Decentralization and Development Outcomes: What Does the Empirical Literature Really Say?*

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Abstract

This article critically reviews the empirical literature on decentralization and its relationship with development outcomes. The analysis suggests that revenue decentralization and fiscal independence, or the ability of local governments to raise their own revenue rather than relying on transfers from the national government, are the decentralization types most positively associated with development outcomes. Expenditure decentralization has no clear trend. In terms of development outcomes, most of the studies reviewed found evidence that good governance is positively associated with decentralization; but the evidence is mixed on economic growth. Some suggestions were also made for future decentralization studies.

Keywords: Decentralization, Development, Literature Survey.

JEL Classification: H70, H77, I30.

1. Background and Objectives

In the past few decades, decentralization has been a common component of development strategies and public finance reform among developing countries (Rodriguez-Pose and Gill, 2003; Smoke, 2001; Dillinger, 1994). The primary argument for decentralization is that bringing public goods provision closer to its users can promote greater efficiency, better governance, and accountability (Faguet, 2009; Kubal, 2006; Shah, 2006). Because the local government has better information on the preferences of its constituents, it can better design public services to respond to local needs that are often different from those in other regions. This 'decentralization theorem', often originally attributed to Oates (1972), suggests that

public goods provision by the local government is more efficient than that of the central government (Boadway and Shah, 2009; Shah, 1998; Wallis and Oates, 1988).

In addition, decentralization can enhance accountability because the provider and user of public goods are closer to each other. Monitoring and holding the provider accountable is easier than if public service decisions are made from the center (Faguet, 2009; Von Braun and Grote, 2002; Persson and Tabellini, 2000). Decentralization can also promote better governance and efficiency through inter-jurisdictional competition. When local governments compete, and consumers and firms can 'vote with their feet', local officials are incentivized to improve service delivery and to do so at the lowest cost (Weingast, 1995; Qian and Weingast, 1997).

However, decentralization also has pitfalls. Foremost, the central government has economies of scale, allowing them to provide public goods at lower per unit cost. Often, the national government also has better access to resources (Bahl, 1999; Faguet, 2004; Prud'homme, 1995). Decentralization can also promote local elite capture, and it empowers local governments that are often more poorly governed compared to the central government (Faguet, 2009; Asante and Ayee, 2007; Boone, 2003; Prud'homme, 1995). In addition, decentralization can worsen inequality, particularly when local governments have varying capacities to govern, to provide public goods, and to generate income. In this case, transferring responsibilities to local governments can result in uneven development outcomes across regions (Bahl, 1999; Prud-homme, 1995; Qiao *et al.*, 2008).

Decentralization can also limit the national government's capacity to conduct fiscal policy and to implement redistributive programs. When funds and revenues are decentralized, the central government has less access to funds and spending instruments (Prud-homme, 1995; Rodríguez-Pose and Gill, 2003). Related to this, it is difficult to maintain fiscal discipline among local governments under a decentralized setting if they have soft budget constraints; i.e. if they can expect substantial external funding such as fiscal transfers from the central government (Rodden *et al.*, 2003; Qian and Roland, 1998). A fiscally undisciplined local government can hurt the entire economy, as shown by the early 2000s financial crisis in Brazil and Argentina, which was precipitated by profligate borrowing of local governments (Inman, 2003).

The popularity of decentralization and the contrasting arguments in favor of and against it spawned many empirical studies. Most of this literature studied the relationship between decentralization and economic growth or governance; but others also looked at its effect on some other development outcomes. However, papers on this topic gave widely varying results, and the effectiveness of decentralization remains inconclusive (Smoke, 2015).

The objective and contribution of this paper is to critically review the empirical literature on decentralization and its relationship with development outcomes. Although the results of these studies are heterogenous, this paper looks for trends such as in which indicators of decentralization, types of decentralization, indicators of development, or groups of countries do a positive and a negative relationship appear. It also makes recommendations on future empirical analysis of decentralization.

This paper is organized as follows. The background, objectives, and the benefits and costs of decentralization are discussed in this introductory section. This is followed by brief discussions on the definition and indicators of decentralization, including issues on how to measure it, and on some theoretical models of decentralization and development. The actual literature review then starts with the characteristics of the existing empirical literature, such as the decentralization indicators used, types of countries studied, outcome indicators analyzed, and types of data utilized. This is followed by the results of the review and analysis of literature. The paper concludes with a summary, conclusion, and recommendations for future decentralization studies.

2. Definition, Indicators, and Theories of Decentralization

2.1. Defining and Measuring Decentralization

Decentralization is the transfer of functions, power, and responsibilities from the central to lower levels of government (Rodden, 2004; Von Braun and Grote, 2002; Litvack *et al.*, 1998). There are three types of decentralization. The most commonly studied is fiscal decentralization, or the transfer of expenditure functions and revenue responsibilities from the national to the local government (Litvack *et al.*, 1998; Von Braun and Grote, 2002). Revenue responsibilities refer to the collection and administration of different types of taxes, regulatory fees, and service fees, among other tax and non-tax income. A centralized revenue collection means that sub-national governments have limited capacity to generate own-sourced revenues, forcing them to rely on transfers from the national government. This is the case in many centralized developing countries.

On the other hand, assignment of expenditure functions refers to which level of government is responsible for spending for public goods and services. Spending for public good or service can either be the function of the national government, the sub-national government, or it could be a shared responsibility across different levels. However, decentralized spending does not necessarily imply that decision-making is also decentralized. It is possible that the central government exerts some influence on the local government's spending decision (Akai and Sakata, 2002; Stegarescu, 2005).

This brings us to the second type of decentralization. Administrative decentralization is the transfer of power, responsibility, and accountability to provide public goods and services from the central government to lower levels of government. Administrative decentralization has three forms. Arranged from weakest to strongest, they are deconcentration, delegation, and devolution (Schneider, 2003; Litvack and Seddon, 2000).

Deconcentration is the transfer of functions across different levels of a national government agency; for example, from its central office to its regional, provincial, or municipal office. Delegation is shifting responsibilities from the central government to other levels of government that are semi-independent from the center but accountable to it. This could be

local governments, school districts, transportation authorities, public corporations, and other similar organizations. Delegation creates a principal-agent relationship, with the national government being the principal, and the other government levels the agents with self-interests. The key to a successful delegation, as in any principal-agent problem, is to create incentives for the agent to align its objectives with those of the principal. The strongest form of administrative decentralization, devolution, is the transfer of responsibilities, accountabilities, decision-making power, finance, and management of public goods and services from the central to the local governments. These local governments are usually elected and have legal authority over a well-defined geographic area (Litvack *et al*., 1998; Litvack and Seddon, 2000).

Devolution is closely related to fiscal decentralization because local governments that hold larger share of responsibilities and powers are more likely to incur larger share of expenditures. In addition, a decentralization program that devolves spending functions to local governments is sometimes accompanied by additional revenue generating powers. However, expenditure decentralization does not necessarily imply revenue decentralization. In many developing countries, a large chunk of revenues is collected by the national government, but portions of which are transferred to sub-national governments through inter-governmental fiscal transfers in the form of revenue shares (Shah, 2007; Rao, 2007).

The third type of decentralization is political decentralization. It gives citizens or their representatives greater power and participation in decisions over the provision of public goods and services (Litvack *et al*., 1998; Litvack and Seddon, 2000). The rationale behind it is that citizen participation will make public services more responsive to local needs and preferences, compared to when decisions are made at the center. For political decentralization to be effective, elected representatives should have incentives to act in the interest of their constituents. They should also have information on the needs and preferences of the local citizens that they represent. It requires strong political parties, legislature, and local governments (Litvack and Seddon, 2000).

While defining the different types of decentralization is straightforward, measuring decentralization is less so. This poses challenges to empirical studies. As emphasized by Ebel and Yilmaz (2002), using the correct decentralization indicator is important in any empirical analysis to make results more reliable.

The most commonly studied type of decentralization is fiscal decentralization, primarily because it is the easiest to measure. Most studies used sub-national government expenditures or revenues expressed as ratio of total government expenditures or revenues (e. g. Davoodi and Zou, 1998; Baskaran and Feld, 2013; Bodman, 2010). Still others used measures of fiscal independence or the ability of the local governments to finance their own expenditures (e. g. Faguet and Sánchez, 2008). This is often represented by own-sourced local government revenues expressed as ratio of either total local government revenues or expenditures.

