

# Decentralization, Fiscal Independence, and Poverty in the Philippines

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Decentralization is a common public sector reform in developing countries. Its basic rationale is that local governments have an informational advantage regarding the needs and preferences of consumers. However, decentralization also has drawbacks. Foremost is the efficiency advantage of the central government in providing public services because of economies of scale and better access to resources. This study looked at the relationship between decentralization and poverty using data from Philippine cities and municipalities. Results suggest that decentralization, as represented by fiscal independence and measured by the share of locally sourced revenues to total local government revenues, is indeed associated with lower poverty. However, this effect is not linear—the marginal effect of decentralization on poverty diminishes as decentralization increases. Moreover, decentralization moderates the positive effect of good governance on poverty reduction and the magnitude of the relationship between poverty and decentralization is stronger in poorer municipalities than in richer ones.

## BACKGROUND AND OBJECTIVES

Decentralization has become one of the most popular public sector reforms in the past few decades, with at least 60 countries including some form of decentralization in their development plan (Bahl 1999; Dillinger 1994; Smoke 2001). Despite its popularity, the effectiveness of decentralization remains highly debated, and its effect on development has not been fully studied (Faguet 2004; Saito 2008). Bahl (1999) and Von Braun and Grote (2002) argue that decentralization does promote development under certain conditions, but many of these conditions are absent in developing and least-developed economies. In addition, the monitoring and accountability of local officials are much weaker in developing countries (Bardhan 2002).

The Philippines implemented a comprehensive decentralization program more than two decades ago through the Local Government Code (LGC) of 1991. However, as it is in many

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other countries, there is still a need to study the effect of decentralization on development using domestic data (Llanto 2009).

The primary economic argument for decentralization is that local governments have better information than the central government on the needs and preferences of citizens as consumers of public goods. Because local governments are closer to the people that they serve, and because the population in a locality and their concerns tend to be more homogeneous than that of the whole country, a decentralized form of government can improve the delivery, allocation, and equity of public services (Boadway and Shah 2009; Kubal 2006; Oates 1999; Shah 1998; Wallis and Oates 1988; World Bank 1994). Decentralization can also potentially enhance government responsiveness to consumer needs as it increases participation among citizens (Faguet 2009; Kubal 2006).

On the contrary, the main counter-argument against decentralization is that the central government is more effective in producing public goods because of better access to resources, technologies, and other inputs. It is also more efficient due to economies of scale and economies of scope (Bahl 1999; Faguet 2004; Keating 1995; Prud'homme 1995; Smoke 2001). Decentralization can also weaken the capability of the central government to implement fiscal policy because it has fewer resources and spending options with which to work (Prud'homme 1995). In addition, decentralization can exacerbate inequality when functions are devolved to local governments with widely varying resources and capabilities (Bahl 1999; Prud'homme 1995).

Without adequate safeguards, decentralization also increases the risk of resource capture by local elites and special interest groups (Asante and Ayee 2007; Faguet 2009). In the Philippines, the country from which the data for this study was drawn, several studies suggest the existence of weak local governance and institutions. Teehankee (2012) argues that clientelism and weak bureaucracy contribute to the proliferation of patronage-based rent-seeking organizations centered around local political clans. In relation to this, Mendoza et al. (2012; 2016) found that these political clans hold a disproportionate share of local government positions; and they could be associated with adverse developmental outcomes.

With these contrasting effects, the impact of decentralization on development outcomes becomes an empirical question. The primary objective of this paper is to study the relationship between decentralization and poverty incidence using municipal and city data from the Philippines. Following some existing literature, it will use fiscal independence, or the ability of local governments to generate their own funds to measure decentralization. This paper also studied the role of governance on the decentralization–poverty relationship. This follows some literature that asserts the role of governance on the effectiveness of decentralization in promoting development (Jütting et al. 2004; Steiner 2005; Von Braun and Grote 2002). This paper is organized as follows. The next section reviews the literature on how decentralization is related to indicators of development, followed by the definition and types of decentralization.

#### **APPLICATIONS FOR PRACTICE**

- Decentralization, as represented by fiscal independence and measured by the share of locally sourced revenues to total local government revenues, is associated with lower poverty.
- The relationship is not linear—the marginal effect of fiscal independence on poverty diminishes as fiscal independence increases.
- The relationship between poverty and fiscal independence is stronger in poorer municipalities than in richer ones.

This is then followed by a discussion of the theoretical framework and empirical methodology. Finally, we present and interpret results; and the paper concludes with a summary.

## DEFINING AND MEASURING DECENTRALIZATION

Decentralization is defined as the transfer of responsibilities, functions, authority, and accountability from the central government to local governments (Litvack, Ahmad, and Bird 1998; Von Braun and Grote 2002). This transfer may take several forms. Administrative decentralization involves the transfer of functions from the central to local governments, while political decentralization provides greater decision-making power to the people. Fiscal decentralization reassigns spending and revenue-raising responsibilities from the central to the lower levels of government (Litvack, Ahmad, and Bird 1998; Von Braun and Grote 2002). Fiscal and administrative decentralization are closely related because more functions could imply greater spending and thus greater need for revenues.

The Philippines' 1991 decentralization program involved both administrative and fiscal decentralization. It transferred some expenditure and revenue-generating responsibilities from the national government to the local governments units (LGUs); although its primary criticism is that the eventual revenue sources of the LGUs were not enough to fund the devolved functions (Capuno 2017; Manasan 1992). It also includes a revenue-sharing scheme from the national to the local governments, called the Internal Revenue Allotment (IRA), to help the LGUs finance the responsibilities devolved to them.

Two common measures of fiscal decentralization are the expenditures of sub-national governments expressed as a share of central government spending (Davoodi and Zou 1998; Fisman and Gatti 2002) and sub-national government revenue expressed as a share of central or total government revenue (Akai and Sakata 2002; Zhang and Zou 1998). Another revenue-based indicator of decentralization measures the fiscal independence of the local government, or its ability to raise its own income to fund its functions rather than relying on transfers from the central government (Akai and Sakata 2002). In the Philippines, the largest central-to-local government transfer is the IRA.

