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Benefit Incidence of Public Spending on Health in the Philippines

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Benefit Incidence of Public Spending on Health in the Philippines

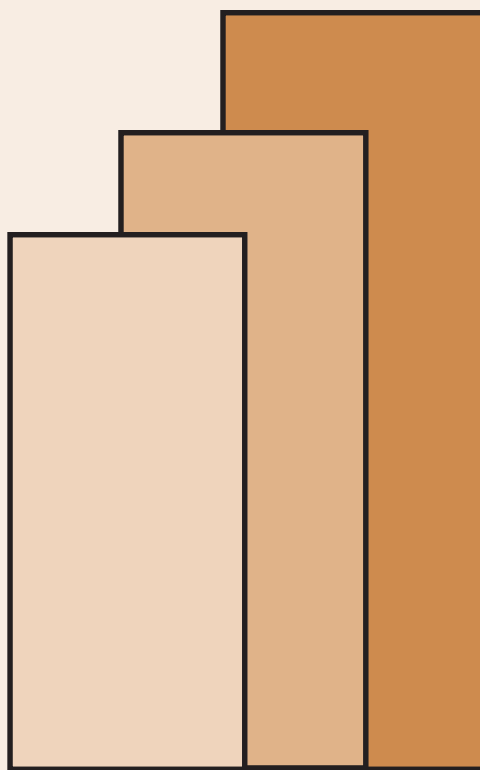
Rosario G. Manasan and Janet S. Cuenca

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BENEFIT INCIDENCE OF PUBLIC SPENDING ON HEALTH IN THE PHILIPPINES

PIDS Discussion Paper No. 2010-36

***Rosario G. Manasan
and
Janet S. Cuenca***

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ABSTRACT

Directing government subsidies to social services such as health care is expected to bring about positive external/social benefits and improve equity in access to health services. In general, government spending on health is envisioned to improve the well-being of beneficiaries and enhance their capability to earn income in the future. Given this perspective, the question that this paper addresses is: to what extent have the poor benefited from publicly provided health services? In particular, it attempts to assess whether government expenditure on health sector had a redistributive impact by making use of benefit incidence analysis.

Keywords: benefit incidence analysis, targeting, Gini-coefficient, concentration coefficient, concentration curve, public health, hospital care/services, poverty reduction

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BENEFIT INCIDENCE OF PUBLIC SPENDING ON HEALTH IN THE PHILIPPINES

Rosario G. Manasan and Janet S. Cuenca

1. INTRODUCTION

Government spending is normally assessed as to whether it promotes efficiency (i.e., correct market failures and/or generate positive externalities) and equity (i.e., improve the access of the poor to important services and/or distribution of economic welfare). Directing government subsidies to social services such as health care is expected to bring about positive external/social benefits and improve equity in access to health services.

In general, government spending on health is envisioned to improve the well-being of beneficiaries and enhance their capability to earn income in the future. Given this perspective, the question that this paper addresses is: to what extent have the poor benefited from publicly provided health services? In particular, it attempts to assess whether government expenditure on health sector had a redistributive impact by making use of benefit incidence analysis.

The paper is organized as follows. Section 2 provides the fundamentals of benefit incidence analysis and other related concepts. The data requirements along with the methodology used in measuring benefit incidence are presented in the Annex. In addition, some data and methodological issues in benefit incidence estimation are incorporated in the discussion. Section 3 discusses equity issues surrounding access to health services in the country. Section 4 presents the study's major observations and findings and analysis thereof. The paper ends with the conclusion and policy recommendations in Section 5.

2. BENEFIT INCIDENCE APPROACH AND RELATED CONCEPTS

Benefit incidence analysis (BIA) is a tool used to assess how tax policy or government subsidy affects the distribution of welfare in the population. In other words, BIA evaluates the distribution of government subsidies among different groups in the population, in particular, among different income groups.

In the literature, most of benefit incidence analyses divide the population into sub-groups (e.g. quintiles or deciles) based on household per capita income. Since expenditure on health and education are expected to have a redistributive impact, BIA is centered on assessing whether public spending is progressive, that is, whether it improves the distribution of welfare, proxied by household income or expenditure. Likewise, BIA shows how the initial "pre-intervention" position of individuals is altered by public spending or how well public spending serves to redistribute resources to the poor (van de Walle 1995). Put differently, it estimates how much the income of a household would

have to be raised if the household would fully pay for the subsidized public services (Sabir 2003).

Benefit incidence analysis combines information on the utilization of government services by households with information on the cost of providing said services to assess the incidence of the benefit from government spending across household groupings. BIA basically involves three steps: (i) array individuals or households by per capita income (or expenditure) and group by deciles or percentiles; (ii) compute estimate of unit subsidy of providing a particular type of government service as derived from official data on government spending; (iii) identify users of the government service (based on data on individual/household service utilization) and impute unit subsidy to said households or individuals (Demery 2000).

Benefit incidence thus depends on the household/individual behavior on the use of the government service and composition of government spending. Benefit incidence studies also assume that the value to consumers of a public service can be identified by the cost of providing it. They then assign benefits to the users of the service ranked by some agreed measure of current welfare. This provides a profile of the distribution of the specific category of public spending across the distribution of the chosen welfare indicator.

Benefit incidence analysis is better understood in relation to the concepts of targeting and progressivity of social spending. Targeting is a tool used to select eligible beneficiaries of any government intervention. In principle, it should concentrate the benefits of social assistance programs to the poorest segments of the population. All targeting mechanisms share a common objective: to correctly identify which households or individuals are poor and which are not. Targeting is a means of increasing the efficiency of the program by increasing the benefits that the poor can get with a fixed program budget (Coady, Grosh and Hoddinott 2004). Conversely, it is a means that will allow the government to reduce the budget requirement of the program while still delivering the same level of benefits to the poor.

One way to assess the targeting of government subsidies is with reference to the graphical representation of the distribution of benefits, i.e., concentration curve or benefit concentration curve. A concentration curve is generated by plotting the cumulative distribution of “benefits” of public spending on the y-axis against the cumulative distribution of population sorted by per capita income on the x-axis. One can assess the progressivity or regressivity¹ of a public subsidy by comparing the benefit concentration curve with the 45-degree diagonal and the Lorenz curve of income/consumption.² The diagonal indicates neutrality in the distribution of benefits. If the distribution of benefits lies along this line, the poorest 10 percent of the population gets 10 percent of the subsidy (could be income or consumption); poorest 20 percent account for 20 percent of the

¹ Progressivity implies a preference for lower income groups while regressivity implies a more favorable treatment of higher income groups.