Administrative and political decentralization are the ones that are more difficult to measure directly. Von Braun and Grote (2002) suggested measuring administrative decentralization by the degree of subdivision of a country, such as number of local governments per

population or per land area. However, although some empirical papers used these variables as decentralization indicator (e. g. Tosun and Yilmaz, 2010; Bodman, 2010; Goel and Nelson, 2011), it is difficult to argue that they measure administrative decentralization. Although more local governments per population or per area means the government is more fragmented, it does not necessarily give information on whose responsibility it is to manage, finance, and make decisions on public goods provision.

The forms of administrative decentralization are also difficult to measure. For instance, when a national government agency deconcentrates by transferring functions to its municipal offices, it does not mean that the local office has full control. For some deconcentration of public goods provision, much of the decision on policies still rests on the central office and the local office has little, if any, discretion. For much of it, deconcentration only increases local power in a single dimension, which is the delivery of public goods and services (Martínez-Vázquez and Timofeev, 2010). Measuring devolution is also complicated because the transfer of functions to local governments has many components, from decision-making power to accountabilities, finance, and management. A good measure of devolution should therefore consider all these components.

Von Braun and Grote (2002), Schneider (2003), and Rodden (2004) suggested measuring political decentralization by the number of levels of government that hold an election. Similarly, Ivanyna and Shah's (2012) proposed indicator is whether local government officials are elected rather than appointed. Although the presence of elected local officials suggests that the consumers participate in the political process, these indicators are imperfect because they do not show how much power is held by the citizens or their representatives in decision-making on public goods provision.

Stegarescu (2005) further discussed how some decentralization measures that are commonly used in empirical studies can be problematic because they overestimate the actual degree of decentralization. The share of sub-national governments to total government expenditures and revenues are imperfect because they do not consider the actual autonomy of the local governments in deciding how to allocate, use, and collect these funds. Although the spending and revenue generating functions are formally assigned to the sub-national levels, it is possible that the local government do not enjoy full discretion over these funds because how they are used is partly or largely determined by the central government. Local government expenditures made on behalf of the national government or spent based on central government directions do not reflect the autonomy of sub-national governments. Other regulations imposed by the central to the sub-national governments such as spending restrictions, quality standards, and budgetary rules are also not reflected in the local government share of total government expenditures and revenues.

To address these shortcomings, Stegarescu (2005) proposed alternative measures of decentralization using classifications of revenue and tax data that will better capture the autonomy of the local government. This classification was based on the degree of control the local government has over revenue sources. The sub-national government (SNG) has the greatest control over the following three revenue sources: local taxes wherein the SNG determines

the tax rate and the tax base, local taxes in which the SNG determines only the tax rate, and local taxes in which the SNG determines only the tax base. SNGs also have some autonomy over the following income sources: revenue sharing with the national government in which the SNG determines the split, and revenue sharing in which the split can only be changed with the consent of the SNG. The decentralization measures proposed by Stegarescu are composed of ratios of revenue sources in which the SNG has control to either total national government revenues or total SNG revenues, or some variants thereof. These indicators measure revenue decentralization better because their numerators include only sub-national revenues which the local government can control.

Related to this, Marks *et al*. (2008) and Hooghe *et al*. (2010) proposed a more multi-dimensional indicator that can address some of the shortcomings of the common quantitative measures of decentralization. This 'regional authority index' considers two domains –self-rule and shared rule– composed of four components each. The former refers to the regional government's level of authority over the residents of the region, while the latter is the authority of the regional government over the entire country. Self-rule is composed of the following components: institutional depth (regional government's extent of being autonomous rather than deconcentrated), policy scope (range of policies for which the regional government has control), fiscal autonomy (extent to which the residents can be taxed independently by the regional government), and representation (presence and extent of an independent regional legislature and executive). The shared rule domain is composed of: law making (the extent to which regional representatives can contribute to national law making), executive control (extent to which the regional government can influence national policy in intergovernmental meetings), fiscal control (extent to which the regional government can influence the distribution of national tax revenues), and constitutional reform (the extent to which the regional government can influence constitutional change). This index measures more than just the sharing of expenditure and revenue functions across levels of government, but also the authority of the regional government to make decisions on its own over the use of funds and how and from whom to raise revenues. In addition, it measures the regional government's influence in national decision making.

Aside from measurement issues, another point of discussion among the forms of decentralization is their advantages and disadvantages over each other. As already discussed, fiscal decentralization –the transfer of spending and revenue collection functions– alone does not necessarily imply a strong decentralization scheme, particularly if the central government retains significant power in allocating resources and in deciding how and from whom to collect revenues (Akai and Sakata, 2002). On the other hand, administrative decentralization –transferring responsibilities, spending, decision-making, power, and accountability– will also have a limited impact if the local governments cannot generate its own revenues. The 'finance follows function' principle states that devolved functions and responsibilities that require a local government to spend should be matched by a corresponding revenue assignment (Bahl and Bird, 2018; World Bank, 1999). Some studies argue that, particularly in developing countries, the lack of capacity of local governments to generate funds for the expenditure functions devolved to them limited the effectiveness of decentralization in promoting development (Shen *et al*., 2012; Capuno, 2017).

Finally, the advantage of political decentralization is it gives more power to consumers or their representatives to contribute to decision-making in public goods provision. This exceeds all information advantage that the local government may have, since the best source of information on the consumer's preference is the consumer himself. However, political decentralization requires certain conditions before it can translate to better welfare. For one, the elected representative should have the interest of the consumer as its primary objective; which, as some second-generation fiscal federalism theories argue, is a strong assumption (Oates, 2005; Weingast, 2009). It also requires strong political parties and legislature (Litvack and Seddon, 2000), which may be scarce in developing countries.

2.2. Some Decentralization Theories

While the Background and Objectives contain conceptual discussions on the benefits and costs of decentralization, this section discusses some theoretical models on decentralization and how it relates to growth, consumer utility, and public service provision. One of the earliest theories on the benefits of decentralization was provided in Oates' (1972) seminal work on the 'Decentralization Theorem'. By tailoring the public good provision to the preferences of the local population, decentralization can potentially be welfare-enhancing compared to a centralized setup, wherein the central government provides public goods uniformly for the entire population. According to Oates (2005), this theory was built from early literature on public finance, notably from three early major contributors Arrow (1970), Musgrave (1959), and Samuelson (1954, 1955).

Another popular early theory on decentralization is Tiebout's (1956) 'voting with the feet' concept. It states that consumers can choose the jurisdiction that offers their most preferred public goods, provided that the assumption of perfect mobility is met. Tiebout suggests that different jurisdictions offer different public goods based on their own objective function. Consumers then self-select by moving to their preferred jurisdiction. Decentralization, therefore, allows the existence of different types and quantities of public goods that is more suited to local preferences. When public good provision is centrally planned and is uniform across localities, it can be under-provided in some areas and over-provided in others.

More recent models dealt with finding an optimal level of decentralization or finding conditions wherein decentralization is preferable from a utility-maximizing perspective. Faguet's (2004) model is an example of the latter. In this model, the government maximizes the net benefit of public goods. It incorporates the information advantage of local governments on local needs and preferences, and the cost advantage of the central government in producing public goods. Faguet's main proposition, basically, is that a decentralized government setup is preferred if the information advantage of sub-national governments exceeds the cost advantage of the central government.

On the other hand, Xie *et al.* (1999) and Davoodi and Zou (1998) constructed models of decentralization level optimal for growth. The models involve the government maximizing the utility of a representative consumer subject to a production constraint. Production is a func-

tion of private and government capital, with the latter divided into national, state, and local government capital. The solution to the problem consists of shares of spending among these three government levels that maximizes growth. The main conclusion of these models is that there is an optimum level of decentralization. Below such level, further decentralization increases economic growth. Above it, decentralization should be decreased to enhance growth.

