civil society organizations can operate freely, (3) elections are clean and not marred by fraud or systematic irregularities, and (4) elections affect the composition of the chief executive branch of the country. Meanwhile, the participatory principle of democracy emphasizes active participation by citizens in all political processes, electoral and nonelectoral. Other aspects of democracy, deliberative democracy, focus on how decisions are reached in a polity. In a separate regression, I also utilize data of democracy from the Polity IV project, which combines autocracy and democracy scores.

Meanwhile, the outcome of institutional quality can be gauged by the quality of governance. However, the latter is difficult to measure since it has three core dimensions, namely (1) the process by which those in authority are selected, monitored, and replaced; (2) the government's capacity to manage its resources and implement sound policies effectively; and (3) the respect of citizens and the state for the country's institutions (Kaufmann et al. 2010). Nevertheless, Rothstein and Teorell (2008) argue that such a definition is too broad to quantify. They propose using government quality to measure the outcome of institutional quality by creating an index based on the mean value of the ICRG variables on corruption, law and order, and bureaucratic quality. Aside from government quality, I also separately consider the levels of bureaucracy, corruption, and law and order.

Moving to another variable of interest, I use the RAI dataset (Hooghe et al. 2016) to calculate decentralization. My understanding of the decentralization indicator in the dataset revolves around the preference-matching mechanism whereby subnational governments can tax and borrow independently (i.e., self-rule). However, a case may exist where subnational governments share those authorities with the central government (i.e., shared rule). Thus, I will examine the level of authority of regional governments in terms of taxing and the extent to which they can borrow. From these data, I can separately construct a new proxy of fiscal decentralization indicator by summing the scores of tax and borrowing autonomy (i.e., fiscal autonomy) and tax and borrowing control across all tiers of government (i.e., fiscal control).

Regarding the dependent variable, the average growth in developing countries is below the 4% level (see Table 2). Meanwhile, local government in developing countries has a relatively small degree of fiscal autonomy (1.6) and control (0.25). From the perspective of institutional quality, all samples in developing countries on average produce solid governance indicators. The average liberal democracy index suggests that most developing countries are closer to the characteristic of 'electoral authoritarian', where they face problems in government quality (0.4) and bureaucratic quality (1.5). However, they have relatively reasonable control of corruption (2.3). The developing countries also have a moderate level of tax share (15%), human capital index (2), and law and order (3) and a relatively low level of population growth rate (1.7%), debt share (4.5%), and government size (0.2).

Table 2. Summary of statistics for growth equation.

Variables	Observation	Mean	Std. Deviation	Min	Max
Growth	649	3.89	5.24	−31.02	35.59
Per capita of GDP (log)	627	7.03	1.10	4.17	9.78
Human capital index	475	2.0	0.57	1.03	3.30
Tax share of GDP	389	15.15	6.52	0.02	55.70
Debt share of GNI	560	4.54	4.72	0	49.80
Government size	590	0.20	0.10	0.02	0.91
Population growth rate	666	1.70	1.22	−3.76	6.25
Democracy	663	5.51	2.90	0	10
Liberal democracy	619	0.30	0.19	0.01	0.86
Electoral democracy	619	0.43	0.21	0.07	0.91
Participatory democracy	619	0.25	0.15	0.01	0.67
Deliberative democracy	619	0.29	0.21	0.002	0.87
Government quality	445	0.43	0.12	0.07	0.78
Corruption	445	2.33	0.84	0	5
Bureaucratic quality	445	1.57	0.81	0	4
Law and order	445	3.09	1.05	0.5	5.98
Fiscal autonomy	174	1.58	2.31	0	10.21
Fiscal control	174	0.25	0.66	0	3

Source: Author's calculation based on (UNESCO Statistical Yearbook 2021; World Bank 2021; Coppedge et al. 2019; Hooghe et al. 2016; Rothstein and Teorell 2008).

For this study, except for human capital and GDP per capita, which I employ at the initial level, I will incorporate an average of annual data in panel growth regressions since the benefit of fiscal decentralization is not expected to affect the year-to-year fluctuations in growth. In addition, identifying the effect of fiscal decentralization on economic growth is relatively tricky. To avoid measurement error in growth due to countries' economic fluctuations, I use the average growth of real GDP per capita over five years from 1990 to 2014. This approach is similar to that of many scholars investigating this nexus, whether in cross-country analysis of mixed countries or OECD countries or even in the form of single country analysis.