The focus of this paper is on decentralization using data from Philippine cities and municipalities.<sup>1</sup> We used the share of revenues to total city or municipal government revenue as the decentralization indicator. Locally sourced revenues are funds collected by the local government themselves, such as local business taxes, property taxes, business licenses and fees, and service charges. On the contrary, externally sourced revenues are composed mostly of the IRA and some other transfers.<sup>2</sup>

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1. The largest local government unit in the Philippine is the province, which is divided into cities and municipalities. Nearby provinces are grouped into regions, but regions are merely geographical delineations.

2. Expressed as a share of total revenue, own-sourced revenue and automatic transfers from the central government are just opposite sides of the same coin. The former measures fiscal independence from the central government; while the latter measures fiscal dependence on the central government. One indicator can be used instead of the other, but own-sourced revenue as a share of total revenue has a small advantage. As our variable of interest is fiscal independence, using this indicator makes interpretation easier.

We used this indicator for several reasons. As discussed earlier, it measures the fiscal independence of the municipality or city government from the national government. There are LGUs—usually the poorest municipalities—that are highly dependent on the IRA for its funds. Although the LGC of 1991 decentralized many responsibilities to the local governments, many of them still rely on the IRA from the national government to finance these functions (Capuno 2017). On the contrary, there are also local governments that do not rely much on these central government transfers. In addition, greater locally-sourced income increases the local government's budget, helping it to perform its functions, effectively deliver public services, and implement its own programs. This reduces its reliance on central government programs to provide services for its constituents.

While local governments have almost full control over how to spend the IRA, there are certain regulations that make it mildly conditional. For instance, 20 percent of the IRA should be spent on development projects and one percent should be used for children's programs (DILG Department of Interior and Local Government 2007; 2012). Moreover, even if the local governments have control over how to spend the IRA, some of them are too dependent on it. These local governments would have very little to spend outside of this transfer. Some local governments, on the contrary, can generate significant revenues on their own.

The reason for greater revenue independence in some local governments is a combination of greater fiscal capacity and greater collection effort, although it can be argued that the former has a larger contribution. Cities and municipalities have widely varying numbers of businesses and economic conditions. Those with more businesses and better economies have a larger local tax base and therefore better fiscal capacity. Moreover, in the Philippines, one of the first requirements in establishing a business is a permit granted by the city or municipal government, which should be renewed every year. There are still a host of other business and licensing fees that the city or municipal government can charge. In addition, city and municipal governments collect real property tax and the higher the land value, the larger the tax. Fiscal capacity, therefore, plays an important role in the revenue independence of the local government.

Existing country-specific empirical studies on decentralization have used measures of fiscal independence, or some similar variables, as indicators of decentralization (Desai, Freinkman, and Goldberg 2005; Faguet and Sánchez 2008; Jin, Qian, and Weingast 2005; Yushkov 2015). Because local governments from the same country are subject to the same national laws, it is inherently more difficult and more imperfect to measure and compare decentralization levels across local governments in country-specific studies. Fiscal independence, or some variation of it, is, therefore, a common decentralization indicator in these types of studies.

## **SOME DECENTRALIZATION LITERATURE**

### *Conceptual Literature*

The arguments for and against decentralization presented in the introduction are mostly based on “first-generation” theories of fiscal federalism. These theories implicitly assume that the

different levels of government are benevolent agents of the consumers and they seek to maximize social welfare (Oates 2005; Weingast 2009). Meanwhile, the “second-generation” fiscal federalism theories assume that local governments and their officials have certain interests. Because of these interests, outcomes diverge from what is socially optimal (Qian and Barry 1997; Weingast 2009). Second-generation theories have two primary assumptions. First, political participants, including government officials and voters, maximize their utility and this maximization process affects their behavior. Second, there is information asymmetry among these agents. Some of these models predict that the optimal condition for each political institution may be different under information asymmetry (Oates 2005).

Similar to first-generation literature, second-generation studies also identify tradeoffs between a decentralized and a centralized government setup. Seabright’s (1996) model argues that the advantage of centralization is the ability of the central government to coordinate public service provision across local governments. The advantage of decentralization, on the contrary, is greater accountability if local governments are the ones to provide public services to their constituents. Lockwood’s (2002) and Besley and Coate’s (2003) models show that the disadvantage of decentralization is that local governments do not consider the spillover effects of their public service provision. On the contrary, the central government tends to mis-allocate public services across localities. According to the model of Bardhan and Mookherjee (2006), the primary disadvantage of the centralized provision is the potential to create monopoly power for the central government. However, local governments are more susceptible to local elite capture.

### *Empirical Literature*

The empirical literature on the relationship between decentralization and development indicators shows mixed results. Studies utilized different measures of decentralization and the literature is a mixture of country-specific and cross-country analyses.

Davoodi and Zou (1998), a cross-country study, concluded that decentralization negatively affects per capita output growth rate in developing countries (but has no effect on developed economies). Nguyen-Hoang (2008), Zhang and Zou (1998), and Wallis and Oates (1988) also found evidence of a negative effect of decentralization on development. These three papers used country-specific data—Vietnam, China, and the United States, respectively. All studies used expenditure-based fiscal decentralization indicators. Tosun and Yilmaz (2008) took a different approach by measuring decentralization using a number of municipalities per capita and the number of municipalities per unit area. Using data from Turkish provinces, they found either a negative or no relationship between decentralization and provincial GDP per capita and GDP per capita growth rate.

In contrast to these studies, other papers concluded a positive relationship between decentralization and development outcomes. Von Braun and Grote (2002) did a very basic cross-country econometric analysis to investigate whether poverty is related to several decentralization measures. They found some evidence that elections at the lower levels of government (a measure of political decentralization) and a larger share of sub-national government spending to total government

spending are associated with lower poverty. There are also country-specific studies concluding that decentralization positively affects the development outcomes in both developed and developing countries (Akai and Sakata 2002; Stansel 2005). Faguet (2004) concluded that the implementation of a decentralization law in Bolivia redirected human capital investments and social services to areas with greater needs. This was one of the very few studies in the literature that econometrically analyzed the effect of an actual decentralization law rather than relying on indicators of decentralization. Some empirical studies also found mixed or insignificant results depending on the decentralization measure and the outcome indicator (Hammond and Mehmet 2011; Jin and Zou 2005; Xie, Zou, and Davoodi 1999).

