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Some Inferences from the Distribution of the Devolved Health Services

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SOME INFERENCES FROM THE DISTRIBUTION OF THE DEVOLVED HEALTH SERVICES

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Abstract

Several proposals are being considered to correct for the mismatch in the allocations of revenues and devolved expenditure responsibilities across local government units (LGUs). In many LGUs, the mismatch has led to reductions in the level of health services under devolution. While compensating LGUs for their cost of devolved health functions (CDHFs) might improve their fiscal status, this may not lead to improvements in the efficiency and equity of health service provision under devolution. The real problem, however, is not simply a mismatch in the distributions of the CDHF and the internal revenue shares. The larger problem concerns the inherent inefficiencies and inequities in the devolved health services and facilities arising from redistributive politics before devolution. Much of the inefficiencies and inequities may persist under devolution since the DOH was largely concerned with the preservation of the existing hospital referral system when it assigned devolved health functions to LGUs. Some serious problems have since risen: for example, the joint use of devolved health facilities and unequal access of DOH-retained hospitals. These problems undermine the objectives of the decentralization and are likely to persist unless some form of central transfers - more suitable than the internal revenue shares - are devised and a reorientation of the management of the DOH-retained functions and programs is undertaken.

Key words: Philippines, redistributive politics, decentralization, health services

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1. INTRODUCTION

The paper attempts to infer some policy guidelines from the analysis of the distribution of the devolved health services. Hopefully, the inferences can inform the current debate on concerning the proposed amendments in the Local Government Code (LGC), the landmark legislation that led to the expanded role of local governments in the fiscal affairs of the country. Some policy guidelines are drawn for the proposed revisions in the present revenue-sharing scheme, i.e., the allocation of the Internal Revenue Allotment (IRA), which is the principal source of revenues of most local government units (LGUs) (Manasan, 1992b, 1995). The proposed revisions take explicit account of the distribution of the devolved functions especially health services to help solve some of the fiscal problems of many LGUs found financially inadequate under devolution.

The first set of inferences is based on the investigation of the critical factors, namely health and political factors, which seemed to have influenced the distribution of health services devolution. Since much of the devolved health functions comprises fixed or recurrent expenditures (e.g., hospitals, health personnel), they embody the effects of past influences. The effects will manifest, for example, in the locations, scales, scopes or budgets of devolved health services. To the extent that health considerations (e.g., high child mortality rate) are found relevant, this would indicate that fiscal resources for health were spent efficiently or equitably before devolution.

However, like other scarce fiscal resources, the expenditures on health services were also subject to redistributive politics, which seems to be a salient feature of the Philippines under a highly centralized form of government (see, e.g., Grossholtz, 1964; Averch *et al.*, 1971). Many scholars argue that centralized provision inevitably leads to overprovision since each jurisdiction bears only a part of the cost of local services.

Because of this perverse incentive, there is a natural tendency among jurisdictions to lobby for centrally provided services (see, e.g., Weingast *et al.*, 1981). Hence, the devolved health services are unlikely to be optimal from the point of view of the LGUs. The LGUs, however, may not be able to rationalize the devolved functions easily because of institutional, political, technical or economic reasons.

The second set of inference is based on the main consideration used by the Department of Health in assigning the devolved functions to different LGUs. Apparently, the main objective of the DOH in assigning the devolved functions across LGUs is to maintain the existing hospital referral system within a province. While this worked in many instances since most municipalities and cities are under the administrative control of the provinces, it also exacerbated the financing problems of many provinces with devolved hospitals located in cities. Because these devolved hospitals are usually big and patronized mostly by the city residents, provinces cannot easily channel health resources to their rural-based and less privileged constituencies.

These inferences can be used to inform the current policy debate to hasten the perceived sluggish improvements in the provision of the devolved functions. The sluggish improvement is largely attributed to the inequitable distribution of the burden of devolution, i.e., the mismatch in the allocations of revenues and devolved expenditure responsibilities across LGUs. Because of the mismatch, many provinces and municipalities - which together absorbed more than 90 percent of the devolved health functions - are found financially inadequate to assume the cost of devolved health functions (CDHFs)[1], despite their increased shares in the internal revenues of the central government. This led to reductions in the level of health services under devolution, and has since been one of the major policy issues. The proposed solution supported by most LGUs and the DOH is an adjustment in the present formula used in the allocation of internal revenues to factor in the distribution of the CDHF.

While compensating LGUs for their CDHFs might improve their fiscal status, this may not lead to improvements in the efficiency and equity of health service provision under devolution. As will be argued in this paper, the problem is not simply a mismatch in the distribution of the CDHF and the internal revenue shares. The larger problem concerns the embedded inefficiencies and inequities in the location, types, sizes and scopes of health services and facilities arising from redistributive politics before devolution and somehow carried over to the present setup in the way the DOH distributed the devolved functions across LGUs. Since the DOH was largely concerned with the preservation of the existing hospital referral system under devolution, some serious problems have since risen, for example, the joint use of devolved health facilities and the unequal access to DOH-retained hospitals. These problems undermine the objectives of the decentralization and are likely to persist unless some form of central transfers - more suitable than the internal revenue shares - are devised and a re-orientation of the management of the DOH-retained functions and programs is undertaken.

The rest of the paper is organized as follows: Section 2 makes inferences on how might redistributive politics have affected the spatial allocation of fiscal resources for health before devolution. It briefly describes the mechanics of political lobbying and then attempts to empirically verify the correlates of the distribution of the CDHFs. Section 3 investigates the main consideration of the DOH in devolving health functions across LGUs. It then shows the results of a fiscal analysis of a sample of LGUs that have experienced financing shortfalls, partly because of the mismatch in the distributions of the CDHFs and the shares in internal revenues. Finally, the paper ends with a summary and some conclusions.

2. HEALTH AND REDISTRIBUTIVE POLITICS

(a) *Critical factors and players*

Two sets of factors seem to have critically influenced the distribution of fiscal resources for health before the devolution, namely: health aspects and political factors. The health aspects basically refer to the enhancement of overall health status and to the improvement of the public health system. As the lead government agency in pursuit of these objectives, the Department of Health (DOH) is mandated to formulate and to implement various health programs. Typically, the DOH programs are classified either as community health services (e.g., anti-malaria drive, TB eradication program) or as personal health services (e.g., surgery, cardiology).

The DOH provides different types of health services across regions. The types and extent of community health services the DOH administers across localities vary owing to the latter's differences in demographic and epidemiological characteristics. Although the DOH also administers a standard set of personal health services through the local hospital referral system it established all over the country, the number and sizes of health facilities the DOH builds also depend on local topography and weather condition. For example, the DOH guideline concerning the establishment of a new hospital specifies: (1) the distance of at least 35 kilometers from any existing public hospital, (2) the hospital's accessibility as a referral facility to a minimum of three rural units or main health center facilities in the catchment area, and (3) a permanent population of at least 75,000 to be served within the catchment area.

However, the health factors do not seem to fully account for the spatial patterns of distribution of health resources. Various studies underscore the wide variability in the number and sizes of hospital facilities across regions, in the physician-to-population ratio, and in the differences in health access between the urban and rural Filipinos (e.g., Solon et al. 1992; Zingapan, 1994). These disparities seem persistent even if one controls for

the differences in local epidemiological and demographic conditions. Furthermore, the health considerations could not also fully explain the evolution of the public health system which is characterized as facility-based and urban-biased.[2]

The second set of factors that could explain the allocation of fiscal resources for health in the Philippines pertains to the political economy of redistribution or the predominance of political factors. These factors include political institutions (e.g., weak party system, pork barrel allotments, patron-client relationships) and fiscal processes (e.g., Congressional budget hearings) that confer politicians with substantial leverages in wrangling more hospitals, more drugs or greater health service provision for their own constituents than is appropriate medically or economically. Several studies document how local political leaders and members of Congress influence the allocation of central transfers, including health resources, favorably toward their own jurisdictions (e.g., Grossholtz, 1964; Averch *et al.*, 1971).

Members of congress can directly affect the availability of health resources in their locality through pork-barrel allocations. Every year, each senator or member of the House of Representatives receives a budget appropriation to finance his or her local projects. Legislators allot part of their pork barrel allocations to health services like the extension of hospital wards, refurbishing of clinics, procurement of drugs and other medical supplies, repair of equipment or a direct financial assistance to their needy constituents. Because of their meager fiscal revenues, LGUs belonging to one district often lobby and compete for a share of the pork barrel allocations of their district representatives.

