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Decentralization and Health in the Philippines: A Systematic Review of Empirical Evidences

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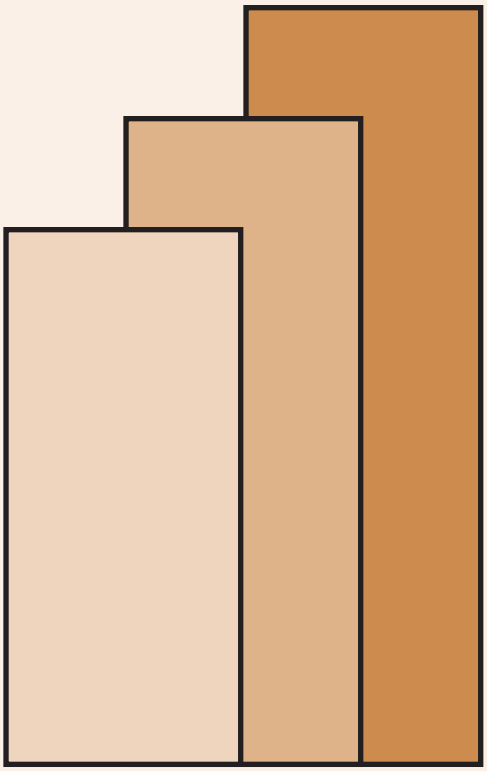

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ABSTRACT

This study provides a systematic review and summary of the extant knowledge on the impacts of decentralization on health in the Philippines. Despite the country's twenty-five years of experience in decentralization, little is known about the topic. Overall, our survey shows that the existing scholarship on the impact of decentralization on health in the country is characteristically thin and with varying degree of methodological rigor. The limited available evidences point to some indication of positive impacts of decentralization on increasing government health expenditures and on improving health outcomes.

Keywords: Decentralization, Health, Philippines

Decentralization and health in the Philippines: A systematic review of empirical evidences

Michael R.M. Abrigo, Zhandra C. Tam, and Danica Aisa P. Ortiz[1]

1. Introduction

Decentralization is the favorite escape goat in the Philippine health sector. Since the adoption of the Local Government Code in 1991, decentralization has often been linked with the fragmentation of the health system and the inequities in health in the country. However, many of the important observations against decentralization in the Philippines had already been observed and documented even before the policy was ever adopted. To what extent decentralization addressed or exacerbated these problems appears to be an open arena for debate. We attempt to weigh in on the discussion by providing a systematic review and summary of the empirical evidences on the impacts of decentralization on health in the Philippines.

The theoretical arguments for decentralization are compelling. Oates' (1972) seminal work on fiscal decentralization posits, for instance, that local governments, under certain conditions, may be more efficient in allocating resources to meet local heterogeneous preferences. This comes as a result of local governments, being closer to the people, supposedly having more knowledge about the preferences of their constituents than a central government would. The ability of individuals to "vote with their feet" and settle in localities that best suit their preferences may further increase the potential gains from decentralized provision of public services (Tiebout, 1956). Decentralization may also promote competition (cf. Starett, 1980; Shleifer, 1985), and innovation (cf. Rose-Ackerman, 1980) among local governments, which would ideally benefit local constituencies.

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These justifications, however, are not unchallenged. For example, decentralization may not necessarily be superior to central management when the cost of obtaining information is negligible (cf. Acemoglu, et. al., 2007). Indeed, there are many theoretical instances when centralization may be preferred (cf. Lockwood, et. al., 2002; Laffont and Martimort, 1998). Further, the global experience with decentralization as noted in systematic reviews of empirical studies are mixed. Rondinelli, et. al., (1983), for instance, noted that implementation problems afflicted almost all countries that had decentralized. Shah, et. al. (2004) found mixed impacts of decentralization on service delivery, corruption, fiscal management, and growth. The evidences on the impact on health systems are likewise mixed (Sumah, et. al., 2016; Munoz, et. al., 2017), although studies that used quantitative data or adopted more rigorous techniques showed more optimistic results (Channa and Faguet, 2016; Munoz, et. al., 2017).