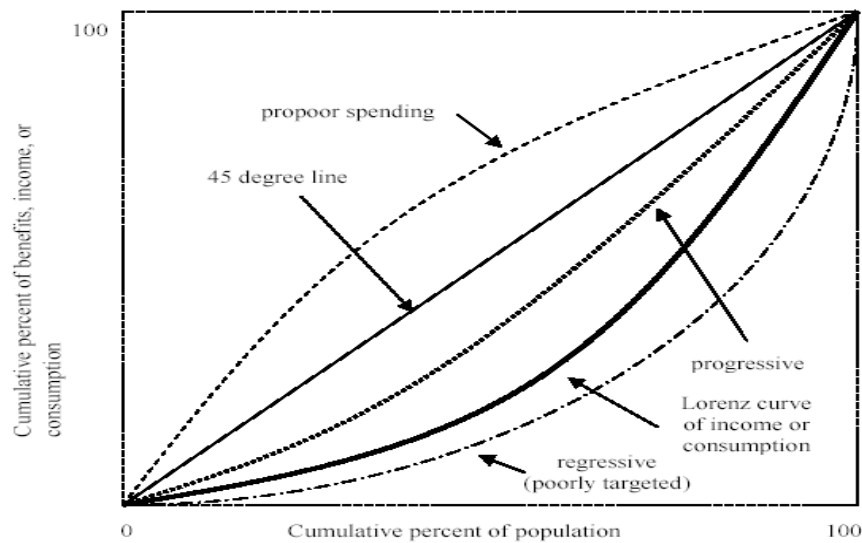
² Lorenz curve is a graphical depiction of the cumulative distribution of income on the y-axis against the cumulative distribution of population on the x-axis.

subsidy; and so on. Thus, the diagonal reflects perfect equality in the distribution of benefits and it is also referred to as perfect equality (PE) line.

The distribution of benefits is said to be progressive if the lower income groups receive a larger share of the benefits from government spending than the richer income groups. For instance, if the concentration curve lies above the diagonal, then the poorest 10% of the population receives more than 10% of the benefits and the distribution of benefits is said to be progressive in absolute terms (**Figure 1**). Conversely, if the benefit concentration curve lies below the diagonal, then the poorest 10% of the population captures less than 10% of the benefits and the distribution of benefits is said to be regressive in absolute terms.

On the other hand, a benefit concentration curve that lies above the Lorenz curve of income signifies progressivity of public subsidy relative to income. To wit, the benefits share of the poorest 10% of the population is larger than its income share. Thus, if the benefits from the government service are converted to its income equivalent, the post-subsidy distribution of income-cum-benefit would be more equitable than the original distribution of income if the benefit concentration curve lies above the Lorenz curve of income. Conversely, a concentration curve that lies below the Lorenz curve of income distribution suggests transfers that are more regressively distributed than income.

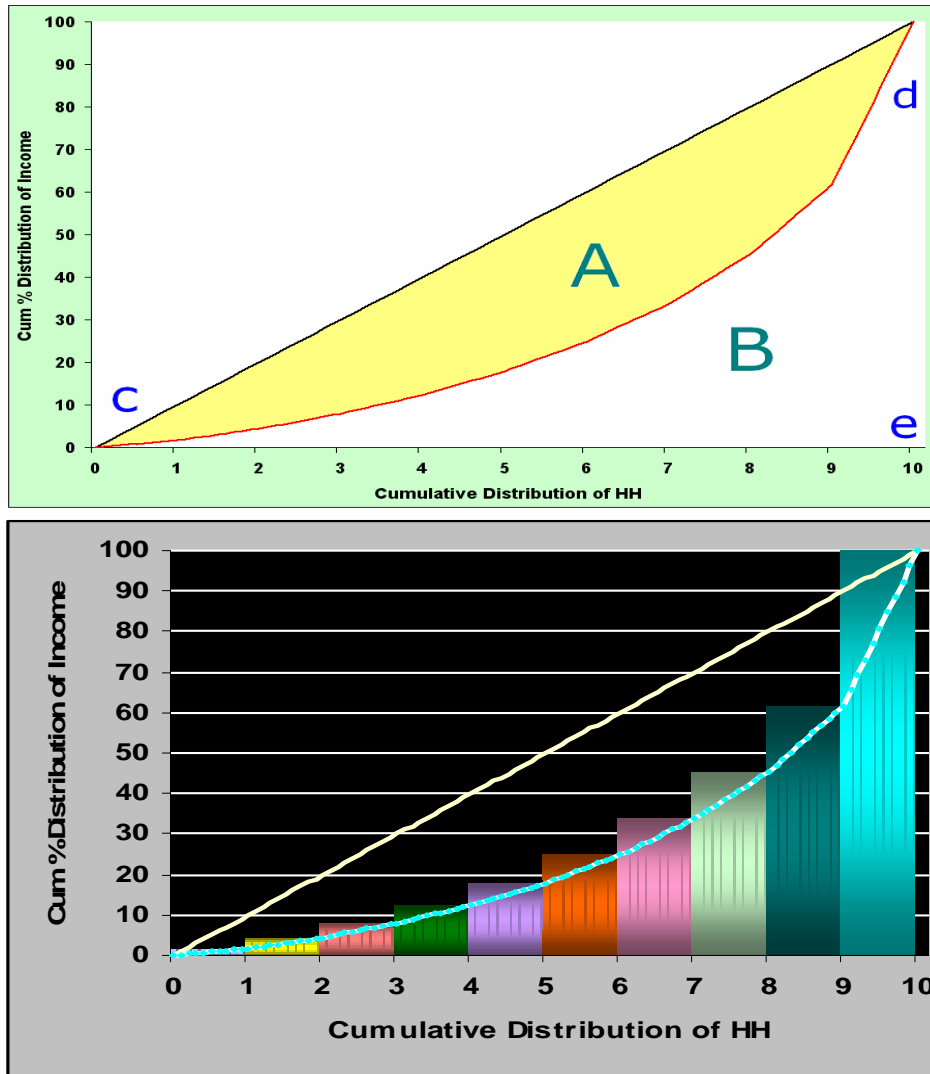
Figure 1. Lorenz and Concentration Curve



Source: Davoodi et al (2003)

The concentration coefficient, also called Suits index, is the most common summary measure of benefit incidence. It is estimated in like manner as Gini coefficient³ but it is based on concentration curve instead of the Lorenz curve. While Gini coefficient is computed as the ratio of the area between the diagonal and the Lorenz curve (represented by A) to the total area below the diagonal (i.e., triangle cde or Area B), the concentration coefficient is the ratio of the area bounded by the diagonal and the concentration curve to the total area below the diagonal (**Figure 2**).

Figure 2. Gini Measure of Inequality



³ Gini Coefficient (Suits index) = Area of A/ Area of Triangle cde

but area of triangle cde = 0.5

Thus, Gini Coefficient (Suits index) = 2A

$$\text{where Area of A} = \frac{1}{2} - \left(\frac{1}{N} \sum_{i=1}^{N-1} C_i + (1/N)C_N \right), C_N = 1$$

N is the number of equal divisions

If the distribution of benefits is progressive in absolute terms, the Suits index is negative. Conversely, if the distribution of benefits is regressive in absolute terms, then the Suits index is positive. On the other hand, if the Suits index is algebraically smaller than the Gini coefficient, then the distribution of benefits is said to be progressive relative to the distribution of income. It should be emphasized that the Suits index is only sensitive to the relative magnitude of subsidies across income groups and not to the absolute amount of the subsidy.

Limitations of BIA: First, benefit incidence analysis assumes that the benefit from a particular service is equal to the average cost of providing the service. In essence, BIA is less concerned with the estimation of the distribution of the benefits of government spending than with the estimation of the distribution of publicly financed outputs and corresponding public costs of the same. This distinction is important because of the difficulty in valuing the benefits of government spending.

In principle, benefits should be valued at the individual's own valuation of the good. This implies the need to have knowledge of individual preferences for the goods in question (i.e., the underlying demand functions of individuals/ households). Further difficulty arises because substantial amount of government spending is for public goods. As such, the market does not force people to reveal how much they value these goods (i.e., how much they are willing to pay). This problem is also true of rationed publicly provided public goods.

