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# Decentralization, Local Government Fiscal Independence, and Poverty: Evidence from Philippine Provinces

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## Abstract

Decentralization has become a popular development program among middle- and low-income economies worldwide. The rationale behind decentralization is the local government's proximity to consumers gives it an information advantage over the central government on needs and preferences. However, the central government has economies of scale and has access to more resources. Using data from Philippine provinces, this paper studies the relationship between decentralization – as represented by local government fiscal independence and as measured by locally sourced revenues expressed as share of total revenue – and poverty incidence. It finds evidence that fiscal independence is associated with lower poverty, but the relationship is not linear. There is an optimal level of decentralization, beyond which, its relationship with poverty becomes positive. Moreover, the decentralization-poverty relationship is stronger in provinces with good governance, and weaker in provinces with lower income.

**Keywords:** decentralization, poverty, fiscal independence, Philippines

## 1. Background and Objectives

Decentralization has become a popular development program among middle- and low-income economies worldwide (Smoke, 2001), with at least 60 countries including it as part of their development policy over the last few decades (Bahl, 1999a; Dillinger, 1994). The basic economic rationale behind decentralization is that it enhances the efficiency of delivery of public services because local governments have a proximity advantage to economic agents over the national government (Boadway & Shah, 2009; Shah, 1998; Wallis & Oates, 1988). This proximity advantage makes the local government more aware of the needs and preferences of its constituents (Boadway & Shah, 2009). Sub-national levels of government can tailor-fit the public services that they offer to a group of people that is likely to be more homogenous and with similar preferences than if provision will be done by the national government (Wallis & Oates, 1988). By assigning more revenue-generating and spending powers to local governments, they are able to allocate resources more efficiently to the consumers and improve equity (Kubal, 2006; Boadway & Shah, 2009). In addition, decentralization can also make the government more responsive to the needs of its constituents because it increases citizen participation and accountability (Faguet, 2009; Kubal, 2006).

However, Bahl (1999a) identified several arguments on why this standard theory of decentralization may not be applicable to developing countries. The macroeconomic benefits of centralized governance, lack of suitable tools for local government finance, and the centralist politics common in many emerging economies could undermine the benefits of decentralization. In addition, some local governments could be predisposed to elite capture and lack technical and financial resources to effectively and efficiently respond to local needs (Faguet, 2009). Decentralization can also further empower the already powerful officials at the local level (Asante & Ayee, 2007). Moreover, the central government has economies of scale and usually has access to more and better resources (Faguet, 2004; Prud'homme, 1995; Smoke, 2001; Keating, 1995).

The objective of this paper is to study the relationship between decentralization and poverty using data from Philippine provinces. The decentralization indicator used was own-sourced revenues of the provincial government expressed as ratio of total provincial government revenues. This measures fiscal independence, or the independence of the local government from the central government in generating income. A secondary objective is to determine if decentralization-poverty relationship varies across governance quality and income levels. Bardhan (2002), Azfar, Kahkonen, and Meagher (2001), and Agrawal and Ribot (1999) identify governance as an important factor in making decentralization effective. It was also tested if any decentralization-poverty relationship is linear or quadratic. Some decentralization models propose that there exists an optimal decentralization model, implying an inverted-U relationship between decentralization and development outcomes.

This paper has several contributions to the literature. There are many empirical works on decentralization, but most of them study its relationship with economic growth or governance (Akai & Sakata, 2002; Davoodi & Zou, 1998; Fisman & Gatti, 2002; Arikan, 2004). Empirical literature on the relationship between decentralization and poverty alleviation – which is the goal of most decentralization programs in developing countries – is surprisingly rare. In addition, the case of the Philippines is important because it is one of the largest countries in the Asia-Pacific region that recently implemented a decentralization program, doing so in 1991. There have been country-specific empirical decentralization studies, but the effectiveness of decentralization can vary from country to country (Alexeev & Mamedov, 2017). Although this article does not address the impact of the 1991 decentralization program specifically, an empirical analysis of decentralization and poverty using Philippine data is novel. Most of the literature on Philippine decentralization and its effects on development use conceptual arguments and descriptive data analysis rather than quantitative and econometric methods (Manasan, 1992; Capuno, 2017; Liberman, Capuno, & Minh, 2005; Bird & Rodriguez, 1999; Hutchcroft, 2012; Llanto, 2009).

Before proceeding, it must be emphasized that the decentralization measure used in this study is only one component of decentralization. Nonetheless, it is a component that is not often studied empirically, and

decentralization researchers have argued that the local government's capacity to raise revenues independent of those transferred from the central government is important for decentralization to be effective (Manasan, 1997; Shen, Jin, & Zou, 2012; Capuno, 2017).

This paper is arranged as follows. This background and objectives section is followed by a literature review of empirical studies and of theories on why decentralization and development are related, along with a discussion on defining and measuring decentralization. Next is the methodology, including sources of data and the estimation method. This is followed by the results and a discussion of the implications. The paper concludes with a summary and recommendations for future studies.

