

**Technical Report on Projections and their Implications :  
Philippines, 1994-2020**

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STUDY TITLE: Aging Populations: Health Systems and Policy Reform

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## ***I. Introduction***

The Philippines and many other developing countries are at a crossroads with respect to health policy and their health care systems. Although many countries admittedly have invested too much in high-cost, tertiary care, they have also achieved a measure of success concentrating their efforts on public health, maternal and child health, and other basic needs. These efforts responded to the prevalence of infectious disease, the need for reproductive health programs, the high returns to improving child health, and populations that were overwhelmingly young. Not to be overlooked, however, is the emergence of new health risks, e.g., HIV/AIDS and SARS, which could strain the limited resources currently available to the health sector.

As standards of living improve, birth rates drop to low levels, and populations age, health care systems must evolve or fail. Many challenges require attention, but here we emphasize three. First is the need to respond to the epidemiological changes that are occurring in many countries. Degenerative disease, e.g., cardio-vascular disease and cancer, are growing in importance relative to infectious disease. Health providers must re-orient their services to meet these growing needs without sacrificing their ability to respond to new public health crises nor their ability to provide health services to children and women of childbearing age.

Second, health policy in many countries will shift its emphasis from direct government provision and/or financing to systems that emphasize financing through some combination of social and private insurance. In modern industrial societies, health care is increasingly about providing intensive services to those facing complex and costly health problems, instead of providing universal, basic health care. Insurance is the mechanism on which we rely to protect individuals from highly uncertain and costly events.

Third is the fiscal challenge that health care will present in the coming decades. As incomes rise and populations age, health care, particularly health care for the elderly, claims a rising portion of national resources. The elderly themselves often have limited financial resources and little access to employer-provided health insurance. Hence, the pressure on the public sector to fill the gap is enormous. The difficulty arises because heavy subsidization of health care spending can lead to an even more rapid rise in health spending. This is a serious problem already in the US and other industrialized countries and may well become a problem in developing countries in the future.

The challenges faced by many countries provide a backdrop for this study of health systems and policy reform in the Philippines. The study has several objectives. The first is to determine the position of the elderly, those 60 and older, within the Philippines health care system using the National Health Accounts framework. The second is to assess how demographic, epidemiologic, and economic changes will influence the health care system over the coming decades. Of particular interest is the implication of aging for the provision of priority health services. The third objective is to consider possible policy responses and their implications.

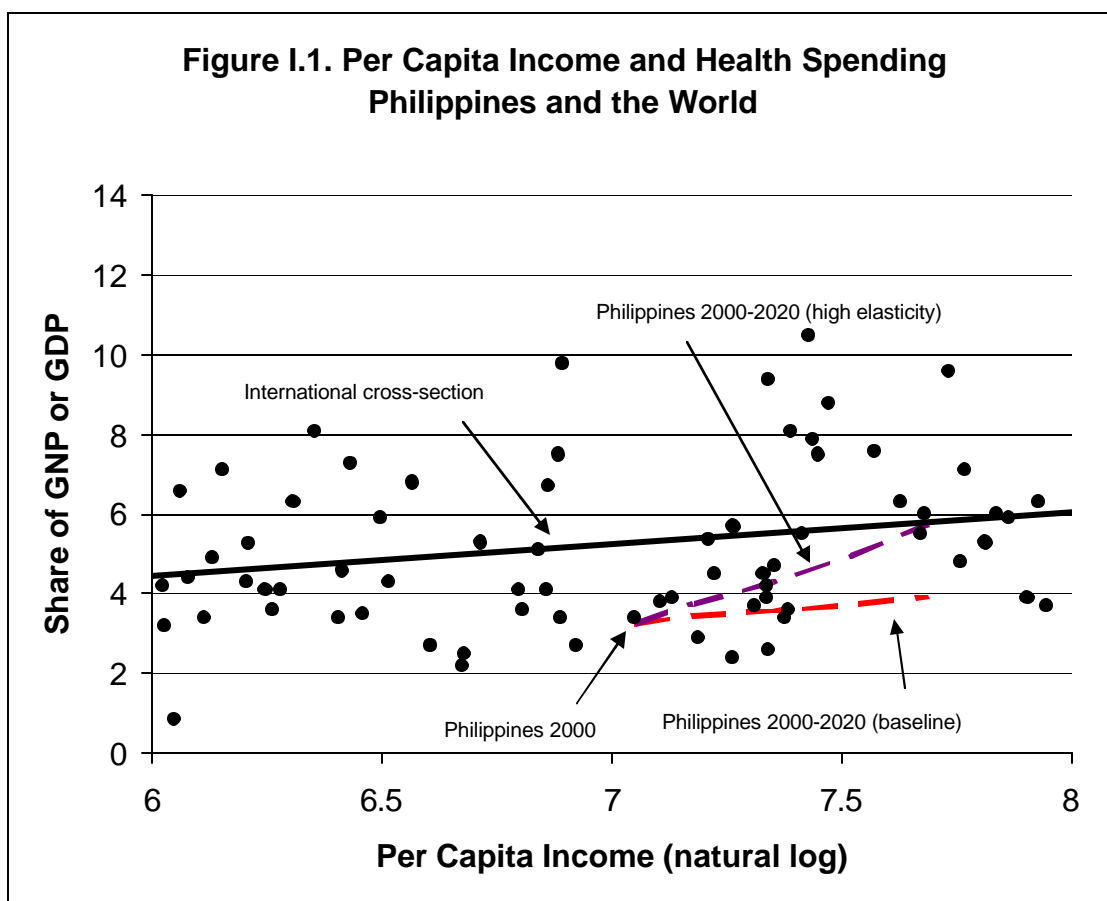
These objectives are achieved by developing and applying a National Health Account projection model that provides separate estimates of health expenditure for the young (under age 60) and the old (60 and older). The technical details of the model are discussed in Section II of this report with additional technical information provided in Russo et al. 2003. Section III presents and discusses baseline projections of health expenditure. Section IV presents and discusses alternative scenarios and Section V discusses policy options. Section VI concludes. Detailed actual and projected National Health Accounts for the young and the old are provided in the Appendix. Before turning to these materials, however, a brief and broad overview is considered.

The Philippines faces the same challenges that face many other developing countries, but there are also important distinctive features of the Philippines. First, spending on health in the Philippines is relatively low as compared with WHO guidelines and as compared with other countries at similar levels of development. In 2000, total health expenditure amounted to 3.2 percent of GNP down slightly from the peak of 3.4 percent of GNP reached in 1996. This compares with WHO guidelines that developing countries devote 5% of GNP to health expenditure.

The Philippines would have to increase health expenditure by about 50% to reach levels comparable to those found in other countries at similar levels of development. This statement is based on a simple procedure. Using data from World Bank's *World Development Indicators 2001* we regress the share of GDP devoted to health expenditure on per capita income. The regression line and observations with levels of income near the Philippines are shown in Figure I.1. Philippines health expenditure are well below the regression line.

The baseline projection from 2000 to 2020, also plotted in Figure I.1, suggests that the gap between the Philippines and other countries may not close during the coming decades. The main reason for this is that the estimated income elasticity is below one for total health expenditure. This outcome is also consistent with the Philippines experience during the 1990s. Although per capita income increased health expenditure did not rise as a share of GNP. We do consider another possibility discussed in Section IV. Using alternative income elasticity estimates, the Philippines could close the gap in health expenditure by 2020.

Population aging is the second challenge facing the Philippines. Fertility rates have declined substantially during the last few decades and further declines are anticipated. This reduces the number of children immediately and the number in the working ages with a lag. The elderly are also living longer in the Philippines further increasing the proportion of the population in the older ages. Analysis presented below shows that the elderly are intensive consumers of health care. In 1994, the base year for this study, 18.7% of all health expenditure was attributed to the elderly even though they constituted only about 5.5% of the population. Thus, at the Philippines experiences population aging we anticipate substantial increases in health care spending.



For the next twenty years, however, demographic conditions are relatively favorable in the Philippines. Under the baseline demographic assumptions, the proportion of the population 60 and older will increase to 10.2% by 2020. This represents a substantial increase in the elderly population but by 2050, according to the UN medium projection, the percentage 60 and older will reach 20%. In comparison, China's 60+ population is projected to reach 30% and Singapore's 60+ population 35% by 2050. As compared with these countries, the Philippines is in relatively early stages of the aging process.

Demographic conditions are also favorable for another reason. The percentage of the population in the working ages is expected to increase significantly during the next twenty years. This will favor economic growth and could increase the resources available for critical needs.

The demographic conditions in the Philippines should be viewed as a window of opportunity. The next decade or two should be devoted to transforming the health system and implementing new health policies that can be sustained and can successfully meet the needs of the much older population of the future. The trap, one that many industrialized countries have not avoided, is to use favorable demographic conditions for short-term gain by offering generous programs that can not be sustained in the future.

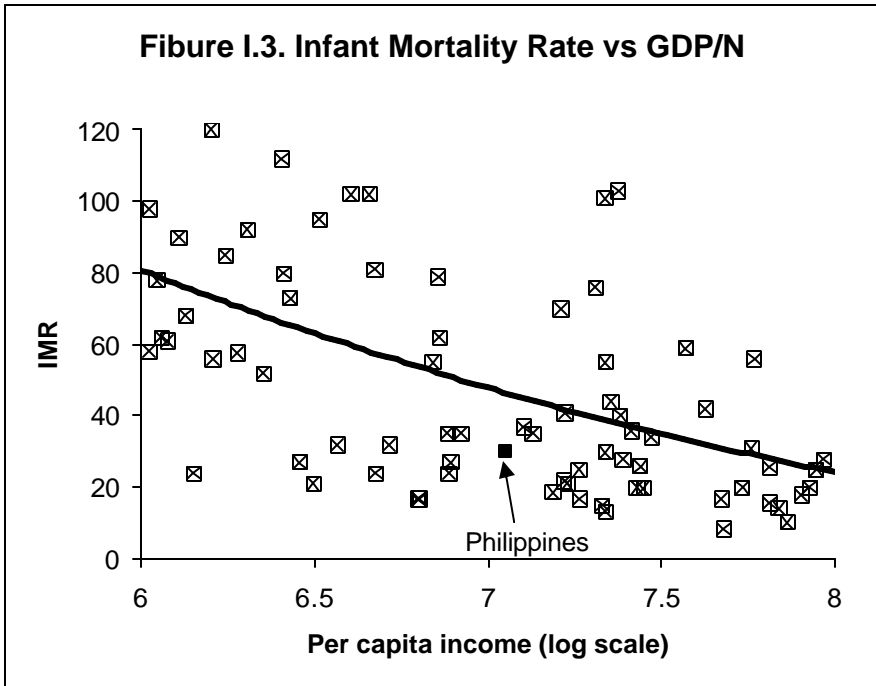
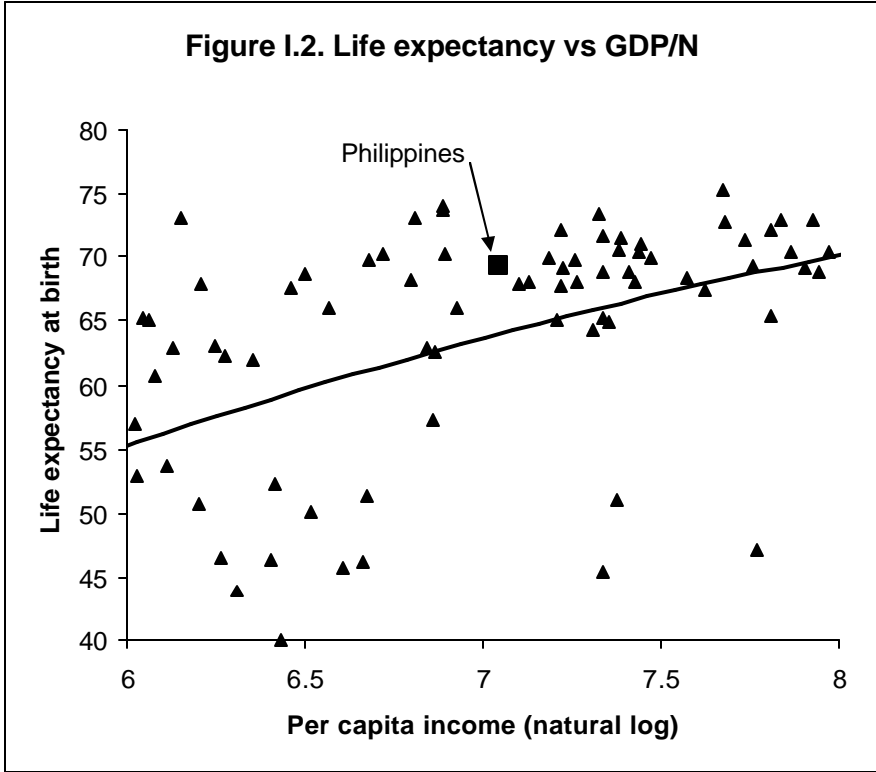
Countries then must reduce the benefits available through health programs or raise taxes to support generous programs. Either option faces serious political obstacles.

The third challenge facing the Philippines, then, is to reform its health care system. Indeed, the Philippines is in the midst of a large-scale reform that focuses on devolution of responsibility away from the national government and the development of Social Insurance programs. As discussed briefly above the development of successful health insurance programs can yield important welfare gains by allowing greater risk-pooling. The danger is escalating costs. Under current policy a substantial portion of health care costs are borne by the consumer. This is particularly true for the elderly. Given current policy, population aging would be more easily accommodated. However, current policy targets call for a substantial reduction in the relative costs to consumer and a substantial increase in the costs borne by the government and social insurance. If these goals are actually achieved, health care expenditure will grow much more rapidly and the fiscal burden will be much greater.

Although the Philippines faces important challenges over the coming decades, it would be mistaken to assume that the Philippines faces a health crisis. This is supported by two indirect measures of health status – life expectancy at birth and the infant mortality rate. In Figures I.2 and I.3, the Philippines is compared to countries with similar levels of per capita income. Life expectancy is significantly higher and the infant mortality rate is significant lower than would be expected given per capita income in the Philippines.<sup>1</sup>

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<sup>1</sup> The regression lines in Figures 1 and 2 are second order polynomials fit to data for 2000 for all countries for which data are available from the World Bank's *World Development Indicators 2003*. Only observations for countries with per capita income similar to the Philippines are shown in the figures.



## II. Estimation and Projection Methodology

### Health expenditure

The Philippines National Health Accounts distinguish health expenditure by *use* and by *source*. *Use of Funds* distinguishes three sub-categories: Personal Health Care, Public Health Care, and Others. Personal health care is further sub-divided into: government hospitals, private hospitals, non-hospital MD facilities, other professional facilities, dental facility, traditional care facilities, and retail outlets. *Source of Funds* distinguishes public (government and social insurance) from private with further sub-divisions shown in more detail below.

In the health expenditure model developed here, *Sources of Funds* are determined by exogenous policy variables. Under the *status quo* or baseline policy the share of spending borne by each source remains constant at the level observed in the base year. The share borne by the public sector varies by use of funds and by the age of those receiving health care services. Policy analysis discussed below is implemented by varying the public shares in ways that are consistent with legislative and administrative action under consideration.

Health expenditures by use reflect a variety of factors associated with epidemiological changes, standards of living, health care costs, and the health care system. The importance of each of these factors and the rich details associated with them cannot be reliably measured given the limited data that are available in the Philippines and virtually all other countries. Thus, we rely on a simple model that emphasizes key factors that can be modeled. First is age – which captures important epidemiological differences that influence both the overall use of health services and the pattern of use. Second, rising per capita consumption allows greater consumption of all goods and services including health services. It also changes patterns of use as improving standards of living influence disease patterns and health care needs. Third, changes in the prices of medical services affect expenditures on those services. If the demand for health care is inelastic, which is indicated by the preponderance of evidence, price increases will lead to a rise in health care spending relative to spending on other goods and services. Finally, health care spending will be influenced by the extent to which services are subsidized by the public sector. To the extent that increased public spending substitutes for private spending, total spending is unaffected. However, increases in public spending often reduce the net price of health services to consumers inducing a rise in total spending.