More recent empirical literature measured decentralization using slightly different indicators and tested how they are correlated with some new development outcomes. Using cross-country data, Goel and Saunoris (2016) used a novel indicator of decentralization—virtual decentralization, or the degree by which the government provides public services through online platforms—and found it to be effective in reducing corruption and reducing the size of the informal economy. In another cross-country analysis, Goel et al. (2017), used four different decentralization indicators—expenditure decentralization, a federalism dummy, an aggregate decentralization index, and an administrative decentralization index that measures the power of local governments—and found that they are most positively associated with perception-based measures of good governance. Some recent studies focused on developed countries. Blöchliger and Akgun (2018) found mixed evidence on the relationship of economic growth with spending, revenue, and tax decentralization using data from OECD countries. Kyriacou, Muinelo-Gallo, and Roca-Sagalés (2016) also used data from OECD countries and found evidence that revenue decentralization is associated with better governance and less inequality. Using panel data from European countries, Carniti et al. (2019) found a non-linear relationship between per capita GDP growth rate and decentralization of public investment.

## FRAMEWORK AND METHODOLOGY

### *Theoretical Framework*

Jütting et al. (2004) designed a framework that explains how decentralization can affect poverty alleviation. They characterized poverty as multidimensional, rather than singularly focused on one aspect, such as income. The three dimensions of poverty are voicelessness, vulnerability, and limited access to services, with each focusing on different types of need or deprivation. Voicelessness refers to the lack of participation in governance and in decisions pertaining to public service provision. Vulnerability is the lack of protection from and capacity to adapt to risks.

The limited access to services dimension includes education, health, and other services crucial to human capital formation and to the ability to escape poverty. This dimension is connected to the first two as voicelessness and vulnerability can lead to limited access to services. Voiceless individuals do not participate in decision-making; therefore, they may not

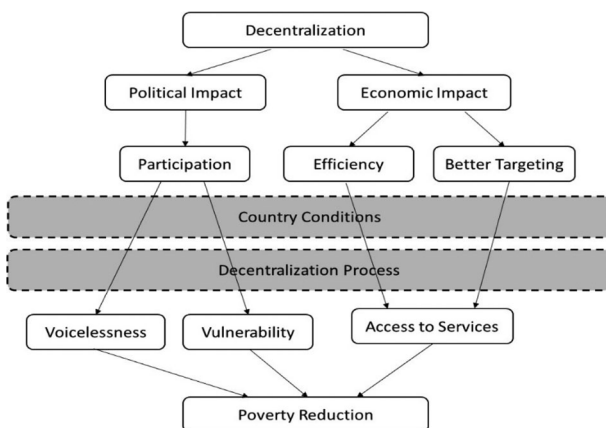
get the public goods and services that they need. Vulnerable individuals, when exposed to shocks, may have no resources to acquire these services.

The Jütting et al. framework identifies two channels by which this effect can materialize. The two channels—political and economic—affect the different dimensions of poverty differently. The transmission mechanism from decentralization to poverty reduction is illustrated in Figure 1. The political channel refers to the increased participation of consumers in decision-making. Political decentralization affects the voicelessness and vulnerability dimensions by allowing citizens to participate in the decision-making processes through representation, which, in turn, helps the poor gain better access to public goods and social safety nets. The economic channel affects the limited access to services dimension through the better targeting and provision of public goods and services under decentralization. The more efficient public service provision is due to the informational advantage of local governments over the central government regarding the needs and preferences of the people (Boadway and Shah 2009; Kubal 2006; Oates 1999; Shah 1998; Wallis and Oates 1988).

Jütting et al., however, stressed that this transmission mechanism from decentralization to poverty will only work under certain conditions. These conditions can be aggregated into two sets of factors: country conditions and the decentralization process. Country conditions include socioeconomic variables such as income, infrastructure quality, and population; and quality of governance and institutions. For instance, if there are many local government units with small populations, losses from diseconomies of scale may be large. For low-income countries, the cost of implementing a decentralization program may be so high that other poverty-alleviation programs are sacrificed.

Governance and institutional quality are important in several ways. Good governance keeps local officials accountable, promotes legal enforcement, and maintains checks and balances

**FIGURE 1**  
**How Decentralization Affects Poverty.**



Source: Adopted with modifications from Jütting et al. (2004).

across different local positions. Good governance, accountability, and high-quality institutions prevent leakages of scarce resources due to corruption, bureaucracy, incompetence, elite capture, and other inefficiencies (Bardhan 2002; Steiner 2005). The decentralization process is similar to governance and institutional quality, but it refers specifically to how the decentralization program was implemented rather than the overall condition in the country.

### *Empirical Strategy*

We used Equation (1) to estimate the relationship between decentralization, as measured by fiscal independence, and city and municipal poverty incidence.

$$poverty_j = \beta_0 + \beta_1 \times localsource_j + \beta \times X_j + \mu_j \quad (1)$$

In the equation,  $poverty_j$  is the poverty incidence for city or municipality  $j$ ,  $localsource_j$  is locally sourced revenues expressed as a share of total revenues of the city or municipal government  $j$ ,  $X_j$  is a vector of control variables, and  $\mu_j$  is the error term. The control vector  $X_j$  is composed of other variables that may affect poverty incidence. This includes the total sales of all firms in the city or municipality to measure the level of economic activity, inflation, percent of paved roads to measure infrastructure quality, percent of households with electricity to measure access to services and utilities, number of banks, and population. These variables have been shown to affect poverty or indicators of poverty (Donou-Adonsou and Sylwester 2016; Jacoby 2000; Marinho et al. 2017; Rewilak 2017; Seetanah, Ramessur, and Rojid 2009). We included a dummy variable for cities and municipalities located on Mindanao island, which is one of the poorest regions in the country, and regional dummies among the set of controls.