## 2. Literature Review and Framework

### 2.1 Why is Decentralization Possibly Related to Poverty?

Jutting et al. (2004) developed a conceptual framework explaining the transmission mechanism on how decentralization can influence poverty alleviation. Jutting et al. (2004) decomposed poverty into three dimensions – voicelessness, vulnerability, and limited access to services. Their framework states that decentralization affects poverty alleviation through two channels – political impact and economic impact. The political channel affects the first two dimensions of poverty, voicelessness and vulnerability. With decentralization, citizen participation in the decision-making process will increase. This gives the poor better access to public services and social security, thus decreasing vulnerability and insecurity. The economic channel works through decentralization's effect on improved efficiency and better targeting of providing public services. The higher efficiency improves the poor's access to education, health, and other basic services. However, Jutting et al. (2004) emphasized that certain conditions should be met for the framework to work. Primary of which is good governance quality, including accountability, enforcement, social institutions, and the political structure including checks and balances in the government.

Steiner (2005) slightly modified Jutting et al's framework. Steiner likewise acknowledged the two channels by which decentralization can affect

poverty alleviation – political and economic – but also cites three elements of poverty alleviation. These are promoting opportunities, facilitating empowerment, and enhancing security. The first refers to giving the poor the chance to improve their living conditions through such things as employment, financial services, infrastructure, and public services. Facilitating empowerment means involving the people in decision-making, while enhancing security pertains to reducing vulnerability to threats such as economic shocks, natural disasters, and sickness. According to Steiner's framework, decentralization influences the first two poverty alleviation elements. Similar to the Jutting et al. (2004) model, decentralization, through the political channel, facilitates empowerment because it gives decision-making power on what and how much public services to provide. It also promotes accountability because the greater proximity of the beneficiaries of the public services to the government allow for better monitoring. The economic channel works through improvements in efficiency when decision-making is transferred to sub-national governments. Because of the information advantage of local over national governments, service provision can be better matched with needs (Von Braun & Grote, 2002).

A decentralization-poverty relationship can also be deduced from some theoretical models. In the models by Davoodi and Zou (1998) and Xie, Zou, and Davoodi (1999), the government maximizes the utility of a representative consumer subject to certain resource constraints. The result is an optimal level of decentralization that maximizes economic growth and consumer utility. This implies that at lower levels of decentralization, a positive relationship between decentralization and growth and utility can be expected. However, at decentralization levels above the optimum, the relationship becomes negative. Since economic growth is positively correlated to poverty alleviation, this suggests the possibility that decentralization and poverty can have a U-shaped relationship. That is, decentralization can have a negative relationship with poverty at low decentralization levels, but it becomes positive at high decentralization levels.

Another mechanism by which decentralization can influence poverty is through its effect on governance. Decentralization can promote good governance by improving accountability, enhancing consumer participation in decision-making, and promoting inter-jurisdictional competition (Faguet,

2009; Usui, 2007; Kubal, 2006; Von Braun & Grote, 2002; Persson & Tabellini, 2000; Shah, 2006; Tanzi, 1996). By bringing consumers and providers of public goods closer to each other, it makes it easier for government officials to be held accountable (Usui, 2007). Because good governance can influence poverty alleviation (Chakravarti, 2005; Tebaldi & Mohan, 2010), it is possible that decentralization is associated with poverty.

### 2.2 Defining and Measuring Decentralization

Decentralization is the transfer of functions and responsibilities from the central government to the local governments (Rodden, 2004; Von Braun & Grote, 2002; Litvack, Ahmad, & Bird, 1998). There are three types of decentralization according to the literature. Political decentralization is providing consumers or their representatives with greater decision-making power. When consumers have greater participation in deciding what and how much public goods to provide, it is more likely to meet local needs and preferences (Litvack & Seddon, 2000). The second type, administrative decentralization, is the transfer of responsibilities and power from the national government to sub-national governments. There are three forms of administrative decentralization. Deconcentration is the transfer of power and responsibilities from the central office of a national government agency to its local offices, while delegation is the transfer from a national government agency to independent government units such as school districts, transportation authorities, and the like. The most extensive form of administrative decentralization is devolution, which transfers power, functions, and responsibilities from the national to the sub-national governments (Litvack & Seddon, 2000). The third type, which is closely related to devolution, is fiscal decentralization, or the transfer of spending and revenue collection functions from national to sub-national governments (Von Braun & Grote, 2002; Litvack et al., 1998).