In apparent disregard of DOH guidelines, many legislators also purposely file bills in Congress either to establish new public hospitals or to expand existing ones within their jurisdictions.[3] Undoubtedly, some of the "legislated" hospitals primarily serve political ends; the ability of local political leaders to secure new facilities or to upgrade existing ones for their constituents determines their electoral success since most LGUs are poor.

Moreover, the fiscal system also induces a bias for health facilities: with the hospital, a local government unit is assured of central provision every year while, in effect, paying only a fraction of the cost of building and running it, since hospital outlays are financed from general taxes. Such a distorted incentive system only intensifies the lobbying that bestows undue advantage to the politically powerful cities, leading to inequitable distribution and inefficient provision of hospital services.

The predominance of political factors over health considerations becomes apparent during the annual budgetary process. Each year, the DOH prepares a budget program for all its planned activities for the coming year. The NG then submits it as part of the whole government's budget program to Congress for approval. Hence, the budgetary process creates an opportunity for politicians to re-prioritize the DOH planned activities to their advantage. Thus, the DOH may have to compromise at times since a prolonged or unnecessary delay would threaten the success of health programs where timing or sustained provision is oftentimes critical, not to mention the adverse effects of such delay to the welfare and morale of health workers.

(b) *Regression correlates of CDHF*

The bulk of the devolved health functions comprise the responsibility over hospitals and health workers (World Bank, 1993). To a large extent the devolved health functions are fixed recurrent expenditures, i.e., they cannot be reduced significantly without incurring further losses. For instance, it may not be politically viable, even if medically justifiable, to close down a government hospital in a locality once it has been in operation. Moreover, it may not also be easy to reduce the medical staff without endangering health services or violating Civil Service Laws. Hence, once a hospital is established or a health worker is hired, the government is committed to spend on these annually. These political and institutional constraints to government actions largely remained binding after devolution, as they were before 1991.

Since most of the public hospitals were already established before 1991, their sizes and distribution would reflect the cumulative effects of the different health and political factors that influenced the distribution of health resources before devolution. The cumulative effects are partly captured in the CDHF which is basically the outlay of the DOH on the devolved hospitals and health workers in 1992. Of course, the CDHF also reflects the criteria used by the DOH in assigning which health functions to devolve to a certain LGU. However, it will be argued in Section 3 that the main criterion, which seems to be the preservation of the existing hospital referral system in the province, is not likely to counteract the cumulative effects of the critical factors identified above. To ascertain the differential impact of the relevant critical factors, a regression analysis of the CDHF therefore would be useful.

To establish some *prima facie* evidence, the following reduced-form equation is estimated for each LGU level (i.e., provinces, municipalities and cities):

$$C_i^g = \beta_0 + \Sigma_h \beta_{1h} H_{ih}^g + \Sigma_j \beta_{2j} F_{ij}^g + \beta_3 I_i^g + \Sigma_m \beta_{4m} D_{im}^g + u_i,$$

where C is CDHF, i pertains to the ith LGU, g is the index of LGU level, the β's are the regression coefficients, the H's are health status indicators, the F's refer to the number or size of DOH retained health facilities, I is the LGU income class, the D's are dummy variables for regions, and u is the error term. (The specific regression variables used are defined in Table 1. The sources of the data used in the regression exercises are discussed in the Appendix.)

Table 1. Definition of Regression Variables

Variables	Definition
Cost of Devolved Health Functions (CDHF) (in pesos)	- Estimated 1992 national government budget for the devolved health functions (in pesos)
Population (1991)	- Local population in 1991
Land Area	- Land area (in sq. km.)
Income Class Dummy	- Income class dummy (1 for income class equals 1; 0 otherwise)
Male Infant Mortality Rate (1990)	- Male infant mortality rate in 1990
Malnutrition Rate (1991)	- Percentage of children (aged 0-6) who weighed below 75% of their standard weight-for-age in 1991
Infant Death Rate (1991)	- No. children aged less than 1 year old who died per 1000 live births in 1991
Dummy for the presence of a retained hospital in the province	=1 - if there is a retained hospital located within the province or in a city (independent or component) within the province; 0 – otherwise
Total number of beds of all retained hospitals in the province	- For provinces: cumulative no. of beds of all retained hospitals located within the province or in a city (independent or component) within the provincial boundary - For cities (independent or component): cumulative no. of beds of all retained hospitals located within the city boundary
Income Class x Presence of retained hospital in the provinces	- Income class dummy x dummy for the presence of a retained hospital in the province
Ilocos Dummy	=1 - if LGU is in Region 1 (Ilocos Region); 0 - otherwise
Cagayan Valley Dummy	=1 - if LGU is in Region 2 (Cagayan Valley); 0 - otherwise
Central Luzon Dummy	=1 - if LGU is in Region 3 (Central Luzon); 0 - otherwise
Bicol Dummy	=1 - if LGU is in Region 5 (Bicol); 0 – otherwise
Western Visayas Dummy	=1 - if LGU is in Region 6 (Western Visayas); 0 - otherwise
Central Visayas Dummy	=1 - if LGU is in Region 7 (Central Visayas); 0 - otherwise
Eastern Visayas Dummy	=1 - if LGU is in Region 8 (Eastern Visayas); 0 - otherwise
Western Mindanao Dummy	=1 - if LGU is in Region 9 (Western Mindanao); 0 – otherwise
Northern Mindanao Dummy	=1 - if LGU is in Region 10 (Northern Mindanao); 0 – otherwise
Southern Mindanao Dummy	=1 - if LGU is in Region 11 (Southern Mindanao); 0 – otherwise
Central Mindanao Dummy	=1 - if LGU is in Region 12 (Central Mindanao); 0 – otherwise
Cordillera Dummy	=1 - if LGU is in the Cordillera Administrative Region; 0 – otherwise
NCR Dummy	=1 - if LGU is in the National Capital Region; 0 - otherwise
NCR City Dummy	=1 - if LGU is a city in the National Capital Region; 0 – otherwise

The expected signs of the explanatory variables can be deduced based on the discussions made above. Recall that the total amount of resources expended on a locality, say a province, would basically comprise the CDHF and whatever facilities and other functions the DOH retained after devolution. If health factors were the sole consideration, then each province would more or less have a "standard" local public health system. A standard local public health system would include a hospital referral system and basic primary care services. Therefore, a positive relationship is postulated between CDHF and health status indicators (e.g., infant mortality rate, malnutrition rate) and health demand-side variables (e.g., population). Furthermore, the topographic features of the locality, as indexed by land area, would indicate just how extensive the local hospital referral system should be to be accessible to the local population. On the other hand, a negative relationship between CDHF and the presence of DOH retained health facilities (and their sizes) is hypothesized since the two are the main components of the pre-devolution local public health system.

The LGU's income class and the dummies for regions are intended to capture political influences. The LGU's income class is used to proxy for the level of socioeconomic development. Arguably, the rich LGUs are more politically active relative to their poorer counterparts. Therefore, *ceteris paribus*, they are expected to be more effective at lobbying for centrally provided health services. The regional dummies represent "affinity" to the central government (i.e., Metro Manila) in terms of either distance (say, kilometers) or political ties (say, some regions are the bailiwicks of the government in power).

(c) *Analysis of results*

There are a number of data and estimation issues encountered in the regression exercises. First, the available data for the health status indicators (viz., male infant mortality rate, malnutrition rate, infant death rate) are not contemporaneous with the

CDHF. Perhaps, this problem is not too serious since health status does not vary drastically from year to year. However, there are no available and reliable health status indicators for municipalities. Second, the municipalities belonging to the National Capital Region are lumped together with all the cities since the former are among the highly urbanized and richest LGUs in the country. Excluding them from the sample of municipalities will minimize the possible outlier effects. Lastly, the complete data set available is only for one year. Hence, a simple OLS estimation is used to determine the possible correlates of CDHF.

The descriptive statistics of the regression variables are presented in Table 2 (for province-level data), Table 3 (for city-level data) and Table 4 (for municipality-level data). From the tables, it is evident that the spatial allocation of health services has been skewed before devolution. For example, note the wide difference in the average CDHFs of provinces (35 million pesos) and cities (3.5 million pesos). Moreover, the seeming inequity also manifests within LGU level, as the large standard deviations in the CDHFs and in the sizes of DOH-retained hospitals (measured in terms of number of beds) attest. In each LGU level, for example, the standard deviation in the CDHF is more than half of its mean. The relevant factors that could possibly account for the skewed distribution are shown in Table 5 (for provinces), Table 6 (for cities) and Table 7 (for municipalities).