Aside from being grounded in the existing empirical literature, we also based the empirical model on the earlier-discussed framework on how decentralization can affect poverty reduction. The control variables represent most of the socio-economic country conditions and decentralization processes that affect poverty. They also control for other factors that could affect poverty, allowing for a *ceteris paribus* analysis and isolating the relationship between decentralization and poverty.

The control vector also includes indicators of governance and institutional quality, which studies have shown to affect poverty (Chakravarti 2005; Tebaldi and Mohan 2010). Moreover, governance and institutions are the most prominent variables in the identified country conditions and decentralization process that makes decentralization potentially effective for poverty reduction (Jütting et al. 2004; Steiner 2005). Following this possible role of governance and institutions on the decentralization–poverty relationship, an interaction term between the indicators of decentralization and governance was included in  $X_j$ . Governance, therefore, has special importance in the regression framework. It can affect the decentralization-poverty relationship and it also has its own direct effect on poverty.

In separate regressions, we also included an interaction term between the decentralization indicator and a dummy variable for third to sixth class municipalities among the controls (municipalities are sorted into six income classes). The purpose of this regressor was to



determine if decentralization has different effects on poverty between relatively higher and lower-income municipalities. Jütting et al. (2004) suggested that decentralization may not be as effective in lower-income territories because implementing it requires resources, and these resources could have been used on other poverty reduction programs. In the case of the Philippines, Manasan (1992) and Capuno (2017) argued that low-income local governments find it hard to fund the functions devolved to them during the 1991 decentralization program. And these difficulties might have adverse consequences on fighting poverty. On the contrary, if the effect of decentralization on poverty is through the better targeting of public services for the poor, then decentralization may even have a larger marginal effect on poorer localities because there is more poverty than it can potentially affect.

Also, in separate regressions, we included a squared term of *localsource* to determine if the relationship between decentralization and poverty is linear or if it is subject to “diminishing returns.” Some models of decentralization, such as those of Davoodi and Zou (1998) and Xie, Zou, and Davoodi (1999), argued that there is an optimal level of decentralization that can maximize development outcomes. Above this level, further decentralization would have adverse effects on development.

The city and municipal poverty incidence statistics are released every three years and the 2012 data—the latest available—was the one used for this study. In contrast to poverty, most of the independent variables in Equation (1) have data available for multiple successive years. Most of these independent variables were expressed in four-year annual averages. We used annual average to remove the bias from possible short-term fluctuations in the value of the variable in some years.

The source of the city and municipal poverty incidence data was the Philippine Statistical Authority’s (PSA) Small Area Poverty Estimates (SAPE). The local government financial statistics came from the Bureau of Local Government Finance (BLGF), while the control variables were from the Cities and Municipalities Competitiveness Index (CMCI) data and the PSA.

We used two measures of governance in Equation (1). One is the Good Governance Index (GGI), an indicator developed by the PSA to measure the quality of governance in local governments. Governance is difficult to measure because it has several dimensions and indicators of governance should not measure only one of these dimensions (Manasan 1999). The literature and some development organizations (e.g., Root 1995; World Bank 1992) have suggested several ways to measure governance at a multi-dimensional level. For instance, one of the first and most widely used governance indicators that compare countries is the Worldwide Governance Indicators (WGI) of the World Bank. It uses six sub-indexes—voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption (Kaufmann, Kraay, and Mastruzzi 2009). However, some governance indicators used to compare governance across countries may not be appropriate at the local government level, necessitating a separate multi-dimensional measure of governance at the local level (Manasan 1999).

The GGI was developed to address this need for a multi-dimensional good governance measure in local governments. The GGI is composed of three sub-indices—economic governance, political governance, and administrative governance. The Political Governance Index

measures the rule of law, security, administration of justice, people participation, and empowerment. The Administrative Governance index measures the efficiency of the delivery of public services such as health, education, and power; and the Economic Governance index measures how well resources are managed to reduce poverty (Philippine Statistics Authority 2019).

The second governance indicator is the number of awards conferred to the city or municipality by national, regional, and international institutions, which was gathered from the Philippine CMCI data set. While the GGI is composed of clear and specific indicators attached to the different dimensions of governance, the number of awards received can be thought of as an aggregate signal of the local government's performance. In addition, awards can be good indicators of innovation, and good governance is one of the drivers of innovation (Capuno 2005). The summary statistics and the description of all the variables used are detailed in Table 1.

We initially estimated Equation (1) using cross-section Ordinary Least Squares (OLS). However, it is possible that the variable of interest—locally sourced revenues as a share of the total revenue of the local government—is endogenous because of bi-directional causality. While the share of locally sourced revenue to total revenue can affect poverty incidence, it is also possible that the latter affects the former. In cities and municipalities where poverty incidence is high, economic activity is low, resulting in lower levels of local business taxes, property taxes, regulatory fees, and service fees. This limits the ability of the local government to raise its own revenues.

If endogeneity is indeed present, it will cause the coefficient of the endogenous regressor to be biased. An independent variable  $X$  is endogenous if it is correlated with the error term  $\mu$ . One possible solution to address endogeneity is the use of instrumental variables. A variable  $Z$  is a valid instrument for the endogenous variable  $X$  under two conditions. First is that  $X$  and  $Z$  must be strongly correlated, also called relevance. Second is  $Z$  must not be correlated with  $\mu$ , also called exogeneity. The test for relevance is straightforward—regress  $X$  on  $Z$  and test for the significance of the coefficient (joint significance if there are more than two instruments).

Exogeneity is the condition that is more difficult to meet and to test. If the number of endogenous independent variables and instruments are the same, exogeneity cannot be tested statistically and can only be argued intuitively and using economic theory. If there are more instruments than endogenous regressors, exogeneity can be tested using the test for over-identifying restrictions.