These caveats aside, the unit cost may have little relation to the value of the benefit to the individual. For example, the cost of immunizing a child is small relative to the associated improvements in health status, if not life expectancy (van de Walle 1996). On the other hand, average cost of providing the service may also include cost of inefficiencies in service provision.

Second, BIA may not capture the second-round effects on welfare that results from the provision of the service. Indirect benefits from some services may have significant impact on the overall distribution of welfare. Van de Walle (1996) cites as an example that while the poor are not direct beneficiaries of subsidies to tertiary education, the indirect benefits-transmitted through good governance and the overall improvement in capability of the government bureaucracy may be of significance to the well-being and livelihood of the poor.

Third, benefit incidence analysis generally refer to the distribution of *average* benefits. Oftentimes, however, the *marginal* benefits distribution is just as important. Again, van de Walle (1996) notes that a seemingly beneficial expansion in the primary school budget may be buying better quality schools in which the relatively better-off are enrolled rather than more public schools for the under-served poor.

Fourth, benefit incidence analysis does not take into account the long-run impact of government spending on beneficiaries. Rather, it simply focuses on how effective government spending is in transferring current income to the poorest households (Demery 2000).

Data used and sources. The paper used government health expenditure data as well as utilization data of different income groups by type of health facilities and by type of health services. Health expenditure is comprised of spending on two types of health services such as public health and hospital care by level of government (i.e., national government (NG), local government units (LGU), and general government (GG) which is defined as the NG and LGU combined). It was obtained from the 2003 Department of Health (DOH) Statement of Appropriations, Allotments, Obligations and Balances (SAAOB) for the national government and from the 2003 Annual Financial Report (AFR) for LGU of the Commission on Audit (COA).

On the other hand, health facility utilization data on public health and hospital care was extracted from the 2003 National Demographics and Health Survey (NDHS) of the Macro International and National Statistics Office. In particular, it includes utilization of health facilities such as barangay health station (BHS), rural health unit/urban health center (RHU/UHC), municipal hospital, district hospital, provincial hospital, and regional hospital/public medical center.

The health services availed of in these health facilities include: (i) treatment when ill or injured; (ii) routine check-ups; (iii) laboratory services; (iv) immunization; (v) family planning; (vi) health and nutrition education; (vii) prenatal, delivery and postnatal services; and (viii) other types of services. For the purpose of this paper, these health services were classified into public health and hospital care depending on the budget used (i.e., NG or LGU budget).

The utilization of immunization, family planning, health and nutrition education, and routine check-up in BHS and RHU/UHC by individuals/beneficiaries belonging to different wealth deciles is used to determine the incidence of benefits arising from DOH spending on public health. On the other hand, the utilization of regional hospitals/public medical centers for treatment of illness or injury and natal/ delivery services was used to distribute the benefits of DOH spending on retained hospitals across individuals/beneficiaries in the different wealth deciles. In contrast, the utilization of all types of health services available in BHSs and RHUs/UHCs was used to distribute LGU spending on public health. On the other hand, the utilization of LGU-operated hospitals (i.e., municipal, district and provincial hospitals) for treatment of illness or injury and natal/ delivery services was used to distribute LGU spending on hospitals.

3. EQUITY IN ACCESS TO HEALTH SERVICES

Health outcomes for the poor are worse than those for their better-off counterparts. For instance, children from households in the lower wealth quintiles had higher rates of infant mortality and under-five mortality than children from higher wealth quintiles based on the 2003 NDHS (**Table 1**). This is not surprising considering that lower income households have poorer access to basic health services than higher income households.

Table 1. Early childhood mortality rates by wealth index quintiles, 2003

Wealth index quintile	Infant Mortality	Under-five Mortality
Lowest	42	66
Second	32	47
Middle	26	32
Fourth	22	26
Highest	19	21
Total	29	40

Source: 2003 NDHS Report

In terms of fully immunized child (FIC) ratio, immunization coverage increases with the wealth status of households. Conversely, the proportion of children in each wealth quintile who were not vaccinated even once declines with the wealth status of households (**Table 2**). For instance, 55 percent of the children in the poorest quintile were fully immunized compared to 83% of children in the richest quintile. On the other hand, 15% of children belonging to the poorest quintile received no vaccinations at all compared to 2.2 percent of children in the richest quintile.

Table 2. Percentage of children vaccinated, 2003

Wealth index quintile	All ¹	No vaccinations
Lowest	55.5	15.1
Second	69.3	5.7
Middle	77.8	5.0
Fourth	72.4	4.4
Highest	83.0	2.2
Total	69.8	7.3

¹ BCG, measles, and three doses of DPT and polio vaccine

Source: 2003 NDHS Report

In like manner, the proportion of live births delivered in health facility is lower for women from poorer households than relative those from better-off quintiles (**Table 3**). Also, the proportion of births in the 5 years preceding the NDHS which were assisted by skilled health providers went up from 60% in 2003 to 62% in 2008 (**Table 4**). Again, the proportion of births in the 5 years preceding the NDHS which were assisted by skilled health providers goes up as the mother's wealth status goes up, suggesting that income is an important factor influencing the decision on place of delivery and birth attendant.

Table 3. Place of delivery, 2003

Wealth index quintile	Health facility		Home	Other/missing	Total	Percentage delivered in a health facility
	Public sector	Private sector				
Lowest	9.2	1.2	88.7	0.8	100.0	10.4
Second	20.4	4.4	74.3	0.8	100.0	24.8
Middle	32.2	11.1	56.2	0.4	100.0	43.3
Fourth	37.6	22.2	39.0	1.3	100.0	59.8
Highest	31.5	45.5	22.6	0.2	100.0	77.0
Total	24.2	13.7	61.4	0.7	100.0	37.9

Source: 2003 NDHS

Table 4. Assistance during delivery, 2003

Wealth index quintile	Doctor	Nurse	Midwife	Hilot	Relative/other	No one	Don't know/missing	Total	Percentage delivered by a skilled provider
Lowest	8.6	0.5	16.0	68.9	4.9	0.4	0.7	100.0	25.1
Second	21.0	1.7	28.7	45.4	2.4	0.2	0.7	100.0	51.4
Middle	37.4	1.8	33.2	26.3	1.1	0.1	0.2	100.0	72.4
Fourth	52.6	0.6	31.2	13.3	1.4	0.0	0.9	100.0	84.4
Highest	73.2	1.2	18.0	7.0	0.6	0.0	0.1	100.1	92.4
Total	33.6	1.1	25.1	37.1	2.4	0.2	0.6	100.0	59.8

Source: 2003 NDHS

The poor are usually disadvantaged when it comes to access to health services because of out-of-pocket expenses involved in travel to and from health facilities as well as in diagnostic tests (i.e., laboratory tests, x-rays, etc), treatment, and medicines. It should be noted that travel cost is particularly high for people living in remote areas and thus, poor accessibility to health facilities greatly affects the health-seeking behavior of these people. Moreover, the unavailability and poor quality of services in health facilities particularly in some BHS and RHU/UHC certainly hinders access of the poor to health care.

Based on the 2003 NDHS Report,⁴ the three (3) major factors that prevented households from seeking health care are: (i) distance to health facility; (ii) concern with the unavailability of a female provider, and (iii) having to take transport. Items (i) and (iii) suggest that geographical location is the biggest stumbling block to access to health services especially for mothers from poorer households. Getting money for treatment turned out to be a problem also but a small proportion, i.e., only about 11 percent of mothers cited so (**Table 5**).