Health factors. Among the health status indicators, only malnutrition rate seems relevant in explaining the size of the CDHFs, but only across provinces. The sign is as expected: provinces with high malnutrition rates tend to receive greater central provisions. Partly due to possible measurement errors, male infant mortality rate and infant date rate are found to be insignificant.[4] More importantly perhaps, the demand for health services is largely captured by the population variable, which emerged positive and significant in nearly all the regressions. Interestingly, the estimated coefficients imply a slightly greater health service provision to an average city resident (22. 43 pesos) than to an average town dweller (21.39 pesos).

Table 2. Descriptive Statistics for Provinces

Variables	Mean	Std. Dev.	Minimum	Maximum
Cost of Devolved Health Functions (in pesos)	35276700	17794600	7863000	91587000
Population (1991)	658012.59	476110.34	15026.0	2020273.0
Land Area (sq. km.)	4005.01	2687.73	209.3	14896.90
Income Class Dummy	0.39130	0.49162	0.0	1.0
Male Infant Mortality Rate (1990)	63.17	8.596	45.45	83.81
Malnutrition Rate (1991)	18.46	5.43	5.22	34.10
Total number of beds of all retained hospitals in the province	139.71	526.03	0.0	4300.0
Ilocos Dummy	0.057971	0.23540	0.0	1.0
Cagayan Valley Dummy	0.072464	0.26115	0.0	1.0
No. of observations = 69				

Sources of data: Cost of devolved health functions, population and land area, LGU income class and region are from DOH-LGAMS database. No. of beds of retained health facilities are from DOH's Hospital Operations and Monitoring Services (HOMS). Male infant mortality rate data are based on Flieger and Cabigon [1994]. Nutrition data are estimates from a DOH's nutrition survey.

Unlike in the case of provinces, cities and municipalities with big land areas tend to have greater CDHFs. Understandably, the DOH had to establish more extensive health facility network in LGUs with wide jurisdictions to ensure and to increase access to health services. The extensive health facility network would comprise many barangay health stations (BHSs) and other smaller sized health facilities situated in the remote barangays. Since the BHSs were devolved to municipalities and cities, this could explain why land area – as a proxy for the extent of the health facility network – is found insignificant in the case of provinces. It is interesting to note again the wide differential impact of an additional square kilometer of land area between the CDHFs of cities (2641.50 pesos) and the CDHFs of municipalities (26.57 pesos). This result, when seen in

the light of those obtained on population, indicates that land area might be capturing some other effects associated with high population density.

Table 3. Descriptive Statistics for Cities

Variables	Mean	Std. Dev.	Minimum	Maximum
Cost of Devolved Health Functions (in pesos)	3535082.68	5768056.94	0.0	29825800
Population (1991)	226565.70	284701.39	15686	1666766
Land Area (sq. km.)	239.03	396.30	2.60	2211.30
Income Class Dummy	0.50685	0.50341	0.0	1.0
Infant Death Rate (1991)	22.20	10.08	0.0	70.4
Total number of beds of all retained hospitals in the city	120.21	348.85	0.0	2250
NCR Dummy	0.23288	0.42559	0.0	1.0
NCR City Dummy	0.054795	0.22915	0.0	1.0
No. of observations = 73				

Sources of data: Cost of devolved health functions, population and land area, LGU income class and region are from DOH-LGAMS database. No. of beds of retained health facilities are from DOH's Hospital Operation and Monitoring Services (HOMS). Data on infant death rates are from the 1991 Philippine Health Statistics published by the DOH.

Table 4. Descriptive Statistics for Municipalities

Variables	Mean	Std. Dev.	Minimum	Maximum
Cost of Devolved Health Functions (in pesos)	949195.18	572388.04	0.0	5097080
Population (1991)	29370.29	23322.62	50.0	208722
Land Area (sq. km.)	187.73	211.10	0.60	2188.70
Income Class Dummy	0.0048815	0.069721	0.0	1.0
Presence of a retained hospital in the province	0.308006	0.48557	0.0	1.0
Income class dummy x presence of a retained hospital in the province	0.0027894	0.052759	0.0	1.0
Ilocos Dummy	0.085077	0.27909	0.0	1.0
Cagayan Valley Dummy	0.064854	0.24635	0.0	1.0
Central Luzon Dummy	0.080893	0.27277	0.0	1.0
Bicol Dummy	0.078103	0.26843	0.0	1.0
Western Visayas Dummy	0.085774	0.28013	0.0	1.0
Central Visayas Dummy	0.085774	0.28013	0.0	1.0
Eastern Visayas Dummy	0.096932	0.29597	0.0	1.0
Western Mindanao Dummy	0.048815	0.21556	0.0	1.0
Northern Mindanao Dummy	0.080195	0.27169	0.0	1.0
Southern Mindanao Dummy	0.058577	0.23491	0.0	1.0
Central Mindanao Dummy				
Cordillera Dummy	0.034868	0.18351	0.0	1.0
No. of observations = 1434	0.052301	0.22271	0.0	1.0

Note: There are no available health status indicators (e.g., infant mortality rates) for municipalities outside the National Capital Region. Sources of data: Cost of devolved health functions, population and land area, LGU income class and region are from DOH-LGAMS database. Locations of retained health facilities are from DOH- HOMS.

The effect of the size or presence of the DOH-retained hospitals on the CDHF is found significant and negative in all types of LGUs. As discussed above, this is not surprising since the CDHF and the retained functions constitute the DOH expenditures on a locality. Therefore, a fixed DOH outlay on a locality would imply that the more health functions are devolved the less functions are retained, and vice versa. Again, note the wide divergence in the estimated coefficients, which imply that cities benefit more than provinces from the presence of DOH-retained facilities. This is due to the fact that most of the bigger specialty hospitals and medical centers are located in cities.

Political factors. Income class does not appear as a consistent and significant explanatory variable in the case of provinces and cities. Only in the case of municipalities does it do well. However, when it is found significant in the case of provinces and municipalities, it has a negative sign, contrary to expectations. For several reasons, the poor performance of income class should lead to its rejection as a proxy for "political clout" rather than of the hypothesized influence of redistributive politics. First, it seems that income class is more a measure of economic development than an index of political awareness on the part of the constituents. Second, it partly captures the effect of the presence of DOH-retained facilities since most of these facilities are located in highly developed LGUs (e.g., Cebu, Negros Occidental, Iloilo, Pampanga, Iloilo). Lastly, the wide differences in the estimated coefficients of population and land area shown above may be due to factors other than variations in health status across LGU levels. In this case, population may be capturing the extent of the demand for health as expressed in the political arena, rather than in the market since public health services are offered at low prices.

Among the regional dummies, Cagayan Valley is found to be a positive and significant correlate of the CDHFs of provinces.[5] Together with Ilocos Region, Cagayan Valley constitutes part of the political bailiwick of the Marcos government which is

reported to have favored the two regions with relatively more infrastructure projects during its twenty-year reign. The regression results provide a partial evidence to this.

In the case of cities, the NCR dummies suggest that then 13 NCR municipalities were favored with centrally provided health services than other cities in the country. This is evidenced by the fact that the average NCR municipality was receiving around 8.2-million peso subsidy from the central government before the devolution. On the other hand, the four NCR cities seem to continually enjoy favors under decentralization. The averaged NCR city absorbed a lower CDHF than others by as much as 19.6 million pesos. The amount is significant considering that many of the biggest and most modern DOH-retained facilities are located in NCR cities (e.g., Philippine Heart Center, Kidney Center, Dr. Jose Reyes Memorial Hospital).

In the case of municipalities[6], those located in Central Luzon, Bicol, in the Visayas and Mindanao appear to have absorbed higher CDHFs relative to those in the Southern Tagalog Region (the control region). This is due to the fact that the Southern Tagalog Region is very near to the NCR where many of the DOH-retained hospitals are located. Only those in the Ilocos Region have lower CDHFs than those in the Southern Tagalog Region.

Like the income class variable, regional dummies are far from ideal proxies of political influence. At best, the regional dummies indicate a somewhat consistent pattern of the size distribution of the CDHFs. LGUs belonging to NCR or to regions near the NCR (such as the Southern Tagalog Region) seem to have been favored with relatively more health services before decentralization. This is perhaps due to their enormous wealth, relatively high level of political development and close proximity to the seat of government.

To sum up, the proxy variables only yield weak evidence regarding the effect of political factors on the size distribution of the CDHFs. The negative correlation between

income class and CDHF indicates that the highly developed LGUs tend to have more centrally provided health services before devolution. This could mean two things: on the one hand, it could simply indicate that the DOH chose the LGUs as a hospital site because of its "centrality", i.e., it is more accessible to a wider segment of the target beneficiaries than other neighboring LGUs. One the other hand, it could also imply that the LGU has been effective in lobbying for a hospital. The regional dummies also weakly suggest that LGUs in NCR and in the Southern Tagalog Region were favored before devolution. These results, however, are also amenable to the same dual interpretations as the ones for the income class variable. Clearly, an extension of the present exercise using more discriminate tests and better data is in order..