#### *Health expenditure by use*

Per capita health expenditures by use of funds are determined by age, income, prices, and subsidies. Assuming that income and price elasticities are constant, per capita health expenditure on use  $k$  in year  $t$ ,  $x_{kat}$ , is equal to:

$$\ln x_{kat} = \ln g_{ka} + b_{k1} \ln y_{at} + (1 + b_{k2}) \ln P_{kt} + b_{k2} \ln(1 - s_{kat}). \quad (1)$$

where  $\mathbf{b}_{k1}$  is the income elasticity for use  $k$ ,  $\mathbf{b}_{k2}$  is the price elasticity for use  $k$ ,  $y_{at}$  is total per capita consumption by persons aged  $a$  in year  $t$ ,  $P_{kt}$  is the price of use  $k$  goods and services relative to consumer prices, and  $s_{kat}$  is the public share of costs for use  $k$ , for age group  $a$ , in year  $t$ .

Given estimates of price and income elasticities and health expenditures in a base year 0, health expenditures in subsequent years depend only on changes in per capita consumption, prices, and subsidies. It follows directly from equation (1) that:

$$\ln x_{kat} = \ln x_{ka0} + \mathbf{b}_{k1} \ln \frac{y_{at}}{y_{a0}} + (1 + \mathbf{b}_{k2}) \ln \frac{P_{kt}}{P_{k0}} + \mathbf{b}_{k2} \ln \frac{(1 - s_{kat})}{(1 - s_{ka0})}. \quad (2)$$

Total expenditure for each category of use is determined as the product of the population and per capita expenditure. The effect of population growth is readily incorporated into the formulation. Letting  $X_{kat}$  represent total expenditure on use  $k$  for persons aged  $a$  in year  $t$  and  $N_{at}$  represent the population aged  $a$  in year  $t$ , we have:

$$\ln X_{kat} = \ln X_{ka0} + \mathbf{b}_{k1} \ln \frac{y_{at}}{y_{a0}} + (1 + \mathbf{b}_{k2}) \ln \frac{P_{kt}}{P_{k0}} + \mathbf{b}_{k2} \ln \frac{(1 - s_{kat})}{(1 - s_{ka0})} + \ln \frac{N_{at}}{N_{a0}}. \quad (3)$$

Among the right-hand-side variables in the health expenditure equation, per capita consumption, medical prices, subsidies, and population are discussed below. This section is concerned with estimates of the base year health expenditures and price and income elasticities.

Others. Health expenditure for this use of funds category includes administrative and operating costs and research and training costs. We assume that these categories are proportional to the combined health expenditures for personal health care and public health care.

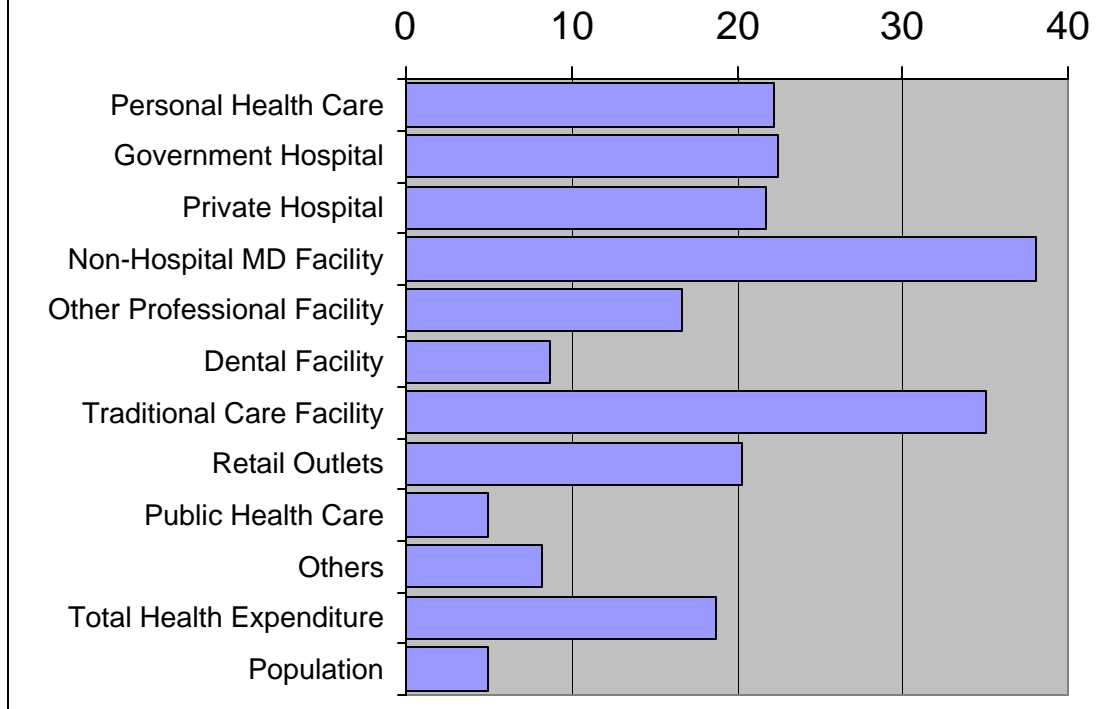
#### *Base Year Accounts*

The base year National Health Accounts are important for two reasons. First, they provide a starting point for the projections, and, second, they incorporate the effects of age on health expenditure. Because health expenditures increase with age in many countries and because the Philippines is beginning to experience population aging, the emphasis in this study is on the elderly. Hence, we distinguish two age groups – those under 60 and those 60 and older.

The importance of age is apparent in Figure II.1, which reports the health expenditure share of those 60 and older by health care use. To offer a basis for comparison, the figure also reports the share of the 60+ population (5.5%). If health care expenditure were independent of age, the share of the elderly would be 5.5%.



**Figure II.1. Share of Population 60 and Older (%),  
Philippines, 1994**



In 1994, 18.7% of all health expenditures and 22.2% of personal health care expenditures were for those 60 and older although they constituted only 5.5% of the population of the Philippines. The elderly were particularly intensive users of non-hospital MD facilities (38.0%) and traditional care facilities (35.0%). Their use of dental facilities was less intensive than others uses, however they still made use of dental facilities more intensively than their absolute numbers would suggest.

The summary of expenditures by use is based on detailed analysis of survey data and administrative records described in full detail in Russo et al. (2003). Here we describe the analysis and key results in more abbreviated form, beginning with the public sector.

*Public Sector*

Key results from the public sector analysis are presented in Table II.1. Survey data were used to estimate the share of the elderly in 1) government spending on hospital care; 2) government spending on primary health care; and 3) social insurance spending for government and private hospitals. The share of the elderly, i.e., those 60 and older, varied from a high of 11.2% for government spending on hospital care to a low of 5.0% for government spending on private care. A striking aspect of these results is that the share of the elderly in public sector health spending is much lower than the share of the elderly in total or private spending. Stated another way, the public sector is subsidizing a much greater share of health spending on the non-elderly than on the elderly. It is still

the case, however, that per capita spending on the elderly is greater than per capita spending on the non-elderly for hospital care whether funded directly by the government or through National Health Insurance. Per capita public spending for primary health care appears to be about the same for the elderly and non-elderly populations.

Table II.1. Summary of analysis and results for the public sector.

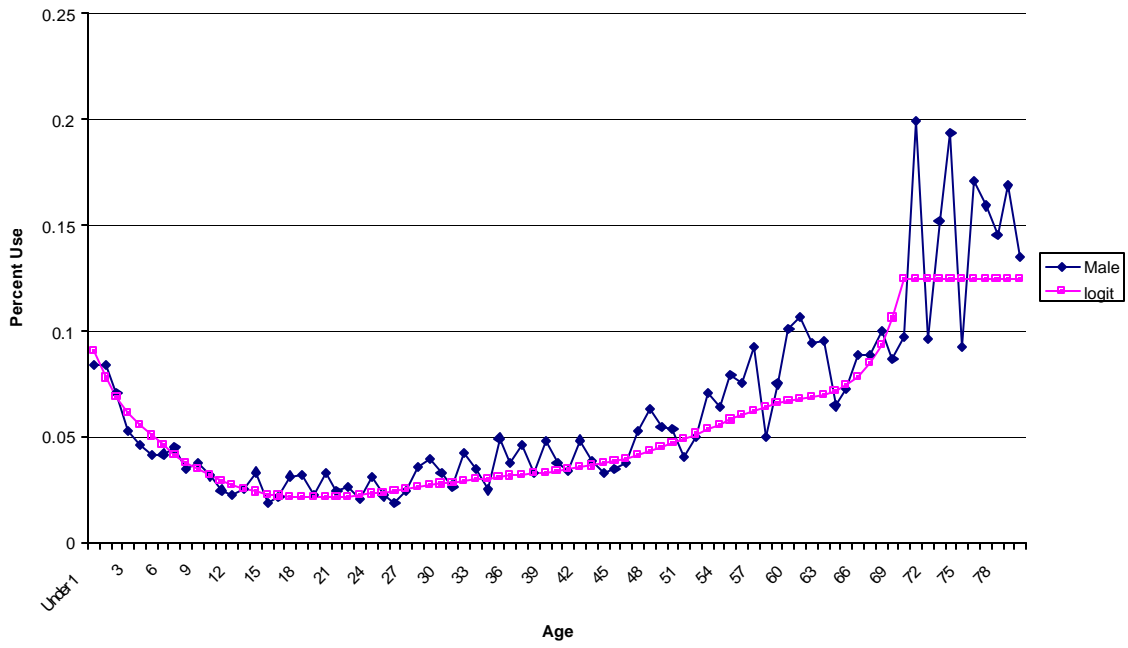
Health variables analyzed	NHA categories estimated	Primary data sources	Share of elderly (%)
National and local government expenditures for public hospital care	Government hospital and private hospital costs paid by the government	Annual Poverty Indicator Survey (1998); DOH-PIDS Hospital Users Survey (1991)	11.2
National and local government expenditures for primary health care and related government programs	Personal health care costs, excluding hospital care, and public health care costs paid by the government	Annual Poverty Indicator Survey (1998)	5.0
National Health Insurance expenditures for public and private hospital care	Social insurance expenditure on government hospitals	DOH-PIDS Hospital Users Survey (1991);	7.2
	Social insurance expenditure on private hospitals	DOH-PIDS Household Health Survey (1991)	7.5

Source: Russo et al. 2003.

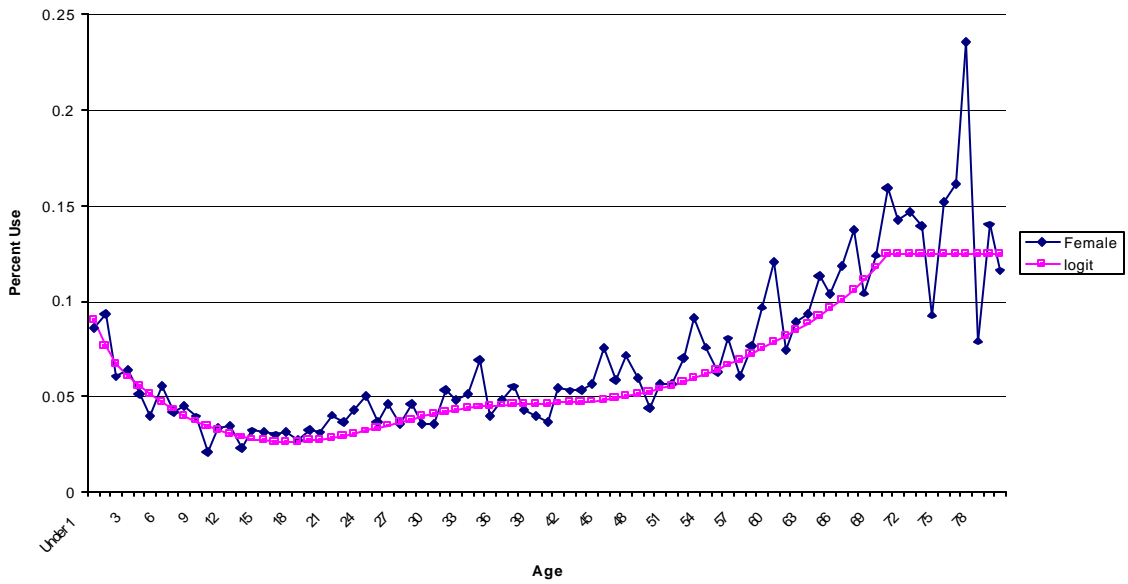
Estimates of government expenditure are based primarily on survey data on utilization of health services by individuals. The 1998 Annual Poverty Indicator Survey asks whether respondents have used a government hospital, a private hospital, or a primary care facility within the last six months. These data are used to estimate age profiles of utilization. The age profiles for private hospital use (Figures II.2 and II.3) show high use at the young and old ages. Public hospital use (not shown) is quite similar. In contrast, use of primary care facilities (not shown) is high for the young but use by the elderly is quite similar to use by non-elderly adults.

Variation in utilization rates are only a rough indicator of health expenditure because the complexity of the treatment provided may vary substantially across age group. This problem is likely to be particularly severe for hospital care. As a rough proxy, in the absence of direct information, we assume that public expenditure per case is proportional to private expenditure per case for hospital care. Private expenditure data are not available for primary use facilities because they are fully subsidized by the government. Thus, we assume that average costs per case are the same for elderly and non-elderly users.

**Figure II.2**  
Male/Private Hospital Use Rate



**Figure II.3**  
Female/Private Hospital Use Rate



More complete data are available to estimate National Health Insurance expenditure by age. Age patterns for hospital utilization, NHI eligibility, and costs per case can all be estimated more or less directly from available survey data.

The final public sector NHA category consists of overhead or support services including *General Administration* and *Operating Cost and Research and Training*, classified as *Others* in the NHA system. We allocate these costs in direct proportion to *Personal Health Care* and *Public Health Care*.

*Private Sector*

Private health expenditure is dominated by out-of-pocket expenses paid directly by households. HMOs and private insurance play a less significant role although they are increasing in importance over time. Employer based plans and private schools are relatively minor sources of financing for the elderly and we attribute all expenditures from these sources to non-elderly members of the population.

The estimated share of Private Insurance/HMO devoted to the elderly in 1994 was 9.8 percent. Estimates of the share of private out-of-pocket expenditure on the elderly in 1994 are reported in Table II.2. For all personal health care combined over thirty percent of all expenditures were for the elderly. Thus, per capita expenditures by the elderly are much greater than by the non-elderly. The elderly's share of dental expenditures and expenditure in retail outlets are lower than the share in other categories, but even so the elderly out-of-pocket expenditures for these uses are large relative to the relative number of elderly in the population of the Philippines.

Table II.2. Estimate Share of Elderly (60+), Private Out-of-Pocket Expenditures, 1994.

Use of Funds	Share of Elderly (%)
Personal Health Care	0.311
Government hospital	0.351
Private hospital	0.345
Non-hospital MD facility	0.405
Other professional facility	0.173
Dental Facility	0.090
Traditional care facility	0.354
Retail outlets: Drugs and other	0.203

Source: Russo et al. 2003.