In most cross-country empirical studies, decentralization is measured by the ratio of local government to central government expenditures or revenues (Davoodi & Zou, 1998; Goel, Mazhar, Nelson, & Ram, 2017; Kyriacou & Roca-Sagales, 2009; Rodriguez-Pose & Ezcurra, 2011). These are straightforward indicators of decentralization because they measure how much of the spending and revenue-raising responsibilities are assigned to the local

and to the central government. However, comparing decentralization levels across countries is easier than comparing decentralization across local governments. Local governments from the same country are under the same national or federal regulations, and local governments in some countries have little power. Nonetheless, the literature has come up with various indicators that could be used in empirical decentralization studies using country-specific cases. One such decentralization indicator that is applicable to the Philippines is fiscal independence, or the ability of local governments to generate its own revenue rather than relying on the central government for transfers (Zhang & Zou, 1998; Akai & Sakata, 2002; Faguet & Sanchez, 2008). This paper measures decentralization using locally sourced provincial government revenues expressed as the percent share of total revenues of the provincial government.

There are several reasons for using this as decentralization indicator in the Philippine context. First, it measures self-reliance of the provincial government in generating income, or the ability to generate its own revenues rather than depending on transfers from the central government. When the local government can generate its own income and own-sourced revenues account for a large share of its total revenues, they do not need to depend much on the central government for funds. In two studies conducted more than 20 years apart, Manasan (1992) and Capuno (2017) conclude that some local governments in the Philippines still depend heavily on central government transfers for funds, and this affected their public service delivery. Second, Akai and Sakata (2002) argues that even if local government expenditure accounts for only a small share of total government spending, the local government is still independent if its spending needs can be financed from within. Third, some local governments in the Philippines are heavily dependent on transfers from the central government, formally known as the Internal Revenue Allotment (IRA). Although significant functions are assigned to local governments, some still rely heavily on the IRA to finance these responsibilities. Fourth, having greater own-sourced income implies that the local government can implement more programs on its own, reducing the dependence of its citizens on national government programs. After the 1991 decentralization, Manasan (1997) and Capuno (2017) show that some local

governments could not fully perform its decentralized responsibilities because their additional income falls short of the added expenditures.

### 2.3 Previous Empirical Studies

The empirical literature contains country-specific studies on the relationship between decentralization and development outcomes, particularly economic growth and governance. These studies show mixed results, suggesting that decentralization can have varying influence on development across countries and depending on the decentralization measure. Among the most common decentralization indicators used in country-specific empirical papers include number of local governments per person or per area (Stansel, 2005; Goel & Nelson, 2011; Hammond & Tosun, 2011; Tosun & Yilmaz, 2008), and revenue/expenditures of a lower level of local government expressed as a share of revenue/expenditures of the next higher level of local government (Akai & Sakata, 2002; Abdur et al., 2017; Wallis & Oates, 1988). These studies also utilize indicators of fiscal independence or some similar variables (Zhang & Zou, 1998; Akai & Sakata, 2002; Faguet & Sanchez, 2008; Yushkov, 2015; Desai, Freinkman, & Goldberg, 2005; Jin, Qian, & Weingast, 2005). Appendix Table A1 shows a summary of these country-specific empirical literature on economic outcomes.

## 3. Methodology

### 3.1 Econometric Model

The following equation was estimated to determine the relationship between decentralization and provincial poverty incidence:

$$poverty_i = \alpha + \beta_1{}^{*} localshare_i + \boldsymbol{\beta_2}{}^{*} \boldsymbol{X_i} + \mu_i \qquad (1)$$

where $poverty_i$ is poverty incidence in province $i$, $localshare_i$ is locally sourced revenues expressed as percent share of total revenues of the provincial government, $Xi$ is a vector of control variables, and $\mu_i$ is the error term. The parameter of interest is $\beta_1$, which measures the response of poverty incidence to the decentralization indicator.

The variables in the control vector $X_i$ are important because they allow the relationship between poverty incidence and the decentralization indicator

to be isolated. They were selected to control for most factors that can affect poverty incidence and at the same time avoid too much multicollinearity among the regressors. Balisacan and Fuwa's (2004) paper on the determinants of provincial poverty reduction in the Philippines served as a rough guide in selecting the controls. The control variables included in equation (1) are: mean years of schooling in the province (*schooling*); per capita expenditures of the provincial government on education, health, nutrition, and population control, labor and employment, and social services and social welfare (*socialservices*); percent share of local government positions in the province held by the largest political dynasty (*dynasty*); good governance index score of the province (*governance*); dummy variables for provinces that are adjacent to Metro Manila (*manilaborder*); per capita amount of bank deposits in the province (*bankdeposit*); percent share of paved national roads in the province (*pavedroads*); and index crime per capita in the province (*crime*).

Years of schooling is a natural determinant of poverty. Per capita expenditure of the provincial government on education, health, nutrition, and population control, labor and employment, and social services and social welfare measures the local government's spending on programs that can potentially affect poverty. The good governance index is a measure of governance and institutional quality, which some studies conclud affect poverty (Chakravarti, 2005; Tebaldi & Mohan, 2010). The dynasties variable was included as a measure of political inequality, and some studies found that it could be associated with adverse development outcomes (Balisacan & Fuwa, 2004; Mendoza, Beja, Venida, & Yap, 2016). The bank deposit variable measures wealth, while the share of paved roads measures infrastructure, which can also affect poverty (Lokshin & Yemtsov, 2005; Latif, 2002). A dummy variable for provinces adjacent to Metro Manila is included because the region is the most developed in the country, has lower incidences of poverty, and many residents from the adjacent provinces work in Metro Manila.