This study complements the earlier comprehensive reviews on decentralization in the Philippines, in general, by Diokno (2012), Llanto (2012), Loehr and Manasan (1999), and Manasan (2009), and on health decentralization, in particular, by World Bank (1994), and Azfar, et. al. (2000). These earlier studies are largely descriptive, and focused almost exclusively on the qualitative issues and processes surrounding decentralization. This systematic review, on the hand, is much more modest as we only looked into the available evidences on the causal effect of decentralization on health in the country. As such, this survey is very limited, and barely scratched the surface of the body of research on health decentralization.

Establishing the impact of decentralization on health is far from straightforward. In the case of the Philippines, decentralization was simultaneously adopted across the whole country, making direct comparison between states of centralization and decentralization among local governments not possible. In addition, local governments that have more effectively embraced decentralization are likely to be systematically different along important dimensions compared to those that still largely rely on the national government. Thus, simple comparison of outcomes across local governments may actually reflect these differences in characteristics rather than the impact of decentralization. That said, it is important to

separate the discussion of causal impacts from the discussion of the many intervening factors that may influence the effectiveness of decentralization. This allows a better appreciation of the potential benefits from decentralization that is distinct from its implementation issues.

Despite twenty-five years of the decentralization experiment in the Philippines, the literature on its impact on health remains limited. In summary, we find weak evidence of impact of decentralization on health expenditures, and some evidence on certain health outcomes. Surprisingly, we find no study on the impact on local service delivery or on health systems fragmentation that meet our inclusion criteria. Overall, this survey highlights the expansive local knowledge gap that needs to be filled to fully understand the impact of decentralization on health in the country.

The rest of the paper is organized as follows. In the next section, we provide a brief background of decentralization, especially in relation to healthcare, in the Philippines. In Section 3, we discuss the methodology that we adopted, and present the results of our systematic review. Finally, in the last section, we discuss the results, and conclude.

2. Background

The Local Government Code (LGC) of 1991 has provided local governments autonomy and responsibility to deliver local and basic government services, including healthcare, while allowing them greater flexibility in raising revenues to finance their expenditures. Under the LGC, provincial governments are mandated to provide secondary hospital care, while city and municipality governments are responsible for primary care, including maternal and child health, nutrition services, and related direct services, such as the maintenance of city and municipal health units. Barangay health stations are maintained by barangay and municipal governments. The Department of Health (DOH), on other hand, is mandated to set the national

policy agenda, technical standards, and guidelines on health. It also retains its mandate over specialized and tertiary-level care.

Prior to the 1991 LGC, there had been earlier initiatives to decentralize public services in the health sector. For instance, regional offices were created, starting with just 8 in 1958, later expanded to 12 in 1972 and eventually to 13 in 1985, to oversee the health services provided across clusters of provinces. However, the overall administration was coordinated by a national health office that provided the resources, developed health plans and policies, and supervised all health facilities and programs. With the 1991 LGC, the DOH was transformed from being the sole provider of government health services to a "servicer of servicers" that provide technical assistance for health among local governments while still continuing to provide some specific front-line health services.

With the 1991 LGC, the block grants transferred by the national government to local governments increased to 40 percent of all internal revenues from only 20 percent in prior years. The internal revenue allotment (IRA) is divided among the different levels of local governments: provinces, cities, municipalities, and barangays. Within levels of local governments, the block grants are further split among individual local governments based on population, land area, and an equal sharing provision. While the LGC does not preclude local governments to use its IRA to fund its devolved health mandates, no additional compensatory transfers are provided, especially to local governments that have received particularly large number of health facilities to administer. Based on estimates by Manasan (2009), as much as 60 percent of national government health personnel were devolved to local governments immediately after decentralization. In terms of fiscal appropriations, however, only 40 percent of DOH's pre-devolution allotment has been transferred to local governments.

3. Review of empirical evidences

This section describes the strategy we adopted to systematically identify, sort and classify the studies in our review of evidences. We conducted a keyword search over several electronic research archives, and used predefined selection filters to identify studies that will be included in this review. We then organized the studies into substantive themes for the discussion.