Interestingly, however, partial support for the hypothesized effects of redistributive politics is obtained from the population variable, which is used here as a proxy for the demand for health services. The estimated population coefficients suggest inequity in the provision of health services before devolution: the average city resident had more health benefits than an average town resident, even after controlling for health status, ease of access to health services and level of economic development. Before one can conclude whether this is due to differences in political influence, however, further investigation is also necessary. One useful exercise would be to undertake a pooled regression of province and city data, which contain a common set of explanatory variables including health status indicators, and then perform a test of significance of the differences in the estimated population coefficients.

Table 5. Regression Analysis of the CDHFs of Provinces

Variables	P1	P2	P3
Constant	15012900 (1.006)	17264900 (1.172)	16020900 (1.103)
Population (1991)	35.745 (6.719)**	35.459 (6.779)**	35.029 (6.583)**
Land Area (sq. km.)	108.666 (0.165)	-100.756 (-0.153)	-417.552 (-0.643)
Income Class Dummy (1 *if income class equals* 1; 0 *otherwise*)	-12071700 (-2.156)**	-10101800 (-1.800)*	-88051900 (-1.528)
Male Infant Mortality Rate (1990)	-150262 (-0.599)	-178118 (0.721)	-254802 (-1.038)
Malnutrition Rate (1991)	570013 (1.769)*	596021 (1.880)*	912774 (2.732)**
Total number of beds of all retained hospitals located in the province		-5129.94 (-1.796)*	-5350.65 (-1.930)*
Ilocos Dummy (1 *if Ilocos Region*; 0 *otherwise*)			6103160 (0.965)
Cagayan Valley Dummy (1 *if Cagayan Valley Region*; 0 *otherwise*)			13276200 (2.280)**
R-squared	0.59	0.61	0.64
No. of observations	69	69	69

Notes: The sample excludes ARMM provinces since the devolved functions were transferred to the ARMM regional government rather than directly to provinces. Values in parentheses are t-values. "**" and "*" mean significant at the 0.05 and 0.10 levels, respectively.

Table 6. Regression Analysis of the CDHFs of Cities

Variables	C1	C2	C3	C4
Constant	848117 (0.498)	443624 (0.286)	512715 (0.377)	-900041 (-0.879)
Population (1991)	1.34468 (0.526)	17.8227 (3.711)**	6.81678 (1.407)	22.4391 (5.406)**
Land Area (sq. km.)	1845.86 (1.123)	960.449 (0.636)	4565.46 (2.965)**	2641.50 (2.262)**
Income Class Dummy (1 *if income class equals* 1; 0 *otherwise*)	3821680 (2.608)**	2254750 (1.622)	771807 (0.612)	-685387 (-0.719)
Infant Death Rate (1991)	183.76 (0.003)	-28486 (-0.490)	-37446.3 (-0.734)	-21766.3 (-0.576)
Total number of beds of all retained hospitals in the city		-14030.3 (-3.920)**	-8112.18 (-2.391)**	-10650.1 (-4.206)**
NCR Dummy (1 *if National Capital Region*; 0 *otherwise*)			7737790 (4.593)**	8182220 (6.560)**
NCR City Dummy (1 *if the city is in the National Capital Region*; 0 *otherwise*)				-19615500 (-7.463)**
R-squared	0.17	0.33	0.49	0.73
No. of Observations	73	73	73	73

Notes: The sample for the National Capital Region includes all 13 municipalities and 4 cities. Values in parentheses are t-values. "**" means significant at the 0.05 level.

Table 7. Regression Analysis of the CDHFs of Municipalities

Variables	M1	M2	M3	M4
Constant	307039 (21.536)**	322374 (21.139)**	322538 (21.165)**	193031 (8.376)**
Population (1991)	21.1848 (57.101)**	21.3636 (56.871)**	21.3388 (56.807)**	21.394 (58.261)**
Land Area (sq. km.)	121.235 (3.159)**	106.343 (2.751)**	104.915 (2.716)**	26.566 (0.719)**
Income Class Dummy (1 *if income class equals* 1; 0 *otherwise*)	-574909 (-4.696)**	-586626 (-4.801)**	-351620 (-1.945)**	-284089 (-1.715)*
Dummy for the presence of retained hospitals in the province (1 *if yes*; 0 *otherwise*)		-46666.4 (-2.787)**	-44502.4 (-2.653)**	-49595.6 (-3.033)**
Income Class Dummy x Presence of retained hospital in the province			-406814 (-1.763)*	-369337 (-1.750)*
Ilocos Dummy (1 *if Ilocos Region*; 0 *otherwise*)				-57844.7 (-1.830)*
Cagayan Valley Dummy (1 *if Cagayan Valley Region;* 0 *otherwise*)				114776 (3.288)**
Central Luzon Dummy (1 *if Central Luzon Region;* 0 *otherwise*)				124428 (3.800)**
Bicol Dummy (1 *if Bicol Region;* 0 *otherwise*)				339018 (10.520)**
Western Visayas Dummy (1 *if Western Visayas Region;* 0 *otherwise*)				140765 (4.434)**
Central Visayas Dummy (1 *if Central Visayas Region;* 0 *otherwise*)				199226 (6.084)**
Eastern Visayas Dummy (1 *if Eastern Visayas Region;* 0 *otherwise*)				91980 (3.015)**
Western Mindanao Dummy (1 *if Western Mindanao Region;* 0 *otherwise*)				91210.4 (2.394)**
Northern Mindanao Dummy (1 *if Northern Mindanao Region;* 0 *otherwise*)				204958 (6.381)**
Southern Mindanao Dummy (1 *if Southern Mindanao Region;* 0 *otherwise*)				411529 (11.490)**
Central Mindanao Dummy (1 *if Central Mindanao Region;* 0 *otherwise*)				165229 (3.814)**
Cordillera Dummy (1 *if Cordillera Autonomous Region;* 0 *otherwise*)				309805 (8.214)**
R-squared	0.72	0.72	0.72	0.77
No. of observations	1434	1434	1434	1434

Notes: Sample includes ARMM municipalities since the devolved functions were transferred to the ARMM regional government rather than directly to municipalities. Values in parentheses are t-values. "**" and "*" mean significant at the 0.05 and 0.10 levels, respectively

3. THE HOSPITAL REFERRAL SYSTEM UNDER DEVOLUTION

(a) *Preserving the hospital network*

It is implicit in the DOH guidelines that each public hospital built should be an integral part of a hospital referral system. The hospital system refers to the pyramidal network of hospitals where the lowest-level facilities provide basic or primary care services, the middle-level facilities provide secondary care services and the highest-level facilities provide tertiary care services. Rural health units (RHUs) and barangay health stations (BHSs) are examples of the lowest-level facilities that provide child immunization, family planning services and other primary care services are delivered. The middle-level facilities include the municipal and district hospitals where maternity services and other minor surgical procedures are performed. The more complex surgical procedures and highly specialized medical treatment are provided in tertiary-level facilities such as provincial or regional hospitals. At the regional level, the hospital referral system basically consists of the regional hospital (and/or possibly medical centers) all the provincial, municipal and district hospitals, and all the RHUs and BHSs. Each region has its own hospital referral system comprising of a regional hospital and the provinces' own narrower hospital referral system, and each region has its own regional hospital or medical center. Hence, a patient requiring medical attention is referred to the hospital level in the network appropriate to his or her condition. This then insures that health resources are utilized in the best way.

In a hospital referral system, each health facility has its own implicit catchment area, which pertains to the population it serves within a given distance around it. Higher-level facilities have bigger catchment areas. In choosing the facility location, therefore, the DOH's primary consideration was the facility's accessibility to the majority of the population within its catchment area. Because of this technical (medical) consideration, many public hospitals catered to residents of more than one LGU. Especially in the case of the tertiary-level facilities, the hospital catchment areas usually cover two or more

political jurisdictions. Nevertheless, the joint use of local public hospitals did not stop LGUs from lobbying for these facilities because these were financed out of general taxes. Hence, there was an inherent tendency for hospitals to be bigger than the needs of the LGU where it is located, or to be located in the more politically influential LGUs.