Several non-linear interaction terms are also added to the set of control variables. A squared decentralization term is included to test if the relationship between decentralization and poverty, if any, is linear or quadratic. The

estimation also includes an interaction between decentralization and governance and an interaction between decentralization and a dummy variable for provinces below the median income (*poorprov*). These interaction terms test whether any decentralization-poverty relationship varies across governance quality and income levels.

### 3.2 Data and Estimation Method

Most of the data come from the Philippine Statistical Authority (PSA), including poverty incidence and most control variables. The variable of interest, locally sourced revenues expressed as a share of total revenues, is computed using data from the Bureau of Local Government Finance (BLGF). The provincial government expenditures on education, health, nutrition, and population control, labor and employment, and social services and social welfare, is likewise obtained from BLGF, while the share of local government positions in the province held by the largest political dynasty is from the Asian Institute of Management political dynasties database (Mendoza, Beja, Venida, & Yap, 2012). Mean years of schooling come from the Philippine Human Development Report.

The data on provincial poverty incidence is available only every three years, and are available only for the years 2006, 2009, and 2012.[1] On the other hand, the variable of interest – percent share of locally sourced revenue to total revenue – is available annually. To account for the timing difference in available data, the 2012 poverty incidence data is matched with the annual average *localshare* values of the previous three years (average for 2010, 2011, and 2012). The same is done for the other control variables with annual available data. The political dynasties variable is available for the election years 2004, 2007, and 2010; thus, the 2012 poverty data is matched with the 2010 election data. This should be acceptable because a new set of elected

[1] The poverty data is also available for 2015; however, very few control variables are available for that year.

local officials would likely require more than a year to influence the level of development and governance in their provinces. The Good Governance Indicator (GGI) is available only for 2005 and 2008; thus, the latter year index is used.

The available data makes it possible to construct a three-period panel of provinces. However, panel data estimation methods such as system GMM and fixed effects are not used because regression results, tests, and statistics showed that these are not appropriate. Equation (1) is estimated using cross-section data using the latest available year (2012 for poverty incidence; 2010 to 2012 annual average for most independent variables). To control for possible endogeneity, it is estimated using a two-stage least squares regression with *localshare* being instrumented by its first two lags. As will be discussed later, statistical tests confirm that the decentralization variable, *localshare*, is indeed endogenous, and that the chosen instruments met both the exogeneity and the relevance criteria of a good instrument.

Intuitively, there are concerns that *localshare* is endogenous because of bi-directional causality with the dependent variable. While the share of locally sourced revenue can affect poverty incidence, it is also possible that poverty incidence affects the share of locally sourced revenues. In provinces with high levels of poverty, there are also low levels of economic activity, which limits the provincial government's ability to raise funds through local sources such as local business taxes, service fees, and business permits. High poverty incidence also implies lower private demand, translating to fewer businesses, lower business profit, lower property values, and lower local taxes and fees, such as business taxes, real property taxes, and business permit fees.

Table 1 contains the list of all variables used in the estimation, their description, and the summary statistics.

**Table 1.** Summary statistics and description of variables

| Variable Name | Variable description | Obs | Mean | SD | Min | Max |
|---|---|---|---|---|---|---|
| poverty | Poverty incidence in the province (2012) | 80 | 35.964 | 14.966 | 5.428 | 74.416 |
| localshare | Locally-sourced revenues of the provincial government as percent share of total revenues (annual average from 2010 to 2012) | 81 | 16.030 | 11.744 | 0.264 | 76.851 |
| lag_ localshare | First lag of *locshare* (annual average from 2007 to 2009) | 81 | 13.626 | 11.483 | 0.146 | 76.967 |
| lag2_ localshare | Second lag of *locshare* (annual average from 2004 to 2006) | 80 | 12.897 | 12.201 | 0.024 | 77.796 |
| schooling | Mean years of schooling in the province (2012) | 80 | 8.691 | 1.030 | 6.279 | 11.022 |
| socialservices | Provincial government spending on education, health, nutrition, and population control, labor and employment, and social services and social welfare, per capita PhP (annual average from 2010 to 2012) | 78 | 307.978 | 284.554 | 24.278 | 1,708.095 |
| dynasty | Percent share of local positions in the province held by the largest dynasty in the province (2010 election) | 80 | 2.663 | 1.816 | 0.880 | 13.253 |
| governance | Good governance index (2008) | 79 | 123.811 | 23.457 | 79.060 | 182.920 |
| manilaborder | Dummy =1 if province is adjacent to Metro Manila; =0 otherwise | 82 | 0.061 | 0.241 | 0 | 1 |
| bankdeposit | Bank deposits in the province, in thousands PhP per capita (annual average from 2010 to 2012) | 78 | 19.602 | 34.823 | 0.000 | 305.962 |