Table 5. Problems in accessing health care, 2003

Wealth index quintile	Problems in accessing health care								At least one problem accessing health care
	Getting permission to go for treatment	Getting money for treatment	Distance to health facility	Having to take transport	Not wanting to go alone	Concern no female provider available	Concern no provider available	Concern no drugs available	
Lowest	27.4	22.0	87.1	59.1	57.1	44.0			93.5
Second	19.2	12.7	80.1	33.8	32.5	28.8			87.1
Middle	13.6	8.4	73.0	22.2	20.3	25.2			80.8
Fourth	10.7	7.5	62.9	18.7	17.4	25.5			73.6
Highest	8.6	6.8	45.6	13.6	12.0	22.0			59.7
Total	14.9	10.7	67.4	27.2	25.6	28.1			77.1

Source: 2003 NDHS Report

Utilization of government health facilities. Health facility utilization data shows that, at the national level, the poor dominated the total number of people who used BHSs and RHUs/ UHCs. To wit, about 12 percent of all users of BHS and RHU/UHC belong to the poorest deciles compared to 3% for the richest decile (**Table 6**). The distribution of users of LGU-operated provincial/district hospitals is also skewed in favor of lower wealth index groups but less so than that of BHSs/ RHUs.⁵ In contrast, the better-off segments of the population are disproportionately represented in the total number of users of DOH retained hospitals. For instance, 41 percent of the total number of people who used DOH retained hospitals belongs to the richest 30% of the population.

⁴ As reported by mothers with children under five years of age

⁵ These findings appear to be not consistent with the 2003 NDHS Report. It should be noted that the wealth index quintiles in the said report refer to groups of households while the wealth index deciles in the current study refer to groups of individuals. Poorer households tend to have more children than richer households and so poorer wealth index groups are expected to have more individuals. In benefit incidence analysis, the benefit accruing to a particular group is determined by the number of beneficiaries/users occupying each decile/quintile. Thus, it is not surprising that the results of the current exercise suggest progressivity of the distribution of benefits across wealth index deciles. Nevertheless, this does not discount the fact that a large proportion of the poor population still has poorer access to health services relative to the non-poor.

Table 6. Distribution of population utilizing various health facilities, by income decile, 2003

Wealth decile	Percent Distribution				Cumulative Distribution			
	Public health (LGU)	LGU-operated hospitals	Public health (NG)	DOH-retained hospitals	Public health (LGU)	LGU-operated hospitals	Public health (NG)	DOH-retained hospitals
1	11.9	8.9	11.7	4.7	11.9	8.9	11.7	4.7
2	14.6	12.7	14.6	8.1	26.5	21.5	26.3	12.8
3	13.9	10.7	13.6	9.9	40.5	32.2	39.9	22.7
4	12.1	12.9	11.8	14.5	52.6	45.1	51.7	37.2
5	11.5	11.1	11.5	12.8	64.0	56.2	63.2	50.0
6	9.4	9.6	9.3	8.8	73.5	65.8	72.5	58.8
7	8.9	10.9	8.9	11.6	82.4	76.6	81.3	70.4
8	8.0	9.4	8.3	10.4	90.4	86.0	89.6	80.7
9	6.1	8.4	6.5	10.4	96.6	94.5	96.1	91.1
10	3.4	5.5	3.9	8.9	100.0	100.0	100.0	100.0

Source: 2003 NDHS

Some regional variation in the utilization of both provincial/district hospital hospitals and DOH retained hospitals is evident. For instance, while the utilization of provincial/district hospitals in the aggregate is mildly progressive, the utilization of these type of facilities in the Ilocos Region, Central Luzon, Southern Luzon and NCR is regressive. In like manner, while the utilization of DOH retained hospitals is regressive on the whole, household utilization of these health facilities is progressive in the Bicol Region, all the regions in the Visayas and all the regions in Mindanao with the exception of CARAGA.

Government spending. In 2003, general government (GG) spending on the health sector amounted to P 27.4 billion, i.e., 0.64% percent of gross domestic product (GDP) [Table 7]. Public health accounted for 15% of total NG health expenditure and 50% of total LGU health expenditure or 39% of total general government health expenditure. Evidently, bulk of the GG spending on both public health and hospitals is attributed to the LGUs. This is as expected because of the devolution of health services. Thus, all LGUs combined contribute the bulk of general government spending on both public health (88%) and hospital services (58%).

Table 7. Government expenditures on health, 2003

	in PhP M	% to GDP
National Government		
Public Health	1,258	0.03
Hospitals	7,020	0.16
Total Health	8,278	0.19
Local Government Units		
Public Health	9,501	0.22
Hospitals	9,663	0.22
Total Health	19,164	0.44
General Government		
Public Health	10,759	0.25
Hospitals	16,683	0.39
Total Health	27,442	0.64
% Share of LGUs in GG Health Expd		
Public Health	88.3	0.00
Hospitals	57.9	0.00
Total Health	69.8	0.00
% Share of Public Health to Total Health		
NG	15.2	0.00
LGU	49.6	0.00
GG	39.2	0.00

Based on the regional distribution of LGU spending on health services, both per capita LGU spending on public health and per capita LGU spending on hospital care are observed to have a positive and statistically significant relationship with per capita household income (**Table 8**).

Table 8. Government spending on health, 2003

Region	Poverty incidence 2006	Ave. Annual		Per capita		Per capita	
		HH Income (PhP 1,000)		LGU public health expd (PhP)	Per capita LGU hosp. expd(PhP)	NG public health expd (PhP)	Per capita NG hosp. expd (PhP)
Ilocos	32.7	124		102	129	15	57
Cagayan Valley	25.5	126		117	138	16	86
Central Luzon	20.7	160		91	105	15	37
Southern Luzon	20.9/ 52.7	144		91	123	14	11
Bicol	51.1	109		105	116	15	62
Western Visayas	38.6	111		112	126	14	46
Central Visayas	35.4	121		109	94	14	63
Eastern Visayas	48.5	103		110	184	16	37
Zamboanga Peninsula	45.3	93		114	48	17	77
Northern Mindanao	43.1	109		90	132	18	78
Davao Region	36.6	117		137	105	16	78
SoCSKSARGEN	40.8	113		63	65	16	33
CAR	34.5	152		184	280	21	180
CARAGA	52.6	90		122	10	19	51
ARMM	61.8	83		4	84	0	0
NCR	10.4	266		169	82	13	294
Philippines	32.9	148		107	109	14	79
Memo item:							
Standard deviation				40.36	60.01	4.52	70.94
coefficient of variation				0.38	0.55	0.32	0.89

This result indicates that per capita LGU spending on health is higher in regions with higher per capita household income. Given that per capita LGU health spending is dependent on per capita own-source revenue and per capita IRA (Manasan 2008), this result may partly be attributed to the lack of an equalization factor in the IRA distribution formula. Note that regions with higher per capita household income will tend to have higher local tax base and, therefore, higher per capita own-source revenue.

On the other hand, there appears to be some bias in the allocation of the DOH budget for retained hospitals in favor of the better-off regions (i.e., those with higher per capita household income). To wit, per capita DOH spending on hospital services is found to be positively related with per capita household income.