All models previously discussed in this sub-section have one important assumption –that the government's objective function is to maximize its citizens' utility– a characteristic of what is referred to as first generation fiscal federalism models. This is a fair assumption given that many government officials are elected, and voters can punish them in the next election if they do not do their job (Oates, 2005). Nonetheless, corruption and bribery do exist, eliciting a rethinking of this assumption. A more recent strand of literature, referred to as second generation fiscal federalism models, assumes that government officials face incentives that do not necessarily align with consumers' utility (Oates, 2005; Weingast, 2009, 2013). Maximizing their objective function can therefore lead to sub-optimal social outcomes.

For instance, in the Bardhan and Mookherjee (2006) model, the local bureaucrat's problem is to select an optimal bribe level while providing local public goods; while the national bureaucrat solves for an optimal bribe schedule in allocating resources across different local governments. The model considers that the main disadvantage of centralized public goods provision is it creates monopoly power and corruption in the unregulated central government, while the primary cost of a decentralized provision is that local governments are prone to local elite capture. The primary result is that the effect of decentralization on effectiveness of public service provision depends on the method of financing sub-national governments.

The Seabright (1996) and Tommasi and Weinschelbaum (2007) models used principal-agent analysis, wherein the consumers are the principals and the central and local governments are the agents in providing public goods. Like in many principal-agent problems, the consumers' utility is increasing with the quantity of public goods; however, the government's utility is decreasing with it because greater amount of public services requires greater effort. Like most decentralization models, they also incorporate a trade-off –a decentralized setup has the advantage of greater accountability, while a centralized government has the advantage of coordination in providing public goods, which is especially useful if there are inter-jurisdictional externalities.

3. Literature Review

This paper is a systematic review of 47 empirical articles on decentralization and its relationship with development outcomes. Most of the outcome indicators were variables that measure either economic growth or governance; but some also looked at other development indicators. All reviewed papers were published in journals, except three which were published as book chapters. About 45 percent (21) of the articles were published in the 2010s, and another 21 were published in the 2000s. Four were published in the late 1990s and one was published in 1988.

Most empirical papers study several forms or measures of decentralization and test its relationship against several outcome indicators and sometimes across different groups of or individual countries. In fact, the 47 papers that were reviewed tested for 162 relationships. These papers, including details on the decentralization variables used, outcome indicators, countries covered, and general results were summarized in Appendix 1.

One of the remarkable points upon cursory examination of the empirical literature is the heterogeneity of results. To illustrate this, the 162 relationships that were tested were disaggregated based on their results –positive, negative, none, mixed, and positive with condition. Positive result means that there is a generally positive relationship between decentralization and the development outcome, whereas negative means the association is generally negative. None means there is generally no relationship between the decentralization and the outcome variable. Mixed means the association may either be positive or negative depending on the level of decentralization; that is, either a U-shaped or an inverted U-shaped relationship. A few studies found a positive relationship only under certain conditions, such as good governance.

Using this classification, Table 1 shows the heterogeneity of results. More than 40 percent of the results can be classified as positive or positive with condition –the largest share among the classifications. However, a quarter were negative, and a substantial 27 percent were none. Six percent had mixed results.

Table 1
SHARE OF RESULTS AMONG STUDIES REVIEWED

Relationship between decentralization and development outcome	Share in studies reviewed (%)
Positive	37.7
Negative	25.3
None	27.2
Mixed	6.2
Positive with Condition	3.7

Source: Author's calculation.

The following sub-sections will analyze the results of the empirical literature based on the type of decentralization used in the study, the development outcome variables, and the income level of the countries covered. Although the results are heterogenous, this paper will attempt to look for trends on when and how does a positive and a negative relationship appear. It will look at the available empirical evidence to determine under what conditions is decentralization positively associated with development outcomes. Based on the analysis, some recommendations on future studies will also be made.

3.1. Characteristics of the Empirical Literature on Decentralization

This subsection discusses the characteristics of empirical studies on decentralization, focusing on the types of decentralization used, the development outcomes studied, and the

income level of countries included in the analysis. Empirical decentralization papers have used either cross-country or country-specific data in their analysis. Slightly less than half (44.7 percent) of the articles reviewed used cross-country data, while the rest used data from specific countries.

Cross-country studies used data at the country level, either panel or cross-section. Comparing decentralization levels across countries is direct and straightforward. For instance, a common measure of decentralization in cross-country studies is the ratio of sub-national to total government expenditure or revenue (e. g. Davoodi and Zou, 1998; Baskaran and Feld, 2013; Carniti *et al*., 2019). Comparing the level of these indicators across countries is straightforward. On the other hand, the specific country studies mostly used panel or cross section data at the local government level such as state, province, county, or municipality. This is more challenging because it is more difficult to compare decentralization levels across local governments from the same country than to compare decentralization levels across countries. This is because local governments from the same country are subjected to the same national laws; and in some countries, local governments have little power. Nonetheless, specific country studies have used indicators that can compare decentralization across local governments.

Related to the cross-country versus specific country comparison, it is also useful to note the income levels of the countries that were analyzed in empirical decentralization studies. Bahl (1999) argues that the arguments in favor of decentralization may not hold for developing and least developed countries because of undeveloped institutions. Among the 162 relationships tested, 31 percent studied data from high-income countries, 43 percent from low- and middle-income economies, and the remaining 26 percent were a combination of countries with various income levels. Studies that analyzed cross-country data among high-income economies particularly increased in the 2010s when detailed government spending data among OECD (Organisation of Economic Co-operation and Development) member countries became available.

In terms of outcome variables, more than half (55 percent) tested for decentralization's relationship with indicators of economic growth; while 23 percent were on measures of governance. The remaining 22 percent studied a number of other outcomes such as employment (Hammond and Tosun, 2011), factor productivity (Thieben, 2003), investments (Blochliger and Akgun, 2018), inflation (Martínez-Vázquez and McNab, 2006), growth and level of public goods (Qian and Zhang, 2017; Faguet and Sánchez, 2008), inequality (Kyriacou *et al*., 2017), and local-level per capita income and a local-level development index (Tosun and Yilmaz, 2010). Surprisingly, there is dearth of empirical literature on the relationship of decentralization with actual indicators of human welfare, such as poverty, per capita income, and the human development index, given that the objective of many decentralization programs is to improve human welfare and development.

Empirical decentralization papers can also be analyzed based on the type of decentralization that they used. Majority of the papers studied fiscal decentralization, mostly because it is the easiest and most straightforward to measure and due to data availability. Most empirical

studies used the International Monetary Fund Government Finance Statistics dataset; and lately for developed countries, the OECD local and national government fiscal data. Fifty nine percent of the studies reviewed used either expenditure or revenue decentralization, or the share of sub-national government to total government expenditure or revenue. Another 12 percent used indicators of fiscal independence, or the ability of local governments to generate their own income rather than depending on transfers from the central government. Fiscal independence is closely related to revenue decentralization because it measures the local governments' revenue generating capacity. A less common decentralization indicator is the number of local governments per population or per area with 13 percent; while three percent each used indicators of administrative and political decentralization. These discussions are summarized in Table 2.

Table 2
CHARACTERISTICS OF STUDIES REVIEWED

	Frequency	Percent
Cross-Country or Country Specific		
Cross-Country	77	47.53
Country-Specific	85	52.47
Total	162	100
Development Outcomes		
Governance	37	22.84
Economic Growth	89	54.94
Others	36	22.22
Total	162	100
Country Income Groups		
High-Income	51	31.48
Combination of High and Non-High Income	42	25.93
Non-High-Income	69	42.59
Total	162	100
Forms / Indicators of Decentralization		
Revenue Decentralization	38	23.46
Expenditure Decentralization	57	35.19
Fiscal Independence	20	12.35
Local Government Per Population or Per Area	21	12.96
Administrative Decentralization Indicators	5	3.09
Political Decentralization Indicators	6	3.7
Others	15	9.26
Total	162	100

Source: Author's calculation.

The next sub-sections systematically review the empirical decentralization literature based on these classifications. It looks for patterns of results to come up with recommendations on under what settings decentralization is effective. It also suggests topics for future empirical decentralization studies.

3.2. Cross-Country and Country-Specific Studies

Empirical studies that used cross-country and country-specific analysis show few differences in results. Almost 40 percent of both groups found a generally positive relationship between decentralization and development outcomes, although an additional eight percent of cross-country results are positive with condition. A slightly higher share of country-specific studies (27 percent) than cross-country papers (23 percent) found a generally negative relationship; but cross-country studies (9.1 percent) have a higher share of mixed results than country-specific papers (3.5 percent).