| | | | | | | |
|---|---|---|---|---|---|---|
| pavedroads | Percent share of paved national roads to total national roads in the province | 74 | 79.311 | 18.188 | 22.460 | 100.0 |
| crime | Number of index crimes per 1,000 people (annual average from 2010 to 2012) | 78 | 1.584 | 0.989 | 0.079 | 6.770 |
| poorprov | Dummy =1 if per capita income in province is below median | 80 | 0.500 | 0.503 | 0 | 1 |
| localshare_exp | Locally-sourced revenues of the provincial government as percent share of total expenditures (annual average from 2010 to 2012) | 81 | 22.304 | 18.086 | 0.301 | 114.959 |
| lag_localshare_exp | First lag of *localshare_exp* (annual average from 2007 to 2009) | 81 | 16.576 | 14.525 | 0.164 | 97.477 |
| lag2_localshare_exp | Second lag of *localshare_exp* (annual average from 2007 to 2009) | 80 | 14.592 | 14.257 | 0.025 | 95.196 |

**Source:** Author's calculations.

## 4. Results and Discussions

### 4.1 Test of Endogeneity, Exogeneity, and Relevance

Three conditions must be ensured when using two-stage least squares – exogeneity and relevance of the instruments. The suspected endogenous variable is indeed endogenous. When all regressors are exogenous, 2SLS is less efficient than OLS and standard errors of 2SLS tend to be large. Thus, if there is no endogeneity, OLS should be used rather than 2SLS. Exogeneity and relevance of the instruments ensure robustness and efficiency of estimates. Further, when instruments are weak, hypothesis tests may not be valid (Stock, Wright, & Yogo, 2002).

Testing for relevance is straightforward using the first stage of the 2SLS regression. Two instruments are relevant if they are jointly significant

in the first stage. An additional rule of thumb is the F-statistic of the joint significant test should be at least 10. The exogeneity condition is more difficult to meet and is usually not testable if the number of instruments is the same as the number of endogenous regressors. In these cases, one has to present a strong theoretical argument for instrument exogeneity. If the number of instruments is greater than the number of endogenous regressors, as is the case in this study, exogeneity can be tested using the test for overidentifying restrictions as outlined by Woodridge (2008). The first step is estimating the equation through 2SLS and then obtaining the residuals. The next step is regressing the residuals on all exogenous variables including the instruments. The obtained R-square from this regression is multiplied it by the number of observations. If the product is greater than the critical value of the chi-square distribution with degrees of freedom equal to the number of instruments minus the number of endogenous variables, then at least one of the instruments is not exogenous.

Testing for endogeneity of *localshare* was performed using the test proposed by Hausman (1978) and summarized by Wooldridge (2008). The first step is estimating the reduced form equation for the suspect endogenous variable and then generating the residuals. The next step is running the structural equation and adding the residuals generated earlier as a regressor. If the coefficient of the residual is statistically significant, then the suspect variable is indeed endogenous. These tests showed that the two instruments are jointly relevant and are exogenous, while *localshare* is indeed endogenous as suspected.

### 4.2 Econometric Results

The regression results are reported in Table 2, including the results of the tests for instrument exogeneity and relevance and the test for endogeneity of *localshare*. Four regression results were shown in the table corresponding to four columns. The first column of Table 2 shows the results with a complete set of control variables, but without the interaction terms. The second column includes the squared *localshare* term, the third includes the interaction between the decentralization variable and governance, and the fourth includes the interaction between decentralization and a dummy variable for provinces with per capita income below the median.

The decentralization indicator, *localshare*, consistently turns negative and significant across all regressions in Table 2, with marginal effects ranging from 0.38 to 0.60. A one percentage point higher locally sourced revenues expressed as a share of total provincial government revenues is associated with 0.38 to 0.60 percentage point lower poverty incidence. Further results suggest that this relationship is not linear and that it varies across quality of governance and across income levels. Although none of the interaction terms turned significant individually, each one of them was jointly significant with *localshare*. That is, *localshare* and its squared term are jointly significant in column 2, *localshare* and its interaction term with governance are jointly significant in column 3, and *localshare* and its interaction term with the lower income province dummy are jointly significant in column 4.

The positive coefficient of the squared *localshare* implies that as *localshare* increases, the magnitude of its marginal effect on poverty decreases. The negative coefficient of the interaction between *localshare* and governance means that a greater governance score increases the magnitude of the marginal effect of *localshare* on poverty, while the positive coefficient of the interaction between *localshare* and the low-income province dummy indicates that the magnitude of the marginal effect of *localshare* on poverty is smaller among poorer provinces.