We use a merged micro-data file containing information from the 1994 Family Income and Expenditure Survey (FIES) and 1994 Labor Force Survey (LFS), and the associated National Health Accounts (NHA) modules to estimate the economic and demographic determinants of household spending. Our results are used as the structural equations for projecting private out-of-pocket expenditures in a way which is consistent with the National Health Accounts definitions. This unique data set, which was made available by

the Philippines National Statistical Office, the Philippine Department of Health, and the University of Philippines, permits the matching of 134,000 individuals to their respective households to form a complete demographic profile for 24,000 households.

We estimate household health care expenditures for seven categories of services: private hospitals, public hospitals, MD facilities, non-MD facilities, dental clinics, traditional care and self care (e.g., drugs) as functions of per capita household income, household age composition, household size, and insurance coverage. The sensitivity of results to alternative models and estimation techniques (OLS, Tobit and two-part models) are described in Russo et al. 2003. Alternative estimates are used in some of the sensitivity analysis presented below.

The specification on which the projections are based is:

$$x_{ji} = \sum_k \mathbf{g}_{jk} n_{ki} \cdot \left[ \frac{y_i}{n_i} \right]^{b_j} \cdot \left[ 1 - \frac{n_i^{insured}}{n_i} \right]^{a_j} + u_{ji} \quad (4)$$

where  $x_{ji}$  is health expenditure on category  $j$  by household  $i$ ,  $n_{ki}$  is the number of household members in age group  $k$ ,  $y_i/n_i$  is total income per household member, and  $n_i^{insured}/n_i$  is the proportion of household members who are insured. The effects of age on household expenditures are captured by the parameters  $\mathbf{g}_{jk}$ . The income elasticity is  $b_j$  for each health expenditure category  $j$ . The price elasticity for each health expenditure category is  $a_j - 1$ .

The insurance term is used as a means of estimating price elasticities in cross-sectional data. In the absence of insurance, all individuals within a given market are subject to the same prices and, hence, the effect of price on consumption cannot be estimated. If we treat the proportion of family members covered by health insurance as an approximation of the rate of health care price subsidy by third-party payment, we can infer price elasticities of demand from the above model. Given this functional form, the price elasticity equals  $a_j - 1$ .

The estimated income elasticities are quite plausible for all health expenditure categories, as are the estimated price elasticities for public hospitals, MD facilities, non-MD facilities and dental clinics. However, the estimated price elasticities for private hospitals and traditional care are inconsistent with consumer theory. Other efforts to estimate price elasticities from the cross-section data also proved to be unsuccessful. Therefore, we fit the above model using non-linear least squares with the price elasticity restricted to -0.2, the most widely cited estimate of the price elasticity of demand for medical care found in the Rand Health Insurance Experiment (Manning et al. 1987). Other parameter estimates are relatively insensitive to the choice of price elasticity.

*Income and price elasticity estimates*

The estimated income and price elasticities are reported in Table II.3. The elasticity for all health services combined is very close to 1.0, implying that the share of income devoted to health expenditure would not rise with income given the 1994 composition of health expenditures. Over time, as per capita income grows, health expenditure will shift into categories with higher income elasticities and out of categories with lower income elasticities. As a result the overall elasticity will rise over time. As will be seen from the projections presented below, however, income growth in the Philippines is not expected to lead to a larger share of GNP devoted to health services.

Table II.3. Estimated income and price elasticities.

Service Type	Income elasticity	Price elasticity
Public Hospital	.457	
Private Hospital	1.077	
MD Facility	.844	
Non MD Facility	.850	-0.2
Dental Clinic	.978	
Traditional	.796	
Self Care	1.267	
Total	.987	

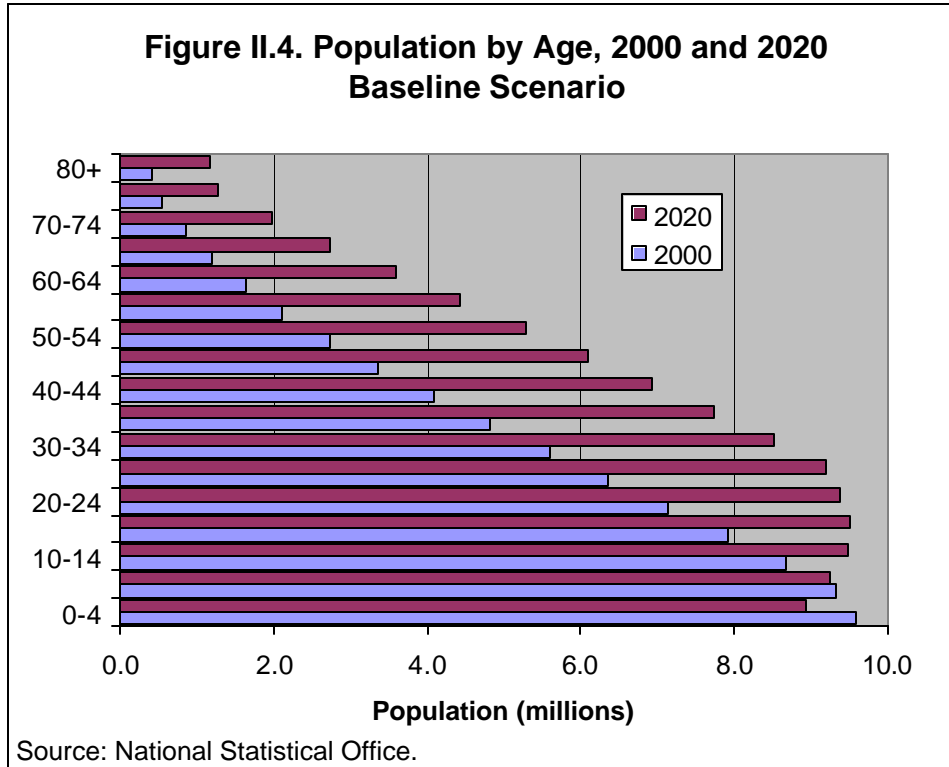
Source: Russo et al. 2003.

There are some important compositional changes that are induced by changes in income. Particularly noteworthy is the substantial shift away from public hospitals toward private hospitals and the high income elasticity of self care, e.g., purchases of drugs from retail outlets.

## Population Projections and Results

The Philippines' National Statistical Office has recently prepared revised population projections to 2020 that serve as the baseline population scenario for the NHA projections. The NSO projects the population of the Philippines using the 2000 Population Census as a base and the cohort-component method. This method is also used by the United Nations Population Division and other statistical agencies.

In many countries around the world, fertility decline and increases in life expectancy are leading to older populations. This is also true for the Philippines. Between 2000 and 2020, the number of children is expected to remain relatively constant. The population 0-14 is projected to increase from 27.6 million to 27.7 million. The number in the working ages (15-59) is projected to grow by over 50% – increasing from 44.1 million to 67.1. In percentage terms, the most rapid increase is in the population 60 and older. Their numbers will more than double – from 4.8 million to 10.6 million. More detailed data by age are shown in Figure II.4.



The changes in age structure have two important implications for this study. First, the rapid growth in the older population means that goods and services demanded by that demographic group will grow more rapidly. Thus, to the extent that the elderly demand more health care, changes in age structure will fuel more rapid growth in the health sector.

Second, the percentage of the population in the working ages is projected to rise significantly during the next two decades. In 2000, 58 percent of the population was in the working ages. By 2020, 64 percent is projected to fall in the working ages. This will have important implications for per capita income growth discussed in more detail in the section on the macroeconomic model of the economy.

Often producers of population projections offer alternative scenarios that vary with assumption about fertility and/or mortality. The United Nations Population Division, for example, has provided a high, medium, and low fertility scenario for many years. The NHA projection model allows for more flexibility by allowing the user to vary the assumptions about fertility and mortality in a simple manner. The medium scenario is the standard population projection for the Philippines for 2000-2020, but the user may vary the speed with which fertility declines and the speed with which survival rates increase.

#### Fertility Scenarios

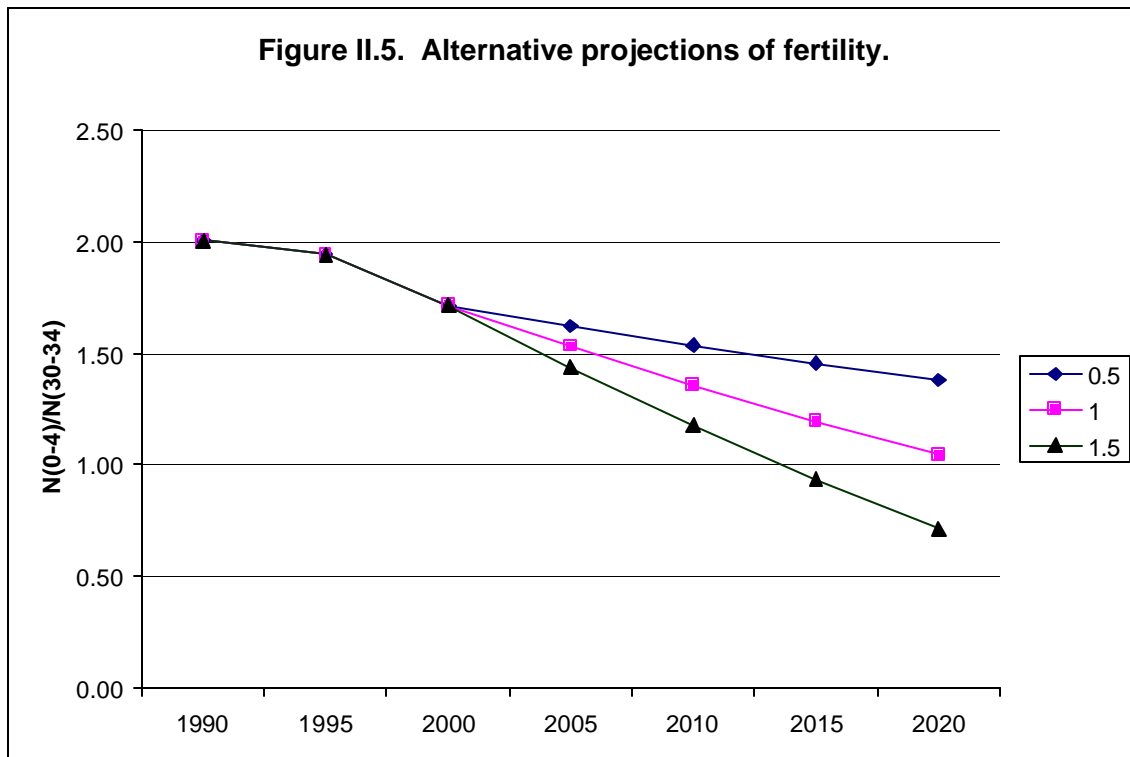
The ratio of the population 0-4 to the population 30-34 is used as a summary measure of fertility.<sup>2</sup> Using the sub-script  $m$  to indicate the medium scenario:

$$f_m(t) = N_m(0-4, t) / N_m(30-34, t). \quad (1)$$

We assume that the speed of fertility decline, measured by the change in  $f(t)$ , is a constant multiple of the change in the medium scenario, i.e., that:

$$f(t+5) = f(t) + I(f_m(t+5) - f_m(t)). \quad (2)$$

If the value of  $I$  is 1, fertility declines as in the medium scenario. If  $I$  has a value of 1.5, fertility declines 50 percent faster than under the medium scenario, while if  $I$  has a value of 0.5 fertility declines half as fast as in the medium scenario. Figure II.5 shows projected values of  $f(t)$  for these three cases.



The baseline decline in fertility ( $I = 1$ ) anticipates that the fertility measure used here will drop to replacement level by 2020. The slow fertility decline scenario ( $I = 0.5$ ) anticipates a very marked drop in the rate at which fertility is declining. This would be a

<sup>2</sup> For a population with a generation length of thirty years the ratio is a crude approximation of the net reproduction rate. Given a value close to 1.0, women complete the reproductive span with approximately 2 surviving children. The population growth rate would approach zero over time. The measure also reflects variation in childhood mortality.



substantial departure from the recent trend. The rapid fertility decline scenario ( $I = 1.5$ ) appears to be quite consistent with the recent trend in fertility and is consistent with a fertility rate well below replacement level by 2020. Quite low fertility rates are increasingly found in other Asian countries, e.g., Japan, South Korea, and Singapore, so it would not be surprising if the fertility indicator dropped as substantially as pictured.

#### Mortality scenarios

Trends in the survival rate are modeled in a fashion similar to the method used to model fertility. The rate of change in the survival rate for the medium scenario is measured by:

$$\begin{aligned} \mathbf{b}(a, t) &= \ln s_m(a, t+5) - \ln s_m(a, t) \text{ where} \\ s(a, t) &= N(a+5, t+5) / N(a, t). \end{aligned} \quad (3)$$

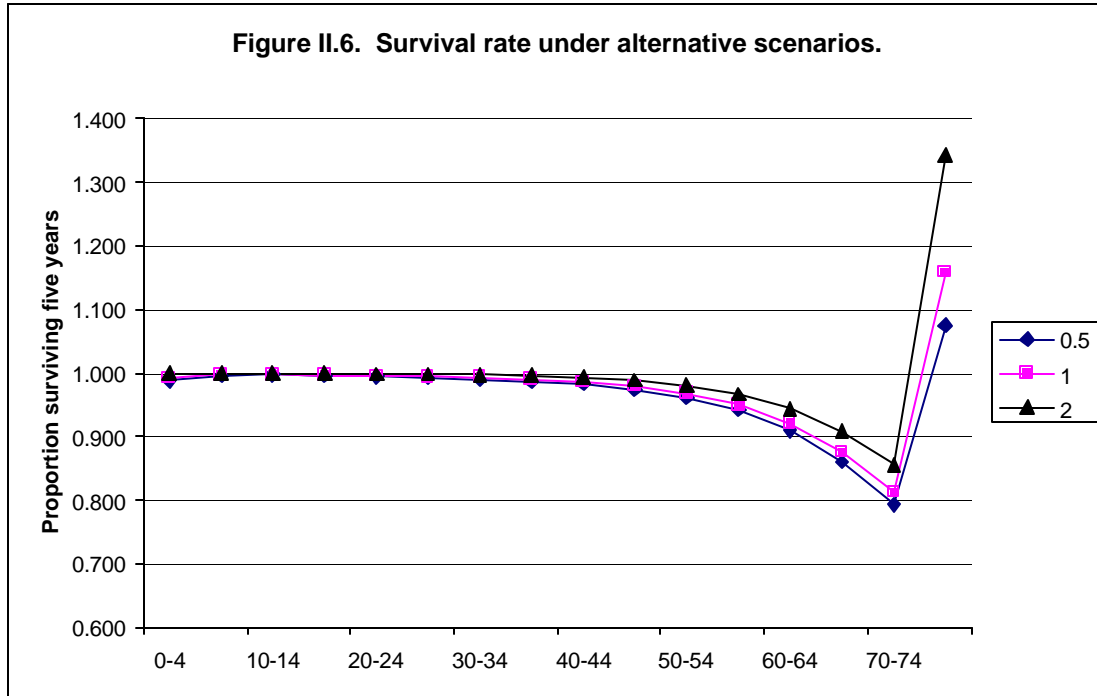
The survival rate is projected by:

$$s(a, t+5) = \exp[\ln s(a, t) + \mathbf{g}\mathbf{b}(a, t)]. \quad (4)$$

The parameter  $\mathbf{g}$  is specified by the user. A value of 1 yields the survival rates from the medium scenario. A value exceeding 1 implies that the survival rate is declining faster than in the medium scenario, while a value of  $\mathbf{g}$  less than one yields a survival rate declining more slowly than in the standard scenario. Figure II.6 shows the survival rates by age for the 2015-2020 period given values of  $\mathbf{g}$  equal to 0.5, 1, and 2.<sup>3</sup>

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<sup>3</sup> The value for the 75-79 age group exceeds one because the numerator in the calculated “survival rate” includes all those 80 and older.