3.1. Review Scope and Methodology

We systematically reviewed the available evidences on the causal impacts of the decentralization of healthcare in the Philippines. Studies included in this review had to meet the following criteria: (i) published as a discussion paper, journal article, or book or book chapter between 1995 to 2016, and presented results (ii) with measurable outcome of interest, (iii) with treatment-and-control or dose-response comparison, e.g., using pre-post analysis or degree of effective decentralization, and (iv) had attempted to control for potential confounders in their empirical strategy. Case studies may be included to the extent that they were able to meet the above criteria. These criteria were identified to aid in the organization of the results, as well as to maintain a certain level of research quality in the studies that are included in the review. We retained research articles even if they do not meet the inclusion criteria, but contain information relevant in the discussion.

We performed a keyword search for published and unpublished research in four electronic databases, namely, Google Scholar (scholar.google.com), PubMed (https://www.ncbi.nlm.nih.gov/pubmed/), Health Research and Development Information Network (www.herdin.ph) and Socio-economic Research Portal of the Philippines (www.serp-p.gov.ph) using combinations of the words “decentralization” or “devolution”, and “health” and “Philippines”. The abstracts of the identified studies were scanned for relevance before including in the pool of potentially eligible studies. We also searched

the reference lists of all identified studies for additional research to ensure that no critical studies are excluded in our review.

The database search yielded about 50 studies that were assessed for eligibility based on our inclusion criteria. The sample was drastically reduced to just four (4) eligible studies, which we included in the review. Table 1 provides a descriptive summary of these studies, including the authors, outcome studied, measure of decentralization used, statistical adjustment for potential confounding, and key control variables included. The outcomes considered in these studies include healthcare expenditures, infant mortality, body mass index (BMI)-for-age z-scores, and access to healthcare services. All of the studies included had used either household/individual- or LGU-level data from before and after the public healthcare devolution in 1993.

We adopted the four-point scale system proposed by Channa and Faguet (2016) to evaluate the methodological rigor of each of the studies included in our review. This point system provides some sense of the risk of bias in these studies. Following Channa and Faguet, we give a score of 1, i.e., "very strongly credible", if the study used a randomized control design, which is considered the gold standard in impact evaluation, and a score of 4, i.e., "less credible", if the study used simpler quantitative methods, such as ordinary least squares (OLS). Studies included in the "less credible" group have made little to no attempt to construct a valid comparison group, and are very likely to suffer from endogeneity bias. Studies are given scores 2, i.e., "strongly credible", or 3, i.e., "somewhat credible", if there were steps made to control for endogeneity, largely through quasi-experimental techniques, such as difference-in-difference or instrumental variable regression. The difference between the two scores rests on the degree of how successful the employed strategy was to construct a reasonable comparison group, with a score of 2 indicating a more persuasive attempt to correct for endogeneity.

Table 1. Description of studies included in the review

Study	Sample	Outcomes studied	Measure(s) of decentralization	Statistical adjustment for potential confounding	Key control variables included in main models
Maccini (2005)	69 provinces, 18 highly urbanized cities and 41 other cities in 1990 to 1997	Infant mortality rate in LGU calculated from municipal-level vital statistics data	Total per capita block grant to LGU	Ordinary least squares model with within-LGU and within-year fixed effects	Initial population and population density; Average years of schooling
Maccini (2006)	1,978 children in the 1991/1992 and 1994/1995 rounds of the Cebu Longitudinal Health and Nutrition Survey	Change in body mass index-for-age z scores	Change in per capita barangay resources from national tax revenues	Ordinary least squares model with within-municipality fixed effects	Population size at base year; Population density; Community type dummy variables; Household income; Family size; Mother's education and height; Child birthweight
Schwartz, et. al. (2000)	About 1,600 local government units one year (i.e., 1992) prior and three years (i.e., 1993, 1995, 1998) after decentralization	LGU per capita expenditures for health and family planning services	Binary measure of before and after implementation	Ordinary least squares model	Population distribution by age, education and employment; Asset index; Dummy variable for chartered city and for province capital
Schwartz, et. al. (2002)	All reproductive-aged women and children aged 0-5 in 1993 and 1998 National Demographic Health Survey matched to nearly 1,600 local government units one year prior (i.e., 1992) and three years (i.e., 1993, 1995, 1998) after decentralization	Dummy variables indicating (i) use of modern family planning method, and (ii) full immunization of child; LGU per capita health expenditure	Binary measure of before and after implementation	Two-step probit regression with within-LGU and within-year fixed effects, and instrument for continuous endogenous repressors	Age; Educational attainment; Asset index; Religion; Location