To address possible endogeneity, Equation (1) was also estimated using two-stage least squares (2SLS) with locally sourced revenues as a share of total revenues being instrumented by two variables—an index that measures the cost of doing business (*codbscore*) and an index that measures the ease of doing business (*eodbscore*). The relevance and exogeneity of these two instruments can be argued intuitively. Easier and lower cost of doing business encourages greater economic activity and firm creation (Fonseca, Lopez-Garcia, and Pissarides 2001; Van Stel, Storey, and Thurik 2007), thus increasing the possible sources of locally sourced revenues. On the contrary, it is not likely that these can directly affect poverty. As there are two instruments, both relevance and exogeneity requirements can also be tested statistically.

**TABLE 1**  
**Summary Statistics and Variable Descriptions**

<b>Variable</b>	<b>Description</b>	<b>Mean</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>
<i>poverty</i>	City or municipal poverty incidence in percent	26.871	15.559	0.280	79.720
<i>localsource</i>	Share of locally sourced revenues to total revenues of the city or municipal government, annual average from 2011 to 2015	0.173	0.147	0.002	0.910
<i>ggi</i>	Good governance indicator index, 2008	169.028	85.747	67.19	733.61
<i>awards</i>	Number of awards received by the city or municipal government, annual average from 2011 to 2015	2.348	3.207	0	36.400
<i>codbscore</i>	Cost of doing business score	0.792	0.123	0.339	1.000
<i>eodbscore</i>	Ease of doing business score	0.868	0.065	0	1
<i>inflation</i>	Inflation rate, in percent, annual average from 2011 to 2015	3.634	0.801	0.84	5.90
<i>firmsales</i>	Total sales of businesses in the city or municipality, in millions PhP, annual average from 2011 to 2015	7312.158	47168.19	0.011	982493.9
<i>electricity</i>	Share of households in the city or municipality with electricity, in percent, annual average from 2011 to 2015	73.441	29.737	0	100
<i>pavedroads</i>	Share of roads in the city or municipality that are paved, annual average from 2011 to 2015	0.466	0.319	0	1
<i>banks</i>	Number of banks in the city or municipality, annual average from 2011 to 2015	8.558	37.599	0	721
<i>popn</i>	Population, in thousands	63.213	128.850	1.249	2761.720

Regional dummies not shown due to space constraints.

The two instruments were constructed using data from the CMCI of the Philippines. The CMCI ranks cities and municipalities based on three pillars—economic dynamism, government efficiency, and infrastructure—with each pillar being comprised of several sub-pillars and indicators. Under Economic Dynamism is the Cost of Doing Business sub-pillar; under Government Efficiency is the Business Registration Efficiency sub-pillar. Cost of Doing Business is composed of 11 indicators—cost of electricity (for commercial and industrial users); cost of water (for commercial and industrial users); price of diesel; daily minimum wage (agricultural plantation, agricultural non-plantation, non-agricultural establishment with ten or fewer workers, non-agricultural establishment with more than ten workers); cost of land in a central business district; and cost of rent for commercial or office space.

Business Registration Efficiency is comprised of eight indicators—number of days and steps it takes to get a permit for a new business, number of days and steps it takes to get a business renewal permit, number of days and steps it takes to get a building permit, and number of days and steps it takes to get an occupancy permit. The cost of doing business score (*codbscore*) was computed from the Cost of Doing Business indicators while the ease of doing business score (*eodbscore*) was from the Business Registration Efficiency indicators. The two instruments were constructed by standardizing the indicators for each city and municipality and computing for their averages.

Aside from testing for exogeneity and relevance of instruments, the decentralization indicator was also tested for endogeneity using the method suggested by Hausman (1978). When regressors are not endogenous, 2SLS is less efficient than OLS and the former's standard errors are large. Thus, OLS should be used instead of 2SLS if there is no endogeneity. Equation (1) was estimated using different combinations of independent variables as a robustness checks. For each of these regressions, the instruments were tested for exogeneity and the decentralization indicator was tested for endogeneity.

## RESULTS AND INTERPRETATION

### *Regression Results*

The OLS and 2SLS coefficients are reported in Table 2. To test for stability of results, they were presented with variations in the control variables included in the regression. These variations include reporting regression outcomes with and without the interaction term between the decentralization and governance indicators, with and without regional dummies, and separately using the GGI and number of awards as governance indicators. The table also shows the results of the endogeneity test for the decentralization variable. Both OLS and 2SLS runs used robust standard errors.

The instruments used passed the exogeneity test in all 2SLS regressions. They also passed the relevance test—*eodbscore* and *codbscore* were jointly highly significant when the decentralization variable was regressed on them. The variable of interest, *localsource*, turned endogenous in only two regression models—those where GGI was used as the governance indicator and regional dummies were not included among the control variables. For these