Apparently, the preservation of the existing hospital referral system within a province was the main consideration of the DOH in assigning the different devolved health functions to LGUs. This is evident in the actual distribution of health facilities across LGUs. According to one study (World Bank, 1993), all rural health units and barangay health stations were devolved to municipalities, city health offices to cities, and all public hospitals in the provinces other than those retained by the DOH (viz., regional hospitals, medical centers, leprosarium, mental hospital) were assigned to provinces. Since most municipalities and cities are under the administrative control of the provinces, the assignment of the devolved health functions in effect tries to match the pyramidal network of health facilities with the hierarchy of LGUs within a province. This could work even though the facilities are devolved to different LGUs. Cities and municipalities are constrained to provide at least the basic health services. Likewise, provinces have the incentive to preserve the existing hospital network since they are also accountable to the constituents of the various municipalities and cities within their jurisdictions.

However, the preservation of the existing hospital referral system also yielded inefficiencies and inequities. For one, the sizes and scope of the devolved facilities and services are not necessarily optimal from the point of view of the LGUs under devolution. Since the catchment areas rarely coincide perfectly with political jurisdictions, it can be expected that users coming from several LGUs will still seek treatment in the same, but now devolved, hospital. The persistence of the joint use of a devolved hospital of course is an additional financial burden to the LGU that absorbed the hospital.

The location of devolved hospitals is also a source of inefficiency and inequity. Many of the devolved provincial hospitals are located in component cities, some in independent cities. While the residents of component cities are also part of the province's constituents, they nevertheless enjoy greater access to health services, possibly at the expense of the rural-based constituents. The situation is aggravated when the hospital is located in independent cities that are not under the administrative control of the province. Since the hospital cannot be easily transferred to another location, the levels of service provision are likely to be less than socially desirable.

(b) *Mismatch with the distribution of IRA*

Since the public health system before devolution is characterized as facility-based, the devolution of the hospitals then largely determines the size and composition of the CDHFs, which are roughly the monetary equivalent of the devolved expenditure responsibilities. The ability of the LGUs to meet these obligations depends on their incremental shares in the total public revenues.

As provided for in the Local Government Code, the share of the LGUs in the total internal revenues[7] accumulated by the NG, called the internal revenue allotment (IRA)[8], has increased from 12 billion pesos in 1991, to 24 billion pesos in 1992 and to about 36 billion pesos in 1993. The increase is significant since, for many LGUs, the IRA accounts for more than half of their total revenues.

In the aggregate, the augmentation in the IRA share is sufficient to finance the devolved expenditure responsibilities. In 1992, the total budget appropriation of the national government agencies on the devolved functions, now referred to as the Cost of Devolved Functions (CODEF), was roughly 6.3 billion pesos. About 65 percent of the CODEF is accounted for by the Cost of Devolved Health Functions (CDHF), which was the budget outlay of the Department of Health in 1992 on the more than 2 thousand

health facilities and about 46 thousand health personnel devolved to LGUs (Diokno, 1994).

However, the formula used in allocation of the IRA does not factor in the wide variability in the distribution of the CDHF across LGUs. Under this formula, the total IRA share of LGUs[9] is first divided by LGU levels: 23 percent to provinces, 23 percent to cities, 34 percent to municipalities and 20 percent to *barangays* (villages). And then, the individual shares within each LGU level are computed using weight factors: 50 percent to population, 25 percent to land area, and 25 percent as the equal sharing part. In contrast, however, the DOH estimates show a more skewed distribution of the CDHF. About 59.7 percent of the CDHF went to provinces, 37.7 percent went to municipalities and the rest to cities. The disparity between LGUs within each level is also apparent. Many small provinces (e.g., Surigao del Norte) absorbed more hospitals than other bigger provinces (e.g., Pampanga).

Moreover, two centrally mandated salary adjustments of government workers aggravated the financing problems of LGUs. First, the Magna Carta for Public Health Workers (Republic Act 7305) adjusted the remuneration of the devolved health workers, whose pay is now to be drawn from the local treasury, to make their salaries comparable with the higher national pay scale received by the remaining DOH personnel.[10] This led to distortions in the relative pay scales among the local government employees, which did not help improve workplace harmony in the local bureaucracy. Second, the Salary Standardization Law (SSL) also took effect. To improve the government bureaucracy, the SSL attempts to make government salaries competitive with the private sector that has always attracted and retained a competent workforce through better benefits.

In sum, because of the mismatch between the IRA share and CDHF and the salary adjustments, many LGUs were found unable to meet their devolved expenditure obligations.

(c) *Reduced spending on local health services*

Based on sample of LGUs (included in the UPecon-HPDP LGU Survey), there is an overall decline in spending on local health services[11] under devolution (see Table 8, 9, 10). As seen in these tables, in many of the LGUs, the decline is undoubtedly because of financing shortfalls. To measure the extent of the financing shortfall, the difference between the incremental IRA shares and CODEF (plus, possibly, Magna Carta benefits) is derived. The LGU's incremental IRA share for a given year (after 1991) is defined as the difference between its share under the LGC and what its share would have been under the old pre-devolution IRA formula for the same year. Unlike previous estimates of financing shortfalls (Diokno, 1994; Manasan, 1996b), therefore, the incremental IRA share isolates the rise in the IRA due solely to the LGC from other factors that similarly augment it, even without the LGC, such as improved economic conditions and better tax collection procedures.

Note that the LGUs did not start to absorb devolved functions until 1993, although their IRA shares were adjusted beginning in 1992. To reflect the endowment value of the incremental IRA share in 1992, it is assumed that LGUs have the option of converting them to interest-bearing assets and use the interest income, which is computed at 10 percent annually, to help defray the CODEF. Deducting the inflation-adjusted CODEF alone or with the Magna Carta benefits from the incremental IRA share for 1993 or from the sum of incremental IRA share for 1993 and the one-year interest income of the incremental IRA share for 1992 then yield various measures of net incremental IRA share.[12]

As Table 8 shows, of the 33 provinces sampled, 31 decreased their spending on local health services between 1991 and 1993. Among the 31 provinces that registered reductions in health spending, 22 experienced financing shortfalls. These results suggest that IRA insufficiency is an important explanation for the spending reduction in at least two-thirds of the provinces. Interestingly, however, half of the 22 provinces with

financing shortfalls actually cut their health expenditures by more than their IRA shortfalls. This could mean that a stronger preference for the non-health services also explains the reduced spending on health.

Among the provinces with the greatest reductions are Mt. Province (-0.89), Benguet (-0.53) and Surigao del Norte (-0.40), which all have relatively large CDHFs owing partly to their unusual topography. On the one hand, because of the mountainous terrain of Mt. Province and Benguet, there were more and probably bigger health facilities in each locality to minimize referrals. On the other hand, Surigao del Norte is in the typhoon belt of the country. To provide health services in its many island municipalities, a more than average number of hospitals was built in the province.

Among the 11 provinces with no financing deficits, nine provinces also reduced their health spending. Among the nine provinces, Palawan and Quirino have less need for health services than other provinces because of their small population sizes. In contrast, Nueva Ecija posted a significant percentage increase in health spending. This is largely because the provincial government is reported to have not spent any on health in 1991.

In the case of the sampled cities (Table 9), all registered a significant increase in their revenues but most experienced a decline in spending on local health services under devolution. There are two possible reasons for the decline. First, this could be due to their low preference for the devolved health services. Since they were already providing the bulk of their own health services before devolution, the devolved health functions are already in excess of what they are willing to provide. Secondly, many of these cities such as Davao, Baguio, Naga and Cebu benefit from the presence of retained health facilities while others such as Dumaguete, Laoag and Dagupan benefit from the provincial hospitals located within their boundaries.[13] Thus, the preservation of the existing hospital referral system may have encouraged opportunistic behavior on some LGUs.

Table 10 shows the changes in the health spending of the 111 sample municipalities. There are 95 municipalities that registered a reduction in spending on local health services between 1991 and 1993. Of these 95 municipalities, only 22 municipalities reduced their health spending because of their insufficient IRA shares. As in the case of the provinces, the financing shortfalls could account for the decline in a number of municipalities. However, eight of the 22 municipalities have reductions greater than their financing shortfalls, probably because of their greater preference for non-health public services. Hence, a number of municipalities would require additional transfers greater than the amount of their CDHFs to induce them to provide higher level of health services under devolution.