Table 2. Assessment of methodological rigor

Study	Control or Comparison Group	Pre/Post Intervention Data	Random selection of participants for assessment	Comparison adjusted for socio-economic characteristics	Comparison groups equivalent at baseline outcome measure	Quality Distinction Scale[1]
Maccini (2005)	Yes	Yes	No (Census)	Yes	Not Reported	3
Maccini (2006)	Yes	Yes	No (Census)	Yes	Not Reported	2
Schwartz, et. al. (2000)	No	Yes	Yes	Yes	Not Reported	4
Schwartz, et. al. (2002)	No	Yes	No (Census)	Yes	Not Reported	4

[1] Based on Channa and Faguet (2016). 1 = Very strongly credible; 2 = Strongly credible; 3 = Somewhat credible; 4 = Less credible

Table 2 presents the methodological rigor assessment of the included studies. Of the four studies we reviewed, two were rated "less credible", while the other two were rated either as "somewhat credible" or "strongly credible" based on the Channa and Faguet (2016) scale. By design, all the studies included have actual or notional comparison groups, either in the cross-section or over time. Three of the studies used census data, while only one relied on a nationally representative household survey. All of the studies used regression-based adjustments for different socio-economic characteristics, but none have shown that the baseline outcomes of interest are balanced over the comparison groups.

In the next sub-sections, we summarize the extant knowledge available from the literature on the impact of decentralization of healthcare in the Philippines. We grouped the studies based on three underlying themes: (i) healthcare expenditures, (ii) health service delivery, and (iii) health outcomes. Overall, it is worth emphasizing that despite twenty-five years of health devolution in the Philippines, evaluation studies on the topic remains limited.

3.2. Healthcare expenditures

The trend in healthcare expenditures pre- and post-devolution has been well documented in the literature (e.g., Capuno and Solon, 1996; Solon, et. al., 1999; Manasan, 2009). However, these studies are largely descriptive, and either have not controlled for potential confounding bias or have not identified credible comparison groups to make counterfactual judgment possible. The two exceptions that were included in our review are rated "less credible" since they are based on OLS models, although these studies included an exhaustive list of control variables in the empirical models that they presented.

In a series of papers, Schwartz, et. al. (2000, 2002) used audited line-item annual expenditure data from nearly 1,600 local governments covering four (4) years between 1992 and 1998. In their earlier study, Schwartz, et. al. (2000) combined the administrative data with information from the 1990 and 1995 population censuses to estimate the association between health decentralization and local government

healthcare expenditures. In their later study, Schwartz, et. al. (2002) included demographic survey data to examine how decentralization is associated with the level and composition of healthcare expenditures, which, in turn, they correlated with household demand for healthcare services.

In both studies, they used year fixed-effects to provide an estimate of the average increase in per capita health expenditures post-devolution. For the estimates to be treated as the causal impact of decentralization, their specification implicitly assumes that decentralization was the only common factor across local governments that influence per capita health expenditures during their study period. It must also be noted that these two studies have not controlled for the degree of devolved functions, e.g., number of local health units, transferred to local government units, which may potentially introduce bias into their results.

In general, Schwartz, et. al. (2000, 2002) found that local government health expenditure per person increased after decentralization, even after controlling for a battery of community-level characteristics. This is not unexpected since the transfer in responsibility over local health services needs to be somehow matched with local budgetary allocations. Indeed, Capuno and Solon (1996) provided evidence that local government health expenditures are positively correlated with the number of devolved facilities in the locality. It is noteworthy, however, that the additional national government allocation through block grants had been documented to be generally not commensurate to the functions that were transferred to local governments (Loehr and Manasan, 1999; Manasan, 2009).

Further, Schwartz, et. al. (2000, 2002), found that the share of local government expenditure on health has increased following devolution. However, the share allocated to more public good-type of health expenditures, e.g. immunization, infectious disease control, maternal and child health, etc., decreased, while the share of more private good-type expenditures, e.g. curative hospital services, increased, even if both types of expenditures were increasing in absolute terms over their study period.