Table 3
RESULTS COMPARISON: CROSS-COUNTRY *VS*. COUNTRY-SPECIFIC

Results	Cross-Country (Percent (Count))	Country-Specific (Percent (Count))
Mixed	9.1% (7)	3.5% (3)
Negative	23.4% (18)	27.1% (23)
None	23.4% (18)	30.6% (26)
Positive	36.4% (28)	38.8% (33)
Positive with condition	7.8% (6)	0.0% (0)
Total	100.0% (77)	100.0% (85)

Source: Author's calculation.

It is useful to compare results between studies that used cross-country and country-specific data because it is more difficult to compare decentralization levels in the latter. As mentioned earlier, comparing decentralization levels across countries is more straightforward than comparing decentralization levels across territories from the same country. The results presented here is a valuable prelude to the succeeding sub-sections that compare studies across outcome indicators, decentralization types, and country income levels.

3.3. Development Outcome Indicators

Empirical decentralization studies show different results depending on the outcome indicators (see Table 4). For the literature on decentralization and economic growth, about one-fourth found either a positive or a positive with condition relationship. The share of those that found a negative relationship is just slightly higher at 28 percent. Those that found generally no association between decentralization and growth accounted for 37 percent; and nine percent found mixed positive and negative relationship depending on the level of decentralization.

The results are significantly different when the outcome indicators are measures of governance. More than two-thirds of the studies reviewed showed a positive or a positive with condition relationship between decentralization and governance. Only 19 percent showed a predominantly negative relationship, while 11 percent found no significant association between the two variables.

As mentioned earlier, 78 percent of the studies reviewed looked at the relationship between decentralization and either governance or economic growth. For the remaining development outcomes, 53 percent have a positive or positive with condition relationship with decentralization. One-fourth have a negative relationship, while 19 percent found no significant association. These other outcome indicators include employment (Hammond and Tosun, 2011), factor productivity (Thieben, 2003), investments (Blochliger and Akgun, 2018), inflation (Martínez-Vázquez and McNab, 2006), and growth and level of public goods (Qian and Zhang, 2017; Faguet and Sánchez, 2008).

Given that the objective of many decentralization programs is to improve human welfare, it is surprising that there is dearth of empirical literature on the relationship of decentralization with actual welfare outcomes such as poverty and per capita income. Von Braun and Grote (2002) did a very basic econometric analysis on the relationship between decentralization and the human development index (HDI). However, no variables were controlled for and only cross-section data was used. In addition, there is lack of empirical studies on the effect of decentralization on the efficiency of public goods provision. This would make an important contribution to the literature because one argument for decentralization is that the information advantage of local governments enhances efficiency in the delivery of public services.

Table 4
RESULTS COMPARISON ACROSS OUTCOME INDICATORS

Results	Economic Growth (Percent (Count))	Governance Percent (Count))	Others (Percent (Count))
Mixed	9.0% (8)	2.7% (1)	2.8% (1)
Negative	28.1% (25)	18.9% (7)	25.0% (9)
None	37.1% (33)	10.8% (4)	19.4% (7)
Positive	24.7% (22)	59.5% (22)	47.2% (17)
Positive with condition	1.1% (1)	8.1% (3)	5.6% (2)
Total	100.0% (89)	100.0% (37)	100.0% (36)

Source: Author's calculation.

3.4. Revenue, Expenditure, Fiscal Independence, and Other Decentralization Measures

Results of empirical decentralization literature also differ according to the type of decentralization (see Table 5). Fiscal decentralization, usually expenditure or revenue decentralization, and fiscal independence to some extent, are the most commonly studied decentralization types because they are the easiest to measure.

The decentralization types with the largest share of positive or positive with condition results are revenue decentralization (55.3 percent) and fiscal independence (55.0 percent). These two measures also have the lowest share of negative results (13.2 and 15.0 percent). Expenditure decentralization, on the other hand, has more evenly distributed results –31.6

percent of the studies found positive results, 29.8 percent negative, and 26.3 percent found no significant relationship. For the number of local governments per population or area, almost half (47.6 percent) found no significant relationship with development indicators. Other decentralization measures, such as indices of administrative and political decentralization, were used by too few studies to make for a reasonable similar analysis. Out of the 162 relationships reviewed, only six used political decentralization and five utilized administrative decentralization. For political decentralization, four out of the six show a negative relationship with development outcomes; with one each showing positive and no association. For administrative decentralization, two turned out negative and three were positive.

As earlier discussed, fiscal decentralization is only one form of decentralization. Studying the potential effects of political and administrative decentralization is essential in better understanding the relationship between decentralization and development outcomes.

Table 5
RESULTS COMPARISON ACROSS DECENTRALIZATION MEASURES

Results	Expenditure Decentralization (Percent (Count))	Revenue Decentralization (Percent (Count))	Fiscal Independence (Percent (Count))	Number of Local Gov'ts per Area or Population (Percent (Count))	Others (Percent (Count))
Mixed	12.3% (7)	2.6% (1)	5.0% (1)	4.8% (1)	0.0% (0)
Negative	29.8% (17)	13.2% (5)	15.0% (3)	28.6% (6)	38.5% (10)
None	26.3% (15)	29.0% (11)	25.0% (5)	47.6% (10)	11.5% (3)
Positive	31.6% (18)	39.5% (15)	55.0% (11)	19.0% (4)	50.0% (13)
Positive with condition	0.0% (0)	15.8% (6)	0.0% (0)	0.0% (0)	0.0% (0)
Total	100.0% (57)	100.0% (38)	100.0% (20)	100.0% (21)	100.0% (26)

Source: Author's calculation.

3.5. High-Income and Non-High-Income Countries

Developing countries may have characteristics that can hinder them from realizing the benefits of decentralization (Bahl 1999). It is therefore useful to compare the results of empirical decentralization studies across country income levels (see Table 6). Among studies that used only data from high-income countries, 29.5 percent found a positive or positive with condition relationship with development outcomes. This was lower than the 43.5 percent for studies that only utilized statistics from non-high-income countries. However, non-high-income countries also have a higher share of studies that found a negative relationship at 27.5 percent compared to 19.6 percent for high-income country studies. In addition, there is slightly higher share of studies that found no relationship between decentralization and development outcomes among those that used high-income countries (37.3 percent) than those that used data from non-high-income economies (29.0 percent).

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Table 6
RESULTS COMPARISON BETWEEN HIGH-INCOME AND NON-HIGH-INCOME COUNTRIES

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Results	High-Income (Percent (Count))	Non-High-Income (Percent (Count))	High- and Non-High-Income Countries (Percent (Count))
Mixed	13.7% (7)	0.0% (0)	7.1% (3)
Negative	19.6% (10)	27.5% (19)	28.6% (12)
None	37.3% (19)	29.0% (20)	11.9% (5)
Positive	27.5% (14)	39.1% (27)	47.6% (20)
Positive with condition	2.0% (1)	4.4% (3)	4.8% (2)
Total	100.0% (51)	100.0% (69)	100.0% (42)

Source: Author's calculation.

3.6. Quantitative Analysis of Empirical Results

3.6.1. *A Quasi Meta-Regression of Empirical Results*

To further uncover trends on the results of empirical decentralization literature, a simple econometric analysis was performed using the 162 studies as observations. The objective is to look at which decentralization indicators, which development outcomes, and country income level is a positive relationship more likely to emerge. A method similar to meta-regression was used for this objective. The traditional meta-regression, an extension of meta-analysis, involves regressing coefficients found in several studies on certain characteristics of these studies. It also has weights, usually the number of observations in each study, and the standard error of the coefficients were considered (Harbord and Higgins, 2008; Thompson and Higgins, 2002).

In the quasi meta-regression used for this study, the dependent variable is an ordered variable whose values depend on whether the study found a positive, a negative, or a mixed or no relationship between decentralization and development outcomes. The reason for not using the actual regression coefficients found in the articles reviewed was because it makes little sense to compare them when the dependent variable in some studies is economic growth and governance in another. The same problem occurs when decentralization is measured by the number of local governments in one study, and the expenditure share of local governments in another.