Note that the improvements in survival are concentrated at the older ages reflecting the fact that survival rates are already high at young ages in the Philippines.

#### Population Projection

The population is projected from the base year of 2000 using the projected fertility and survival rates:

$$\begin{aligned}
 N(0-4, t+5) &= f(t+5)N(30-34, t+5) \\
 N(a+5, t+5) &= s(a, t)N(a, t) \text{ for } a > 0-4.
 \end{aligned}
 \tag{5}$$

The effect on the percentage of the population aged 60 and older is shown in Table II.4.

Table II.4. Percentage 60 and older under alternative scenarios.

Survival increase	Fertility Decline		
	Slow	Medium	Fast
Slow	9.3	9.9	10.6
Medium	9.6	10.2	10.9
Fast	10.1	10.8	11.5

Rapid fertility decline combined with rapid improvements in survival yield the most rapidly aging population.

## Macroeconomic model

Gross domestic product ( $Y$ ) is determined by output per effective worker ( $y_t^l$ ) and the size of the effective labor force ( $L_t^e$ ):

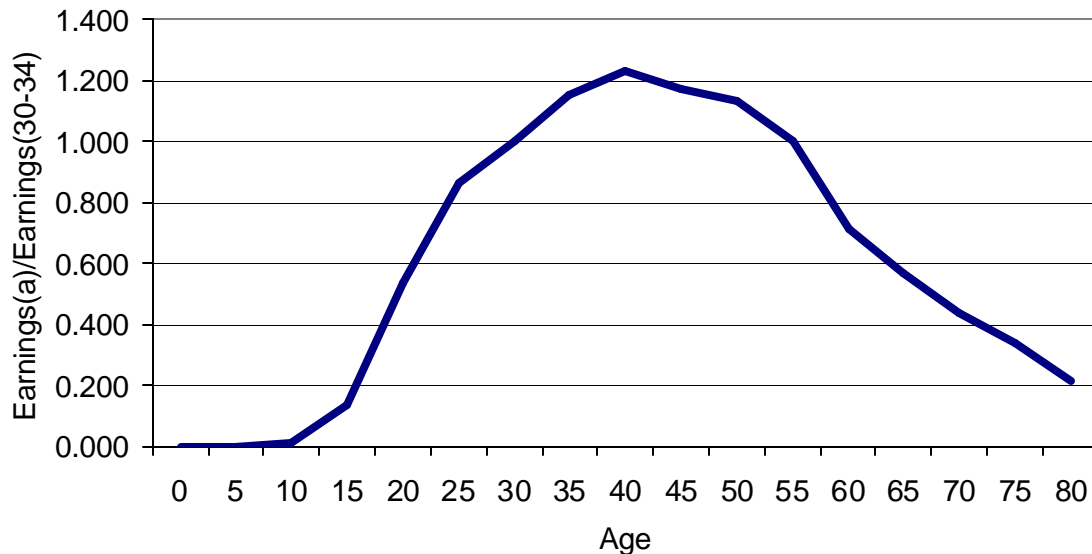
$$Y_t = y_t^l L_t^e \quad (6)$$

The effective labor force is the population of working age, measured to account for age-specific variation in earnings and labor participation rates by:

$$L_t^e = \sum_{a=15}^{85+} f_a N_{at}. \quad (7)$$

The labor force weights used in equation (7) are estimated from the 1994 Family Income and Expenditure Survey (average earnings by age of individual). The results are normalized on the average earnings of individuals aged 30-34. Thus, the values can be interpreted as the effective number of workers where a person aged 30-34 counts as 1.0. The profile is presented in Figure II.7.

Figure II.7. Earnings by age (normalized on earnings for ages 30-34), Philippines, 1994



Source: NSO, Family Income and Expenditure Survey, 1994.

The rate of growth of labor productivity is exogenously determined:

$$y_t^l = e^{rt} y_0^l. \quad (8)$$

The assumptions underlying the baseline forecast and the historical analysis is documented in Table II.5. Real GNP estimates for the Philippines are currently available for 1994-2002 from the Asian Development Bank and for 2003 from the National Statistical Office of the Philippines. The real GNP growth figures reported for 1994-2000 are calculated from these estimates. The values for 2000-2005 are based on the actual values through 2003 and forecasts for the remainder of the period (Asian Development Bank, Asian Development Outlook, 2004).

The annual growth rate for the effective labor force is based on historical population data and the baseline population projection, described above. Productivity growth rates for the periods 1994-2000 and 2000-2005 are calculated as residuals using the estimates for real GNP growth and growth in the effective labor force. For the baseline projections, the productivity growth rate is held constant for the 2005-2020 period. The growth rate used is the growth rate that would produce the forecast GNP growth of 5.5% for 2004-2005 given the growth rate of the effective labor force for the 2000-2005 period based on the baseline demographic assumptions. Given constant productivity increases, the real GNP growth declines over the forecast period because of the slow-down in the effective labor force. As compared with the forecast of 5.5% GNP growth for 2004-05, the growth rate for 2015-2020 drops to 4.7% due to the slowdown in the rate of growth of the effective labor force.

Table II.5. Macroeconomic growth variables, 1994-2020.

	1994-2000	2000-2005	2005-2010	2010-2015	2015-2020
Real GNP growth					
Continuous	0.0461	0.0455	0.0515	0.0490	0.0461
Discrete	0.0471	0.0465	0.0528	0.0503	0.0472
Growth in effective labor force (baseline demographics)					
Continuous	0.0308	0.0289	0.0268	0.0244	0.0215
Discrete	0.0313	0.0293	0.0271	0.0247	0.0217
Productivity growth					
Continuous	0.0153	0.0166	0.0247	0.0247	0.0247
Discrete	0.0154	0.0167	0.0250	0.0250	0.0250

Notes: Discrete growth rates are reported by Asian Development Bank for growth rates used in these calculations. The forecasting model relies on continuous formulations, however. The relationship between the two is  $x = \ln(1 + y)$  where  $x$  is the continuous rate and  $y$  is the discrete rate.

The analysis presented below considers two alternatives to the baseline assumption of 2.5 percent productivity growth. The low scenario is that productive growth is 1.5 percent per annum – a rate similar to that achieved between 1994 and 2000 in the Philippines. The high growth scenario is based on a productivity increase of 4.5 percent per annum – a rate achieved or exceeded by all of the high performing economies of East Asia between 1965 and 1990.

## Consumption

In the forecast model, health care expenditures are driven in part by increases in the standard of living as measured by per capita consumption. The forecast model assumes that the rate of growth of private consumption is equal to the rate of growth of GNP. In addition, we assume that per capita private consumption by the elderly grows at the same rate as per capita private consumption by the non-elderly.

## Medical Prices

All values in the macroeconomic forecasting model are real rather than nominal. Changes in medical prices are real changes, i.e., changes relative to general prices. The baseline values are based on the Philippines historical experience as shown in Table II.6. For the 1994-2000 period, medical prices increased by 3.8 percent or annually by 0.6 percent. Given that only one additional year of data is available after 2000, we use the medical price information for 1994-2001 to form the baseline for 2000-2020. Between 1994 and 2001, medical prices increased by 7.8 percent, which amounts to an annual rate of increase of 1.08 percent per annum.

Table II.6. Medical Price Indexes  
(1994=1.0)

Year	Consumer Price Index	Medical Price Index	
		Nominal	Real
1994	1.000	1.000	1.000
1995	1.080	1.082	1.002
1996	1.178	1.155	0.981
1997	1.247	1.237	0.992
1998	1.369	1.312	0.958
1999	1.460	1.467	1.005
2000	1.521	1.579	1.038
2001	1.611	1.736	1.078

As an alternative scenario we use the recent rate of increase of US medical prices relative to the CPI – 1.42 percent per annum.

### **III. Health Expenditure Projection**

#### *III Health Expenditure Baseline Projection*

##### Baseline Projections

Real National Health Expenditures in the Philippines are projected to rise to 235.9 billion pesos (1994 prices) by year 2020, with 69.9 billion pesos of expenditures for services for persons aged 60 years and older and 166.3 billion pesos spent on persons under age 60.

**TABLE III.1 Total National Health Expenditures (000s pesos) by age and year, 1994 prices.**

	<b>Age 0-59</b>	<b>Age 60+</b>	<b>Total</b>
1994	44,332,133	10,270,355	54,602,488
2000	60,063,013	14,528,551	74,591,564
2005	78,649,899	20,868,649	99,518,547
2010	101,621,571	31,295,811	132,917,382
2015	130,960,803	46,728,763	177,689,566
2020	166,328,093	69,608,965	235,937,058

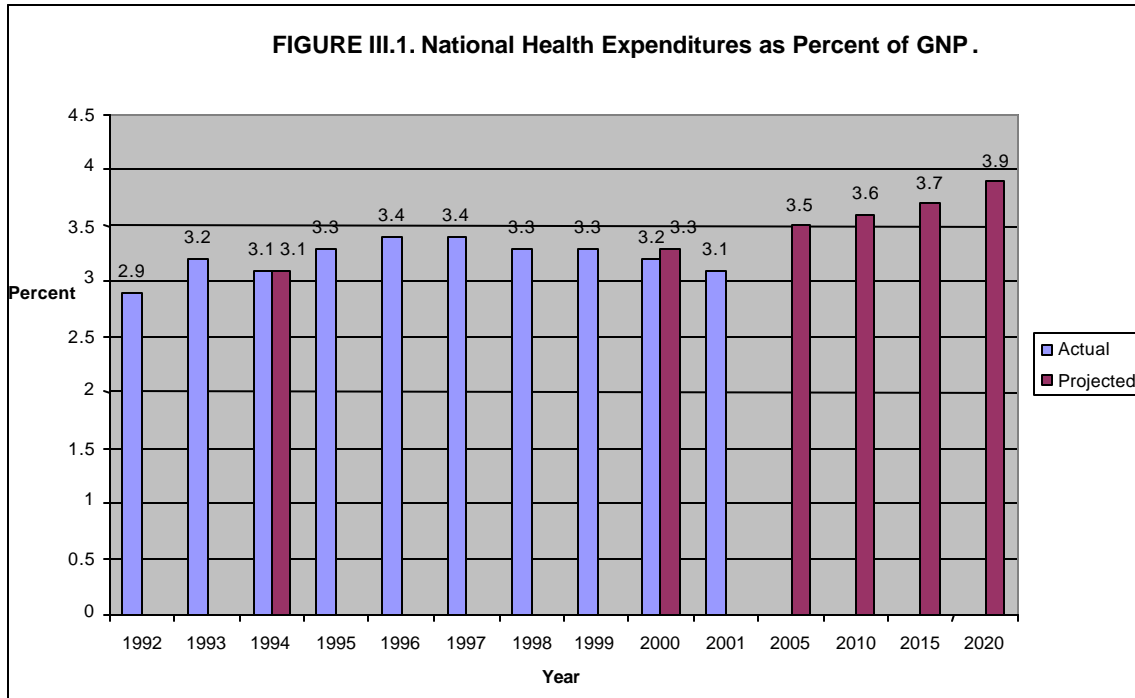
The share of health expenditures going to services for the elderly will rise from 19.5% in year 2000 to 29.5% in the year 2020. This increase is commensurate with the aging to take place over this period and portends of only modest pressure on spending allocated to younger generations including spending on priority health services such as maternal and child health and other reproductive health services. Spending on the young will still account for more than 70% all total resources allocated to the Philippine health sector in the year 2020. This is likely to change, however, beyond 2020 when significant aging in the Philippines will begin to take place.

**TABLE III.2. Percent Distribution of Total National Health Expenditures by age and year.**

	<b>Age 0-59</b>	<b>Age 60+</b>	<b>Total</b>
1994	81.2	18.8	100
2000	80.5	19.5	100
2005	79.0	21.0	100
2010	76.5	23.5	100
2015	73.7	26.3	100
2020	70.5	29.5	100

National health expenditures as a percent of GNP will grow modestly under our baseline scenario reaching 3.9% by the year 2020, still below the WHO guidelines of 5% for a developing country. Weak spending on social health insurance in the late 1990s as well

as the persistent disruption of the public health care delivery and financing system due to devolution has kept spending as a proportion of the total economy low. However, targeted increases in public subsidies including significant expansion of social insurance, as discussed in section V, may cause this to rise by more by 2020.



**TABLE III.3. Projected Health Expenditure as a Percent of GNP.**

	Age 0-59	Age 60+	Total
1994	2.6	0.6	3.1
2000	2.6	0.6	3.3
2005	2.7	0.7	3.5
2010	2.7	0.8	3.6
2015	2.7	1.0	3.7
2020	2.8	1.2	3.9

Much of the increase in spending relative to GNP in our projections is accounted for by increased spending on the elderly. The rich entitlements for the elderly afforded by the Philippine Health Insurance Corporation accompanied by improving quality in the delivery system may cause the actual share of GNP dedicated to the health sector to exceed our projections both before and after 2020. An aging population in the decades beyond 2020 will change the political economy of the Philippines and create increasing pressure to enhance health insurance benefits to the elderly. This will place policy-

makers in an insolvable dilemma unless far sighted policies are implemented before 2020 while the pressure of aging is weak.

With regard to the use of funds projected in the future, spending on services by the elderly will be concentrated on Western-style triad of physician services, drugs and hospitalization. Careful monitoring of prices for these services is called for as a large portion of Philippine Health Insurance Corporation future liabilities will be concentrated here. Pharmaceutical and other product spending alone will grow by more than 10-fold and this could be greater as our projections due not fully account for technological discoveries which may make these products more attractive and more expensive.

**TABLE III.4. Projected National Health Expenditures by Use of Funds for persons Age 60+, 1994, 2000-2020.**

USES OF FUNDS	1994	2000	2005	2010	2015	2020
PERSONAL HEALTH CARE	9,485,904	13,126,387	18,897,254	28,360,694	42,345,675	63,049,083
Government Hospital	4,109,391	5,870,907	8,043,702	11,315,893	15,821,073	22,045,866
Private Hospital	1,117,391	1,583,654	2,442,007	3,922,285	6,208,679	9,720,017
Non-hospital MD Facility	1,923,411	2,554,867	3,897,971	6,135,595	9,454,279	14,364,996
Other Professional Facility	55,209	124,750	169,991	243,955	351,888	509,812
Dental Facility	48,040	128,437	173,499	248,391	359,440	524,678
Traditional Care Facility	152,713	222,351	324,881	492,425	737,804	1,096,955
Retail Outlets: Drugs, and Others	1,316,447	2,399,739	3,590,362	5,735,363	9,132,775	14,494,946
PUBLIC HEALTH CARE	328,113	578,531	815,980	1,218,289	1,823,107	2,732,751
OTHERS	456,338	823,633	1,155,415	1,716,829	2,559,982	3,827,130
General Administration and Operating Cost	406,552	817,726	1,123,084	1,636,625	2,404,132	3,553,647
Research and Training	48,379	33,854	63,051	114,542	194,346	316,872
<b>TOTAL</b>	<b>10,270,355</b>	<b>14,528,551</b>	<b>20,868,649</b>	<b>31,295,811</b>	<b>46,728,763</b>	<b>69,608,965</b>



**TABLE III.5. Projected National Health Expenditures by Use of Funds for Persons Aged 0-59, 1994, 2000-2020.**

<b>USES OF FUNDS</b>	1994	2000	2005	2010	2015	2020
<b>PERSONAL HEALTH CARE</b>						
Government Hospital	14,882,156	20,690,843	26,898,569	32,252,934	38,926,072	46,198,320
Private Hospital	4,385,513	6,020,952	8,706,601	12,026,197	16,432,838	21,911,635
Non-hospital MD Facility	3,836,273	4,886,730	6,672,203	9,144,082	12,162,872	15,740,103
Other Professional Facility	345,287	594,406	722,237	902,459	1,123,688	1,386,582
Dental Facility	636,253	1,217,368	1,461,930	1,822,302	2,276,331	2,830,068
Traditional Care Facility	324,760	370,478	497,727	655,881	848,302	1,074,219
Retail Outlets: Drugs and Others	5,941,063	8,417,006	11,229,072	15,618,122	21,468,164	29,020,381
<b>PUBLIC HEALTH CARE</b>	6,251,406	9,846,657	12,383,788	16,098,541	20,795,662	26,549,421
<b>OTHERS</b>	5,123,172	8,260,256	10,332,611	13,367,841	17,206,608	21,909,177
General Administration and Operating Cost	4,300,740	7,727,581	9,463,679	12,007,679	15,226,230	19,169,144
Research and Training	807,409	504,727	838,211	1,325,824	1,941,881	2,696,645
<b>TOTAL</b>	<b>44,332,133</b>	<b>60,063,013</b>	<b>78,649,899</b>	<b>101,621,571</b>	<b>130,960,803</b>	<b>166,328,093</b>

If we examine the source of financing in 1994 (see TABLE III.6) 48.7% of spending on persons aged 0-59 years was financed by the public sector including social insurance, while only 19.1% of expenditures for the elderly comes from public sources. This is to be expected as government spending has concentrated on public health, primary care for women and children, reproductive health and other priority health services. Many of these services are rendered at primary care facilities but much primary care is also given at government hospitals. Recalibrating our projections to the public-private shares, in 2000, renders the actual slight increase public financing which then declines slightly to the year 2020. Overall, economic and demographic change produces a slight increase in the private share of total expenditures by 2020.