Table 8. Changes in Spending on Local Health Services and Incremental IRA Shares: Sample Provinces (1993)

(real, per capita pesos)

Provinces	Change in Spending on Local Health Services (93-91)		Incremental IRA Shares (1993)		Incremental IRA Shares (1993) and the Interest income from Incremental IRA share (1992)	
	Amount	(%)	Net of CODEF	Net of CODEF and MC Benefits	Net of CODEF	Net of CODEF and MC Benefits
A. W/ Deficit						
(> Dec. Health Exp)	**-0.19**	**-32.65**	**-0.28**	**-0.34**	**-0.26**	**-0.32**
Catanduanes	-0.44	-37.71	-0.88	-1.02	-0.83	-0.97
Surigao del Norte	-0.40	-63.43	-0.47	-0.54	-0.44	-0.51
Romblon	-0.34	-47.60	-0.43	-0.52	-0.39	-0.47
Southern Leyte	-0.17	-29.79	-0.20	-0.28	-0.17	-0.24
Zambales	-0.14	-26.50	-0.20	-0.27	-0.16	-0.23
Pangasinan	-0.12	-37.40	-0.18	-0.21	-0.17	-0.20
Ilocos Sur	-0.11	-15.27	-0.32	-0.40	-0.30	-0.38
La Union	-0.10	-24.66	-0.16	-0.21	-0.14	-0.19
Negros Oriental	-0.09	-26.33	-0.13	-0.16	-0.11	-0.14
Cavite	-0.09	-28.46	-0.10	-0.13	-0.09	-0.12
Bohol	-0.03	-22.04	-0.04	-0.05	-0.02	-0.04
B. W/ Deficit						
(< Dec. Health Exp)	**-0.29**	**-51.00**	**-0.14**	**-0.20**	**-0.11**	**-0.17**
Mt. Province	-0.89	-56.17	-0.43	-0.63	-0.34	-0.55
Benguet	-0.53	-99.61	-0.03	-0.09	0.01	-0.05
Nueva Vizcaya	-0.45	-52.91	-0.34	-0.42	-0.30	-0.37
Lanao del Norte	-0.31	-59.79	-0.22	-0.28	-0.19	-0.25
Antique	-0.17	-35.83	-0.11	-0.16	-0.08	-0.13
Quezon	-0.16	-41.19	-0.13	-0.17	-0.12	-0.15
Ilocos Norte	-0.15	-41.82	-0.04	-0.08	-0.01	-0.05
South Cotabato	-0.15	-42.81	-0.02	-0.04	0.01	-0.01
Cebu	-0.14	-50.24	-0.11	-0.14	-0.10	-0.13
Negros Occidental	-0.12	-53.28	-0.07	-0.08	-0.05	-0.07
Zamboanga del N.	-0.11	-27.35	-0.05	-0.10	-0.03	-0.08
C. W/o Deficit						
(Dec. Health Exp)	**-0.10**	**-25.91**	**0.24**	**0.20**	**0.29**	**0.25**
Quirino	-0.37	-35.16	0.24	0.15	0.35	0.25
Palawan	-0.18	-55.19	0.43	0.39	0.48	0.44
Sultan Kudarat	-0.12	-46.84	0.20	0.17	0.24	0.21
Occ. Mindoro	-0.06	-12.32	0.24	0.17	0.30	0.23
Davao Oriental	-0.06	-17.28	0.20	0.17	0.25	0.21
North Cotabato	-0.05	-31.50	0.17	0.15	0.20	0.18
Camarines Sur	-0.05	-28.60	0.02	0.00	0.03	0.02
Davao del Sur	-0.01	-5.70	0.04	0.01	0.06	0.04
Aurora	-0.00	-0.56	0.66	0.59	0.74	0.68
D. W/o Deficit						
(Inc. Health Exp)	**0.06**	**98.57**	**0.17**	**0.16**	**0.19**	**0.18**
Davao del Norte	0.00	3.93	0.23	0.22	0.26	0.24
Nueva Ecija	0.12	193.20	0.12	0.10	0.13	0.11

Note: Figures in bold are averages. Sources of raw data: UPecon-HPDP LGU Survey. DOH-LGAMS.

Table 9. Changes in Spending on Local Health Services and Incremental IRA Shares: Sample Cities (1993)
(real, per capita pesos)

Cities	Change in Spending on Local Health Services (93-91)		Incremental IRA Shares (1993)		Incremental IRA Shares (1993) and the Interest Income from Incremental IRA share (1992)	
	Amt.	(%)	Net of CODEF	Net of CODEF and MC Benefits	Net of CODEF	Net of CODEF and MC Benefits
A. Dec. Health Spending	**-0.10**	**-23.35**	**2.05**	**2.04**	**2.17**	**2.17**
Baguio	-0.34	-32.86	3.43	3.43	3.57	3.57
Cebu	-0.16	-25.90	0.91	0.91	0.97	0.96
Davao	-0.14	-46.86	1.67	1.67	1.78	1.78
Gen. Santos	-0.09	-22.08	1.83	1.81	1.96	1.94
Naga	-0.08	-32.20	2.04	2.04	2.18	2.17
Bacolod	-0.06	-25.76	1.16	1.16	1.22	1.22
Dumaguete	-0.04	-19.56	2.91	2.91	3.10	3.10
Lucena	-0.04	-22.17	1.65	1.64	1.76	1.75
Laoag	-0.01	-2.68	2.59	2.58	2.77	2.76
Cotabato	-0.01	-3.45	2.29	2.29	2.44	2.44
B. Inc. Health Spending	**0.20**	**62.52**	**2.32**	**2.31**	**2.48**	**2.47**
Dagupan	0.05	11.37	1.77	1.75	1.89	1.87
Tagbilaran	0.15	38.87	3.10	3.10	3.30	3.30
Cavite	0.39	137.33	2.10	2.09	2.24	2.23

Note: Figures in bold are averages. Sources of raw data: UPecon-HPDP LGU Survey, DOH-LGAMS.

Table 10. Changes in Spending on Local Health Services and Incremental IRA Shares: Sample Municipalities (1993)
(real, per capita pesos)

Municipalities	Change in Spending on Local Health Services (93-91)		Incremental IRA Shares (1993)		Incremental IRA Shares (1993) and the Interest Income from Incremental IRA share (1992)	
	Amount	(%)	Net of CODEF	Net of CODEF and MC Benefits	Net of CODEF	Net of CODEF and MC Benefits
A. W/ Deficit (> Dec. Health Exp)	**-0.10**	**-34.01**	**-0.14**	**-0.18**	**-0.11**	**-0.15**
Virac	-0.24	-61.87	-0.24	-0.29	-0.21	-0.27
Bobon	-0.17	-53.32	-0.21	-0.28	-0.15	-0.22
Pili	-0.10	-41.06	-0.16	-0.20	-0.14	-0.18
Digos	-0.08	-34.37	-0.08	-0.11	-0.06	-0.09
Tagoloan	-0.07	-24.78	-0.07	-0.09	-0.04	-0.07
Munoz	-0.06	-36.36	-0.14	-0.17	-0.12	-0.15
Canaman	-0.03	-11.99	-0.06	-0.11	-0.03	-0.07
Vigan	-0.02	-8.29	-0.15	-0.20	-0.13	-0.18
B. W/ Deficit (< Dec. Health Exp)	**-0.11**	**-40.41**	**-0.04**	**-0.08**	**-0.01**	**-0.05**
Sagada	-0.38	-61.79	-0.10	-0.21	-0.03	-0.15
Sn Jose (Antique)	-0.13	-57.64	-0.06	-0.08	-0.04	-0.06
Valladolid	-0.12	-55.76	-0.07	-0.10	-0.04	-0.07
Lubang	-0.12	-28.53	-0.04	-0.09	0.00	-0.05
Linamon	-0.11	-28.22	-0.06	-0.15	-0.01	-0.10
Gapan	-0.10	-50.16	-0.06	-0.10	-0.05	-0.08
Padada	-0.10	-32.23	-0.03	-0.08	0.00	-0.04
Aliaga	-0.09	-51.65	-0.06	-0.09	-0.04	-0.07
Minglanilla	-0.08	-37.09	-0.00	-0.04	0.01	-0.03
Talisay (Cebu)	-0.08	-42.23	-0.01	-0.04	0.00	-0.03
Maasin	-0.08	-32.85	-0.03	-0.07	-0.01	-0.05
Pigkawayan	-0.07	-34.37	0.00	-0.03	0.03	-0.00
San Juan (La Union)	-0.06	-33.21	-0.02	-0.06	0.01	-0.03
Bauang	-0.05	-33.28	-0.00	-0.03	0.01	-0.01
Midsayap	-0.04	-27.13	-0.01	-0.02	0.01	-0.01

Note: Figures in bold are averages. Sources of raw data: UPecon-HPDP LGU Survey, DOH-LGAMS.