The dependent variable takes on a value of 0 if the study found a negative relationship between decentralization and the development outcome being studied, 1 if there is mixed or no relationship, and 2 if the study found a 'positive' or a 'positive with condition' relationship. The regressors were a set of dummy variables representing the decentralization type studied, the outcome variable used, and the income level of the countries included in the study. The independent variables are detailed in Table 7.

Table 7
INDEPENDENT VARIABLES DESCRIPTION AND SUMMARY STATISTICS

Name	Description	Obs.	Mean	SD
outcome: governance	Dummy = 1 if the outcome variable is a measure of governance quality	162	0.23	0.42
outcome: econ growth	Dummy = 1 if the outcome variable is a measure of economic growth	162	0.55	0.50
outcome: others[a]	Dummy = 1 if the study used other development outcomes	162	0.22	0.42
decent: expenditure	Dummy = 1 if the decentralization indicator is a measure of expenditure decentralization	162	0.35	0.48
decent: revenue	Dummy = 1 if the decentralization indicator is a measure of revenue decentralization	162	0.23	0.43
decent: fiscal indep	Dummy = 1 if the decentralization indicator is a measure of fiscal independence	162	0.12	0.33
decent: others[a]	Dummy = 1 if the study used other indicators of decentralization	162	0.29	0.46
income: high	Dummy = 1 if the study used high income countries	162	0.31	0.47
income: non-high	Dummy = 1 if the study used non-high-income countries	162	0.43	0.50
income: high and non-high[a]	Dummy = 1 if the study used data from both high and non-high-income countries	162	0.26	0.44

[a] Base variable. Not included in the regression.

Source: Author's calculation.

The dependent variable was regressed on the variables in Table 7 using ordered logit regression. The ordered logit coefficients, the marginal effects on the dependent variable taking on a value of 0, and the marginal effects on the dependent variable taking on a value of 2 are reported in Table 8. What do these figures mean? A positive and significant logit coefficient means that the variable makes it more likely to have a positive relationship between decentralization and development outcomes. However, the marginal effects show more nuances in the relationship between decentralization and development outcomes. For instance, good governance has a 32 percentage points greater likelihood of showing a positive relationship with decentralization compared to other development outcomes; and economic growth has a 11.8 percentage points higher likelihood of showing a negative relationship with decentralization compared to other development outcomes. These results suggest that the relationship is more likely to be positive when the outcome being tested is governance quality and more likely to be negative when the outcome is economic growth.

In addition, the relationship is more likely to be positive when the decentralization indicator is revenue decentralization or fiscal independence, with average marginal effects of 31.5 and 30.1 percentage points, respectively. Expenditure decentralization turned insignificant. The results in column 3 are consistent with the results in column 2.

Table 8
ORDERED LOGIT COEFFICIENTS AND AVERAGE MARGINAL EFFECTS

	(1) Ordered Logit coefficient	(2) Marginal effect[a] on Y = 2 (decentralization having positive effect)	(3) Marginal effect[a] on Y = 0 (decentralization having negative effect)
outcome: governance	1.476[**]	0.320[**]	-0.203[***]
	(0.632)	(0.125)	(0.0692)
outcome: econ growth	-0.721[*]	-0.157[*]	0.118[*]
	(0.405)	(0.0899)	(0.0650)
decent: expenditure	0.499	0.101	-0.0793
	(0.399)	(0.0772)	(0.0607)
decent: revenue	1.521[***]	0.315[***]	-0.211[***]
	(0.461)	(0.0847)	(0.0524)
decent: fiscal indep	1.457[**]	0.301[***]	-0.188[***]
	(0.592)	(0.109)	(0.0574)
income: high	0.506	0.104	-0.0795
	(0.506)	(0.101)	(0.0752)
income: non-high	0.478	0.0985	-0.0784
	(0.505)	(0.102)	(0.0815)
Observations	162	162	162

[a] Marginal effect is the discrete change from the base level.

Standard errors in parentheses; [***] significant at 1%; [**] significant at 5%; [*] significant at 10%.

The results in Table 8 are largely consistent with the results in Tables 4 and 5. The value of performing this quasi meta-regression analysis is to complement the earlier sub-sections comparing the results of studies depending on type of decentralization, on development outcomes, and on income level of countries. Because it controls for other factors, it provides a stronger analysis on which of these characteristics are more likely to produce a positive relationship between decentralization and development outcomes. Although causality cannot be inferred using this methodology, it helps isolate ceteris paribus relationships between the result of the studies and the decentralization type, development outcome tested, and country income groups.

3.6.2. *Analysis of Different Outcome Indicators*

The previous sub-section looked at two things. First, for which development outcomes is decentralization in general more effective; and second, which forms of decentralization are most effective for development outcomes in general. The next analysis looks at which forms of decentralization are most effective for each of the three specific development outcomes – economic growth, governance, and others.

To do this, the regression in Table 8 was replicated for each of the development outcomes. The results for governance, economic growth, and others are reported in Tables 9, 10, and 11, respectively. For governance (Table 9), both revenue and expenditure decentralization are

positively associated with it, although the former has a stronger marginal effect. For other development outcomes (Table 11), expenditure decentralization turned insignificant, while both revenue decentralization and fiscal independence have positive and significant marginal effects. There is less clear evidence on economic growth (Table 10). While expenditure decentralization has no significant effect, results suggest that revenue decentralization and fiscal independence are at least less harmful to economic growth than expenditure decentralization.

Table 9
ORDERED LOGIT COEFFICIENTS AND AVERAGE MARGINAL EFFECTS: GOVERNANCE

	(1) Ordered Logit coefficient	(2) Marginal effect[a] on Y = 2 (decentralization having positive effect)	(3) Marginal effect[a] on Y = 0 (decentralization having negative effect)
decent: expenditure	1.538[*]	0.260[*]	-0.175[*]
	(0.929)	(0.133)	(0.0901)
decent: revenue	17.79	0.423[***]	-0.250[***]
	(2.409)	(0.0844)	(0.0779)
income: high	-1.211	-0.218	0.191
	(0.964)	(0.164)	(0.162)
income: non-high	-0.692	-0.125	0.104
	(1.529)	(0.277)	(0.253)
Observations	37	37	37

[a] Marginal effect is the discrete change from the base level; decent: fiscal indep was dropped due to lack of observation.
Standard errors in parentheses; [***] significant at 1%; [**] significant at 5%; [*] significant at 10%;

Table 10
ORDERED LOGIT COEFFICIENTS AND AVERAGE MARGINAL EFFECTS: ECONOMIC GROWTH

	(1) Ordered Logit coefficient	(2) Marginal effect[a] on Y = 2 (decentralization having positive effect)	(3) Marginal effect[a] on Y = 0 (decentralization having negative effect)
decent: expenditure	-0.188	-0.0330	0.0343
	(0.583)	(0.102)	(0.108)
decent: revenue	1.026[*]	0.197	-0.172[*]
	(0.615)	(0.124)	(0.0938)
decent: fiscal indep	1.197	0.242	-0.175[*]
	(0.872)	(0.186)	(0.0981)
income: high	1.263[*]	0.218[*]	-0.213[*]
	(0.737)	(0.118)	(0.109)
income: non-high	1.278[*]	0.219[*]	-0.228[**]
	(0.701)	(0.113)	(0.116)
Observations	89	89	89

[a] Marginal effect is the discrete change from the base level.
Standard errors in parentheses; [***] significant at 1%; [**] significant at 5%; [*] significant at 10%.

Table 11
ORDERED LOGIT COEFFICIENTS AND AVERAGE MARGINAL EFFECTS:
OTHER DEVELOPMENT OUTCOMES

	(1) Ordered Logit coefficient	(2) Marginal effect[a] on Y = 2 (decentralization having positive effect)	(3) Marginal effect[a] on Y = 0 (decentralization having negative effect)
decent: expenditure	1.074	0.218	-0.167
	(1.065)	(0.185)	(0.143)
decent: revenue	1.985	0.374**	-0.251**
	(1.316)	(0.169)	(0.115)
decent: fiscal indep	1.391	0.305*	-0.219*
	(0.900)	(0.172)	(0.126)
income: high	0.992	0.207	-0.154
	(1.252)	(0.231)	(0.172)
income: non-high	1.344	0.284	-0.240
	(1.449)	(0.258)	(0.256)
Observations	89	89	89

[a] Marginal effect is the discrete change from the base level.