All in all, I consider a static growth model for a basic panel data regression, as follows:

$$\text{Gr}_{it} = \alpha_1 + \alpha_2\,\text{FD}_{it} + \alpha_3\,\text{Ins}_{it} + \alpha_4\,(\text{FD}_{it} \times \text{Ins}_{it}) + \alpha_5\,X_{it} + u_i + v_t + \varepsilon_{it} \qquad (1)$$

where X_{it} is a set of control variables, ε_{it} is a scalar disturbance term, i indexes country in a cross-section, and t constitutes period. I add income group fixed effect (u_i) and v_t, which corresponds to period fixed effect. Such a procedure represents the time-invariant unobservable characteristics within a specific income group and captures the time-variant unobservable characteristics in growth. However, a preliminary Hausman test suggests that models use random effects (RE). Thus, I will implement random effects with income group fixed effects. The inclusion of u_i will at least tackle some unobserved preferences of societies in a particular income group that might simultaneously determine the degrees of growth and fiscal decentralization.

The dependent variable (Gr_{it}) is the average annual growth rate of per capita GDP of a country over the relevant five periods. This measurement of growth is similar to those of Davoodi and Zou (1998), Woller and Phillips (1998), Rodriguez-Pose and Ezcurra (2011). Meanwhile, variables of interest (FD_{it}) are fiscal autonomy, fiscal control, subnational revenue as a share of total government revenue, and subnational expenditure as a share of

total government expenditure in a country. In addition, I include institutional quality (Ins$_{it}$) indicators, such as indices of democracy and government quality, and their interactive terms with fiscal decentralization (FD$_{it}$ × Ins$_{it}$) to capture not only the indirect effect of institutional quality on the fiscal decentralization–growth nexus but also its direct effect on growth. This variable is expected to give a positive sign in the growth equation.

The control variable (X$_{it}$) is relatively varied within the fiscal decentralization–growth literature. Following the approach of Davoodi and Zou (1998), in addition to the initial GDP per capita of every country, I consider the level of human capital, measured as the initial human capital index. I also incorporate the population growth rate. Moreover, I include the tax to GDP ratio to control the tax burden's effect on economic growth. Debt servicing as a share of GNI is also included not only because it creates a burden for following generations, but also because a heavily indebted government may adopt restrictive policies to consolidate its finances. In addition, government size is included as a control variable to investigate whether the argument of diseconomies of scale exists.

4. Results

Table 3 reports various regressions between fiscal decentralization indicators, institutional quality, and growth in which the estimations of RE are fundamentally superior to FE in all models.

Table 3. Regressions on fiscal decentralization, growth, and institutional quality.

Ind. Variable	Dep. Variable: Growth								
	A. Variable of Interest: Fiscal Autonomy								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	RE	RE	RE	RE	RE	RE	RE	RE	RE
Fiscal autonomy	−0.73 (0.82)	−0.99 ** (0.48)	−0.53 (0.54)	−0.66 (0.55)	−0.55 (0.38)	−0.51 (0.64)	−0.29 (0.57)	−0.45 (0.48)	−0.11 (0.58)
Democracy (polity)	−0.22 (0.24)								
Electoral democracy		−5.27 *** (2.05)							
Participatory democracy			−4.11 (3.06)						
Deliberative democracy				−3.31 (2.25)					
Liberal democracy					−3.67 (1.96)				
Quality of government						−2.48 (3.44)			
Corruption							−0.61 (0.47)		
Law and order								−0.05 (0.39)	
Bureaucratic quality									−0.15 (0.74)
Fiscal autonomy × democracy	0.08 (0.10)								

Table 3. *Cont.*

Ind. Variable	Dep. Variable: Growth								
	A. Variable of Interest: Fiscal Autonomy								
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
	RE	**RE**	**RE**	**RE**	**RE**	**RE**	**RE**	**RE**	**RE**
Fiscal autonomy × electoral democracy		1.29 * (0.28)							
Fiscal autonomy × participatory democracy			1.02 (1.18)						
Fiscal autonomy × deliberative democracy				1.04 (0.96)					
Fiscal autonomy × liberal democracy					0.85 (0.68)				
Fiscal autonomy × quality of government						0.90 (1.33)			
Fiscal autonomy × corruption							0.08 (0.22)		
Fiscal autonomy × law and order								0.12 (0.17)	
Fiscal autonomy × bureaucratic quality									0.02 (0.27)
R^2	0.47	0.45	0.39	0.39	0.34	0.37	0.39	0.38	0.36
Period effect	No	No	No	No	No	No	No	No	No
Country effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observation	99	94	94	94	94	94	94	94	94
Groups	24	23	23	23	23	23	23	23	23