**TABLE III.6. National Health Expenditures by Age and Public & Private Source of Funds, Levels and Percent Distribution, 1994, 2000-2020.**

	Health Expenditures, Age 0-59			Health Expenditures, Age 60+			Health Expenditure, Total		
	Total	Public	Private	Total	Public	Private	Total	Public	Private
<b>Expenditure (000 pesos)</b>									
1994	44,332,133	21,608,852	22,723,281	10,270,355	1,962,295	8,308,060	54,602,488	23,450,724	31,031,341
2000	60,063,013	32,674,977	27,388,036	14,528,551	3,241,191	11,287,360	74,591,564	35,916,167	38,675,396
2005	78,649,899	42,308,512	36,341,387	20,868,649	4,533,434	16,335,215	99,518,547	46,841,945	52,676,602
2010	101,621,571	53,759,310	47,862,261	31,295,811	6,605,643	24,690,168	132,917,382	60,364,953	72,552,429
2015	130,960,803	68,292,558	62,668,244	46,728,763	9,608,102	37,120,661	177,689,566	77,900,660	99,788,905
2020	166,328,093	85,579,766	80,748,328	69,608,965	13,972,212	55,636,753	235,937,058	99,551,977	136,385,081
<b>Percent Distribution</b>									
1994	100	48.7	51.3	100	19.1	80.9	100	42.9	56.8
2000	100	54.4	45.6	100	22.3	77.7	100	48.2	51.8
2005	100	53.8	46.2	100	21.7	78.3	100	47.1	52.9
2010	100	52.9	47.1	100	21.1	78.9	100	45.4	54.6
2015	100	52.1	47.9	100	20.6	79.4	100	43.8	56.2
2020	100	51.5	48.5	100	20.1	79.9	100	42.2	57.8

Note: Public includes both government and social insurance.

#### IV. Alternatives Scenarios

This section presents and briefly discusses alternative scenarios that assess the effects of income growth, aging, and medical price increases on health expenditure.

##### Income Growth

The effect of income growth on health expenditure in the Philippines depends on how rapidly income grows and the influence of income on health expenditure, i.e., the income elasticities presented above. Expenditure categories (use of funds) with high income elasticities will rise most rapidly with income growth. Expenditures on private hospitals and retail outlets will both rise more rapidly than GNP because their estimated income elasticities exceed 1.0. Expenditure on government hospitals has the lowest income elasticity of any use of funds – less than 0.5. Thus, spending on government hospitals will grow more slowly than GNP.

The projections are consistent with these observations (Table IV.1). More rapid income growth produces greater health expenditures for all categories. For private hospitals and retail outlets, health expenditure would be a larger share of GNP if income growth is more rapid. Spending on government hospitals would decline as a share of GNP if income growth were more rapid. Other use of funds would decline relative to GNP given more rapid income growth, although some use of funds categories are such a small share of GNP the decline is not captured in the table. Total health spending on the elderly would decline relative to GNP given more rapid income growth.

Table IV.1. Health Expenditure by Elderly, Projected 2020, by Use of Funds, Three Income Growth Scenarios, Baseline Income Elasticities

Rate of Productivity Growth	Total Health Expenditure (000 peso)			As a percentage of GNP		
	1.5% pa	2.5% pa	4.5% pa	1.5% pa	2.5% pa	4.5% pa
<b>PERSONAL HEALTH CARE</b>	55,510,594	63,049,083	81,834,142	1.07	1.05	1.01
Government Hospital	20,568,011	22,045,866	25,323,595	0.40	0.37	0.31
Private Hospital	8,213,925	9,720,017	13,570,695	0.16	0.16	0.17
Non-hospital MD Facility	12,543,666	14,364,996	18,778,268	0.24	0.24	0.23
Other Professional Facility	453,560	509,812	646,303	0.01	0.01	0.01
Dental Facility	461,816	524,678	681,771	0.01	0.01	0.01
Traditional Care Facility	969,864	1,096,955	1,401,535	0.02	0.02	0.02
Retail Outlets: Drugs and Others	12,007,875	14,494,946	21,139,757	0.23	0.24	0.26
<b>PUBLIC HEALTH CARE</b>	2,371,326	2,732,751	3,640,540	0.05	0.05	0.04
<b>OTHERS</b>	3,324,462	3,827,130	5,089,680	0.06	0.06	0.06
General Administration and Operating Cost	3,104,291	3,553,647	4,682,290	0.06	0.06	0.06
Research and Training	263,558	316,872	450,778	0.01	0.01	0.01
<b>TOTAL</b>	61,206,382	69,608,965	90,564,362	1.18	1.16	1.11

In these simulations, public policy is held constant. In other words, the share of costs born by each source of financing does not respond to changes in income. It may be that higher income will lead to shifts in policy and the implications of such policy changes are discussed elsewhere. The source of financing, however, does vary with the use of funds. Some categories are more heavily subsidized by the public sector than others. Consequently, shifts in the consumption patterns by use of funds leads to shifts in the share of costs born by the public sector. Calculations based on Table IV.2 show, for example, that the public share of health expenditure in 2020 would be 19.3 percent given the fast growth scenario and 20.4 percent given the slow growth scenario. Higher income induces a shift to uses of funds that are less likely to be subsidized by the public sector. Given low income growth the public share of health expenditure for all demographic groups combined would be 42.7 percent in 2020 as compared with 41.2 percent given high income growth.

Table IV.2. Summary of Health Expenditure Projections, 2020, Three Income Growth Scenarios, Baseline Income Elasticities.

Rate of productivity growth	Health expenditures on elderly			Health expenditure, total		
	Total	Public	Private	Total	Public	Private
	Expenditure (000 peso)					
1.5% pa	61,206,382	12,514,346	48,692,036	207,061,781	88,343,471	118,718,310
2.5% pa	69,608,965	13,972,212	55,636,753	235,937,058	99,551,977	136,385,081
4.5% pa	90,564,362	17,516,251	73,048,111	308,144,531	127,104,143	181,040,388
	Percentage of GNP					
1.5% pa	1.18	0.24	0.94	3.99	1.70	2.29
2.5% pa	1.16	0.23	0.92	3.92	1.65	2.26
4.5% pa	1.11	0.22	0.90	3.79	1.56	2.23

Note: Public includes both government and social insurance.

The source of uncertainty addressed to this point is uncertainty about the rate of income growth in the Philippines. Another source of uncertainty is the response of expenditures to increases in income. To consider this possibility we use an alternative set of income elasticities based on Tobit analysis described in detail in Russo et al. 2003. The results of these simulations are presented in Tables IV.3 and IV.4.

Using the alternative income elasticity estimates, health expenditure would grow substantially more rapidly over the coming decades, especially if productivity growth is rapid. Health spending on the elderly would surpass two percent of GNP under the high growth scenario as compared with 1.1 percent of GNP given the baseline elasticities under the high growth scenario. Given the low growth scenario, health expenditure on the elderly would rise to 1.7 percent of GNP as compared with 1.2 percent of GNP under the low growth scenario with baseline income elasticities.

Table IV.3. Health Expenditure by Elderly, Projected 2020, by Use of Funds, Three Income Growth Scenarios, High Income Elasticities

Rate of Productivity Growth	Total Health Expenditure (000 peso)			As a percentage of GNP		
	1.5% pa	2.5% pa	4.5% pa	1.5% pa	2.5% pa	4.5% pa
<b>PERSONAL HEALTH CARE</b>	80,671,003	101,243,685	160,636,810	1.56	1.68	1.98
Government Hospital	31,035,718	37,059,702	52,698,281	0.60	0.62	0.65
Private Hospital	15,822,934	22,040,423	42,315,458	0.31	0.37	0.52
Non-hospital MD Facility	20,603,303	26,673,564	44,278,472	0.40	0.44	0.54
Other Professional Facility	577,998	695,324	1,010,686	0.01	0.01	0.01
Dental Facility	749,076	978,715	1,686,632	0.01	0.02	0.02
Traditional Care Facility	1,010,253	1,154,774	1,506,497	0.02	0.02	0.02
Retail Outlets: Drugs and Others	10,589,865	12,358,591	16,853,680	0.20	0.21	0.21
<b>PUBLIC HEALTH CARE</b>	2,371,326	2,732,751	3,640,540	0.05	0.05	0.04
<b>OTHERS</b>	3,324,462	3,827,130	5,089,680	0.06	0.06	0.06
General Administration and Operating Cost	3,104,291	3,553,647	4,682,290	0.06	0.06	0.06
Research and Training	263,558	316,872	450,778	0.01	0.01	0.01
<b>TOTAL</b>	86,366,791	107,803,567	169,367,030	1.67	1.79	2.08

The source of financing is also affected by the income elasticities employed in the simulation. The public share of health spending on the elderly would drop from 19.7 percent under the low income growth scenario to 18.2 percent under the high income growth scenario. The public share of total health expenditure would drop from 41.7 percent under the low income growth scenario to 39.9 under the high income growth scenario.

Table IV.4. Summary of Health Expenditure Projections, 2020, Three Income Growth Scenarios, High Income Elasticities.

Rate of pro-ductivity growth	Health expenditures on elderly			Health expenditure, total		
	Total	Public	Private	Total	Public	Private
Expenditure (000 peso)						
1.5% pa	86,366,791	16,984,106	69,382,685	279,260,298	116,434,786	162,825,512
2.5% pa	107,803,567	20,633,154	87,170,412	345,622,483	141,922,850	203,699,633
4.5% pa	169,367,030	30,774,807	138,592,223	535,033,587	213,631,873	321,401,714
Percentage of GNP						
1.5% pa	1.67	0.33	1.34	5.39	2.25	3.14
2.5% pa	1.79	0.34	1.45	5.74	2.36	3.38
4.5% pa	2.08	0.38	1.70	6.58	2.63	3.95

Note: Public includes both government and social insurance.

The analysis of alternative income scenarios considers a wide range of possibilities about which there is considerable uncertainty. If the baseline income elasticities hold, there are some important shifts in the patterns of health expenditures but the share of GNP devoted to health expenditure will decline very modestly irrespective of the rate of economic growth. This outcome is broadly consistent with the Philippines recent experience. Health expenditure increased in the Philippines since 1990 but somewhat more slowly than GNP. However, international experience suggests that health expenditure rises with per capita income. Moreover, health spending as a share of GNP is already relatively modest given per capita income. If the Philippines is to “catch up” with other countries, a greater response to income would be expected. Thus, it would be mistaken to rule out a more rapid increase in health expenditure than found in the baseline scenario.

## **Demographics**

Three demographic scenarios are distinguished as described in the section on the projection methodology. The baseline scenario corresponds to the most recently available official population projection for the Philippines. Under the assumption of that projection, the percentage of the population 60 and older will reach 10.2 percent by 2020.

The speed of aging will be slower if life expectancy increases more slowly and/or if fertility rates drop more slowly. If the speed of fertility decline is half that anticipated in the baseline scenario and the speed at which survival rates increase is half that anticipated in the baseline scenario, the percentage of the population 60 plus will reach 9.3 percent by 2020.

At the other extreme, if fertility drops fifty percent faster than under the baseline scenario and survival rates increase fifty percent faster than under the baseline scenario, the population 60 and older will reach 11.5 percent by 2020.

The speed of aging affects health care spending modestly over the twenty-year time horizon modeled in these projections (Table IV.5). Rapid aging leads to a rise in health spending on the elderly by a little less than 10 percent as compared with the baseline spending. If aging is slow, spending on the elderly is lower by a little less than 10 percent. This outcome is a direct result of the differences in the numbers of elderly under the different demographic scenarios.

Table IV.5. Health Expenditure by Elderly, Projected 2020, by Use of Funds, Three Demographic Scenarios.

Speed of Aging	Total Health Expenditure (000 peso)			As a percentage of GNP		
	Slow	Baseline	Rapid	Slow	Baseline	Rapid
<b>PERSONAL HEALTH CARE</b>	57,870,403	63,049,083	68,970,875	0.97	1.05	1.14
Government Hospital	20,710,056	22,045,866	23,522,018	0.35	0.37	0.39
Private Hospital	8,787,513	9,720,017	10,800,318	0.15	0.16	0.18
Non-hospital MD Facility	13,155,427	14,364,996	15,745,188	0.22	0.24	0.26
Other Professional Facility	468,280	509,812	557,011	0.01	0.01	0.01
Dental Facility	478,372	524,678	577,801	0.01	0.01	0.01
Traditional Care Facility	1,008,746	1,096,955	1,197,111	0.02	0.02	0.02
Retail Outlets: Drugs and Others	12,977,276	14,494,946	16,273,238	0.22	0.24	0.27
<b>PUBLIC HEALTH CARE</b>	2,485,786	2,732,751	3,016,905	0.04	0.05	0.05
<b>OTHERS</b>	3,482,449	3,827,130	4,223,489	0.06	0.06	0.07
General Administration and Operating Cost	3,235,111	3,553,647	3,919,736	0.05	0.06	0.06
Research and Training	287,709	316,872	350,463	0.00	0.01	0.01
<b>TOTAL</b>	63,838,638	69,608,965	76,211,269	1.07	1.16	1.26

A very similar picture emerges if we look at health expenditure by source of funding (Table IV.6). Both public and private spending on health care for the elderly are higher (lower) by about 10 percent if aging is rapid (slow) as compared with the baseline scenario.

Total health spending increases somewhat less than health spending on the elderly if population aging is more rapid. Health spending on the elderly increases by 12.4 billion pesos in 2020 given rapid aging as opposed to slow aging. The difference in total health spending is 9 billion pesos. The explanation for this is differences in fertility and, hence, the number of children. Rapid aging occurs, in part, because of rapid fertility decline. Fewer children translates into lower health expenditure for the non-elderly.