Standard errors in parentheses; *** significant at 1%; ** significant at 5%; * significant at 10%.

3.7. Discussions and Implications

The analysis herein suggests several implications on empirical studies on the relationship between decentralization and development outcomes. First is which development outcomes are positively associated with decentralization. The analysis suggests that governance is much more likely to be positively associated with decentralization; while the evidence for economic growth is much less clear. Decentralization can promote good governance because it is easier to monitor and hold officials accountable if they are nearer to their constituents (Faguet, 2009; Von Braun and Grote, 2002; Persson and Tabellini, 2000). On the other hand, the conceptual and theoretical literature is much less clear on the link between decentralization and economic growth; thus, the result herein is not really surprising. The most cited benefit of decentralization is the improved public service provision because of the information advantage of local officials on local preferences (Faguet, 2009; Kubal, 2006; Shah, 2006). The most cited disadvantage is loss of production efficiency due to the economies of scale of the national government (Bahl, 1999; Faguet, 2004; Prud'homme, 1995). None of these directly point to a positive relationship between decentralization and economic growth. If at all, the loss of production efficiency can even lead to slower economic growth.

Second, the analysis suggests that some types of decentralization can be more effective than others. Fiscal independence and revenue decentralization –indicators that pertain to the ability of local governments to generate their own revenue– are positively associated with most development outcomes. Expenditure decentralization has no significant relationship with development outcomes in general and is positively associated only with governance. A word of caution, though; decentralizing revenue generation should involve not just transfer-

ring collection responsibilities, but equally important is giving local governments the capacity to actually collect revenues. Decentralizing collection functions to local governments with weak capacity to enforce it could adversely affect collection efficiency and effectiveness. In fact, some studies point out that the lack of revenue generating capacity of local governments has caused some decentralization programs to be less effective than they should have been (Capuno, 2017; Shen *et al*., 2012). Third, there is unclear evidence on whether high-income or low- and middle-income countries benefit more from decentralization.

Third, the mixed results of the empirical literature on decentralization can be reconciled by the few studies that found evidence of an inverted U-shaped or a U-shaped relationship between decentralization and development outcomes (Akai *et al*., 2007; Thieben, 2003; Carniti *et al*., 2019). An inverted U-shaped relationship suggests that there is an optimal level of decentralization. At low levels of decentralization, its relationship with development outcomes is positive. The marginal effect is increasing at a decreasing rate, until the relationship becomes negative at high levels of decentralization. On the other hand, a U-shaped relationship suggests that benefits of decentralization will only be felt either at very low or very high levels of decentralization. In between, decentralization could have an adverse effect on development.

Fourth, different types of decentralization can affect different development outcomes differently. Both revenue and expenditure decentralization appear associated with good governance, but the former has a stronger marginal effect. Revenue decentralization and fiscal independence are positively associated with other development outcomes, but expenditure decentralization has no significant effect. The evidence for economic growth is less clear for all three forms of decentralization.

These findings can guide future decentralization studies moving forward. Although there is a large body of empirical literature on this topic, there are still gaps that, if filled, can help policy makers and scholars in understanding decentralization and making it more effective. First, studies should increasingly look at other types of decentralization, particularly administrative and political decentralization. These forms of decentralization are rarely studied, mostly due to measurement difficulties. Studying them will fill a huge gap in the empirical decentralization literature. Analyzing the different forms of decentralization in conjunction with each other will also be a useful contribution. Some of the research questions that such studies could address include which combination of decentralization types will be most effective and will the presence of another form of decentralization enhance or hinder the effectiveness of another. Another good addition to the literature is the construction of a decentralization index using different decentralization indicators that will include fiscal, administrative, and political decentralization.

Second, a few studies found a non-linear relationship between decentralization and development outcomes. A good extension of these studies is to identify the optimal level of decentralization depending on the country's characteristics. The third gap in the empirical decentralization literature is the effect of decentralization on the efficiency of provision and quality of public services. The foremost argument for decentralization is better public goods

provision due to the proximity advantage of the local government; and this remains to be extensively tested empirically.

Finally, there are still few empirical studies that apply rigorous econometric methods in determining the effect of decentralization on indicators of actual human welfare such as poverty, per capita income, and the human development index. While most empirical studies looked at economic growth and governance, it is interesting to note that there have been few studies on how decentralization correlates with indicators of actual human welfare. This will be a useful addition to the literature because the eventual objective of most decentralization programs is to improve human welfare and development.

4. Summary, Conclusion and Recommendations

This article critically reviewed the empirical literature on decentralization and its relationship with development outcomes. Although there is a rich body of empirical studies on this topic, results are heterogenous and the effectiveness of decentralization remains a subject of debate. Specifically, the focus of this study is to look for trends on which decentralization types, which development outcomes, and which country income level is decentralization more likely to be effective.

The analysis suggests that revenue decentralization and fiscal independence, or the ability of local governments to raise their own revenue rather than relying on transfers from the national government, are the decentralization types most positively associated with development outcomes. The evidence on expenditure decentralization suggests that its effectiveness depends on the development outcome. In terms of development outcomes, most of the studies reviewed found evidence that good governance is positively associated with decentralization. On the other hand, the evidence is mixed on the relationship of decentralization with economic growth.

These findings suggest that the effectiveness of decentralization depends on what its development objectives are; and there can be tradeoffs. Nonetheless, evidence from a few studies can reconcile the mixed results of most empirical studies as they found evidence of a U-shaped or an inverted U-shaped relationship between decentralization and development outcomes.

Following the analysis, some suggestions were made for future decentralization studies. For one, there is a gap in the empirical literature on the effects of political and administrative decentralization on development outcomes. Furthermore, future empirical studies should focus more on the effect of decentralization on actual measures of human welfare such as poverty, per capita income, and the human development index.

Appendix. Articles included in the review

Study	Decentralization Indicator	Outcome of Interest	Data Type	Covered Economies	Result
Akai and Sakata (2002)	Ratio of local govt expenditure to combined local plus state spending	Economic growth	Cross-section	United States (state-level)	Positive
	Ratio of local govt revenue to combined local plus state revenue				Positive
	Ratio of own-sourced local govt revenue to total local govt revenue				None
	Average of first two indicators				Positive
Davoodi and Zou (1998)	Share of local government spending to total government spending	Growth rate of per capita output	Panel	Cross-country	Negative for developing countries; None for developed
Hammond and Tosun (2011)	Single-purpose government per square mile	Employment	Cross-section	United States (county-level)	Positive for metropolitan counties; None on non-metropolitan
		Real Income Growth			None
	General-purpose government per capita	Employment			Negative for metropolitan counties; None on non-metropolitan
		Real Income Growth			None
Jin and Zou (2005)	Provincial budgetary expenditure as a share of total budgetary expenditure	Economic Growth	Panel	China (province-level; 1979-1993)	Negative
	Provincial extra-budgetary expenditure as a share of total extra-budgetary expenditure				None
	Provincial budgetary revenue as a share of total budgetary revenue				Positive
	Provincial extra-budgetary revenue as a share in total extra-budgetary revenue				None

(*Continued.*)

Study	Decentralization Indicator	Outcome of Interest	Data Type	Covered Economies	Result
Jin and Zou (2005)	Provincial budgetary expenditure as a share of total budgetary expenditure	Economic Growth	Panel	China (province-level; 1994-1999)	None
	Provincial extra-budgetary expenditure as a share of total extra-budgetary expenditure				None
	Provincial budgetary revenue as a share of total budgetary revenue				Negative
	Provincial extra-budgetary revenue as a share in total extra-budgetary revenue				None
Lin and Liu (2000)	Marginal retention rate of locally collected budgetary revenues by provincial governments	Growth rate of per capita GDP	Panel	China (province-level)	Positive
Stansel (2005)	Number of general-purpose governments per 100,000 residents	Per capita money income growth	Cross-section	United States (metropolitan areas)	Positive
	Number of public school systems per 100,000 residents				None
Tosun and Yilmaz (2010)	Number of municipalities per capita	Provincial GDP per capita	Panel	Turkey (province-level)	Negative
		Provincial GDP per capita growth rate			None
	Number of municipalities per square kilometer	Provincial GDP per capita			Negative
		Provincial GDP per capita growth rate			None