Ind. Variable	Dep. Variable: Growth								
	B. Variable of Interest: Fiscal Control								
	(10)	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**	**(17)**	**(18)**
	RE	**RE**	**RE**	**RE**	**RE**	**RE**	**RE**	**RE**	**RE**
Fiscal control	1.52 (1.12)	0.80 (1.63)	0.83 (1.53)	1.17 (1.17)	1.38 (1.44)	0.73 (1.29)	−0.61 (0.54)	1.40 *** (0.58)	0.64 (3.74)
Democracy (polity)	−0.04 (0.22)								
Electoral democracy		−2.84 * (1.60)							
Participatory democracy			−2.29 (1.72)						
Deliberative democracy				−1.11 (1.08)					
Liberal democracy					−2.08 (1.56)				
Quality of government						−2.19 (2.85)			
Corruption							−0.61 (0.41)		

Table 3. *Cont.*

Ind. Variable	Dep. Variable: Growth								
	B. Variable of Interest: Fiscal Control								
	(10)	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**	**(17)**	**(18)**
	RE	**RE**	**RE**	**RE**	**RE**	**RE**	**RE**	**RE**	**RE**
Law and order								−0.11 (0.28)	
Bureaucratic quality									−0.20 (0.51)
Fiscal control × democracy	−0.23 (0.18)								
Fiscal control × electoral democracy		−3.66 (4.37)							
Fiscal control × participatory democracy			−4.46 (6.14)						
Fiscal control × deliberative democracy				−5.76 (4.59)					
Fiscal control × liberal democracy					−8.00 (6.33)				
Fiscal control × quality of government						−0.27 (2.53)			
Fiscal control × corruption							−0.40 (0.25)		
Fiscal control × law and order								−0.28 (0.23)	
Fiscal control × bureaucratic quality									−0.06 (1.32)
R^2	0.41	0.41	0.39	0.37	0.38	0.38	0.43	0.39	0.37
Period effect	No	No	No	No	No	No	No	No	No
Country effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observation	99	94	94	94	94	94	94	94	94
Groups	24	23	23	23	23	23	23	23	23

Source: Author's calculation based on (UNESCO Statistical Yearbook 2021; World Bank 2021; Coppedge et al. 2019; Hooghe et al. 2016; Rothstein and Teorell 2008). Notes: Number of parentheses are robust standard error. Asterisks as follows: *** = significant at 1% level; ** = significant at 5% level; * = significant at 10% level. Other explanatory variables in each equation: (1) natural logarithm of initial GDP per capita; (2) human capital index; (3) government size; (4) population growth rate; (5) tax share; (6) debt share. Full results are available upon request.

There is also a potential endogeneity problem in which growth can also affect fiscal decentralization and institutions. This argument can hold particularly in high per capita income countries that might afford the costs for implementing decentralization. Additionally, there may be cases when officials in developing countries with lower degrees of institutions may resist fiscal decentralization to maintain their access to public resources or centralize their rent-seeking practices.

In response to these potential problems, previous studies have introduced different instrumental variables to identify the causal effect of fiscal decentralization on growth. Iimi (2005) utilizes the five-year lagged, while Gemmell et al. (2013) deploy the third and fourth year lagged values of the fiscal decentralization indicator as instruments. Based on these arguments, I incorporate several instruments such as the lagged value of fiscal decentralization indicators, institutional quality, and their interactive terms. In Table 4, I adopt an instrumental variable (IV) approach in a dynamic panel analysis (i.e., a two-step

system GMM) in all models since this method can deal with several issues in a short panel dataset such as the reverse causality, the unobserved country-specific effects, and the presence of autocorrelation in the lagged dependent and endogenous explanatory variables. Therefore, I count on the results in columns (1) to (9) and (10) to (18).

Table 4. Dynamic panel regressions on fiscal decentralization, growth, and institutional quality.