They found that the association is more pronounced for provincial governments compared to city and municipal governments. The authors noted that this may be a direct consequence of the devolved functions peculiar to specific levels of local governments. These results are in line with more recent findings by del Granado, et. al. (2016) who showed using cross-country data that decentralization alters the relative shares of government expenditures towards publicly provided private goods.

Although we had excluded many studies on this sub-topic, it is worth mentioning an interesting strand of discussion in the local literature. In a series of articles, Kelekar (2012, 2013), and Kelekar and Llanto (2015) documented strong positive horizontal fiscal interaction concerning local government healthcare expenditures among municipalities, while the horizontal interaction between municipal and provincial governments are also positive but only marginally statistically significant. The researchers take this as an indication of potential competition among local governments, for instance, for scarce healthcare inputs or for future elective positions. More generally, such spatial interaction may be the result of different processes (cf. Revelli, 2006). In any case, these observations are particularly important since it documents violations of one of the key assumptions of Oates' (1972) decentralization theorem, i.e., the absence of interjurisdictional externalities.

3.3. Health service delivery

The decentralization of healthcare in the Philippines is often associated with suboptimal health service delivery as a consequence of a decentralization-induced fragmented health system (e.g. Kwon and Dodd, 2011; Melgar, 2010; Solon, et. al., 1999). This disillusionment with health decentralization is captured in Furtado (2001) who, based on a series of focus group discussions in 1999 among households in three poor municipalities Southern Philippines, noted that 80 percent of the 243 respondents in his study believe that healthcare services were better in the past, of whom 57 percent believe that services deteriorated beginning in 1993, when health services were devolved to local governments. Along the

same vein, Grundy, et. al. (2003) cited that the quality and coverage of health services deteriorated after decentralization based on rapid appraisals of health management systems in two provinces.

The above claims, however, appear to be not empirically substantiated based on available evidences. More specifically, we did not find any study on the impact of decentralization on service delivery and on health system fragmentation that meet our inclusion criteria. Further, these issues were already present and had been identified even before health decentralization was introduced (c.f., Bautista, 1989; Carino, et. al., 1982; Pante, 1990; Ramos-Jimenez, 1988), thereby casting doubt on casual observations that decentralization has resulted to the current state of affairs in health service delivery. To what extent decentralization has addressed – or exacerbated – these problems, in our view, remains unanswered.

It must be emphasized that the fragmentation of the health system is not a necessary outcome of decentralization. While the traditional referral links across health providers that had been present prior to devolution were functionally severed, cooperative arrangements among local government units and the national government may persist, and are actually encouraged (Capuno, 2016; Kelekar and Llanto, 2015; Melgar, 2010; Solon, et. al., 1999; World Bank, 2011). Such initiatives include the establishment of Inter-Local Health Zones, and Province-wide Investment Plans for Health, both of which essentially leverage on the coordinated mobilization of resources across government units. Empirical evaluation of the impacts of these inter-local initiatives, however, remains scant (Capuno, 2016; World Bank, 2011).

Despite the scarcity of empirical evidences, it is important to be cognizant of emerging issues on health service delivery regardless whether or not they are actually induced by decentralization. For instance, several case studies (e.g., Grundy, et. al., 2003; Espino, et. al., 2004) have noted that local government officers are not fully aware of their mandated responsibilities, thus have been unable to fulfill them. Community members, on the other hand, are generally not aware of health devolution and the

community's potential roles in decision-making (Ramiro, et. al., 2001). These are but few issues that had been raised in the literature that are not necessarily consequences of decentralization, yet directly impacts how services are delivered in a decentralized setting.

3.4. Health outcomes

We now turn to the available evidences on the impact of health decentralization on health outcomes. The three studies that we reviewed all used the non-trivial jump either in per capita health expenditures, or in per capita block grants to local governments after decentralization. While all the studies used similar mechanisms, they were rated differently depending on how compelling their identification strategy is in establishing credible comparison groups. In sum, while the reviewed literature in this sub-category is larger than those available in the previous two sub-themes, the evidences are still very limited. That said, the three studies included in our review show encouraging results on the impact of decentralization on different health outcomes, specifically on infant mortality, child nutritional status, and demand for health care services.