Turning the discussion to control variables, most significant variables had their expected signs. Years of schooling, quality of governance, and amount of bank deposits are almost consistently significant across all regressions. More years of schooling, better governance score, and larger bank deposits are associated with lower poverty incidence. On the other hand, crime and local government spending on social services are positively associated with poverty, although their significance is not consistent across the different regressions.

As reported in Table 2, the instruments pass the test of relevance and of overidentifying restrictions in all regressions. Moreover, the endogeneity of locally sourced revenues expressed as percent share of total local government revenues has been confirmed in all specifications. This strengthens the use of 2SLS in estimating the relationship between *localshare* and poverty. The

r-squared ranges from 0.73 to 0.82, suggesting that the model can explain a large share of the variation in poverty.

**Table 2.** 2SLS regression results

| | (1) | (2) | (3) | (5) |
|---|---|---|---|---|
| | Dependent Variable: poverty | | | |
| localshare | -0.452*** | -0.595** | -0.531*** | -0.454** |
| | (0.158) | (0.232) | (0.187) | (0.196) |
| localshare_sqr | | 0.0131 | | |
| | | (0.0111) | | |
| localshare*governance | | | -0.0135 | |
| | | | (0.00820) | |
| localshare*poorprov | | | | 0.0481 |
| | | | | (0.273) |
| schooling | -5.073*** | -5.021*** | -5.549*** | -3.950*** |
| | (1.261) | (1.354) | (1.168) | (1.268) |
| socialservices | 0.00881* | 0.00719 | 0.00362 | 0.00655 |
| | (0.00496) | (0.00536) | (0.00668) | (0.00462) |
| dynasty | -0.754 | -0.973 | -0.293 | -0.0661 |
| | (0.917) | (1.030) | (1.036) | (0.893) |
| governance | -0.125** | -0.117* | -0.122** | -0.107* |
| | (0.0577) | (0.0621) | (0.0586) | (0.0563) |
| manilaborder | -2.817 | -4.427 | 4.195 | -3.033 |
| | (4.576) | (4.644) | (7.377) | (4.413) |
| bankdeposit | -0.385*** | -0.379*** | -0.343*** | -0.189 |
| | (0.116) | (0.116) | (0.109) | (0.118) |
| pavedroads | -0.0672 | -0.0679 | -0.0381 | -0.0815 |
| | (0.0649) | (0.0663) | (0.0628) | (0.0558) |
| crime | 2.525** | 2.580** | 2.777** | 0.917 |
| | (1.255) | (1.261) | (1.233) | (1.222) |

| | | | | |
|---|---|---|---|---|
| poorprov | | | | 8.496*** |
| | | | | (2.275) |
| Constant | 109.8*** | 110.5*** | 111.7*** | 93.35*** |
| | (10.35) | (11.33) | (9.658) | (10.26) |
| Observations | 73 | 73 | 73 | 73 |
| R-squared | 0.734 | 0.726 | 0.742 | 0.786 |
| Instrument Joint Significance Test F-Stat in 1st Stage | 32.9 | 22.07 | 26.94 | 17.58 |
| Instruments relevance? | Yes | Yes | Yes | Yes |
| Instruments exogenous? | Yes | Yes | Yes | Yes |
| localshare endogenous? | Yes | Yes | Yes | Yes |

**Notes:** Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
*localshare* and *localshare_sqr* are jointly significant
*localshare* and *localshare*governance* are jointly significant
*localshare* and *localshare*incomepc* are jointly significant
*localshare* and *localshare*poorprov* are jointly significant
**Source:** Author's calculations.

### 4.3 Robustness Check

Three additional regressions are run to serve as robustness checks to the result that decentralization, as represented by fiscal independence, is negatively associated with poverty. First, *localshare* is replaced by its first lag (*lag_localshare*). This is to account for the possibility that decentralization has a lag in its effect on poverty. Moreover, it is an alternative solution to the endogeneity problem of *localshare*. The endogeneity of *localshare* comes from reverse causality with poverty – *localshare* can affect poverty and poverty can affect *localshare*. Using the lag of *localshare* can address this because past values of *localshare* can affect future values of poverty, but future values of poverty are unlikely to influence past values of *localshare*.

The second robustness check uses locally sourced revenues expressed as a percent share of total expenditures (*localshare_exp*) as an alternative measure of fiscal independence. Similar to *localshare*, a two-stage least squares

regression is run with *localshare_exp* being instrumented by its first two lags. Finally, lag of *localshare_exp* is used as the decentralization indicator. The results are reported in Table 3. As shown, the coefficients on all the three alternative measures of fiscal independence are negative and significant.