Table 10 (cont.). Changes in Spending on Local Health Services and Incremental IRA Shares: Sample Municipalities (1993) cont=d.

(real, per capita pesos)

Municipalities	Change in Spending on Local Health Services (93-91)		Incremental IRA Shares (1993)		Incremental IRA Shares (1993) and the Interest Income from Incremental IRA share (1992)	
	Amount	(%)	Net of CODEF	Net of CODEF and MC Benefits	Net of CODEF	Net of CODEF and MC Benefits
C. W/o Deficit (Dec. Health Exp)	**-0.10**	**-36.29**	**0.39**	**0.34**	**0.46**	**0.41**
Looc	-0.55	-78.36	0.39	0.21	0.50	0.32
Bontoc	-0.44	-75.05	0.37	0.27	0.44	0.35
Sarangani	-0.34	-86.13	0.20	0.13	0.25	0.19
Sison	-0.31	-59.38	0.08	0.00	0.17	0.09
Sablan	-0.22	-39.31	0.17	0.06	0.27	0.15
Buenavista	-0.20	-62.53	0.02	-0.01	0.06	0.03
Agdangan	-0.19	-73.05	0.37	0.31	0.45	0.38
Sn Miguel	-0.19	-52.72	0.25	0.20	0.31	0.27
San Jose (N. Samar)	-0.17	-50.27	0.17	0.10	0.23	0.16
Nampicuan	-0.17	-53.73	0.20	0.12	0.27	0.20
Dinalungan	-0.16	-35.16	0.69	0.58	0.81	0.70
Antipas	-0.16	-54.52	0.17	0.15	0.23	0.20
Anahawan	-0.15	-39.36	0.61	0.49	0.70	0.58
Murcia	-0.15	-67.65	0.05	0.04	0.08	0.06
Libertad	-0.15	-55.52	0.26	0.20	0.34	0.27
Malabuyoc	-0.13	-49.60	0.18	0.13	0.23	0.18
Caoayan	-0.13	-39.64	0.06	-0.01	0.10	0.03
San Jose (Negros Or.)	-0.12	-54.84	0.17	0.12	0.23	0.18
Mutia	-0.11	-23.13	0.61	0.47	0.72	0.58
Claveria	-0.11	-37.78	0.76	0.73	0.84	0.81
Talisay (Negros Occ.)	-0.11	-47.61	0.05	0.03	0.06	0.05
San Enrique	-0.11	-58.74	0.04	0.01	0.07	0.04
Valencia	-0.10	-41.14	0.25	0.20	0.30	0.25
Alburquerque	-0.09	-36.58	0.25	0.18	0.33	0.26
Polomolok	-0.09	-46.59	0.12	0.10	0.14	0.12
Mati	-0.09	-29.13	0.16	0.13	0.19	0.15
Bantay	-0.09	-33.12	0.02	-0.03	0.05	0.00
Sebaste	-0.09	-35.92	0.45	0.39	0.51	0.46
Cagayancillo	-0.09	-28.84	0.83	0.72	0.96	0.84
Araceli	-0.09	-40.24	1.11	1.03	1.22	1.14
Quezon	-0.09	-45.74	0.45	0.43	0.53	0.51
Kolambugan	-0.09	-42.94	0.22	0.18	0.27	0.23
Culasi	-0.08	-43.09	0.23	0.19	0.26	0.22
San Nicolas	-0.08	-49.34	0.02	-0.00	0.05	0.02
Gen Aguinaldo	-0.08	-19.16	0.23	0.14	0.29	0.20
Romblon	-0.08	-44.08	0.02	-0.01	0.05	0.02
Katipunan	-0.08	-27.00	0.04	0.00	0.07	0.03
Pandan	-0.08	-25.94	0.16	0.11	0.21	0.16
Sariaya	-0.08	-61.80	0.09	0.08	0.10	0.09
Pikit	-0.07	-44.29	0.09	0.07	0.11	0.09
San Jose (Occ. Mindoro)	-0.07	-69.49	0.16	0.14	0.18	0.16

Note: Figures in bold area averages. Sources of raw data: UPecon-HPDP LGU Survey, DOH-LGAMS.

Table 10 (cont.). Changes in Spending on Local Health Services and Incremental IRA Shares: Sample Municipalities (1993) cont=d.

(real, per capita pesos)

Municipalities	Change in Spending on Local Health Services (93-91)		Incremental IRA Shares (1993)		Incremental IRA Shares (1993) and the Interest Income from Incremental IRA share (1992)	
	Amount	(%)	Net of CODEF	Net of CODEF and MC Benefits	Net of CODEF	Net of CODEF and MC Benefits
Bagumbayan	-0.07	-33.84	0.36	0.33	0.41	0.38
Carcar	-0.07	-37.62	0.02	-0.01	0.03	0.00
Carmona	-0.07	-37.55	0.11	0.09	0.14	0.11
Atok	-0.07	-14.23	0.12	0.04	0.19	0.10
Iba	-0.06	-23.93	0.14	0.10	0.17	0.13
Pagbilao	-0.06	-47.52	0.13	0.11	0.16	0.13
Itogon	-0.06	-42.28	0.25	0.24	0.28	0.26
Alcantara	-0.06	-27.60	0.33	0.27	0.40	0.34
Nasipit	-0.06	-24.76	0.04	0.01	0.07	0.04
Tampakan	-0.06	-15.94	0.41	0.36	0.47	0.42
Ma. Aurora	-0.05	-20.50	0.29	0.25	0.33	0.30
Dasmarinas	-0.05	-36.75	0.05	0.03	0.05	0.04
Lupon	-0.05	-21.44	0.16	0.12	0.19	0.16
Tagum	-0.05	-29.95	0.07	0.05	0.08	0.06
Carasi	-0.05	-8.11	11.58	11.50	12.80	12.72
Subic	-0.05	-25.48	0.20	0.17	0.23	0.20
Tupi	-0.04	-14.58	0.03	-0.00	0.06	0.02
Alaminos	-0.04	-27.73	0.09	0.06	0.10	0.08
Dauis	-0.04	-30.19	0.11	0.08	0.14	0.11
Sto. Tomas	-0.03	-14.23	0.20	0.13	0.26	0.18
Urdaneta	-0.03	-22.50	0.06	0.04	0.07	0.05
Rosario	-0.03	-14.60	0.04	0.01	0.06	0.03
Banaybanay	-0.03	-11.80	0.27	0.24	0.33	0.29
Panabo	-0.02	-15.43	0.06	0.05	0.08	0.06
Mapandan	-0.02	-10.08	0.09	0.06	0.12	0.08
Sta. Cruz	-0.02	-6.81	0.04	0.02	0.06	0.04
Placer	-0.02	-9.91	0.23	0.19	0.28	0.24
Palimbang	-0.02	-12.34	0.81	0.78	0.87	0.85
Santiago	-0.01	-4.79	0.85	0.80	0.95	0.90
Mangaldan	-0.01	-7.40	0.03	0.01	0.05	0.02
Maco	-0.01	-4.20	0.23	0.21	0.26	0.24
D. W/o Deficit (Inc. Health Exp.)	**0.10**	**50.24**	**0.79**	**0.75**	**0.86**	**0.82**
Solano	0.00	0.48	0.05	0.02	0.07	0.05
Catarman	0.01	2.46	0.01	-0.01	0.03	0.01
Maddela	0.01	3.84	0.89	0.85	0.97	0.93
Bontoc	0.01	4.20	0.19	0.15	0.22	0.18
Tubigon	0.01	10.87	0.11	0.09	0.13	0.11
Aborlan	0.02	10.41	1.71	1.67	1.85	1.80
La Trinidad	0.02	12.62	0.01	-0.01	0.03	0.01
Camaligan	0.05	24.49	0.13	0.08	0.17	0.12
Sablayan	0.07	60.04	1.62	1.60	1.73	1.71
Mabini	0.08	46.14	0.50	0.46	0.55	0.52
Imus	0.12	58.14	0.08	0.06	0.09	0.07
Narra	0.12	77.78	0.58	0.56	0.63	0.61
Cabarroguis	0.12	69.85	0.29	0.25	0.34	0.30
Brooke's Point	0.13	85.88	0.75	0.72	0.81	0.78
Bagulin	0.35	154.63	0.31	0.24	0.38	0.31
Nagtipunan	0.42	181.95	5.34	5.31	5.71	5.68

Note: Figures in bold area averages. Sources of raw data: UPecon-HPDP LGU Survey, DOH-LGAMS.