Ind. Variable	Dep. Variable: Growth								
	A. Variable of Interest: Fiscal Autonomy								
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
	GMM	**GMM**	**GMM**	**GMM**	**GMM**	**GMM**	**GMM**	**GMM**	**GMM**
Fiscal autonomy	−1.06 (1.34)	−0.77 (1.16)	−0.38 (0.83)	−0.69 (1.91)	−0.31 (1.40)	−3.84 (6.15)	−2.41 (1.45)	0.91 (1.21)	0.42 (0.80)
Democracy (polity)	−0.19 (0.38)								
Electoral democracy		−3.94 (5.37)							
Participatory democracy			−2.91 (4.84)						
Deliberative democracy				−2.18 (8.86)					
Liberal democracy					−1.70 (7.38)				
Quality of government						−2.19 (16.67)			
Corruption							−0.53 (1.14)		
Law and order								0.88 (0.62)	
Bureaucratic quality									−0.50 (0.75)
Fiscal autonomy × democracy	0.15 (0.18)								
Fiscal autonomy × electoral democracy		1.00 (1.45)							
Fiscal autonomy × participatory democracy			0.65 (1.56)						
Fiscal autonomy × deliberative democracy				1.18 (3.16)					
Fiscal autonomy × liberal democracy					0.44 (2.49)				
Fiscal autonomy × quality of government						7.73 (12.22)			
Fiscal autonomy × corruption							0.92 * (0.53)		
Fiscal autonomy × law and order								−0.29 (0.42)	
Fiscal autonomy × bureaucratic quality									−0.14 (0.36)

Table 4. *Cont.*

Ind. Variable	Dep. Variable: Growth								
	A. Variable of Interest: Fiscal Autonomy								
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
	GMM	**GMM**	**GMM**	**GMM**	**GMM**	**GMM**	**GMM**	**GMM**	**GMM**
AR *p*-value	0.29	0.25	0.24	0.22	0.31	0.54	0.37	0.25	0.21
Sargan test	0.53	0.45	0.47	0.62	0.83	0.99	0.99	0.89	0.99
Instruments	19	19	19	19	19	19	19	19	19
Lag	3	3	3	3	3	3	3	3	3
Period effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observation	81	77	77	77	77	77	77	77	77
Groups	23	22	22	22	22	22	22	22	22

Ind. Variable	Dep. Variable: Growth								
	B. Variable of Interest: Fiscal Control								
	(10)	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**	**(17)**	**(18)**
	GMM	**GMM**	**GMM**	**GMM**	**GMM**	**GMM**	**GMM**	**GMM**	**GMM**
Fiscal control	−15.89 ** (6.32)	1.36 (3.60)	7.55 (5.02)	4.61 (5.07)	6.31 (7.83)	54.81 * (15.59)	−48.73 * (13.90)	43.03 * (11.05)	59.68 * (33.84)
Democracy (polity)	−0.01 (0.48)								
Electoral democracy		−4.08 (6.03)							
Participatory democracy			−0.74 (3.26)						
Deliberative democracy				1.38 (8.17)					
Liberal democracy					0.53 (7.99)				
Quality of government						−68.56 (54.01)			
Corruption							−12.35 ** (10.15)		
Law and order								10.77 * (10.41)	
Bureaucratic quality									−14.62 (18.28)
Fiscal control × democracy	2.84 ** (1.27)								
Fiscal control × electoral democracy		−5.39 (13.12)							
Fiscal control × participatory democracy			−37.15 (18.26)						
Fiscal control × deliberative democracy				−20.44 (19.39)					

Table 4. *Cont.*

Ind. Variable	Dep. Variable: Growth								
	B. Variable of Interest: Fiscal Control								
	(10)	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**	**(17)**	**(18)**
	GMM	**GMM**	**GMM**	**GMM**	**GMM**	**GMM**	**GMM**	**GMM**	**GMM**
Fiscal control × liberal democracy					−10.03 (9.01)				
Fiscal control × quality of government						−85.06 * (49)			
Fiscal control × corruption							16.23 * (5.32)		
Fiscal control × law and order								−11.14 * (4.48)	
Fiscal control × bureaucratic quality									−19.37 * (15.65)
AR *p*-value	0.24	0.25	0.55	0.48	0.62	0.35	0.31	0.57	0.85
Sargan test	0.23	0.16	0.29	0.35	0.53	0.59	0.46	0.89	0.43
Instruments	21	21	17	17	17	14	21	17	14
Lag	2	2	3	3	3	4	2	3	4
Period effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observation	81	77	77	77	77	77	77	77	77
Groups	23	22	22	22	22	22	22	22	22

Source: Author's calculation based on (UNESCO Statistical Yearbook 2021; World Bank 2021; Coppedge et al. 2019; Hooghe et al. 2016; Rothstein and Teorell 2008). Notes: Numbers of parentheses are robust standard error. Asterisks as follows: *** = significant at 1% level; ** = significant at 5% level; * = significant at 10% level. Other explanatory variables in each equation are as follows: (1) natural logarithm of initial GDP per capita; (2) human capital index; (3) government size; (4) population growth rate; (5) tax share; (6) debt share. In the case of GMM, the first lag of growth is the explanatory variable. Full results are available upon request.