4. ANALYSIS OF BENEFIT INCIDENCE OF GOVERNMENT EXPENDITURE ON HEALTH

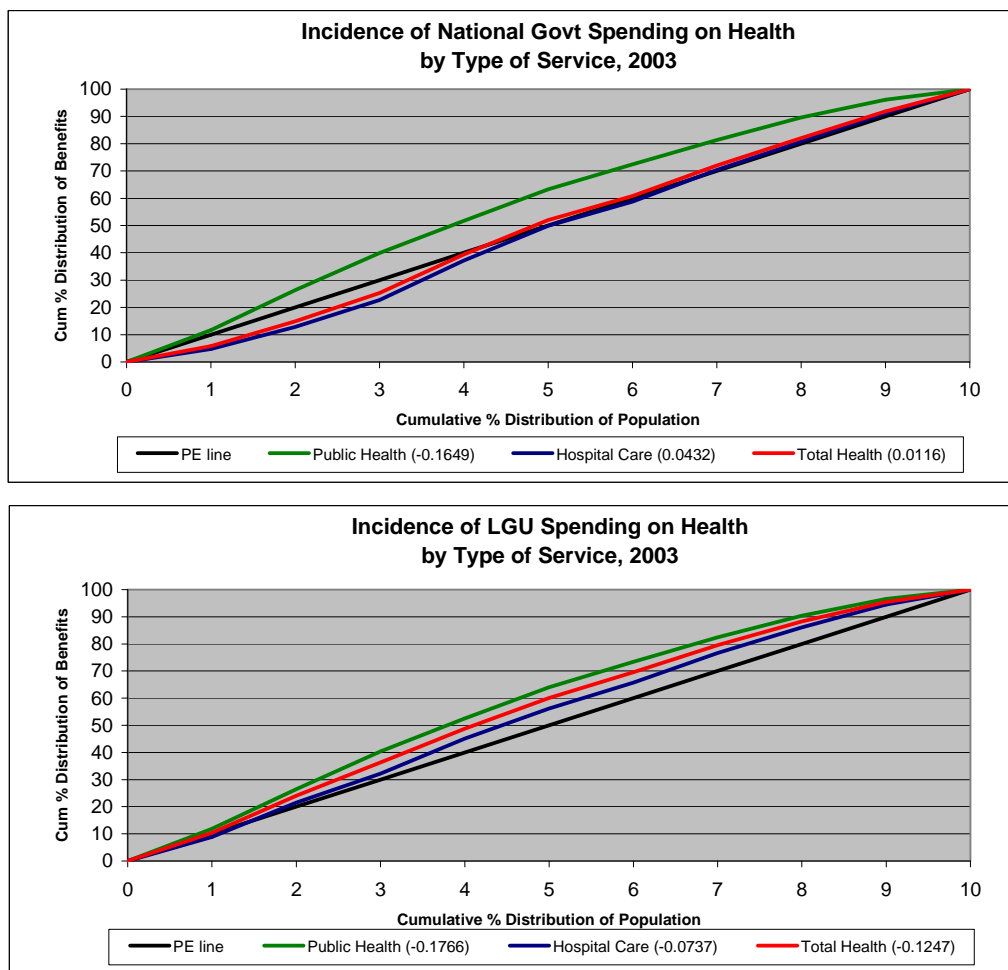
The analysis of benefit incidence of government spending on the health sector that follows includes national government (NG), local government unit (LGU), and general government (GG) (i.e., NG and LGU combined) expenditure on health, differentiating between spending on public health and spending on hospital services. In the national level analysis, the benefits of total government spending on public health and hospital services are distributed equally across all beneficiaries regardless of the region where they reside in. In the regional level analysis, the actual distribution of government spending across regions is taken into consideration. In particular, it is assumed that total

government spending on public health and hospital services at the region benefits all users in the said region uniformly.

National level estimates. NG spending on public health in 2003 is progressive as indicated by the Suits index of -0.1649 while that on hospital services is regressive (with Suits index of 0.0432). Total NG health spending (i.e., spending on public health and hospital services combined) in the same year is regressive (with Suits index of 0.0116) [Figure 3].

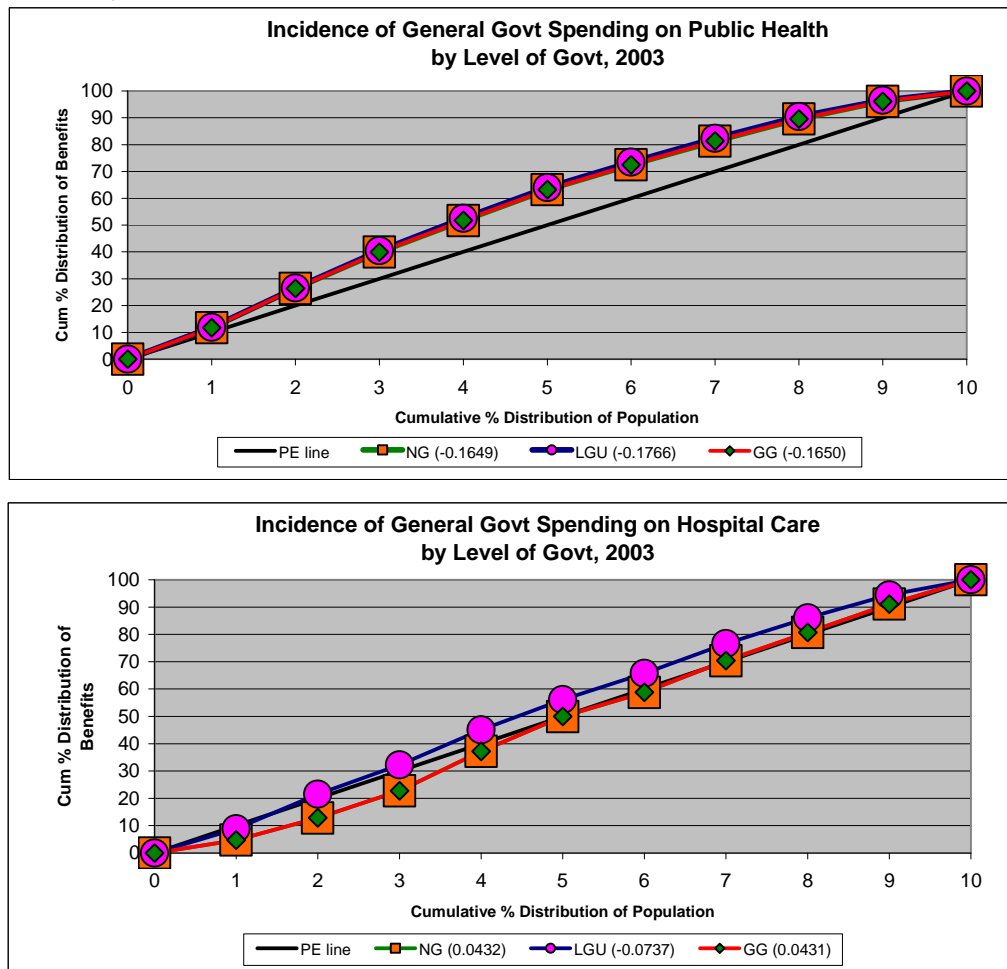
On the other hand, LGU spending on public health in 2003 is progressive with Suits index of -0.1766. Notably, it is more progressive as compared to that of the national government. Similarly, the incidence of LGU spending on hospital services, having posted a Suits index of -0.0737, is progressive but less so than that of LGU spending on public health. Thus, the incidence of total LGU health spending is also progressive. In particular, the estimate of Suits index for total LGU health spending in 2003 is -0.1247 (Figure 3).