**Table 3.** Robustness checks

| | (1) | (2) | (3) |
|---|---|---|---|
| | OLS | 2SLS | OLS |
| | Dependent variable: poverty | | |
| lag_localshare | -0.356*** | | |
| | (0.113) | | |
| localshare_exp | | -0.283** | |
| | | (0.110) | |
| lag_localshare_exp | | | -0.278*** |
| | | | (0.0922) |
| schooling | -5.542*** | -4.933*** | -5.513*** |
| | (1.252) | (1.353) | (1.233) |
| socialservices | 0.0113** | 0.00907* | 0.0108** |
| | (0.00427) | (0.00509) | (0.00441) |
| dynasty | -0.985 | -0.788 | -1.080 |
| | (0.900) | (0.952) | (0.918) |
| governance | -0.123** | -0.132** | -0.113** |
| | (0.0539) | (0.0628) | (0.0550) |
| manilaborder | -3.754 | -3.303 | -4.202 |
| | (3.951) | (5.317) | (4.323) |
| bankdeposit | -0.386*** | -0.387*** | -0.385*** |
| | (0.117) | (0.123) | (0.114) |
| pavedroads | -0.0690 | -0.0737 | -0.0685 |
| | (0.0636) | (0.0674) | (0.0637) |

| | | | |
|---|---|---|---|
| crime | 2.576** | 2.563* | 2.580** |
| | (1.199) | (1.347) | (1.194) |
| Constant | 111.1*** | 109.1*** | 109.8*** |
| | (10.10) | (10.77) | (10.03) |
| Observations | 73 | 73 | 73 |
| R-squared | 0.761 | 0.710 | 0.758 |

**Notes:** Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
**Source:** Author's calculations.

### 4.4 Discussions and Implications

The results suggest some interesting implications on the relationship between decentralization – as measured by local government independence – and poverty. Primarily, regression results suggest that fiscal independence of the local government is associated with lower poverty incidence. That is, poverty incidence is lower in localities where the local government does not need to rely too much on the national government for revenues. This relationship remains significant even after controlling for other factors that may affect poverty such as governance and schooling level.

However, this relationship is non-linear. The signs and joint significance of *localshare* and its squared term suggest that at low levels of decentralization, it is negatively associated with poverty incidence. As decentralization increases, the magnitude of the marginal effect diminishes until it reaches a certain optimal point. At decentralization levels higher than this optimal point, it becomes associated with higher poverty. The existence of an optimal decentralization level is predicted in some theoretical models, such as those of Davoodi and Zou (1998) and Xie et al. (1999). This result provides some empirical support to these theoretical findings.

A possible explanation for this U-shaped relationship is that anti-poverty programs implemented by local governments can be effective, but only up to a certain point. Some large-scale public programs that have been shown to alleviate poverty, such as improving infrastructure (Marinho, Campelo, Franca, & Araujo, 2017; Seetanah, Ramessur, & Rojid, 2009) and

improving education and health services (Anand & Ravallion, 1993; Psacharopoulos, 1988; Squire, 1993), can be more efficiently and effectively provided by the national government because these programs have larger resource requirements. The central government's economies of scale can also drive down the per unit cost of large-scale public investments. When a country becomes more decentralized, the central government becomes less involved in the provision of critical public services, and local governments are tasked to provide them. Therefore, at lower decentralization levels, wherein the local governments are tasked to provide smaller scale public services, the benefits of decentralization outweigh the disadvantages. The opposite occurs at decentralization levels greater than the optimum.

Another important result is the positive effect of governance on the decentralization-poverty relationship. Results suggest that the negative association between decentralization – as represented by fiscal independence of the local government – and poverty is stronger when governance is better. It means that governance enhances the positive relationship between fiscal independence and poverty alleviation. This coheres with existing conceptual literature saying that governance has an important role in making decentralization effective in achieving development outcomes (Jutting et al., 2004; Jutting et al., 2005; Steiner, 2005; World Bank, 2007, 2009; Azfar et al., 2001; Bardhan, 2002). Good governance is important in making decentralization effective because it improves efficiency in resource utilization. It also promotes accountability, which provides disincentives for corruption, local elite capture, and other inefficiencies. In addition, good governance prevents the wastage of scarce resources due to corruption and bureaucracy, ensuring that they are used efficiently in implementing development programs and providing public services, including those that promote poverty alleviation (Steiner, 2005; Bardhan, 2002).

Another significant finding is that the relationship between decentralization – as represented by local government fiscal independence – and poverty is weaker among relatively poorer provinces. This implies that any poverty alleviating effects of fiscal independence are felt most strongly in areas that are relatively more well-off to begin with. This result can be explained by higher-income provinces possessing the characteristics to take advantage of the benefits of decentralization and fiscal independence. They have better

infrastructure, institutions, and provide better services, all of which are needed for decentralization to be effective. This result can have some policy implications on the implementation of decentralization programs wherein the objective is alleviating poverty. Considering that implementing a decentralization program is costly, is it the most efficient program when it is less effective among relatively worse-off areas?

## 5. Summary, Conclusions, and Recommendations for Further Study

This study found evidence that decentralization – as represented by fiscal independence of the local government, and as measured by locally sourced revenues of the provincial government expressed as a ratio of its total revenues – is associated with lower poverty incidence. That is, poverty is lower in provinces where the local government does not depend much on transfers from the national government for funds. This highlights the importance of developing a local government's capacity to be more self-sufficient in generating income to fund its expenditures.