5. Discussion

In Table 3, I begin the interpretation with the input-based metrics of institutions. In columns (2) and (11), the direct effect of electoral democracy appears to be significant and negative on growth in developing countries when subnational governments can independently codetermine policies and implement their fiscal authority. These clarifications may suggest that democracy is 'too costly' in that it hinders economic growth by reducing the rate of physical capital accumulation and increasing government size (Tavares and Wacziarg 2001).

Another explanation comes from Rodrik's (2016) investigation clarifying the situation of systems of government that lead to less growth. He argues that liberal democracy has been difficult to apply and sustain in developing countries for two reasons: (1) Although constraint on the executive, the rule of law, religious tolerance, and freedom of voice have been adequately established in the West, such conditions require a certain level of societal maturity, a tradition of liberal ideas which other societies of Asia, Africa, and Latin American countries lack. (2) Mass political mobilization in developing countries was the product of wars of national freedom or decolonization. It came when the main political cleavages were based on identity, instead of the economic class differences created by industrialization, as in the West. In this condition, political stability is fragile and can easily be destabilized, either by opportunistic politicians or changes in demography, as occurred in Lebanon.

Meanwhile, in column (2), the positive and significant coefficients of the interaction term between fiscal autonomy and electoral democracy indicate that after developing countries have attained a greater degree of electoral democracy, the devolution of fiscal powers can make a positive contribution to their growth. The level of electoral democracy in which fiscal autonomy appears to increase economic growth in developing countries effectively is on average equal to 0.77 points on the V-DEM scale.

Regarding the direct effect of the devolution of fiscal powers, the degrees of fiscal autonomy have a significant and negative effect on economic growth in developing countries when electoral democracy is taken into account. However, the total effect of fiscal autonomy on growth is positive when I utilize the V-DEM dataset. Thus, my finding to some degree corresponds to those of Seabright (1996), as well as Enikolopov and Zhuravskaya (2007), that fiscal decentralization can increase efficiency, which ultimately enhances growth if local officials in developing countries are democratically elected.

Moving to other metrics of institutional quality, in columns (6) to (9) and (15) to (18), my finding shows that all indicators of institutional quality have a negative and insignificant effect on growth in developing countries when they conduct fiscal autonomy and control. Similarly, their interaction variables are insignificant when the estimations include fiscal autonomy and control. As a result, my findings contradict the finding of Huynh and Tran (2021) that the efficacy of fiscal decentralization depends on governments' control over corruption and informality. This study also finds that degree of fiscal control has a significant and positive effect on growth when law and order are taken into account. One additional point is that fiscal control enhances growth by 1.4% if other variables are fixed. This is not a surprising result, mainly when a constitution allows both central and subnational governments to codetermine efficiency issues toward more growth-enhancing goals.

In Table 4, contrary to the previous results, the direct effect of the input-based metrics of institutional quality appears to be statistically insignificant in all models. Meanwhile, the interaction term between fiscal decentralization and democracy (polity) appears to be statistically significant and positive in relation to growth. However, such connections can be found only when developing countries implement fiscal control. For instance, in column (10), the interaction variables between fiscal control and democracy (polity) have a positive effect on growth. After developing countries reach a greater degree of democracy (polity), the points at which fiscal control becomes effective in improving their growth are equal to 5.6 points on the polity scale. Based on these indirect effects, apparently, increasing the level of cosharing contributes negatively to growth. Such a result suggests that developing countries cannot implement shared rule properly when their degree of democracy (polity) is low.

Moving to the output-based metrics of institutions, when subnational and central governments decide together, corruption and law and order significantly improve growth. From here, the direct effect of institutions on growth gives better results than the ones in Table 3. The analysis of interaction variables becomes much more interesting when comparing the results between fiscal autonomy and fiscal control. When fiscal autonomy interacts with corruption, there is a positive effect on growth. In column (7), countries with self-rule can increase growth if they attain a level of corruption at 2.62 points on the ICRG scale.