Figure 3. Incidence of National and LGU Health Expenditure, by Type of Service, 2003
National Level Estimates



Overall, the estimates of the Suits index for general government (GG) health spending in the aggregate and by type of service in 2003 do not differ much from those for NG health spending. To wit, GG spending on public health is progressive while GG spending on hospital services is regressive. Thus, **Figure 4** shows that the benefit concentration curves for GG and NG spending on public health and hospital care overlap.

Figure 4. Incidence of Government Spending on Public Health and Hospital Care, by Level of Government, 2003



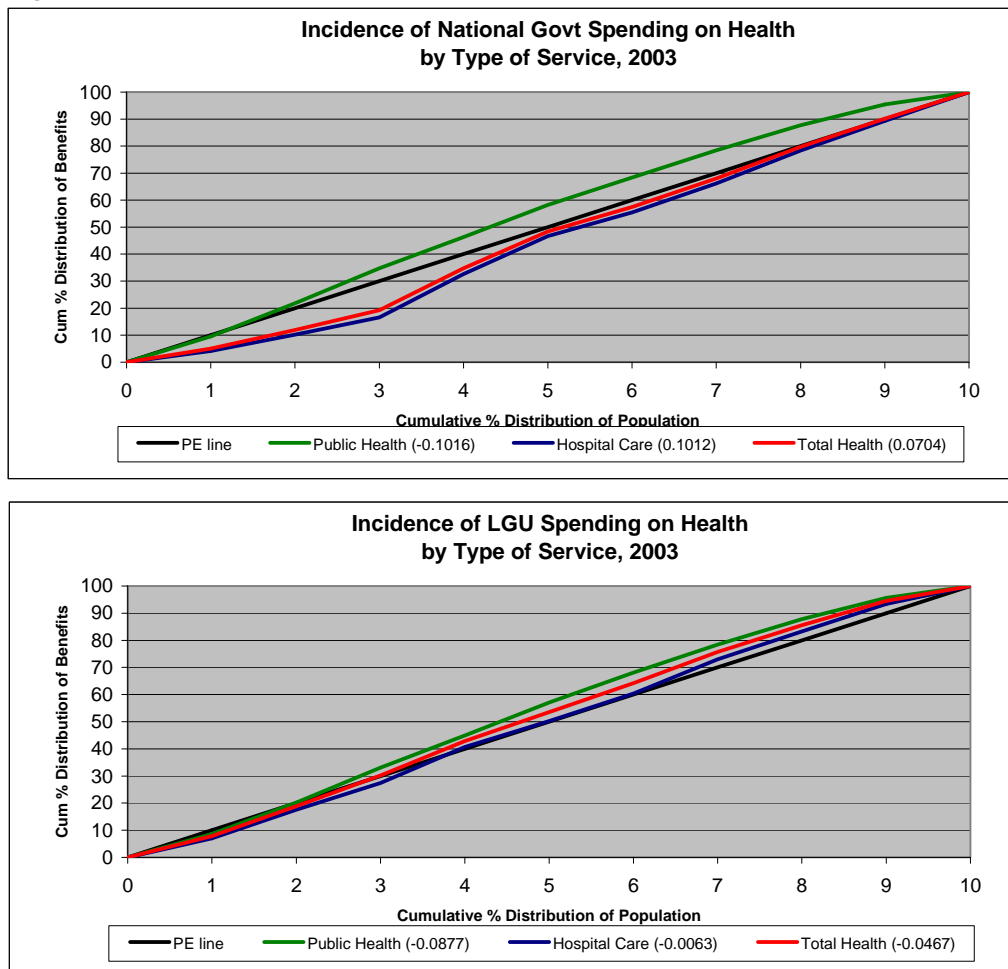
Regional level estimates. The difference between the estimates of the Suits index based on national averages and those based on the national aggregation of regional level estimates of the Suits index underscore the importance of using regional level estimates.

NG spending on public health⁶ in 2003 is progressive in majority of the regions. In particular, it is regressive in only three (3) regions, namely Central Luzon (with Suits index of 0.1323), Southern Tagalog (with Suits index of 0.0562) and the National Capital

⁶ Excludes ARMM

Region (NCR) (with Suits index of 0.1993). The national aggregation of the regional level estimates of the Suits index for NG spending on public health in 2003 suggests progressivity (Suits index of -0.1016) but to a lesser extent than what is indicated by the national level estimates (**Figure 5**).

Figure 5. Incidence of National and LGU Health Expenditure, by Type of Service, 2003
Regional Level Estimates



On the other hand, NG spending on hospital services is regressive in 7 (i.e., Ilocos Region, Cagayan Valley, Central Luzon, Southern Tagalog, CARAGA, NCR and CAR) out of 15 regions.⁷ The national aggregation of the regional level estimates of the Suits index for NG spending on hospital services indicates regressivity (with Suits index of 0.1012). This suggests that allocation of DOH budget for hospitals tended to favor regions with regressive distribution of benefits across deciles. Also, it is notable that the estimate of the Suits index from the national aggregation of regional level estimates suggests greater regressivity than that indicated by the national level estimate. In like

⁷ Excludes ARMM

manner, the incidence of total NG health spending in 2003 based on regional level estimates is more regressive than that indicated by the national level estimate (**Figure 5**).

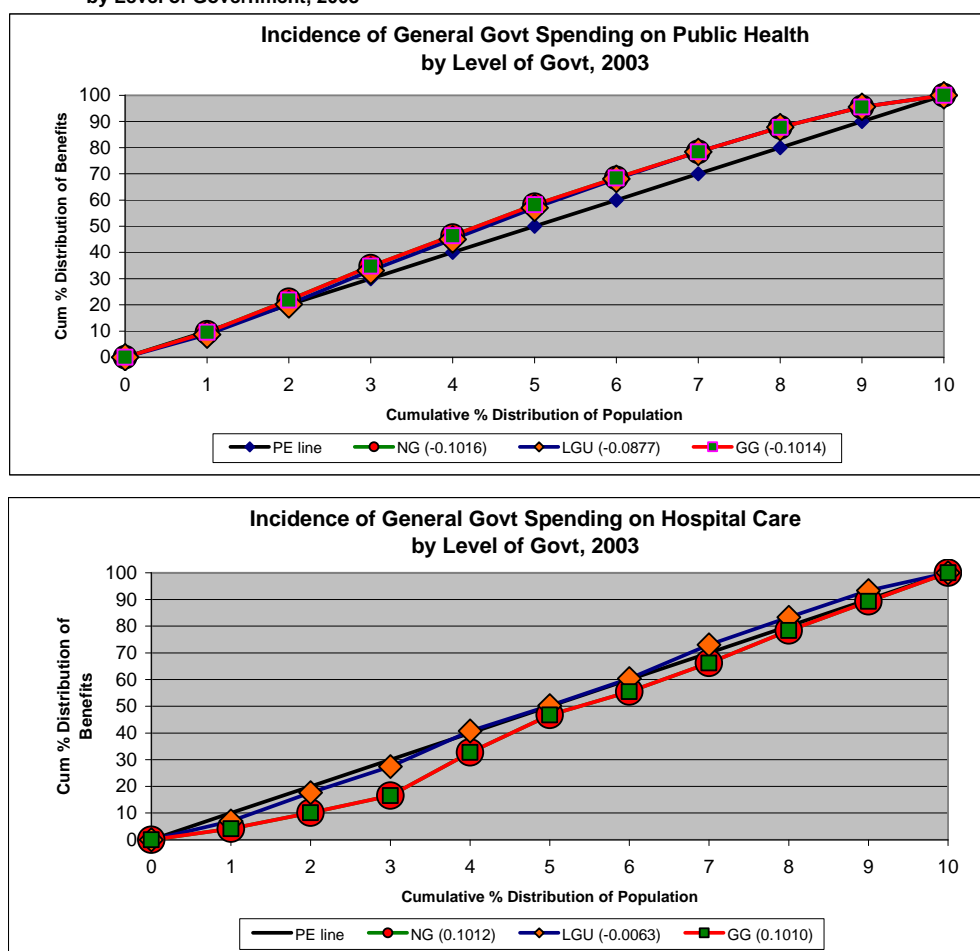
In contrast, LGU spending on public health in 2003 is progressive in 12 out of 16 regions. The four regions with regressive LGU spending on public health include Ilocos Region (with Suits index of 0.0029), Central Luzon (with Suits index of 0.1042), Southern Luzon (with Suits index of 0.0158), and NCR (with Suits index of 0.1869). Thus, the national aggregation of the regional level estimates show that LGU spending on public health is progressive (with Suits index of -0.0877) but less so than what the national level estimate indicates.