4. CONCLUDING REMARKS

In order to improve the efficiency and equity in the provision of devolved health services, it is better to address the problem by going beyond perceiving it as a mere mismatch between the IRA shares and CDHFs of LGUs. While adjusting the IRA in accordance with distribution of the CDHF would certainly improve the fiscal conditions of LGUs, it would not necessarily lead to increases in the level of health service provision under devolution.

The empirical analyses made above suggest two reasons for this. First, LGUs with stronger preferences for non-health public services would require a bigger transfer than the monetary equivalent of their CDHFs as long as the additional IRA shares are transferred as block grants. Second, the proximity to DOH-retained hospitals and devolved provincial hospitals encourage some LGUs to behave strategically. Taking advantage of the health service benefits from these hospitals, these fortunate LGUs have less incentive to provide their own health services.

However, granting that LGUs can provide at least the pre-devolution level of health services, this may not be socially desirable. Doing so would just perpetuate old inefficiencies and inequities since LGUs are somewhat locked into the kind of health expenditures determined by the devolved functions. Also, since political factors influenced the types and extents of health programs before devolution, the sizes and scope of the devolved health functions are less likely to be optimal from the point of view of LGUs. In this case, a reduction in health spending could in fact be a move in the right direction.

Furthermore, adjusting the IRA formula to factor in the distribution of the CODEF is politically difficult. Since the current formula assigns the shares in terms of percentage rather than levels (i.e., in peso amounts), changing it is merely cutting up the same pie. Therefore, any proposed alternative will either pit the NG against the LGUs, or one faction of LGUs against another. In either event, for the new formula to be more

politically feasible, it should include considerations other than the compensation of LGUs for their CODEF.

Therefore to achieve national health goals in a decentralized setting, the DOH must reorient its management of the retained functions. Aside from being the vehicles for the DOH's own programs, the retained functions can also be used as instruments to improve efficiency and equity in local health service provision. For example, adjusting the fee schedule in regional hospitals according to the patient's place of residence will reduce the bias of hospital location. This will then induce greater local spending on the part of the local governments near the hospital.

Also, the various DOH's subsidy schemes must properly measure the LGU's fiscal situation. In particular, the Comprehensive Health Care Agreement, the DOH's principal instrument to secure local financing for the devolved functions and national health programs, relies on the LGU's commitment to finance the devolved functions. Many LGUs, however, are found to have financing shortfalls, thus putting the objectives of the agreement in jeopardy.

NOTES

1. The CDHF is the 1992 budget of the DOH on its devolved facilities, personnel and services.
2. Possibly, bureaucratic factors would constitute a third set since rivalries among the various factions in the DOH bureaucracy seem to affect the relative emphasis given to various health programs. The various factions can be loosely classified into those that support public health programs more versus those that favor hospital services more. However, it seems that the intraorganizational rivalries affect mainly the distribution of DOH resources between the community health programs and the personal health programs, rather than the overall distribution of health programs across regions.
3. Before decentralization, the DOH set the criteria for establishing new hospitals or for expanding the bed capacity of an existing hospital in a locality. In the establishment of a new hospital, some of the criteria used are: (1) the distance of at least 35 kilometers from any existing public hospital, (2) the hospital's accessibility as a referral facility to a minimum of three rural units or main health center facilities in the catchment area, (3) a permanent population of at least 75,000 to be served within the catchment area.
4. There is also possible endogeneity problem here, i.e., low health services leads to poor health status. Perhaps a better estimation procedure would be to regress the change in local health service provision against change in the health status indicators to establish more conclusively the direction of causation, i.e., whether poor health status lead to higher service provision or low service provision causes poorer health status.
5. Although many regression runs were undertaken with several regional dummies, this is the only run with significant result for a regional dummy variable.
6. The sample excludes the municipalities belonging to the Autonomous Region of Muslim Mindanao (ARMM). The regional government, rather than the municipalities and provinces in ARMM, is the one that absorbed the devolved health functions.
7. The total internal revenues basically comprise the tax revenues collected by the national government, excluding tariffs and other taxes on international trade.
8. LGUs were also receiving IRA shares and other forms of central transfers before 1991. For a more detailed discussion on the intergovernmental transfers before 1991, see Lamberte *et al.* (1993) and Bahl and Schroeder (1983). The LGC of 1991 also stipulates that LGUs should have a share in the proceeds from the development of national wealth within their jurisdictions. However, the IRA constitutes the bulk of central transfers to LGUs before and after the LGC of 1991.
9. In any given year, the total IRA share of LGUs is obtained as follows: First, the national government's gross internal revenue in the third preceding year is divided up between itself and the local governments. For the first year (1992) of the implementation of the LGC, 30 percent of the gross internal revenues is transferred to LGUs as IRA share. The IRA share is then increased to 35 percent in the second year before it is finally fixed to 40 percent in the third and succeeding years.
10. From 1994 to 1997, however, the DOH gave financial assistance to enable LGUs provide the so-called Magna Carta Benefits.
11. For 1991, the spending on local health services is defined as the sum of the DOH expenditures on the locality and the LGU's own health expenditures. As a proxy of the

DOH expenditures in 1991, the CDHF is adjusted downward by ten percent. For 1993, the spending on local health services is simply just the LGU's own health outlay.

12. The assumed 10 percent inflation and interest rates are not too far off: in 1992, the actual national-level inflation rate and 91-day Treasury Bill rate in were 8.9 and 16.02, respectively.

13. The case of Cavite City is noteworthy. Despite the presence of a provincial hospital in Cavite City, its health expenditures increased. It is reported that the city government was successfully persuaded by the governor of Cavite to help in the financing of the provincial hospital.

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APPENDIX

The fiscal, socioeconomic and health data used are taken from both secondary and primary sources. Secondary data are sourced from existing studies (e.g., Diokno, 1996; Manasan 1992a, 1992b, 1995), research monographs (e.g., World Bank, 1993a) and published government reports (e.g., *Philippine Health Statistics*).

There primary data are collected from the national government agencies (Department of Health, Department of the Budget and Management, Nationals Statistics Office, National Economic and Development Authority, and the Commission on Audit) and also from the LGUs themselves (Hospital Records, Rural Health Units, Treasury, Office of the Mayor, Accounting, Local Development Office, etc.). The primary data are stored in two databases. The first database is the LGU Information Retrieval System developed by the Local Government Assistance and Monitoring System (LGAMS) of the Department of Health (DOH). This database was developed primarily to identify the LGUs that need supplemental funds to support the devolved health functions. Here, it is used extensively in simulating the fiscal effects of the different proposed formula for computing the IRA share of the LGUs to finance the devolved services. It contains the following information for all provinces, cities and municipalities in 1991: population, land area, cost of devolved functions (1992), and the cost of devolved health functions (1992). In 1993, there were 76 provinces, 60 cities and 1542 municipalities and 40,904 barangays.

The second database contains the survey data collected under the LGU Project of the UPecon-Health Policy Development Program (UPecon-HPDP) from August to November 1994. The survey was designed to examine the changes in the delivery of health services under devolution. In particular, it aimed to document cases of LGUs that have successfully adopted innovative measures, and to investigate the effects of health, managerial, fiscal and socioeconomic factors on the provision of health services before and after devolution. A total of 180 LGUs was included in the sample. The period coverage is 1991 (pre-devolution) and 1993 (post-devolution). Since some LGUs have missing data on some variables, a subsample of 157 LGUs comprising 33 provinces, 13 cities and 111 municipalities is used in this paper.

The sample selection proceeded following this scheme: he sample provinces were selected on the basis of their geographical location (i.e., from the three main island groups of Luzon , Visayas and Mindanao), socioeconomic profile (i.e., by income class) and the presence of DOH-retained health facilities in the province. Within each sample province, the sample cities and municipalities are chose in two stages. In the first stage, either the richest city (if the province has a city or cities) or one of the municipalities belonging to the highest income class is chosen. The classification used here adopts the system used by the Department of Budget and Management (DBM) which rates LGUs according to their average annual income for four consecutive years. The income classes range from the first to the sixth class, with the first class indicating the highest class. In

the second stage, one for each of the lower class municipalities present is selected on the basis of its proximity to the city or municipality chose in the first stage.

The data collected in this project include the following: fiscal variables (e.g., revenues and expenditures), financial profiles (e.g., assets and liabilities), socioeconomic indicators (e.g., income class, population), health status indicators (e.g., death rates, mortality rates), organizational and administrative details (e.g., background of personnel, tax resolutions, development plans), and information on intergovernmental interactions (e.g., fiscal competition, joint use of devolved facilities, cost-sharing arrangements). These data are supplemented by field reports containing some anecdotal evidence and other narrative information (HPDP-LGU Project Field Reports).