**TABLE 2**  
**Regression Results**

Variables	(1) Poverty OLS	(2) Poverty 2SLS	(3) Poverty OLS	(4) Poverty 2SLS	(5) Poverty OLS	(6) Poverty 2SLS	(7) Poverty OLS	(8) Poverty 2SLS
<i>localsource</i>	-83.11*** (7.671)	-220.6*** (85.04)	-41.28*** (4.727)	-97.54*** (30.45)	-71.71*** (6.578)	297.5 (1.207)	-40.75*** (4.602)	-63.49 (113.6)
<i>ggi</i>	-0.0317*** (0.00708)	-0.0798** (0.0327)	0.00592 (0.00546)	0.0426* (0.0223)	-0.00904* (0.00547)	0.114 (0.404)	0.0188*** (0.00491)	0.0337 (0.0739)
<i>inflation</i>	1.685*** (0.641)	0.650 (1.074)	1.875*** (0.675)	1.138 (0.864)	-0.369 (0.554)	2.388 (8.879)	-0.388 (0.574)	-0.887 (2.571)
<i>firmsales</i>	2.20e-05** (1.09e-05)	-3.30e-05 (4.11e-05)	3.97e-05** (1.80e-05)	1.93e-05 (2.36e-05)	3.19e-06 (6.84e-06)	0.000159 (0.000509)	1.63e-05 (1.10e-05)	6.64e-06 (4.90e-05)
<i>electricity</i>	-0.0482*** (0.0154)	-0.0170 (0.0250)	-0.0577*** (0.0158)	-0.0454*** (0.0167)	-0.0642*** (0.0174)	-0.123 (0.192)	-0.0657*** (0.0183)	-0.0581 (0.0427)
<i>pavedroads</i>	-3.022* (1.696)	-3.018 (1.993)	-2.095 (1.812)	0.158 (2.375)	-6.292*** (1.424)	-7.415 (5.169)	-5.868*** (1.471)	-5.188 (3.749)
<i>banks</i>	-0.574*** (0.144)	-0.164 (0.344)	-0.641*** (0.158)	-0.326 (0.238)	-0.311*** (0.106)	-1.412 (3.593)	-0.353*** (0.119)	-0.217 (0.677)
<i>popn</i>	0.0486*** (0.0145)	0.0783*** (0.0273)	0.0467*** (0.0156)	0.0762*** (0.0260)	0.0350*** (0.0112)	-0.0346 (0.234)	0.0323*** (0.0122)	0.0403 (0.0432)
<i>localsource_ggi</i>	0.147*** (0.0190)	0.459** (0.198)			0.107*** (0.0161)	-0.704 (2.662)		
<i>mindanao</i>	14.26*** (1.156)	13.91*** (1.403)	14.63*** (1.191)	15.17*** (1.321)				
<i>Constant</i>	34.97*** (3.252)	54.85*** (13.59)	26.28*** (3.208)	27.99*** (3.801)	38.11*** (3.223)	-22.62 (197.7)	31.72*** (3.183)	33.86*** (11.35)
<i>Observations</i>	515	513	515	513	515	513	515	513
<i>R<sup>2</sup></i>	0.583	0.309	0.544	0.414	0.743		0.724	0.705
<i>Endogeneity test</i>	Endogenous		Endogenous		Not endogenous		Not endogenous	
Variables	(9) poverty OLS	(10) poverty 2SLS	(11) poverty OLS	(12) poverty 2SLS	(13) poverty OLS	(14) poverty 2SLS	(15) poverty OLS	(16) poverty 2SLS
<i>localsource</i>	-42.67*** (3.737)	-67.01*** (19.40)	-40.52*** (3.319)	-56.71*** (14.68)	-37.51*** (3.773)	-71.54* (40.27)	-34.44*** (3.434)	-68.34 (86.06)

(continued)

TABLE 2 (Continued)

Variables	(9) poverty OLS	(10) poverty 2SLS	(11) poverty OLS	(12) poverty 2SLS	(13) poverty OLS	(14) poverty 2SLS	(15) poverty OLS	(16) poverty 2SLS
<i>awards</i>	-0.335* (0.190)	-0.719** (0.366)	-0.0810 (0.0981)	0.0512 (0.163)	-0.626*** (0.153)	-0.977** (0.441)	-0.232** (0.0989)	0.105 (0.869)
<i>inflation</i>	1.467** (0.569)	0.909 (0.705)	1.496*** (0.570)	1.090* (0.661)	-0.602 (0.545)	-1.382 (1.057)	-0.560 (0.548)	-1.395 (2.155)
<i>firmsales</i>	1.87e-05 (1.19e-05)	1.18e-05 (1.90e-05)	2.76e-05** (1.23e-05)	3.74e-05** (1.72e-05)	5.21e-06 (1.08e-05)	-1.04e-05 (2.80e-05)	1.84e-05* (1.05e-05)	2.50e-05 (2.21e-05)
<i>electricity</i>	-0.0784*** (0.0148)	-0.0646*** (0.0172)	-0.0796*** (0.0148)	-0.0704*** (0.0156)	-0.0872*** (0.0163)	-0.0653*** (0.0312)	-0.0890*** (0.0164)	-0.0671 (0.0580)
<i>pavedroads</i>	-3.711** (1.692)	-1.494 (2.415)	-3.558** (1.686)	-1.469 (2.499)	-5.695*** (1.488)	-3.117 (3.437)	-5.514*** (1.492)	-2.176 (8.701)
<i>banks</i>	-0.00138 (0.0216)	-0.0114 (0.0266)	-0.000256 (0.0215)	-0.00648 (0.0242)	0.0118 (0.0208)	0.00904 (0.0259)	0.0134 (0.0194)	0.0135 (0.0206)
<i>popn</i>	-0.00596 (0.00421)	0.00468 (0.0108)	-0.00800** (0.00395)	-0.00286 (0.00678)	-0.00859** (0.00391)	0.00171 (0.0134)	-0.0117*** (0.00357)	-0.00547 (0.0160)
<i>localsource_ward</i>	0.706 (0.449)	2.217 (1.372)			1.070*** (0.401)	2.806 (2.084)		
<i>mindanao</i>	14.28*** (1.069)	14.15*** (1.049)	14.32*** (1.072)	14.29*** (1.048)				
<i>Constant</i>	32.30*** (2.596)	36.52*** (4.216)	31.66*** (2.550)	34.02*** (3.306)	38.84*** (2.802)	46.92*** (9.865)	37.99*** (2.758)	45.83** (19.90)
<i>Observations</i>	664	663	664	663	664	663	664	663
<i>R<sup>2</sup></i>	0.600	0.569	0.599	0.582	0.727	0.673	0.724	0.662
<i>Endogeneity test</i>	Not endogenous		Not endogenous		Not endogenous		Not endogenous	

Robust standard errors in parenthesis. Regional dummy results not reported due to space constraints. Available upon request.

\*Significant at 10%.

\*\*Significant at 5%.

\*\*\*Significant at 1%.

regression equations, we used and interpret the 2SLS results; for the rest, OLS was the more appropriate method. Indeed, when regional dummies were added to the regression, most of them turned out to be significant. It means that many of the unobserved heterogeneities affecting poverty that could possibly be correlated with *localsource* have been transferred out of the error term and incorporated into the regression model.