As regards LGU spending on hospital services, 11 out of 15 regions⁸ posted progressive spending on hospital care in 2003. Consequently, the national aggregation of the regional level estimate suggests that the incidence of LGU spending on hospital services is marginally progressive (Suits index of -0.0063). However, the incidence of LGU spending on hospital services is less progressive when measured using regional estimates. Nonetheless, total LGU health spending in 2003 is progressive as indicated by the Suits index of -0.0467 (**Figure 5**).

Overall, the national aggregation of the regional estimates of Suits index for GG spending on public health is less progressive than suggested by national level estimates. On the other hand, GG spending on hospital care is more regressive than indicated by national level estimates (**Figure 6**).

⁸ Excludes ARMM

Figure 6. Incidence of Government Spending on Public Health and Hospital Care, by Level of Government, 2003



5. CONCLUSION AND POLICY RECOMMENDATIONS

A comparison of national level estimates and an aggregation of the regional level estimates of the Suits index for government health spending by level of government in the aggregate and by type of service shows that government spending on public health is generally less progressive while government spending on hospital services is generally more regressive when regional variation (i.e., actual distribution of government spending across regions) is considered (**Table 9**).

This suggests that budget allocation for public health and hospital services tends to favor the regions where distribution of benefits across deciles is less progressive/more regressive. Data shows that health budget allocation in 2003 appears to have favored better-off regions such as the NCR, Southern Tagalog and Central Luzon where distribution of subsidy/benefits for public health and hospital services is more regressive relative to other regions.

**Table 9. Comparison of Incidence of Government Spending, 2003
National Level Estimates VS Regional Level Estimates**

Levels of Government	National Level Estimates			Regional Level Estimates		
	Total	Public Health	Hospital Services	Total	Public Health	Hospital Services
General Government	0.0113	-0.1650	0.0431	0.0701	-0.1014	0.1010
National Government	0.0116	-0.1649	0.0432	0.0704	-0.1016	0.1012
Local Government	-0.1247	-0.1766	-0.0737	-0.0467	-0.0877	-0.0063

In sum, the analysis of benefit incidence indicates that government spending on public health is generally progressive while government spending on hospital services is generally regressive. Thus, increasing NG and LGU budget for public health will improve progressivity of government spending. Some may argue that the devolution of the public health care delivery system following the passage of the Local Government Code in 1992 limits the role of the DOH to operation of retained hospital facilities and the provision of technical assistance and other advisory services to LGUs only.

However, the public good nature of public health services suggests that the central government cannot fully abdicate its role in this sub-sector despite devolution. It should also be recalled that when health services were actually devolved to LGUs in 1992/1993, the estimate of the cost of devolved health services (which was netted out of the DOH budget at that time and which formed the basis of all the analysis concerning LGUs' ability to fund devolved services) only included the personal services cost of personnel who were actually transferred to LGUs and the MOOE of the operation of devolved facilities. Not included in this reckoning was some PhP 1 billion worth of public health commodities (that was retained in the 1993 DOH budget, for instance) that the DOH used to leverage LGU performance.

Note that if one adjusts for inflation and population growth so as to maintain the same service level in the earlier year, the PhP 1 billion allocation for public health commodities found in the 1992 DOH budget would be equal to PhP 3 billion in 2006. In contrast, actual DOH allocations for public health commodities in 2000-2005 amounted to less than PhP 1 billion on the average.

Moreover, it is not clear that the increase in the IRA of LGUs is adequate to fully cover the cost of devolved health services if one were to include part of the cost of public health commodities that used to be funded by the DOH but which the department appears to be slowly shifting to LGUs in the face of a shrinking budget pie (as is implied by the marked decline in real per capita DOH spending on public health in 1999-2006). This rings even truer if one takes into account the higher service levels⁹ (relative to the pre-devolution service levels) that are implied for public health if the MDG targets are to be attained. Furthermore, LGUs now have the responsibility to pay their share in the social health insurance premiums for indigents.

⁹ i.e., coverage rates

Given that LGU spending on health is limited by their resource envelope which is still largely dependent on the IRA, the incidence of the benefits from LGU government spending on the health sector may be improved if equalization grants were to be introduced as part of broader reform of system of intergovernmental transfers.

With regard to DOH allocation to retained hospitals, DOH (2006) found it to be inefficient because the budget spent on retained hospitals can benefit more people if converted to social health insurance premium subsidies. It is inequitable because access to retained hospitals tends to be limited to residents of mostly well-off urban centers. NG subsidy to hospitals is skewed in favor of hospitals located in the NCR. Thus, the DOH “Financing F1” paper proposed that the DOH considers if it can be placed in a better position to influence access, quality and cost of care in local markets by moving subsidies to regional facilities outside NCR. On the other hand, the capacity and willingness of retained hospitals to generate revenues have generally been strengthened with the adoption of the income retention policy in 2003 (Manasan and Cuenca 2006).

In this light, there is ground to give greater priority to public health (relative to hospital services) in the allocation of government spending on the health sector. For this to be realized, there is a need to have government hospitals operate on a sustainable basis. There is scope for government hospitals to recover at least part of their operating cost from user fees. The introduction of income retention policy for DOH retained hospitals is a step in right direction. A similar reform for LGU hospitals is needed.

Furthermore, the social health insurance system also needs to be reformed: (i) expand coverage, especially of Sponsored Program, (ii) improve the targeting of the beneficiaries of premium subsidies under the Sponsored Program, (iii) increase support value, and (iv) eliminate balance billing and introduce other improvements in the payment mechanisms (Manasan 2009). At the same time, there is a need to upgrade government hospitals in order to enable them to meet PhilHealth accreditation requirements so as to enhance their sustainability.