On the other hand, when fiscal control connects with quality of government, law and order, and bureaucratic quality, growth becomes negative. Additionally, shared rule positively affects growth when the risk of corruption is added to the estimation. Hence, based on columns (15) to (18), it can be effective to enhance growth when developing countries on average have reached levels of government quality, corruption, the rule of law, and bureaucratic quality at 0.64, 3, 3.86, and 3.08 points on the ICRG scale, respectively.

Meanwhile, the overall effect of shared rule on growth is positive when estimations include law and order and bureaucratic quality. Such results can be interpreted that a cooperative approach between subnational and central governments can achieve higher growth if bureaucratic quality and the rule of law in developing countries are well above the

threshold value. Conversely, shared rule has a negative overall effect on growth when the models include government quality and corruption. This means that developing countries that apply shared rule must improve their quality of government and reduce the risk of corruption to enhance growth. In other words, shared rule cannot be implemented by developing countries with lower governance levels and higher risks of corruption.

6. Conclusions

In this study, I investigate the relationship between fiscal decentralization and growth over the period 1990–2014. I argue that different institutional settings of fiscal decentralization can contribute significantly to growth in developing countries. Such an effect can, to some extent, be clarified through the quality of institutions.

The primary outcome of the empirical re-examination is that varieties of fiscal decentralization and growth can be best described in terms of process-based and outcome-based measures of institutional quality. Increasing the level of cosharing has a negative effect on growth in a lower level of governance quality, in a higher risk of corruption, and in nondemocracy settings. However, shared rule gives a positive contribution to growth through a greater degree of law and order, as well as the quality of bureaucracy.

In future research, it is essential to expand the time span of data as well as to obtain valid instruments to explore the dynamic of panel analysis, since this study has focused mostly on middle-income countries. Thus, there is a need to incorporate such issues by applying different types of decentralization, such as political and administrative, as well as by examining different groups of countries.

To conclude, a crucial implication of my study is that the negative effect of fiscal decentralization on growth should not be interpreted as giving support to centralized government systems. In fact, policymakers at both subnational and national levels should reconsider a way to increase subnational governments' managerial and administrative capacity in their countries to minimize the potential negative impact on growth. The main point is that the effectiveness of fiscal decentralization on growth must be evaluated by taking institutions into account.

Institutional Review Board Statement: Not applicable.

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Data Availability Statement: Data available in a publicly accessible repository that does not issue DOIs.

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Appendix A

Table A1. List of Developing Countries (RAI Sample Dataset).

No	Country	Region	Income Group
1	Argentina	Latin America and Caribbean	Upper middle income
2	Bolivia	Latin America and Caribbean	Lower middle income
3	Brazil	Latin America and Caribbean	Upper middle income
4	Bulgaria	Europe and Central Asia	Upper middle income
5	China	East Asia and Pacific	Upper middle income
6	Colombia	Latin America and Caribbean	Upper middle income
7	Costa Rica	Latin America and Caribbean	Upper middle income
8	Dominican Republic	Latin America and Caribbean	Upper middle income
9	Ecuador	Latin America and Caribbean	Upper middle income
10	Guatemala	Latin America and Caribbean	Lower middle income
11	Honduras	Latin America and Caribbean	Lower middle income

Table A1. *Cont.*

No	Country	Region	Income Group
12	Indonesia	East Asia and Pacific	Lower middle income
13	Jamaica	Latin America and Caribbean	Upper middle income
14	Malaysia	East Asia and Pacific	Upper middle income
15	Mexico	Latin America and Caribbean	Upper middle income
16	Nicaragua	Latin America and Caribbean	Lower middle income
17	Paraguay	Latin America and Caribbean	Upper middle income
18	Peru	Latin America and Caribbean	Upper middle income
19	Philippines	East Asia and Pacific	Lower middle income
20	Romania	Europe and Central Asia	Upper middle income
21	Russia	Europe and Central Asia	Upper middle income
22	Thailand	East Asia and Pacific	Upper middle income
23	Turkey	Europe and Central Asia	Upper middle income
24	Venezuela	Latin America and Caribbean	Upper middle income

Source: Author's calculation based on (World Bank 2021; Hooghe et al. 2016).

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