The decentralization variable, *localsource*, consistently showed a negative and significant coefficient across different runs. After controlling for other factors, poverty incidence is lower in cities and municipalities where the local government has greater fiscal independence. A one percentage point increase in locally sourced revenue of the city or municipal government expressed as percent share of its total revenue is associated with at least 0.4 percent lower poverty incidence. In the regression equations where *localsource* was found to be endogenous, it is negative and significant in both OLS and 2SLS, although the magnitude of the coefficients was much larger (more negative) in the latter.

Most control variables had their expected signs. Depending on the regression equation, a higher share of paved roads, a higher share of households with electricity, more banks, and lower inflation are associated with a lower incidence of poverty. As mentioned earlier, many regional dummies were also statistically significant. This was expected because of the large disparity in development across Philippine regions.

The individual governance variables mostly have negative and significant coefficients, which means that better governance is associated with lower poverty. This was consistent with the literature concluding that good governance and institutions help promote poverty alleviation (Chakravarti 2005; Tebaldi and Mohan 2010). The coefficient of the number-of-awards variable was negative and significant in three of four regressions. The other governance indicator, GGI, was less consistent—its coefficient was negative and significant in only two of four regressions.

The coefficient of the interaction term between decentralization and governance is positive and significant in three of the four equations where it was included. Moreover, the coefficients of both decentralization and governance variables were individually significant and negative in these regressions. This means that, individually, decentralization and governance have positive effects on poverty alleviation; but at least one of them tempers the other's effect.

The set of regressions that included the interaction between decentralization and the dummy for third to sixth class municipalities as a control variable were reported in Table 3. Note that unlike in Table 2, not all OLS and 2SLS runs were reported in Table 3. The 2SLS runs were reported only for the equations where the decentralization variable turned endogenous. For those where the decentralization variable turned exogenous, OLS results were reported.

The interaction term between the decentralization indicator and the third to sixth class municipality dummy was negative and significant in six of the eight regressions. This suggests that decentralization, as represented by fiscal independence, has a stronger relationship with poverty in lower-income municipalities.

The set of regressions that included a squared decentralization term were reported in Table 4. Like in Table 3, not all OLS and 2SLS regressions were reported in Table 4. Only OLS was reported when the endogeneity test shows that the decentralization variable is not endogenous.

**TABLE 3**  
**Regression Results with Interaction Term between Decentralization and Dummy for Third to Sixth Class Municipalities**

	(1) 2SLS	(2) 2SLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS	(8) OLS
<i>localsource</i>	-229.8** (104.6)	-95.64*** (33.52)	-66.97*** (6.532)	-38.15*** (4.449)	-41.82*** (3.625)	-39.69*** (3.235)	-37.19*** (3.690)	-34.19*** (3.348)
<i>locsourcetot_3to6mun</i>	18.09 (22.86)	-5.053 (11.03)	-12.98*** (4.286)	-17.53*** (4.333)	-16.24*** (4.432)	-16.26*** (4.423)	-14.19*** (3.951)	-14.37*** (3.949)
<i>Observations</i>	513	513	515	515	664	664	664	664
<i>R</i> <sup>2</sup>	0.281	0.423	0.747	0.732	0.607	0.605	0.732	0.729

Robust standard errors in parenthesis. Control variables not reported due to space constraints. Available upon request. Governance indicator: *ggi* for columns 1 to 4, *awards* for columns 5 to 8. With regional dummies: columns 3, 4, 7, 8 (other columns have none). With decentralization-governance interaction: columns 1, 3, 5, 7 (other columns have none).

\*Significance at 10%.

\*\*Significance at 5%.

\*\*\*Significance at 1%.



**TABLE 4**  
**Regression Results With Squared Decentralization Term**

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS	(8) OLS
<i>localsource</i>	-98.81*** (9.420)	-98.18*** (9.450)	-85.88*** (8.153)	-85.51*** (8.108)	-96.71*** (7.183)	-96.73*** (7.169)	-90.98*** (6.985)	-91.09*** (7.007)
<i>localsource_sqr</i>	78.43*** (23.67)	113.2*** (16.84)	69.23*** (19.04)	86.59*** (12.57)	91.35*** (9.444)	91.15*** (9.381)	90.46*** (9.262)	92.19*** (9.336)
<i>Observations</i>	515	515	515	515	664	664	664	664
<i>R</i> <sup>2</sup>	0.592	0.589	0.750	0.749	0.639	0.639	0.759	0.758

Robust standard errors in parenthesis. Control variables not reported due to space constraints. Available upon request. Governance indicator: *ggi* for columns 1 to 4, *awards* for columns 5 to 8. With regional dummies: columns 3, 4, 7, 8 (other columns have none). With decentralization-governance interaction: columns 1, 3, 5, 7 (other columns have none).

Significance at \*10%, \*\*5%, \*\*\*1%.

The squared *localsource* term was consistently positive and significant, and the level and squared terms were consistently jointly significant. This suggests that the relationship between decentralization, as measured by fiscal independence, and poverty is not linear. It starts positive at low levels of decentralization, but the marginal effect decreases as decentralization increases.

### *Discussions And Implications*

The results suggest that decentralization, as represented by fiscal independence—and measured by the share of locally sourced revenues to total local government revenue—is associated with less poverty. After controlling for other factors, poverty incidence is lower in cities and municipalities where the local governments have greater capacity to raise their own revenues rather than depend on revenue share transfers from the central government.

Although results show that decentralization, as measured by fiscal independence, is indeed associated with lower poverty, the sign and significance of the squared decentralization term suggest that the effect of decentralization on poverty is not linear. At low levels of decentralization, it is positively correlated with poverty alleviation. This positive marginal effect, however, diminishes as the level of decentralization increases until it reaches a certain optimal point. Beyond this optimal point, further decentralization becomes associated with higher poverty incidence. Thus, there is an optimal level decentralization—below this level, decentralization and poverty have a negative relationship; above it, the relationship becomes positive.