REFERENCES

- Coady, D., M. Grosh and J. Hoddinott. 2004. Targeting of Transfers in Developing Countries: Review of Lessons and Experience. Washington, D.C.: World Bank.
- Davoodi, H. E. Tiongson, and E. Asawanuchit. 2003. "How useful are benefit incidence analysis of public education and health spending," IMF Working Paper 03/227, International Monetary Fund, Washington D.C.
- Demery, Lionel. 2000. Benefit Incidence: A Practitioner's Guide. The World Bank. Washington, D.C.
- Department of Health. Various years. Statement of Appropriations, Allotments, Obligations and Balances (SAAOB). Manila.
- Department of Health. (2006). "Financing FOURmula ONE for Health Investments and Budget Reforms," unpublished report, January.
- Macro International and National Statistics Office. 2003 National Demographics and Health Survey (APIS). Manila.
- Manasan, Rosario G. 2009. Reforming Social Protection Policy: Responding to the Global Financial Crisis and Beyond. Discussion Paper Series No. 2009-22. Philippine Institute for Development Studies. Makati City.
- Manasan, Rosario G. 2008. Policy Study on the National and Local Government Expenditures for Millennium Development Goals, 2000-2005. Discussion Paper Series No. 2008-17. Philippine Institute for Development Studies. Makati City.
- Manasan, Rosario G. and Janet S. Cuenca. 2006. A Multi-Year Spending Plan for the Department of Health. Department of Health. Manila.
- Sabir, Muhammad. 2003. Benefit Incidence Analysis of Public Spending on Education. The Journal, NIPA Karachi, Vol.8, No.3, p-49-67
- van de Walle, Dominique. 1996. Assessing the Welfare Impacts of Public Spending. *Policy Research Working Paper* No. 1670. World Bank. Washington DC.
- van de Walle, Dominique. 1995. Public Spending and the Poor: What We Know, What We Need to Know. *Policy Research Working Paper* No. 1476. World Bank. Washington DC. June.

ANNEX

DATA REQUIREMENTS AND METHODOLOGY¹⁰

A. DATA REQUIREMENTS AND ISSUES INVOLVED

1. Government spending on a service (net of any cost recovery fees, out of pocket expenses by users of the service, or user fees)

BIA necessitates data on actual expenditure of the government on a certain service rather than budget allocation. The former represents the actual cost of services availed by the users and there is usually a big difference between the two. These data should be comprehensive as to include both recurrent and capital spending, and all levels of government (Davoodi et al, 2003). Spending data are ideally available in the relevant line agency or department. However, due to some reasons, these data cannot easily be obtained. Recent practice has been to use recurrent spending which frees analysts from the difficulty of estimating the flow of services/benefits from capital expenditure whose benefits extend beyond the usual period, i.e., one year. The problem comes in when capital budgets are large that they have significant impact on the benefit incidence of government expenditure. With regard to the levels of government spending, there are cases when spending is underreported because subnational data are not available.

Further, government spending must be exclusive of cost recovery revenue before computing for unit subsidies. It should be noted, however, that, netting out of such revenue is on a case-to-case basis, i.e., depending on whether or not the revenue will be retained by the facility providing the service. If so, the revenue should be treated as additional amount to the value of the service (government subsidy) households get. But if it will be returned to the national coffer, the revenue should be netted out of the spending. The problem here is the difficulty in obtaining information on such fees and if ever available, it is not as reliable as the public expenditure data and is not in needed format, i.e., by income or consumption group.

2. Public utilization of the service

Users of a government service are referred to as beneficiaries of the service. For educational services, beneficiaries may include pupils enrolled in primary schools, and students enrolled in secondary and tertiary schools. In the case of health services, beneficiaries may be pregnant women visiting a commune health center, and infants and children immunized in a public clinic. Information on the number of beneficiaries can be obtained through a household survey or from the service providers per se but there can be discrepancies between the two. It may be wise to use the numbers from the latter as they are the ones reflected in the official reports. The choice of which to use will affect the findings of a benefit incidence analysis. For example, if official report gives higher enrolments than the household survey, a unit subsidy based on the former will be lower

¹⁰ Draws heavily from Demery (2000) and Davoodi et al (2003)

than the estimate derived using the latter. Thus, data must be used with caution. It would be good to compare the two datasets. If the numbers vary remarkably then the analysts should choose the more reliable source of information.

3. Socio-economic characteristics of the population using the service

Information on the socioeconomic characteristics of the population using the service is useful when imputing or attributing a unit subsidy to beneficiaries because it gives idea on how government subsidies are distributed across individuals or households. Through it, analysis on the distributional impact of a subsidy is facilitated. Such information is not available from the service providers but household surveys such as Family Income and Expenditure Survey (FIES) and Annual Poverty Indicators Survey (APIS) have it. However, data users should be cautious in using information from these surveys as there may be biases in the data and even inconsistencies when compared with official reports.

Biases in data may arise due to sample design or structure of questionnaire that was used. One common example of these biases is found in data on the use of health services particularly curative health care. Since illness and injury are self-reported in most surveys, biases may result if poorer respondents do not report those illnesses, which they consider as ordinary, and richer respondents do otherwise. The poor would appear not to benefit from a certain health service but in reality, they fail to see the need for it. These biases, if not addressed, will distort the estimate for benefit incidence. Other data biases root from the sampling design used for the survey. Samples may not be able to capture rare events such as tertiary enrolments or in-patient health visits that estimates for service use is not accurate. Demery (2000) cited university enrolment as an example for this wherein serious underestimation occurs because the students are living outside the sampling frame.

Aside from these data biases, combining unit subsidy estimates based on official statistics and public utilization data obtained from household surveys becomes a concern when data are not consistently disaggregated, i.e., the disaggregation of one data set is different from that of another data set. Data users should be able to match these data sets so as to arrive at an accurate benefit incidence analysis.

B. METHODOLOGY

Step 1. Estimation of the unit subsidy of providing a certain service based on official reports on public spending on the service in question

The average unit cost of providing a public service is obtained by dividing government net spending on the service by the total number of users of the service.

Step 2. Imputation of the unit subsidy to households or individuals identified as beneficiaries of the service

The unit subsidy derived in Step 1 is simply “attributed” or “imputed” to households or individuals identified as beneficiaries of the service. In this sense, each beneficiary gains an in-kind transfer equivalent to the unit subsidy.

Step 3. Ranking of individuals or households according to a welfare indicator and aggregation of beneficiaries into sub-groups, oftentimes quintiles, of the population to see distributional impact of government spending/to compare how the subsidy is distributed across such groups

Individuals or households are arranged from poorest to richest based on a welfare indicator such as household income or expenditure expressed in per capita terms. They are then aggregated into sub-groups (e.g. quintiles or deciles) to get an idea whether public spending is well targeted to the poorest portion of the population. The grouping can be done either across individuals or across households. For example, aggregating individuals by decile (quintile) is done by dividing individuals into ten (five) sub-groups of equal size. The richest 10 percent of the population is found in the top decile while the poorest 10 percent is in the bottom decile. The same procedure can be applied when aggregating across households.

The choice between aggregating by individuals or households depends on the service in question. It should be noted that when dealing with services that are provided to individuals (e.g. education and health services), grouping by individuals is appropriate to use. Otherwise, the results could be misleading. It might appear that a subsidy to a certain service is pro-poor because poorer households tend to have more members than richer households. On the one hand, grouping by households is recommended when dealing with services that are used at the household level (e.g. waterworks system or drinking water services). Nevertheless, the analyst still has the prerogative on what to use but it is worth mentioning that estimating benefit incidence using the two alternative methods of aggregation and comparing the findings gives more insights.

Step 4. Derivation of the distribution of benefits by multiplying the average benefit calculated previously by the number of users of the service in each income or consumption group

The assumption here is that the average benefit from or unit subsidy of a service is the same for all income or consumption levels. According to Davoodi (2003), this assumption implies two problems: i) the quantity of service may vary across users either because of variation in spending or the cost of producing the service; and ii) the value that users give on certain service may also vary across households.