(*Continued.*)

Study	Decentralization Indicator	Outcome of Interest	Data Type	Covered Economies	Result
Tosun and Yilmaz (2010)	Number of municipalities per capita	Provincial GDP per capita	Cross-Section	Turkey (province-level)	None
		Provincial Development Index			Negative
	Number of municipalities per square kilometer	Provincial GDP per capita			None
		Provincial Development Index			Positive
Xie *et al.* (1999)	Share of state and local government spending to total government spending	Per capita output growth rate	Cross-section (averaged from panel)	United States (state-level)	None
	Share of local government spending to total government spending				None
Zhang and Zou (1998)	Ratio of provincial budgetary spending to central budgetary spending, expressed in per capita terms	Real provincial income growth rate	Panel	China (province-level)	Negative
	Ratio of provincial extra-budgetary to central extra-budgetary spending, expressed relative to the income size				Negative
	Ratio of consolidated provincial spending to consolidated central spending, expressed in per capita terms				None
Baskaran and Feld (2013)	Sub-federal tax revenue as share of total government tax revenue	Growth rate of labor productivity	Panel	Cross-country (23 OECD countries)	None
	Tax revenue from shared taxes as share of total government tax revenue				None

(*Continued.*)

Study	Decentralization Indicator	Outcome of Interest	Data Type	Covered Economies	Result
Bodman (2010)	Six different measures of sub-national tax revenue as share of total government tax revenue	Growth of real per capita GDP	Cross-section	Cross-country (OECD countries)	None
	Two measures of sub-national government expenditures as share of total government expenditures				None
	Number of elected sub-national tiers of government				Negative
	Federalism dummy				Negative
	Sub-national to central government employee ratio				None
	Number of sub-national government units				None
	Six different measures of sub-national tax revenue as share of total government tax revenue		Panel		None
	Two measures of sub-national government expenditures as share of total government expenditures				None
Carniti *et al.* (2019)	Expenditure share of sub-central government to central government	Per capita GDP growth rate	Panel	Cross-country (25 European)	Positive initially; negative at high levels of decentralization
	Investment share of sub-central government to central government				Negative initially; positive at high levels of decentralization
Gemmell *et al.* (2013)	Two measures of sub-national government expenditures as share of total government expenditures	Economic growth rate	Panel	Cross-country (23 OECD Countries)	Negative
	Three measures of sub-national government revenue as share of total government revenue				Positive

(*Continued.*)

Study	Decentralization Indicator	Outcome of Interest	Data Type	Covered Economies	Result
Iqbal *et al.* (2012)	Ratio of sub-national government expenditure to total government expenditure (ED)	Per capita output growth rate	Time series	Pakistan	Negative
	Ratio of sub-national government revenue to total government revenue (RD)				Positive
	Composite Decentralization (RD/(1-ED))				Positive
Rodríguez-Pose and Ezcurra (2011)	Sub-national government expenditure as share of total government expenditure	Growth rate of real GDP per capita	Cross-section	Cross-country (21 OECD Countries)	Negative
	Political decentralization score				Negative
	Administrative decentralization score				Negative
Thieben (2003)	Sub-national government expenditure as share of total government expenditure	Per capita GDP annual growth rate	Panel	Cross-country (High-income OECD Countries)	Positive initially; negative at high levels of decentralization
		Capital stock growth			Positive initially; negative at high levels of decentralization
		Total factor productivity			Negative initially; positive at high levels of decentralization
Yushkov (2015)	Self-generated municipal revenue as share of regional budget	Growth rate of gross regional product per capita	Panel	Russia (cross-region)	None
	Municipal expenditure as share of total regional expenditure				Negative
	Share of self-generated revenues of all municipalities in consolidated municipal revenues of the region				None

(*Continued.*)

Study	Decentralization Indicator	Outcome of Interest	Data Type	Covered Economies	Result
Yushkov (2015)	Dependence of a region on intergovernmental transfers from the federal budget (Note: Measure of reverse decentralization)	Growth rate of gross regional product per capita	Panel	Russia (cross-region)	Positive (De-centralization associated with lower growth)
Nguyen and Anwar (2011)	Provincial budgetary revenue as percentage of total budgetary revenue	Provincial GDP growth rate	Panel	Vietnam (cross-province)	Positive
	Provincial budget-ary expenditure as a percentage of total budgetary expenditure				Negative
Woller and Phillips 1998	Ratio of local govern-ment revenues to total government revenues	Per capita real GDP growth rate	Panel / Cross-section	Cross-country (23 LDCs)	None
	Ratio of local govern-ment revenues less grants-in-aid to total government revenues				None
	Ratio of local gov-ernment expenditures to total government expenditures				None
	Ratio of local govern-ment expenditures to total government ex-penditures less defense and social security expenditures				None
Blochliger and Akgun (2018)	Spending decentrali-zation	Economic Growth	Panel	Cross-country (OECD)	Mixed (positive and negative depending on empirical equation)
	Revenue decentrali-zation				None
	Tax decentralization				Positive
	Spending decentrali-zation	Investments			Positive
	Revenue decentrali-zation				Positive
	Tax decentralizatio				Positive

(*Continued.*)

Study	Decentralization Indicator	Outcome of Interest	Data Type	Covered Economies	Result
Desai *et al.* (2005)	Tax retention rate (Share of locally-generated revenues retained within the regional government)	Regional Economic Growth	Panel	Russia (cross-section)	Positive
		Foreign Direct Investments			Positive
Feltenstein and Iwata (2005)	Local government expenditure as share of total government expenditure	GNP growth rate	Time-series	China	Positive
	Local government revenue as share of total government revenue				
	Total extrabudgetary revenue as share total government budgetary revenue				
	Local government expenditure as share of total government expenditure	Inflation			Positive (decentralization is associated with higher inflation)
	Local government revenue as share of total government revenue				
	Total extrabudgetary revenue as share total government budgetary revenue				
Qiao *et al.* (2008)	Per capita provincial government spending as share of per capita total government spending	Provincial GDP growth rate	Panel	China (cross-province)	Positive
		Inequality			Positive (decentralization is associated with higher inequality)
Enikolopov and Zhuravskaya (2007)	Share of sub-national revenues to total government revenues	Economic growth	Panel	Cross-country (developing and transition)	Positive (if party system is stable and government parties have low fractionalization)
		Government quality			
		Quality of public goods provision			

(*Continued.*)

Study	Decentralization Indicator	Outcome of Interest	Data Type	Covered Economies	Result
Akai *et al.* (2007)	Local revenue as share of combined local and state revenue	Annual growth rate of gross state product	Panel	United States (state-level)	Positive initially; negative at high levels of decentralization
	Local expenditure as share of combined local and state expenditure				
Iimi (2005)	Local government expenditure as share of total government expenditure	Per capita GDP growth	Cross-section (year averaged 1997 to 2001)	Cross-country	Positive
	Political decentralization score				Negative
Martínez-Vázquez and McNab (2006)	Ratio of total sub-national government revenues to general government revenues	Inflation rate	Panel	Cross-country	Negative for developed countries (more decentralized countries have lower inflation); positive for developing
		Economic growth			Negative
	Ratio of total sub-national government expenditures to general government expenditures	Inflation rate			Negative for developed countries; positive for developing
		Economic growth			Negative
Rodríguez-Pose and Kroijer (2009)	Sub-national expenditures as percentage of total expenditures	GDP per capita growth rate	Panel	Cross-country (eastern and central Europe)	Negative
	Local tax revenue as percentage of total sub-national revenues and grants				Negative initially but becomes positive through time
	Transfers to sub-national governments from other levels of government as percentage of total sub-national revenues and grants				Negative

(*Continued.*)