Table IV.6. Summary of Health Expenditure Projections, 2020, Three Demographic Scenarios

Speed of Aging	Health expenditures on elderly			Health expenditure, total		
	Total	Public	Private	Total	Public	Private
	Expenditure (000 peso)					
Slow	63,838,638	12,895,833	50,942,805	231,724,917	99,593,141	132,131,777
Baseline	69,608,965	13,972,212	55,636,753	235,937,058	99,551,977	136,385,081
Rapid	76,211,269	15,193,661	61,017,608	240,754,299	99,523,471	141,230,828
	Percentage of GNP					
Slow	1.07	0.22	0.85	3.87	1.67	2.21
Baseline	1.16	0.23	0.92	3.92	1.65	2.26
Rapid	1.26	0.25	1.01	3.97	1.64	2.33

Note: Public includes both government and social insurance.

## Price Changes

Price changes enter the simulation model by influencing the demand for health services by Filipino consumers. The effect on expenditures depends on the extent to which medical prices rise relative to general price increases and by the responsiveness of expenditure to price changes, as measured by the price elasticity of demand. The prices consumers face are also influenced by the extent to which the public sector subsidizes health care. In this section, however, public policy is held at the status quo or the baseline level.

Two scenarios are considered here. The baseline scenario sets medical price increases to the average annual rate observed in the Philippines between 1994 and 2001. The alternative scenario assesses the implications of a somewhat more rapid increase, the most recent rate of increase in the United States.

An increase in medical prices leads to a decline in the quantity of health care consumed, but demand is relatively inelastic. In other words, the quantity consumed is relatively unresponsive to price changes. Thus, price increases lead to higher expenditure ( $P \times Q$ ) on health care.

The projections to 2020 are consistent with this general observation. If price increases are more rapid than assumed in the baseline, total health expenditure on the elderly are projected to be higher by about 5 billion pesos in 2020 representing an increase of 6.7 percent of the baseline.

Table IV.7. Health Expenditure by the Elderly, Projected to 2020, by Use of Funds, Two Medical Price Inflation Scenarios.

Rate of medical price increase	Total Health Expenditure (000 peso)		As a percentage of GNP	
	1.08% pa	1.42% pa	1.08% pa	1.42% pa
<b>PERSONAL HEALTH CARE</b>	63,049,083	66,700,440	1.05	1.11
Government Hospital	22,045,866	23,315,555	0.37	0.39
Private Hospital	9,720,017	10,294,696	0.16	0.17
Non-hospital MD Facility	14,364,996	15,236,820	0.24	0.25
Other Professional Facility	509,812	536,560	0.01	0.01
Dental Facility	524,678	550,903	0.01	0.01
Traditional Care Facility	1,096,955	1,161,232	0.02	0.02
Retail Outlets: Drugs and Others	14,494,946	15,312,862	0.24	0.25
<b>PUBLIC HEALTH CARE</b>	2,732,751	2,880,446	0.05	0.05
<b>OTHERS</b>	3,827,130	4,032,544	0.06	0.07
General Administration and Operating Cost	3,553,647	3,737,274	0.06	0.06
Research and Training	316,872	338,658	0.01	0.01
<b>TOTAL</b>	69,608,965	74,294,590	1.16	1.23



Because public policy is held constant at the baseline level, the share of public expenditure in total expenditure is unaffected by price changes.

Table IV.8. Summary of Health Expenditure Projections, 2020, Two Medical Price Increase Scenarios.

Rate of medical price increase	Health expenditures on elderly			Health expenditure, total		
	Total	Public	Private	Total	Public	Private
	Expenditure (000 peso)					
1.08% pa	69,608,965	13,972,212	55,636,753	235,937,058	99,551,977	136,385,081
1.42% pa	73,613,429	14,758,255	58,855,174	249,378,513	105,136,776	144,241,737
	Percentage of GNP					
1.08% pa	1.16	0.23	0.92	3.92	1.65	2.26
1.42% pa	1.22	0.25	0.98	4.14	1.75	2.40

Note: Public includes both government and social insurance.

## **V. Policy Options**

In our analysis of the interactions among aging populations, health systems, and policy reform, three broad themes become apparent. First, an aging population is not a major factor in the Philippines through the year 2020 and therefore, will have only modest effects on the health system including priority health services (e.g., public health, primary care, MCH and reproductive health services). Second, national health expenditures as a proportion of GNP are low and are projected to stay below 4% in part because aging is a minor phenomenon over the period analyzed. Third, policy reforms designed to improve the quality of the delivery system and generosity of the financing system, if successful, could lead to a major expansion of national health expenditures in the long-run, say 50 years hence when the synergy between aging and generous entitlements come into full play. This may have deleterious effects on the Philippine economy, health systems and priority health services as the interaction of demography, health insurance and political economy take hold. This is hypothesized to be the case because the Philippines health insurance system for the elderly is, in large part, emulating the U.S. Medicare system.

### **Health Policy Reform**

National health policy in the Philippines seeks to improve the efficiency and equity of the health care financing and delivery system through a number of major health reforms. These include expansion of the social insurance system through the establishment of the Philippine Health Insurance Corporation (PhilHealth) (National Health Insurance Act of 1995 R.A. 7875; Busse and Schwartz 1997) and the devolution of public sector delivery from the national level to local control (World Bank 1994, Bossert, Beauvais and Bowser 2000).

#### *Devolution*

Under “Devolution,” control and financing of the public health care delivery system has been transferred to local government units (Local Government Code of 1991 Republic Act 7169.). The Philippines implemented the 1991 Local Government Code starting 1992 and as a result, local government units (LGUs) now receive additional funds (in the form of internal revenue allotments) from the national government as they have assumed responsibility for delivering and financing selected services. The new responsibility is quite significant and some LGUs lack the managerial and financial resources to adequately absorb the task.

The move from a highly centralized to the devolved public health care system involved the transfer of all Department of Health (DOH) facilities at the local level to the provincial, city or municipal governments. Specifically, devolution for DOH meant the transfer to LGUs of 60 percent of its staff (46,000 out of 74,000 personnel nationwide), 596 out of 639 hospitals (20 were later on reclassified as regional hospitals and re-nationalized), and 12,580 Rural Health Units (RHUs) and *Barangay* Health Stations (BHSs). In addition, nearly 50 percent of the DOH funding was transferred via the internal revenue allotment to LGUs during the first year of implementation of the Local Government Code in 1992. Such a dramatic shift in the health system could not occur without a short-run loss in efficiency and quality. As a consequence, the local health

systems and hospital system are targeted for further reform to improve the management, efficiency and quality of the services delivered (Department of Health, December 1999).

Although the National government provides some funding by revenue-sharing via the internal revenue allotments, LGUs in general and provincial governments in particular are expected to collect taxes to finance their contribution to the health care delivery system. Tax collection administration and enforcement is weak in many areas of the Philippines making it difficult for local governments to finance their share. Eventually it is hoped that public sector providers will become more efficient and produce higher quality services as they compete with the private sector for health insurance payments and in the process become more self-sufficient. In this regard, the Philippines is pursuing a managed competition approach in combination with a single-payer system (i.e., PhilHealth).

### *PhilHealth*

The Republic of the Philippines is attempting to achieve universal health insurance coverage by the year 2010. The National Health Insurance Act of 1995 (Republic Act No. 7875) instituted The National Health Insurance Program and established the Philippine Health Insurance Corporation (PhilHealth) ([www.philhealth.gov.ph](http://www.philhealth.gov.ph)) for this purpose. The National Health Insurance Program (NHIP), formerly known as Medicare, is a health insurance program for Social Security System (SSS) members and Government Service Insurance System (GSIS) members and their respective dependents. The program is based on the standard principle of risk-pooling with additional cross-subsidization from the healthy (low-risk) to the ill (high-risk), the relatively high-income to low-income, and working-age to young and old. The NHIP has four membership programs under PhilHealth, the Individual Paying Program (IPP), Employed Sector, the Sponsored Program and Non-Paying.

The Individual Paying Program (IPP) is for the self-employed, overseas Filipino workers (OFWs), persons separated from employment who continue to pay their own premiums, employees of international organizations and foreign governments based in the Philippines, and other persons not otherwise qualified under any other program (e.g., non-indigent retirees who do not meet the 120 month contribution criterion). This membership is generally voluntary with modest income and no direct wage deduction. Therefore, the premiums are fixed at 100 pesos per month (1200 per year). An enrolled member by providing appropriate documentation extends benefits to his or her entire family, broadly defined to include a non-employed/non-member spouse, legitimate children, illegitimate children, step-children and dependent parents over age 60 not otherwise qualified.

The Employed Sector program is mandatory for private sector and government workers and is the backbone of the NHIP. The program is financed through employment-based premiums in the form of a 2.5% wage tax with a 50-50 employer-employee split (1.25% paid by employees and 1.25% paid by employers). Monthly premiums for year 2004 range from 100-375 pesos per month with a maximum salary base of 15,000 pesos per month. The maximum salary base is scheduled to rise in 2005 to 20,000 pesos per

month bringing the premium range to 100-500 pesos per month. Once an employee and employer have contributed 120 monthly payments, the employee qualifies for lifetime retirement benefits. Retirement normally occurs at age 60 at which time benefits are forthcoming without further premium contributions. The program in many respects closely mirrors the U.S. Medicare program and is, therefore, subject to many of the same long-run financial problems (i.e., shrinking wage-base and rising expenditures). To what extent this difficulty will be ameliorated by economic growth is unclear. What is clear, however, is that the vast majority of current workers in the formal sector will carry at least some modest health insurance benefits into their retirement years.

The PhilHealth Sponsored Program provides for indigent households defined as families in the lowest income quartile. Commencing January 2004 premiums for members in the Sponsored Program are 1200 pesos per year for the entire indigent family which then receives the same benefits as the Employed Sector. The premiums are shared by the National Government (50%) and Local Government Units (50%) with additional national subsidy (share) for low-income LGUs. Low-income families, therefore, receive this coverage without premium payment of their own, in effect sponsored by government. Thus, the title of the program was given. As July 31, 2003 the Sponsored Program had 1,493,212 enrolled families (members) representing 7,466,060 beneficiaries. This is a massive welfare program expected to expand further, which will put pressure on the LGUs limited tax base.

Finally, the Non-Paying Program is for pensioners and retirees. PhilHealth is now the legislatively mandated administrator of the Medicare program. As a result, the SSS, which administered the Medicare program for private sector workers and GSIS which administered health insurance for public sector employs, have transferred their respective health funds to PhilHealth. Retirees and pensioners receiving benefits under these programs prior to 1995, as well as their dependents, are eligible to receive benefits under PhilHealth without payment of premiums. It includes members who contributed 120 monthly premiums through employment or voluntary self-payment and is the retirement benefit associated with the Employed Sector program.

Eventually all elderly will receive benefits via PhilHealth either as retirees or as members of the means-tested indigent population. As PhilHealth evolves to a single-payer system, it will administer premiums, benefit levels and provider reimbursement rates thereby directly and indirectly influencing prices and utilization. Therefore, health care expenditures will in large part be a matter of endogenous public policy. How this new public initiative will play out will depend in part on the degree of price regulation effectuated over private and public providers and on the political economy and demography associated with an entire population of beneficiaries.

The main focus is coverage for hospitalization. The current plan covers hospital charges (i.e., room and board, drugs, and diagnostic tests), professional fees, surgical expenses, and surgical family planning services, including vasectomy and tubal ligation. The program began quite modestly but is expected to evolve over a fifteen-year period to a comprehensive system in both the level of benefits and proportion of the population

covered. In 1999, there were 86,827 enrolled families comprised of a total of 416,770 beneficiaries. The program is expanding rapidly so that by the year 2000, there were 344,399 enrolled families rendering a total of 1,584,235 beneficiaries. With the addition of a number of indigent groups many of whom are elderly and employer groups, as well as the continued enrollment of eligible retirees, enrollment reached 9.5 million households with a total 38.2 million beneficiaries in June 2002. Nine years into the program more than half the population has been covered. This is dramatic turnaround with regard to enrollment as little progress had been made in the first 7 years. If the present trend continues the program is likely to reach its goal of complete and comprehensive coverage by the year 2010.

The Philippines Health Insurance Corporation (PhilHealth), the Philippines Department of Health, and other government agencies as well as policymakers have planned for expansion of the health financing system as discussed above. This is intended to convert the mix of health care financing to a more insurance-based system and away from direct government provision and out-of-pocket financing. Private out-of-pocket spending still accounts for nearly 43% of total financing approximately 51 billion pesos of the 119 billion pesos spent in calendar year 2001 per the PNHA (National Statistical Coordination Board 2003) (Table V.1). This heavy reliance on cash financing of the health system is considered inefficient, because families are unable to share the risk of unexpected medical expenses and inequitable because it provides less opportunity to cross-subsidize the poor.

**Table V.1. Cash and Insurance Financing as a Percentage of National Health Expenditures: 1991-2001.**

Year	Private Out-of-Pocket	Social Insurance	Private Coverage	All Insurance
1991	47.69%	5.44%	7.54%	12.98%
1992	49.58%	5.97%	8.33%	14.30%
1993	47.75%	6.36%	8.36%	14.73%
1994	47.47%	5.70%	8.62%	14.32%
1995	50.43%	4.54%	8.74%	13.28%
1996	48.71%	5.06%	9.02%	14.07%
1997	46.88%	5.13%	8.85%	13.98%
1998	46.77%	3.82%	9.00%	12.83%
1999	43.91%	5.09%	10.29%	15.38%
2000	41.02%	7.10%	9.66%	16.76%
2001	42.83%	7.76%	10.83%	18.58%

Source: EWC computations from NCSB Philippines National Health Accounts 1991-2002.

Note: Private coverage includes private insurance, HMOs and employer-based plans. All Insurance is the sum of Social Insurance and Private Coverage.

Cash financing as measured by private out-of-pocket expenditures has been generally falling as a proportion of total financing through the eleven-year period calendar years 1991-2001 from 47.7% to 42.8%. This is in part due to the rising importance in health insurance which now accounts for more than 18% of all financing. During the initial years of PhilHealth benefit levels were low, few beneficiaries were enrolled and financial reserves were accumulated. As a result social insurance spending was extremely low through the 1995-1999 period, accounting for less than 4% of national health expenditures in 1998, for example. Aggressive enrollment has brought social insurance financing to 7.76% of all spending as of calendar year 2001. Benefit levels are still quite modest under PhilHealth and well-to-do private sector and public sector employees supplement their coverage with private plans which have risen to 10.83% of total financing.

### **Policy Alternatives**

An important question for consideration is how policy will interact with aging to determine future health expenditures in the Philippines and thus the allocation of resources to the health sector. To assess this question we draw information from the Department of Health, Health Policy Development and Planning Bureau (Villaverde and Manoag 2003) which indicates the Health Sector Reform Agenda (HSRA) targets for sources of funds. The HSRA health financing targets for calendar year 2004 are 40% financing from the Government and 30% financing from social health insurance implying an average public sector subsidy rate of 70% at the point of service. We impose this rate in our simulations for the year 2005 and project forward to 2020. These results are labeled “Targeted” below in Table V.2 and Table V.3. Our baseline estimates begin with the actual subsidy rates in 1994 with projections recalibrated to the actual subsidy rates again in 2000 so that our projected values pass through the 2000 actual values and then project forward to 2020. One important difference in our target method versus HSRA targets is that we only restrict the source of funds and permit the uses of funds to adjust “naturally,” while HSRA targets both sources and uses.