The literature on decentralization has emphasized the importance of the local government's revenue generating ability in making decentralization an effective development tool (Manasan, 1997; Capuno, 2017; Shen et al., 2012; Bahl, 1999b). The findings in this paper coheres with and provides empirical support to this argument. If the local government can generate its own revenue, it is not too dependent on transfers from the national government. A larger amount of funds is going to be readily available without the politics associated with central government transfers, which Hutchcroft (2012) argues is used as a tool for patronage politics with local government officials. Moreover, in the Philippine case, although these transfers are designed to help local governments with their spending functions, its allocation formula is not tied to spending requirements (Capuno, 2017).

However, the negative association between fiscal independence and poverty is not linear. The magnitude of the marginal effect decreases as fiscal independence increases, suggesting that there is an optimal level of decentralization. Moreover, the negative relationship between decentralization and poverty is stronger among provinces with better governance and weaker

among provinces that are relatively poor. This highlights the importance of good governance in making decentralization effective, while the weaker relationship among poorer provinces raises important policy questions when the objective of decentralization is poverty alleviation.

It should be noted that this study covers one, albeit an important and seldom empirically studied, aspect of decentralization – the fiscal independence of local governments. Studying the effect of other forms and aspects of decentralization on poverty and other development outcomes is a recommended topic for further studies. These include the transfer of spending and revenue responsibilities from the central to the local government and giving more decision-making power to the consumers.

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**Table A1.** Some country-specific empirical decentralization studies

| Study | Decentralization Measure | Outcome | Coverage | Result |
|---|---|---|---|---|
| Akai and Sakata (2002) | Local govt spending expressed as ratio of local plus state govt expenditure | Economic growth | United States | Positive |
| | Local govt revenue expressed as ratio of local plus state govt revenue | | | Positive |
| | Own-sourced local govt revenue expressed as ratio of total local govt revenue | | | None |
| | Mean of the first two indicators | | | Positive |
| Hammond and Tosun (2011) | Number of single-purpose governments per square mile | Employment | United States | Mixed positive and none |
| | | Income growth | | None |
| | Number of general-purpose governments per person | Employment | | Mixed negative and none |
| | | Income growth | | None |
| Lin and Liu (2000) | Marginal retention rate of locally collected revenues | Per capita GDP growth | China | Positive |
| Stansel (2005) | Number of general-purpose governments per 100,000 population | Per capita income growth | United States | Positive |
| | Number of public school systems per 100,000 population | | | None |

| | | | | |
|---|---|---|---|---|
| Tosun and Yilmaz (2008) | Number of municipalities per person | GDP per capita | Turkey | Mixed negative and none |
| | | GDP per capita growth rate | | None |
| | | Development index | | Negative |
| | Number of municipalities per unit area | GDP per capita | | Mixed negative and none |
| | | GDP per capita growth rate | | None |
| | | Development index | | Positive |
| Zhang and Zou (1998) | Provincial budgetary spending to central budgetary spending ratio | Provincial income growth rate | China | Negative |
| | Provincial extra-budgetary to central extra-budgetary spending ratio | | | Negative |
| | Consolidated provincial spending to consolidated central spending ratio | | | None |
| Abdur et al (2017) | Provincial expenditures to total state expenditures ratio | Gross primary school enrollment | Pakistan | Positive |

| | | | | |
|---|---|---|---|---|
| Goel and Nelson (2011) | Number of local governments per 100,000 population | Corruption | United States | Positive (decentralization associated with greater corruption) |
| | Number of general-purpose local governments per 100,000 population | | | Positive |
| | Number of special-purpose local governments per 100,000 population | | | Mixed none and negative |
| | Share of local government expenditure to state government spending | | | Negative |
| Desai et al (2005) | Share of locally-generated revenues retained by the regional government | Economic growth | Russia | Positive |
| | | Foreign direct investments | | Positive |
| Feltenstein and Iwata (2005) | Share of local government expenditure to total government expenditure | GNP growth rate | China | Positive |
| | Share of local government revenue to total government revenue | | | |
| | Share of total extrabudgetary revenue to total government budgetary revenue | | | |
| Faguet and Sanchez (2008) | Before-after implementation of decentralization program | Public Investment in Education | Bolivia | Positive |
| | Own-sourced revenue as a share of total expenditure | Yearly increase in student enrollment in state schools | Colombia | Positive |

| | | | | |
|---|---|---|---|---|
| Yushkov (2015) | Self-generated municipal revenue as share of regional budget | Growth rate of per capita gross regional product | Russia | 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 |
| Jin et al. (2005) | Marginal retention rate of locally collected revenues | Growth of Employment in Rural Businesses | China | Positive |
| | | Growth of Employment in Non-State Non-Agricultural Businesses | | Positive |

**Source:** Author's compilation.