Study	Decentralization Indicator	Outcome of Interest	Data Type	Covered Economies	Result
Zhang and Zou (2001)	Ratio of consolidated provincial budgetary spending to central budgetary spending	Provincial GDP growth rate	Panel	China (cross-province)	Negative
	Ratio of total state public spending to total central spending	Per capita real income growth rate		India (cross-state)	None
	Ratio of per capita state public spending to per capita central spending				Positive
	Ratio of total state own revenue to total central revenue				Positive
	Ratio of per capita state own revenue to per capita central revenue				Positive
Jin *et al.* (2005)	Marginal retention rate of locally collected revenues	Growth of Employment in Rural Businesses	Panel	China (cross-province)	Positive
		Growth of Employment in Non-State, Non-Agricultural Businesses			Positive
Kalirajan and Otsuka (2012)	Ratio of per capita expenditure of Panchayati Raj (rural) institutions to per capita expenditure of urban local bodies	State Agricultural GDP	Panel	India (state-level)	Positive
Nguyen (2008)	Ratio of expenditures of districts and communes in a province to the total provincial expenditures	Average monthly income of lowest quintile	Panel	Vietnam (province-level)	Negative
Wallis and Oates (1988)	Share of state spending to combined state and local spending (centralization indicator; dependent variable)	Per capita income	Panel	United States (state-level)	Positive (higher per capita income is associated with less decentralization)

(*Continued.*)

Study	Decentralization Indicator	Outcome of Interest	Data Type	Covered Economies	Result
Wallis and Oates (1988)	Share of state revenues to combined state and local revenues (centralization indicator; dependent variable)	Per capita income	Panel	United States (state-level)	None
	Share of state spending to combined state and local spending (centralization indicator; dependent variable)		Cross-section		None
Qian and Zhang (2017)	Net fiscal revenue left over after a county has delivered revenues to the central government	Welfare spending growth	Panel	China (county-level)	Negative
		Education spending growth			Positive
		Number of doctors growth			None
		Number of hospital beds growth			None
		Length of roads growth			None
		Student-teacher ratio			Negative (decentralization is associated with lower student-teacher ratio)
Abdur *et al.* (2017)	Ratio of provincial expenditures to total state expenditures	Gross primary school enrollment	Time series	Pakistan	Positive
Faguet and Sánchez (2008)	Before-after analysis of implementation of a decentralization law	Public Investment in Education	Panel	Bolivia (municipality-level)	Positive
	Own-sourced revenue of local government as a share of total local government expenditure	Year-on-year increase in student enrollment in state schools		Colombia (municipality-level)	Positive

(*Continued.*)

Study	Decentralization Indicator	Outcome of Interest	Data Type	Covered Economies	Result
Faguet and Sánchez (2008)	Interaction between dummy variable for 'certified' municipalities and transfers from central government	Year-on-year increase in student enrollment in state schools	Panel	Colombia (municipality-level)	Positive
	Share of total educational expenditure accounted for by central transfers for the period 1994-2001 (Centralization measure)				Negative (decentralization is associated with higher enrollment increase)
	Central transfers as a share of total expenditure for the period 2002-04 (Centralization measure)				Negative (decentralization is associated with higher enrollment increase)
Arikan (2004)	Number of local jurisdictions per population	Corruption	Cross-section	Cross-country	Negative (decentralization is associated with lower corruption)
	Share of local government employment to total government employment				
	Share of local government spending to total government spending				
Faguet (2004)	Before-after analysis of implementation of a decentralization law	Responsiveness to local needs (Change in public investment patterns after decentralization)	Panel	Bolivia (state-level)	Positive (decentralization diverted key public investments to where they are most needed)
Fisman and Gatti (2002)	Share of local government spending to total government spending	Corruption	Cross-section	Cross-country	Negative (decentralization is associated with lower corruption)
Goel *et al.* (2017)	Local government expenditure as share of total government expenditure	Tax Administration Indicator in WBES	Pooled cross section of individual businesses	Cross-country	Positive

(*Continued.*)

Study	Decentralization Indicator	Outcome of Interest	Data Type	Covered Economies	Result
Goel *et al.* (2017)	Local government expenditure as share of total government expenditure	Business Permit and Licensing Indicator in WBES	Pooled cross section of individual businesses	Cross-country	Positive
		Corruption Indicator in WBES			Positive
	Federalism binary variable	Tax Administration Indicator in WBES			Negative
		Business Permit and Licensing Indicator in WBES			Negative
		Corruption Indicator in WBES			Negative
	Aggregate decentralization index	Tax Administration Indicator in WBES			None
		Business Permit and Licensing Indicator in WBES			Positive
		Corruption Indicator in WBES			Positive
	Administrative decentralization index	Tax Administration Indicator in WBES			Positive
		Business Permit and Licensing Indicator in WBES			Positive
		Corruption Indicator in WBES			Positive

(*Continued.*)

Study	Decentralization Indicator	Outcome of Interest	Data Type	Covered Economies	Result
Goel and Nelson (2011)	Number of total local governments per 100,000 people	Corruption (number of convictions for abuse of public office per 100K people)	Panel	United States (state-level)	Positive (decentralization is associated with greater corruption)
	Number of general-purpose local governments per 100,000 people				Positive (decentralization is associated with greater corruption)
	Number of special-purpose local governments per 100,000 people				Mixed none and negative
	Local government expenditure as share of state government spending				Negative (decentralization is associated with less corruption)
Goel and Saunoris (2017)	Virtual decentralization (Provision of government services through Internet)	Size of shadow economy	Cross-section	Cross-country	Negative (decentralization is associated with smaller shadow economy)
	Physical decentralization (Number of tiers of government)				Negative
	Sub-national government expenditures as share of total government expenditures				None
	Virtual decentralization (Provision of government services through Internet)	Corruption			Negative (decentralization is associated with less corruption)
	Physical decentralization (Number of tiers of government)				None
	Sub-national government expenditures as share of total government expenditures				None
Kyriacou and Roca-Sagales (2009)	Expenditure of sub-national government as share of total government expenditure	Government quality (International Country Risk Guide)	Panel	Cross-country (29 multiple income-class)	Positive (effect weaker for richer countries)

(*Continued.*)

Study	Decentralization Indicator	Outcome of Interest	Data Type	Covered Economies	Result
Kyriacou and Roca-Sagales (2009)	Revenue of sub-national government as share of total government revenue	Government quality (International Country Risk Guide)	Panel	Cross-country (29 multiple income-class)	Positive (effect weaker for richer countries)
Kyriacou *et al.* (2017)	Sub-national government revenue (less grants) as share of total government revenue	Inequality	Panel	Cross-country (23 OECD Countries)	Negative (Decentralization associated with lower inequality) if accompanied by high-quality government
		Governance (International Country Risk Guide)			Positive
Kyriacou and Roca-Sagales (2011a)	Share of sub-central government spending to total government spending	Governance	Panel	Cross-country (OECD)	Positive (but moderated by political decentralization)
	Share of sub-central government revenue to total government revenue				
Kyriacou and Roca-Sagales (2011b)	Share of sub-central government revenue to total government revenue	Governance	Cross-section	Cross-country	Positive (but moderated by political decentralization)
	Political decentralization score				Negative
	Share of sub-central government revenue to total government revenue		Panel		Positive
Sadanandan (2012)	Number of government functions devolved to local councils by 2001 (out of the 29 functions required to be devolved by a constitutional amendment)	Distribution of excess Below Poverty Line (BPL) cards (measure of political patronage)	Cross-section	India (state-level)	Positive (decentralization advances patronage politics)

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Resumen

Este artículo revisa desde un punto de vista crítico la literatura empírica sobre descentralización y desarrollo. El análisis sugiere que los tipos de descentralización más positivamente asociados con los niveles de desarrollo son la descentralización de los ingresos y la independencia fiscal. Es decir, la capacidad de los gobiernos locales para recaudar sus propios ingresos, en lugar de depender de las transferencias del gobierno nacional, se asocia a niveles de desarrollo económico más elevados. Sin embargo, la descentralización del gasto no presenta una tendencia clara. En cuanto a los resultados en materia de desarrollo, la mayoría de los estudios revisados encontraron pruebas de que la buena gobernanza está positivamente asociada con la descentralización. Sin embargo, su relación con el crecimiento económico es contradictoria. También se plantean algunas sugerencias para futuros estudios sobre la descentralización.

Palabras clave: descentralización, desarrollo, revisión de la literatura.

Clasificación JEL: H70, H77, I30.