**Table V.2. Health Expenditure by Elderly, Projected 2020, by Use of Funds, Two Subsidy Rates Scenarios.**

	Total Health Expenditure (000 peso)		As a Percentage of GNP	
	Baseline	Targeted	Baseline	Targeted
<b>PERSONAL HEALTH CARE</b>				
<b>CARE</b>	63,049,083	79,185,425	1.05	1.31
Government Hospital	22,045,866	33,607,403	0.37	0.56
Private Hospital	9,720,017	14,090,298	0.16	0.23
Non-hospital MD Facility	14,364,996	14,554,477	0.24	0.24
Other Professional Facility	509,812	509,812	0.01	0.01
Dental Facility	524,678	524,678	0.01	0.01
Traditional Care Facility	1,096,955	1,110,810	0.02	0.02
Retail Outlets: Drugs and Others	14,494,946	14,494,946	0.24	0.24
<b>PUBLIC HEALTH CARE</b>	2,732,751	2,732,751	0.05	0.05
<b>OTHERS</b>	3,827,130	3,827,130	0.06	0.06
General Administration and Operating Cost	3,553,647	3,553,647	0.06	0.06
Research and Training	316,872	316,872	0.01	0.01
<b>TOTAL</b>	69,608,965	85,745,307	1.16	1.42

Our results indicate that under a 70% subsidy target, health spending for the elderly will increase to 85.7 billion pesos (1994 prices) by the year 2020 versus 69.6 billion pesos under our baseline assumptions. Much of the projected increased spending will be used for hospital services for two reasons. First, this is one of main types of service the elderly demand and second, social insurance is designed to cover the large and unexpected expense associated with hospitalization. Increased subsidies through insurance coverage will generate greater utilization and expenditure through the well known phenomenon of moral hazard. This may call for a re-design of PhilHealth benefit and provider payment schedules to maintain the desired utilization mix.

**Table V.3 Summary of Health Expenditure Projections, 2020, Two Subsidy Rates**

Subsidy Rates	Health expenditures on elderly			Health expenditure, total		
	Total	Public	Private	Total	Public	Private
	Expenditure (000 peso)					
Baseline	69,608,965	13,972,212	55,636,753	235,937,058	99,551,977	136,385,081
Targeted	85,745,307	49,999,993	35,745,313	259,043,384	162,184,441	96,858,943
	Percentage of GNP					
Baseline	1.16	0.23	0.92	3.92	1.65	2.26
Targeted	1.42	0.83	0.59	4.30	2.69	1.61

Notes: Public includes both government and social insurance. Subsidy rates are targeted to reach 70% in 2005.

Overall spending on young and old will rise to 259 billion pesos (1994 prices) by 2020 under the 70% subsidy alternative compared to 235.9 billion pesos (1994 prices) under the status quo (baseline) alternative. National health expenditures will rise to 4.3% of GNP still below the 5.0% target but considerably above the 3.9% baseline projection.

The results of this policy alternative as compared to the baseline in 2020 can be summarized as follows. Total spending will rise and will increase more for the old than the young. The proportion of total resources in the economy dedicated to the health sector will increase and will increase more for the old than the young. Under current payment rules, spending on hospitalization will absorb a disproportionate share of the increase. Finally, the public sector will crowd-out private sector spending by an economically significant amount.



## **VI. Conclusions**

The objectives and major findings of this study are highlighted in the introduction and throughout the document. Hence, these will not be highlighted here. The Philippines is the focus of this study, but the findings and the methodology are more general. In particular, the feasibility and value of estimating National Health Accounts separately for the young and the elderly has been demonstrated as has the feasibility and value of projecting National Health Accounts.

As with any initial undertaking the results presented here should be taken as suggestive of general trends and issues. There is little doubt that the Philippines will experience population aging over the coming decades. Nor is there little doubt that the elderly will be intensive users of health care. Thus, other considerations aside health care expenditure will surely rise in the future. How rapidly is difficult to forecast for several reasons. One is that the data available to estimate key model parameters is limited. We rely heavily on a few surveys that were, for the most part conducted during the first half of the 1990s. Essentially a decade has passed. The model has been recalibrated so that it is consistent with National Health Account estimates for 2000, but it would be far better to have additional surveys for more recent years that could be employed to re-estimate key model parameters. Even though the Philippines has relatively extensive and detailed survey data from the early 1990s, these data are far from ideal. In part, this reflects accounting systems that are not conducive to linking costs to individuals.

Despite these and other limitations successful policy formulation in the health sector requires a long-term view that can only be informed by assessments of the likely course of the demography, the economy, and the health care system in question.

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## Philippines National Health Account for Non Old Persons (0-59) 2000

1994 Prices

(in thousand pesos)

USES OF FUNDS	SOURCES OF FUNDS										TOTAL
	GOVERNMENT			SOC. INSURANCE		PRIVATE				Other	
	National Agencies	Foreign Assisted Projects	Local Units	SSS/GSIS	Employee Compensation/ HIP	Private Out-of-Pocket	Private Insurance /HMO	Employer-Based Plan	Private Schools		
PERSONAL HEALTH CARE	8,229,223	724,180	3,143,864	4,162,476	129,068	21,451,915	1,756,722	2,003,620	596,716		41,956,100
Government Hospital	8,007,356	724,180	3,124,317	869,015	20,691	6,476,234	848,325	620,725			20,690,843
Private Hospital	6,021			3,293,461	108,377	2,131,417	282,985	198,691			6,020,952
Non-hospital MD Facility	195,469		19,547			3,459,805	459,353	322,524	430,032		4,886,730
Other Professional Facility						443,427	55,280	41,014	54,685		594,406
Dental Facility						910,592	110,781	83,998	111,998		1,217,368
Traditional Care Facility	20,376					320,463		29,638			370,478
Retail Outlets: Drugs, and Others						7,709,978		707,029			8,417,006
PUBLIC HEALTH CARE	1,870,865	1,309,605	6,666,187								9,846,657
OTHERS	1,839,338	388,640	3,655,146	540,931	15,455		1,792,799				8,260,256
General Administration and Operating Cost	1,723,251		3,655,146	540,931	15,455		1,792,799				7,727,581
Research and Training	116,087	388,640									504,727
<b>TOTAL</b>	<b>11,939,425</b>	<b>2,422,425</b>	<b>13,465,197</b>	<b>4,703,407</b>	<b>144,523</b>	<b>21,451,915</b>	<b>3,549,521</b>	<b>2,003,620</b>	<b>596,716</b>		<b>60,063,013</b>

## Philippines National Health Account for Non Old Persons (0-59) 2005

1994 Prices

(in thousand pesos)

USES OF FUNDS	SOURCES OF FUNDS										TOTAL
	GOVERNMENT			SOCIAL INS.		PRIVATE					
	National Agencies	Foreign Assisted Projects	Local Units	SSS/ GSIS	Employee Compensation/ HIP	Private Out-of-Pocket	Private Insurance /HMO	Employer-Based Plan	Private Schools	Other	
PERSONAL HEALTH CARE	10,712,716	941,450	4,088,373	5,892,251	183,617	28,573,985	2,339,442	2,668,408	788,097		55,933,500
Government Hospital	10,409,746	941,450	4,061,684	1,129,740	26,899	8,419,252	1,102,841	806,957			26,898,569
Private Hospital	8,707			4,762,511	156,719	3,082,137	409,210	287,318			8,706,601
Non-hospital MD Facility	266,888		26,689			4,723,920	627,187	440,365	587,154		6,672,203
Other Professional Facility						538,789	67,168	49,834	66,446		722,237
Dental Facility						1,093,524	133,036	100,873	134,498		1,461,930
Traditional Care Facility	27,375					430,534		39,818			497,727
Retail Outlets: Drugs, and Others						10,285,830		943,242			11,229,072
PUBLIC HEALTH CARE	2,352,920	1,647,044	8,383,825								12,383,788
OTHERS	2,303,189	645,423	4,476,320	662,458	18,927		1,761,079				10,332,611
General Administration and Operating Cost	2,110,400		4,476,320	662,458	18,927		1,761,079				9,463,679
Research and Training	192,789	645,423									838,211
<b>TOTAL</b>	<b>15,368,825</b>	<b>3,233,917</b>	<b>16,948,517</b>	<b>6,554,708</b>	<b>202,545</b>	<b>28,573,985</b>	<b>4,100,521</b>	<b>2,668,408</b>	<b>788,097</b>		<b>78,649,899</b>

## Philippines National Health Account for Non Old Persons (0-59) 2010

1994 Prices

(in thousand pesos)

USES OF FUNDS	SOURCES OF FUNDS										TOTAL
	GOVERNMENT			SOC. INSURANCE		PRIVATE					
	National Agencies	Foreign Assisted Projects	Local Units	SSS/GSIS	Employee Compensation/ HIP	Private Out-of-Pocket	Private Insurance /HMO	Employer-Based Plan	Private Schools	Other	
PERSONAL HEALTH CARE	12,895,748	1,128,853	4,906,769	7,932,953	248,724	37,736,305	2,996,903	3,520,363	1,055,357		72,155,190
Government Hospital	12,481,886	1,128,853	4,870,193	1,354,623	32,253	10,095,168	1,322,370	967,588			32,252,934
Private Hospital	12,026			6,578,330	216,472	4,257,274	565,231	396,864			12,026,197
Non-hospital MD Facility	365,763		36,576			6,474,010	859,544	603,509	804,679		9,144,082
Other Professional Facility						673,234	83,929	62,270	83,026		902,459
Dental Facility						1,363,082	165,829	125,739	167,652		1,822,302
Traditional Care Facility	36,073					567,337		52,471			655,881
Retail Outlets: Drugs, and Others						14,306,200		1,311,922			15,618,122
PUBLIC HEALTH CARE	3,058,723	2,141,106	10,898,712								16,098,541
OTHERS	2,982,652	1,020,884	5,679,632	840,538	24,015		2,785,782				13,367,841
General Administration and Operating Cost	2,677,712		5,679,632	840,538	24,015		2,785,782				12,007,679
Research and Training	304,939	1,020,884									1,325,824
<b>TOTAL</b>	<b>18,937,123</b>	<b>4,290,843</b>	<b>21,485,114</b>	<b>8,773,490</b>	<b>272,740</b>	<b>37,736,305</b>	<b>5,782,685</b>	<b>3,520,363</b>	<b>1,055,357</b>		<b>101,621,571</b>

## Philippines National Health Account for Non Old Persons (0-59) 2015

1994 Prices

(in thousand pesos)

USES OF FUNDS	SOURCES OF FUNDS										TOTAL
	GOVERNMENT			SOC. INSURANCE		PRIVATE					
	National Agencies	Foreign Assisted Projects	Local Units	SSS/ GSIS	Employee Compensation/ HIP	Private Out-of-Pocket	Private Insurance /HMO	Employer-Based Plan	Private Schools	Other	
PERSONAL HEALTH CARE	15,613,994	1,362,413	5,926,488	10,623,658	334,717	49,551,986	3,823,271	4,618,607	1,383,134		92,958,532
Government Hospital	15,064,390	1,362,413	5,877,837	1,634,895	38,926	12,183,861	1,595,969	1,167,782	0		38,926,072
Private Hospital	16,433			8,988,763	295,791	5,817,225	772,343	542,284	0		16,432,838
Non-hospital MD Facility	486,515		48,651			8,611,313	1,143,310	802,750	1,070,333		12,162,872
Other Professional Facility	0					838,272	104,503	77,534	103,379		1,123,688
Dental Facility	0					1,702,695	207,146	157,067	209,422		2,276,331
Traditional Care Facility	46,657					733,782		67,864			848,302
Retail Outlets: Drugs, and Others						19,664,839		1,803,326			21,468,164
PUBLIC HEALTH CARE	3,951,176	2,765,823	14,078,664								20,795,662
OTHERS	3,842,082	1,495,248	7,202,007	1,065,836	30,452		3,532,485				17,206,608
General Administration and Operating Cost	3,395,449	0	7,202,007	1,065,836	30,452		3,532,485				15,226,230
Research and Training	446,633	1,495,248	0	0	0						1,941,881
<b>TOTAL</b>	<b>23,407,252</b>	<b>5,623,484</b>	<b>27,207,159</b>	<b>11,689,494</b>	<b>365,170</b>	<b>49,551,986</b>	<b>7,355,757</b>	<b>4,618,607</b>	<b>1,383,134</b>		<b>130,960,803</b>

## Philippines National Health Account for Non Old Persons (0-59) 2020

1994 Prices

(in thousand pesos)

USES OF FUNDS	SOURCES OF FUNDS										TOTAL
	GOVERNMENT			SOC. INSURANCE		PRIVATE				Other	
	National Agencies	Foreign Assisted Projects	Local Units	SSS/ GSIS	Employee Compensation/ HIP	Private Out-of-Pocket	Private Insurance /HMO	Employer-Based Plan	Private Schools		
PERSONAL HEALTH CARE	18,589,348	1,616,941	7,038,907	13,925,994	440,608	64,023,936	4,790,036	5,962,479	1,773,061		117,869,495
Government Hospital	17,878,750	1,616,941	6,975,946	1,940,329	46,198	14,460,074	1,894,131	1,385,950			46,198,320
Private Hospital	21,912			11,985,664	394,409	7,756,719	1,029,847	723,084			21,911,635
Non-hospital MD Facility	629,604		62,960			11,143,993	1,479,570	1,038,847	1,385,129		15,740,103
Other Professional Facility						1,034,390	128,952	95,674	127,566		1,386,582
Dental Facility						2,116,891	257,536	195,275	260,366		2,830,068
Traditional Care Facility	59,082					929,199		85,938			1,074,219
Retail Outlets: Drugs, and Others						26,582,669		2,437,712			29,020,381
PUBLIC HEALTH CARE	5,044,390	3,531,073	17,973,958								26,549,421
OTHERS	4,894,947	2,076,417	9,067,005	1,341,840	38,338		4,447,241				21,909,177
General Administration and Operating Cost	4,274,719		9,067,005	1,341,840	38,338		4,447,241				19,169,144
Research and Training	620,228	2,076,417									2,696,645
<b>TOTAL</b>	<b>28,528,685</b>	<b>7,224,431</b>	<b>34,079,870</b>	<b>15,267,834</b>	<b>478,946</b>	<b>64,023,936</b>	<b>9,237,277</b>	<b>5,962,479</b>	<b>1,773,061</b>		<b>166,328,093</b>



## Philippines National Health Account for Older Persons (60+) 2000

1994 Prices

(in thousand pesos)

USES OF FUNDS	SOURCES OF FUNDS										TOTAL
	GOVERNMENT			SOCIAL INS.		PRIVATE				Other	
	National Agencies	Foreign Assisted Projects	Local Units	SSS/GSIS	Employee Compensation/ HIP	Private Out-of-Pocket	Private Insurance /HMO	Employer-Based Plan	Private Schools		
PERSONAL HEALTH CARE	1,126,924	98,829	431,185	370,953		10,155,406	701,407				13,126,387
Government Hospital	1,104,919	98,829	429,271	96,823		3,789,074	351,990				5,870,907
Private Hospital	317			274,131		1,197,876	111,331				1,583,654
Non-hospital MD Facility	19,129		1,914			2,315,812	218,013				2,554,867
Other Professional Facility						114,708	10,042				124,750
Dental Facility						118,406	10,031				128,437
Traditional Care Facility	2,559					219,791					222,351
Retail Outlets: Drugs, and Others						2,399,739					2,399,739
PUBLIC HEALTH CARE	110,050	76,903	391,578								578,531
OTHERS	241,458	22,932	318,532	51,847			216,812				823,633
General Administration and Operating Cost	230,582		318,532	51,800			216,812				817,726
Research and Training	10,875	22,932		47							33,854
<b>TOTAL</b>	<b>1,478,432</b>	<b>198,664</b>	<b>1,141,295</b>	<b>422,800</b>		<b>10,155,406</b>	<b>918,219</b>				<b>14,528,551</b>

## Philippines National Health Account for Older Persons (60+) 2005

1994 Prices

(in thousand pesos)