The first study is the lone "strongly credible" evidence, and provides a favorable view of decentralization. Using cohort data from a panel of 1,978 children born in 1983/1984 from the Cebu Longitudinal Health and Nutrition Survey (CLHNS), Maccini (2006) examined the association between the change in per capita block grants and the change in BMI in children between 1991 and 1995. She found that children who lived in barangays that receive higher per capita block grants have had experienced faster growth in BMI. She also found substantial decline in hospitalization rates due to the increase in block grants per person. The largest improvements in health outcomes were observed among children who had poor initial nutritional status, and from poorer households. Maccini (2006) also provided some suggestive evidence that the impact of decentralization on health may be mediated by improved

sanitation. She showed that an increase in block grants is positively associated with increased access to piped water, and improvements in the sanitary disposal of excreta among households.

The author used the panel structure of the CLHNS data to purge time-invariant differences in health outcomes across the sample of children by specifying a fixed-effects model, which she estimated in first-differences. The study recognized that block grants to local governments are determined externally based on population, land area, and an equal-sharing rule. Maccini (2006) included population density to control for potential unobserved confounding that may arise from this allocation formula. In addition, she also extensively controlled for different baseline characteristics, including community features, household socio-economic status, and initial health inputs.

Using a similar strategy, Maccini (2005) used a fixed-effects model that controls for population density to estimate the impact of the increase in block grants allocation on infant mortality rate among provinces and cities between 1990 and 1997. Her results indicate that a PhP100 (in 1995 prices) increase in total per capita block grant is associated with 0.39 fewer infant deaths per 1000 live births. For reference, average per capita block grants increased by PhP600 to PhP1,300 between 1990 and 1997. Although the study used a similar strategy in Maccini (2006), it was rated only "somewhat credible" because the study used much limited controls, only including year fixed-effects and average years of schooling in addition to functions of population density.

The last study, rated "less credible", also provides evidence on the positive impact of decentralization on health. Schwartz, et. al. (2002) used a two-step probit model with continuous endogenous regressors to show the association between per capita health expenditures and demand for modern family planning methods among women, and full immunization among children. However, the implementation of the technique is somewhat unconventional, whereby the set of explanatory variables in the first- and second-stage regressions are almost entirely different. In any case, their results show a

strong positive impact on the demand for modern family planning method, and weak evidence of positive impact on immunization of the increase in per capita local government health spending.

4. Discussion

The scholarship on the causal impact of decentralization and health in the Philippines over the last two decades are characteristically thin and with varying degree of methodological rigor. In summary, we find some indication of the positive impacts of decentralization on increasing government health expenditures and on health outcomes, specifically on nutrition, infant mortality and healthcare demand. But these observations are based on a very limited number of studies. While decentralization in the Philippines is often associated with the fragmentation in the country's health system, we did not find any study that meet our inclusion criteria that provide empirical evidence showing that decentralization indeed induced greater fragmentation. That being said, any research topic on the causal impact of decentralization on health in the Philippines is fair game. But embarking on such a study may be easier said than done.

The shortage in local evidences may be related to the complexity of the decentralization issue, and the data available to researchers, rather than to anything else. Decentralization is a broad framework that encompasses different policy areas that has been adopted simultaneously across the Philippines. This poses a challenge for researchers, who needs to, firstly, specify particular aspects of decentralization to study, and, only secondly, to identify a credible counterfactual experiment and the available data that will provide causal estimates of impacts. The big bang adoption of decentralization further complicates the search for that elusive counterfactual experiment.

The systematic review of evidences we provided is instructive, but in no way complete. For instance, we only relied on electronically available research databases to identify and collect potential studies to be included in our review. While we strived to be as comprehensive as possible, surely there

are more studies on the topic that are archived elsewhere. Also, we purposely limited our search to studies that provided some quantitative measure of the degree of association between decentralization and health. Although this provided us some sense of the magnitude and the direction of the influence of decentralization on health in the Philippines based on available studies, identifying intervening factors under which decentralization could actually impact health may be equally, if not more, important.

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