A possible explanation for this non-linear U-shaped relationship is that local government programs on poverty alleviation are only effective up to a certain point beyond which national government programs become more crucial. Some social services that have been shown to contribute to poverty reduction and to promote development, such as infrastructure development (Marinho et al. 2017; Seetanah, Ramessur, and Rojid 2009) and improvements in the quality of education and health services (Anand and Ravallion 1993; Psacharopoulos 1988; Squire 1993), are better managed by the central government because they require more resources and economies of scale. As earlier discussed, one disadvantage of decentralization is the ability of the central government to provide public goods more efficiently and even more effectively because of better access to resources and economies of scale (Bahl 1999; Faguet 2004). As decentralization increases, the central government's role in providing these crucial public services declines, giving more power to the local governments to produce and distribute them. Therefore, at low levels of decentralization, its benefits outweigh its disadvantages, and it has a negative relationship with poverty. At levels of decentralization higher than the optimal, the opposite happens.

The results also suggest that, as expected, governance has a positive association with poverty reduction. After controlling for other factors, poverty incidence is generally lower in cities and municipalities with better governance. The role of governance and institutional quality has been documented in the literature for its role in poverty alleviation (Chakravarti 2005; Tebaldi and Mohan 2010), and findings in this study are no different.

Another possible interpretation of the result concerns the transmission mechanism of how decentralization and governance influence poverty. Some studies have shown that decentralization can positively influence governance (Arikan 2004; Fisman and Gatti 2002; Kyriacou and Roca-Sagalés 2009); and it is possible that decentralization, as measured by fiscal independence, can influence poverty indirectly through its effect on governance. This is on top of decentralization's direct relationship with poverty.<sup>3</sup>

While decentralization and governance are positively associated with poverty alleviation individually, testing for interaction effects is important given the possible role of governance in the effect of decentralization on development (as discussed in the theoretical framework). Results suggest that decentralization and governance “crowd out” each other in alleviating poverty. That is, decentralization moderates the positive effect of good governance on reducing poverty; and/or good governance moderates the positive effect of decentralization. This means that although governance has a positive effect on poverty reduction, decentralization can weaken this positive effect. Conversely, although decentralization has a positive effect on poverty alleviation, governance can weaken this positive effect. However, drawing from literature and the earlier discussion in the theoretical framework, it is unlikely that governance weakens the positive relationship between decentralization and poverty, as a rich body of literature has shown that good governance is a prerequisite for decentralization to be effective in promoting development. The more feasible possibility is that decentralization tempers the positive influence of governance on poverty. As decentralization increases, local governments become more important in determining development outcomes, including poverty. However, governance is generally poorer and corruption more widespread among local governments than in the central government (Prud'homme 1995). Therefore, as decentralization increases, it can temper the positive effect of governance on poverty.

Further results suggest that the marginal effect of decentralization on poverty is greater on poorer municipalities than it is on higher-income ones. This is not surprising—when poverty incidence is high, poverty-alleviating measures have “more poverty” to address than when poverty is low.

It must be noted that this paper covers only one aspect of decentralization, which is the fiscal independence of local governments, or their ability to raise their own funds. Testing for the effect of other aspects of decentralization on poverty is encouraged and is reserved for further studies. Nonetheless, local governments' ability to generate their own revenues to fund their responsibilities is one of the key conditions for decentralization to affect development (Bahl 1999; Manor 1999). When a city or municipality is more fiscally independent, it has more freedom and more resources to implement its own development and poverty-reduction programs.

In the early years of the Philippine LGC, Manasan (1992) projected that some low-income LGUs would find it difficult to fund the cost of responsibilities transferred from the national government. More than two decades later, Capuno (2017) argued that many LGUs are still dependent on the national government to fund these devolved functions; and this affects the delivery of public services. Shen, Jin, and Zou (2012) observed that a similar situation occurs

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3. We thank one of the anonymous referees for suggesting this.

in China, wherein expenditure functions are not matched by enough revenues, creating vertical fiscal imbalance and limiting the effectiveness of local governments.

Another policy implication of the results is that when implementing or designing a decentralization program with the objective of reducing poverty, increasing the functions and expenditure assignments of local governments is not enough. Local governments should also have the capability to generate their own revenues to fund these responsibilities.

### *Robustness Check*

As a robustness check, we used another measure of fiscal independence—own-sourced revenue expressed as a ratio of total local government expenditures (*locsourceexp*). The difference between this variable and the earlier indicator is the denominator—own-sourced revenue was expressed as ratio of expenditures rather than of total revenues. It measures how much of the local government's spending is funded by revenues that are generated by the local government itself, rather than by transfers. Results show that the coefficient of *locsourceexp* has a negative and significant coefficient in all of the relevant runs. The signs of the coefficients of the interaction terms were also the same.<sup>4</sup>

## SUMMARY AND CONCLUSION

The results suggest that decentralization, as measured by fiscal independence, is negatively associated with poverty. Holding other factors constant, poverty incidence is lower in cities and municipalities that are more fiscally independent or those whose local governments are more able to generate their own revenues, rather than relying on revenue share transfers from the national government. However, this relationship is not linear—it starts positive at low levels of decentralization and the marginal effect diminishes as decentralization increases. There is an optimal level of decentralization above which further decentralization has adverse effects on poverty reduction. In addition, we found evidence that decentralization moderates the positive effect of good governance on poverty reduction. Moreover, the marginal effect of decentralization on poverty is greater in lower-income municipalities than in higher-income ones.

These results can offer policy implications in designing effective decentralization programs. For one, reassignment of expenditure and revenue functions are not enough—local governments should have some fiscal independence for decentralization to be effective. Second, policy-makers should be careful not to “over-decentralize,” as too much of it can have adverse development outcomes.

An important caveat of this study is that it used only fiscal independence as an indicator of decentralization. Decentralization has other components, such as expenditure and revenue assignment, and studying its effects on poverty and other development measures is recommended for future studies.

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4. Regression tables no longer shown due to space constraints. Available upon request.

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