USES OF FUNDS	SOURCES OF FUNDS								Other	TOTAL
	GOVERNMENT			SOCIAL INS.		PRIVATE				
	National Agencies	Foreign Assisted Projects	Local Units	SSS/GSIS	Employee Compensation/ HIP	Private Out-of-Pocket	Private Insurance /HMO	Employer-Based Plan	Private Schools	
PERSONAL HEALTH CARE	1,547,257	135,405	591,063	555,368		14,799,531	1,013,790			18,897,254
Government Hospital	1,513,845	135,405	588,143	132,656		5,191,393	482,261			8,043,702
Private Hospital	488			422,711		1,847,134	171,673			2,442,007
Non-hospital MD Facility	29,185		2,920			3,533,244	332,623			3,897,971
Other Professional Facility						156,307	13,683			169,991
Dental Facility						159,949	13,551			173,499
Traditional Care Facility	3,739					321,142				324,881
Retail Outlets: Drugs, and Others						3,590,362				3,590,362
PUBLIC HEALTH CARE	155,218	108,467	552,295							815,980
OTHERS	336,942	42,709	437,479	71,231			297,774			1,155,415
General Administration and Operating Cost	316,687		437,479	71,144			297,774			1,123,084
Research and Training	20,255	42,709		87						63,051
<b>TOTAL</b>	<b>2,039,418</b>	<b>286,581</b>	<b>1,580,836</b>	<b>626,599</b>		<b>14,799,531</b>	<b>1,311,565</b>			<b>20,868,649</b>

## Philippines National Health Account for Older Persons (60+) 2010

1994 Prices

(in thousand pesos)

USES OF FUNDS	SOURCES OF FUNDS									TOTAL	
	GOVERNMENT			SOCIAL INS.		PRIVATE			Other		
	National Agencies	Foreign Assisted Projects	Local Units	SSS/GSIS	Employee Compensation/ HIP	Private Out-of-Pocket	Private Insurance /HMO	Employer-Based Plan		Private Schools	
PERSONAL HEALTH CARE	2,182,070	190,488	831,996	865,569		22,507,002	1,516,783				28,360,694
Government Hospital	2,129,679	190,488	827,400	186,621		7,303,259	678,445				11,315,893
Private Hospital	784			678,948		2,966,816	275,737				3,922,285
Non-hospital MD Facility	45,938		4,596			5,561,497	523,564				6,135,595
Other Professional Facility						224,318	19,637				243,955
Dental Facility						228,991	19,400				248,391
Traditional Care Facility	5,668					486,757					492,425
Retail Outlets: Drugs, and Others						5,735,363					5,735,363
PUBLIC HEALTH CARE	231,747	161,945	824,596								1,218,289
OTHERS	498,291	77,587	637,521	103,833			433,934				1,716,829
General Administration and Operating Cost	461,496		637,521	103,675			433,934				1,636,625
Research and Training	36,796	77,587		158							114,542
<b>TOTAL</b>	<b>2,912,108</b>	<b>430,021</b>	<b>2,294,113</b>	<b>969,402</b>		<b>22,507,002</b>	<b>1,950,717</b>				<b>31,295,811</b>

## Philippines National Health Account for Older Persons (60+) 2015

1994 Prices

(in thousand pesos)

USES OF FUNDS	SOURCES OF FUNDS							TOTAL			
	GOVERNMENT			SOCIAL INS.		PRIVATE					
	National Agencies	Foreign Assisted Projects	Local Units	SSS/GSIS	Employee Compensation/ HIP	Private Out-of-Pocket	Private Insurance /HMO	Employer-Based Plan	Private Schools	Other	
PERSONAL HEALTH CARE	3,058,085	266,327	1,163,893	1,335,642		33,993,814	2,248,176				42,345,675
Government Hospital	2,977,566	266,327	1,156,812	260,920		10,210,895	948,553				15,821,073
Private Hospital	1,242			1,074,722		4,696,245	436,470				6,208,679
Non-hospital MD Facility	70,786		7,081			8,569,657	806,755				9,454,279
Other Professional Facility						323,563	28,325				351,888
Dental Facility						331,367	28,073				359,440
Traditional Care Facility	8,492					729,312					737,804
Retail Outlets: Drugs, and Others						9,132,775					9,132,775
PUBLIC HEALTH CARE	346,797	242,343	1,233,967								1,823,107
OTHERS	740,350	131,645	936,490	152,563			637,431				2,559,982
General Administration and Operating Cost	677,917		936,490	152,294			637,431				2,404,132
Research and Training	62,433	131,645		269							194,346
<b>TOTAL</b>	<b>4,145,232</b>	<b>640,314</b>	<b>3,334,350</b>	<b>1,488,205</b>		<b>33,993,814</b>	<b>2,885,607</b>				<b>46,728,763</b>

## Philippines National Health Account for Older Persons (60+) 2020

1994 Prices

(in thousand pesos)

USES OF FUNDS	SOURCES OF FUNDS										TOTAL
	GOVERNMENT			SOCIAL INS.		PRIVATE					
	National Agencies	Foreign Assisted Projects	Local Units	SSS/GSIS	Employee Compensation/ HIP	Private Out-of-Pocket	Private Insurance /HMO	Employer-Based Plan	Private Schools	Other	
PERSONAL HEALTH CARE	4,271,210	371,113	1,622,719	2,046,114		51,133,224	3,312,891				63,049,083
Government Hospital	4,149,087	371,113	1,611,959	363,579		14,228,367	1,321,761				22,045,866
Private Hospital	1,944			1,682,535		7,352,221	683,317				9,720,017
Non-hospital MD Facility	107,553		10,760			13,020,886	1,225,797				14,364,996
Other Professional Facility						468,774	41,038				509,812
Dental Facility						483,700	40,978				524,678
Traditional Care Facility	12,626					1,084,329					1,096,955
Retail Outlets: Drugs, and Others						14,494,946					14,494,946
PUBLIC HEALTH CARE	519,833	363,261	1,849,658								2,732,751
OTHERS	1,103,850	214,640	1,384,265	225,550			942,213				3,827,130
General Administration and Operating Cost	1,002,057		1,384,265	225,112			942,213				3,553,647
Research and Training	101,793	214,640		438							316,872
TOTAL	5,894,893	949,013	4,856,641	2,271,664		51,133,224	4,255,104				69,608,965

# Philippines National Health Account

## 2000

1994 Prices

(in thousand pesos)

USES OF FUNDS	SOURCES OF FUNDS										TOTAL
	GOVERNMENT			SOC. INSURANCE		PRIVATE					
	National Agencies	Foreign Assisted Projects	Local Units	SSS/GSIS	Employee Compensation/ HIP	Private Out-of-Pocket	Private Insurance /HMO	Employer-Based Plan	Private Schools	Other	
PERSONAL HEALTH CARE	9,356,147	823,008	3,575,049	4,533,429	129,068	31,607,321	2,458,129	2,003,620	596,716		55,082,487
Government Hospital	9,112,276	823,008	3,553,589	965,838	20,691	10,265,308	1,200,315	620,725			26,561,750
Private Hospital	6,338			3,567,591	108,377	3,329,293	394,316	198,691			7,604,606
Non-hospital MD Facility	214,598		21,461			5,775,617	677,365	322,524	430,032		7,441,597
Other Professional Facility						558,135	65,322	41,014	54,685		719,156
Dental Facility						1,028,997	120,812	83,998	111,998		1,345,805
Traditional Care Facility	22,935					540,255		29,638			592,828
Retail Outlets: Drugs, and Others						10,109,716		707,029			10,816,745
PUBLIC HEALTH CARE	1,980,915	1,386,509	7,057,764								10,425,188
OTHERS	2,080,796	411,571	3,973,678	592,778	15,455		2,009,611				9,083,888
General Administration and Operating Cost	1,953,833		3,973,678	592,731	15,455		2,009,611				8,545,308
Research and Training	126,963	411,571		47							538,581
<b>TOTAL</b>	<b>13,417,857</b>	<b>2,621,088</b>	<b>14,606,491</b>	<b>5,126,207</b>	<b>144,523</b>	<b>31,607,321</b>	<b>4,467,740</b>	<b>2,003,620</b>	<b>596,716</b>		<b>74,591,564</b>

## Philippines National Health Account 2005

1994 Prices

(in thousand pesos)

USES OF FUNDS	SOURCES OF FUNDS										TOTAL
	GOVERNMENT			SOCIAL INS.		PRIVATE					
	National Agencies	Foreign Assisted Projects	Local Units	SSS/ GSIS	Employee Compensation/ HIP	Private Out-of-Pocket	Private Insurance /HMO	Employer-Based Plan	Private Schools	Other	
PERSONAL HEALTH CARE	12,259,973	1,076,855	4,679,435	6,447,618	183,617	43,373,516	3,353,233	2,668,408	788,097		74,830,753
Government Hospital	11,923,591	1,076,855	4,649,827	1,262,396	26,899	13,610,645	1,585,102	806,957			34,942,272
Private Hospital	9,195			5,185,222	156,719	4,929,271	580,883	287,318			11,148,608
Non-hospital MD Facility	296,073		29,608			8,257,164	959,810	440,365	587,154		10,570,174
Other Professional Facility						695,096	80,852	49,834	66,446		892,228
Dental Facility						1,253,472	146,586	100,873	134,498		1,635,429
Traditional Care Facility	31,114					751,676		39,818			822,608
Retail Outlets: Drugs, and Others						13,876,192		943,242			14,819,434
PUBLIC HEALTH CARE	2,508,138	1,755,511	8,936,119								13,199,768
OTHERS	2,640,131	688,132	4,913,799	733,688	18,927		2,058,854				11,488,026
General Administration and Operating Cost	2,427,088		4,913,799	733,601	18,927		2,058,854				10,586,763
Research and Training	213,044	688,132		87	0						901,263
<b>TOTAL</b>	<b>17,408,243</b>	<b>3,520,498</b>	<b>18,529,354</b>	<b>7,181,307</b>	<b>202,545</b>	<b>43,373,516</b>	<b>5,412,086</b>	<b>2,668,408</b>	<b>788,097</b>		<b>99,518,547</b>

## Philippines National Health Account 2010

1994 Prices

(in thousand pesos)

USES OF FUNDS	SOURCES OF FUNDS										TOTAL
	GOVERNMENT			SOC. INSURANCE		PRIVATE				Other	
	National Agencies	Foreign Assisted Projects	Local Units	SSS/GSIS	Employee Compensation/ HIP	Private Out-of-Pocket	Private Insurance /HMO	Employer-Based Plan	Private Schools		
PERSONAL HEALTH CARE	15,077,818	1,319,341	5,738,765	8,798,521	248,724	60,243,307	4,513,686	3,520,363	1,055,357		100,515,883
Government Hospital	14,611,565	1,319,341	5,697,593	1,541,244	32,253	17,398,428	2,000,815	967,588			43,568,827
Private Hospital	12,811			7,257,277	216,472	7,224,090	840,968	396,864			15,948,482
Non-hospital MD Facility	411,701		41,172			12,035,506	1,383,108	603,509	804,679		15,279,676
Other Professional Facility						897,552	103,566	62,270	83,026		1,146,414
Dental Facility						1,592,073	185,229	125,739	167,652		2,070,693
Traditional Care Facility	41,741					1,054,094		52,471			1,148,306
Retail Outlets: Drugs, and Others						20,041,563		1,311,922			21,353,485
PUBLIC HEALTH CARE	3,290,470	2,303,051	11,723,309								17,316,829
OTHERS	3,480,943	1,098,472	6,317,153	944,371	24,015		3,219,716				15,084,670
General Administration and Operating Cost	3,139,208		6,317,153	944,212	24,015		3,219,716				13,644,304
Research and Training	341,735	1,098,472		158							1,440,366
<b>TOTAL</b>	<b>21,849,231</b>	<b>4,720,864</b>	<b>23,779,227</b>	<b>9,742,892</b>	<b>272,740</b>	<b>60,243,307</b>	<b>7,733,402</b>	<b>3,520,363</b>	<b>1,055,357</b>		<b>132,917,382</b>



## Philippines National Health Account 2015

1994 Prices

(in thousand pesos)

USES OF FUNDS	SOURCES OF FUNDS										TOTAL
	GOVERNMENT			SOC. INSURANCE		PRIVATE				Other	
	National Agencies	Foreign Assisted Projects	Local Units	SSS/ GSIS	Employee Compensation/ HIP	Private Out-of-Pocket	Private Insurance /HMO	Employer-Based Plan	Private Schools		
PERSONAL HEALTH CARE	18,672,079	1,628,739	7,090,382	11,959,300	334,717	83,545,800	6,071,448	4,618,607	1,383,134		135,304,206
Government Hospital	18,041,956	1,628,739	7,034,649	1,895,815	38,926	22,394,756	2,544,522	1,167,782			54,747,145
Private Hospital	17,675			10,063,485	295,791	10,513,469	1,208,814	542,284			22,641,517
Non-hospital MD Facility	557,301		55,733			17,180,970	1,950,065	802,750	1,070,333		21,617,151
Other Professional Facility						1,161,834	132,828	77,534	103,379		1,475,576
Dental Facility						2,034,062	235,219	157,067	209,422		2,635,771
Traditional Care Facility	55,149					1,463,094		67,864			1,586,107
Retail Outlets: Drugs, and Others						28,797,614		1,803,326			30,600,940
PUBLIC HEALTH CARE	4,297,973	3,008,166	15,312,630								22,618,769
OTHERS	4,582,432	1,626,893	8,138,497	1,218,399	30,452		4,169,916				19,766,590
General Administration and Operating Cost	4,073,366		8,138,497	1,218,130	30,452		4,169,916				17,630,362
Research and Training	509,065	1,626,893		269							2,136,228
<b>TOTAL</b>	<b>27,552,484</b>	<b>6,263,798</b>	<b>30,541,509</b>	<b>13,177,699</b>	<b>365,170</b>	<b>83,545,800</b>	<b>10,241,364</b>	<b>4,618,607</b>	<b>1,383,134</b>		<b>177,689,566</b>

## Philippines National Health Account 2020

1994 Prices

(in thousand pesos)

USES OF FUNDS	SOURCES OF FUNDS										TOTAL
	GOVERNMENT			SOC. INSURANCE		PRIVATE				Other	
	National Agencies	Foreign Assisted Projects	Local Units	SSS/ GSIS	Employee Compensation/ HIP	Private Out-of-Pocket	Private Insurance /HMO	Employer-Based Plan	Private Schools		
PERSONAL HEALTH CARE	22,860,558	1,988,054	8,661,625	15,972,108	440,608	115,157,159	8,102,927	5,962,479	1,773,061		180,918,578
Government Hospital	22,027,837	1,988,054	8,587,905	2,303,908	46,198	28,688,441	3,215,892	1,385,950			68,244,186
Private Hospital	23,856			13,668,199	394,409	15,108,939	1,713,164	723,084			31,631,652
Non-hospital MD Facility	737,157		73,720			24,164,879	2,705,367	1,038,847	1,385,129		30,105,099
Other Professional Facility						1,503,165	169,990	95,674	127,566		1,896,394
Dental Facility						2,600,591	298,514	195,275	260,366		3,354,746
Traditional Care Facility	71,708					2,013,529		85,938			2,171,174
Retail Outlets: Drugs, and Others						41,077,616		2,437,712			43,515,328
PUBLIC HEALTH CARE	5,564,223	3,894,334	19,823,616								29,282,172
OTHERS	5,998,798	2,291,057	10,451,270	1,567,390	38,338		5,271,687				25,736,308
General Administration and Operating Cost	5,276,776		10,451,270	1,566,952	38,338		5,271,687				22,722,791
Research and Training	722,022	2,291,057		438							3,013,517
<b>TOTAL</b>	<b>34,423,578</b>	<b>8,173,444</b>	<b>38,936,511</b>	<b>17,539,498</b>	<b>478,946</b>	<b>115,157,159</b>	<b>13,374,615</b>	<b>5,962,479</b>	<b>1,773,061</b>		<b>235,937,058</b>