CHAPTER 3

The State of Human Capital

Filipinos lag behind other countries in terms of income but rank high in education and health. With an average income of US$780 in 1990, their average life expectancy is 64 years; 93 percent of the adult population is literate with an average 7.5 years of schooling completed. These figures are higher than those of Thailand and Indonesia although Thailand's per capita income has recently doubled that of the Philippines, while Indonesia's is slightly lower than that of the Philippines.

A number of reasons lie behind this achievement. Most important is the fact that much of higher education in the Philippines is private. Because of this, the government was able to concentrate its resources at the primary level and to easily expand the public elementary school system. The Philippines also had an early start in providing mass primary education.[1] The result was high enrolment rates at all levels: 100 percent at primary, 67.3 percent at secondary, and 32.8 percent at the tertiary levels. Private schools take in less than 10 percent of primary pupils, but enrol 35-40 percent of high school and 85 percent of college students.

Essentially, the same situation prevails in the health sector. Private hospitals and clinics operate alongside government facilities. Self-financing and dependent on paying clients, private hospitals provide 53 percent of all hospital beds. There are 1,209 private and 590 public hospitals in the country.

While the *average* achievement in health and education is notable, a closer look reveals serious problems, since neither health nor education is equally accessible to all Filipinos (Box 3.1). Ultimately, this inequality is traceable to the unequal distribution of income. Except for primary education, government has not succeeded in equalizing access to the different facilities for human capital. This chapter dwells on that problem of distribution.

The Nature of Human Capital

More general than either health or education is the idea of *human capital* (HC). It refers to those personal attributes that enhance a person's capabilities in all endeavors, whether on the job or at home. The term "capital" is an analogy: the attributes of a person are quite similar to a *stock of wealth* that may be accumu-

[1] By providing widespread primary education the United States government effectively dampened the Filipino people's resistance to the occupation. American teachers were brought in to simultaneously teach pupils and teachers. At the same time, the colonial government turned a blind eye to the entry of private schools that provided the three levels of schooling as demand warranted. Hundreds of both public and private schools opened in the four decades preceding the Second World War. When the country gained independence in 1946, the expansionary education policy was continued. Private schools were allowed to open with a minimum of quality requirements. The ease of private sector entry resulted in a rapid expansion of the whole educational system. Private colleges and universities, many of which also offered primary and secondary programs, grew both in number and in enrolment (Tan 1990).

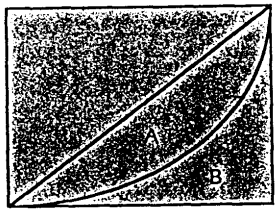
Box 3.1
LORENZ CURVES AND GINI RATIOS

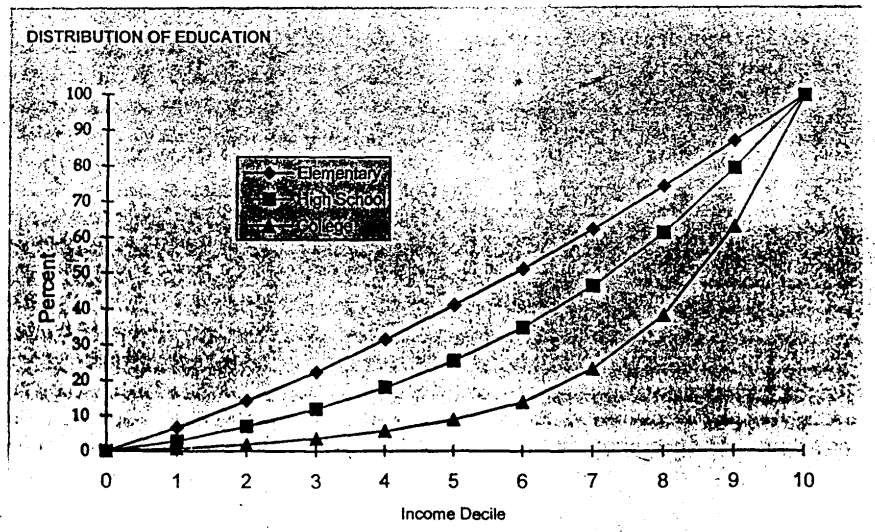
Lorenz curves are a way of visualizing the equality of distributions which is equivalent to computing Gini coefficients. If education level *x*, say elementary education, is equally distributed over the population regardless of income, then the poorest 10 percent (i.e., first income decile) of the population should represent 10 percent of the population who have attained *x*; the first two deciles should represent 20 percent, and so on. If these were to be plotted in such a diagram as the above, perfect equality would then be represented by a straight line.

On the other hand, if more of education were to be found only among the higher (richer) deciles, then the lower deciles would represent a lower percentage of the people possessing that level of education. For example, the poorest 50 percent (first five deciles) may account for only 9 percent of those having that level of education. Graphically, instead of a straight line, a bowed out curve would result. The more unequal the distribution of education, the more curved the graph will be.

In the figure below, Lorenz curves have been plotted for elementary, high school, and college education (using data in Table 26). It is obvious that the curve for elementary education is virtually a straight line, indicating its equal distribution among the people. On the other hand, the curve for high school is bowed out, and the curve for college is bent even more. This means college education is more inequitably distributed than high school, and the latter in turn is more inequitably distributed than elementary education.

In the typical Lorenz diagram (below right), the equivalent of a Gini ratio is the size of the area between the given curve and the straight line of equality (denoted by A), divided by the entire area below the line of equality (A + B), i.e., A/ (A+B). If education is equally distributed among the population, the quotient would equal zero (since the curve would coincide with the line of equality, and the area *A* would be zero). On the other extreme, if education is distributed extremely inequitably, as when the richest 10 percent possesses all of it, then the curve would be L-shaped, the area A would be equal to the area A + B, and the quotient would be equal to one. Thus, a Gini coefficient is zero under perfect equality, and one under perfect inequality.





lated with effort or expense today in exchange for returns or benefits in the future.

Education is a good example. The amount people "invest" in education consists of the fees they pay to schools, the incomes they forego (since they could be working otherwise), and the effort they exert at learning. The expected future "payoff" takes the form of a higher-paying job, social status, and personal fulfillment, among others.

As the example shows, money income is only one (but perhaps the most important) of the returns to be obtained from a stock of human wealth. Apart from higher pay, they also include greater ability to run a family, consume and invest intelligently, have fulfilling social relations, and participate in the affairs of the country and community.

The sum of monetary and nonmonetary benefits earned from this human capital — again by analogy — may be called *full income.* A person is well or ill depending on whether this full income is higher or lower, and that depends in turn on whether a person's stock of human capital is large or small.

But what determines whether a person has "high" or "low" human capital? Some human capital is inherited, some is acquired, and there are ways in which the deficiencies in one can be compensated for by the other. Genetically determined intellectual and physical talents are obviously inherited. While anyone may learn to play basketball or to sing, for example, inborn talent may make excellence more accessible to a Jaworski or a Lea Salonga than to others. A more subtle kind of HC "inheritance" is the cultural environment, which may impart desirable as well as undesirable traits and values such as honesty, a sense of responsibility, civic-mindedness, a sense of justice, industry, initiative and independence, and healthy habits.

If all the differences in human capital were genetically ordained or God-given, there would be little scope for public policy. However, most human capital that matter are *acquired* in society; they include health, education, training, and increasingly, even improvements in appearance and personality. Since the state of a person's human capital has a good deal to do with well-being, then the distribution of social access to acquired human capital becomes a matter of public concern.

Human Capital Processes

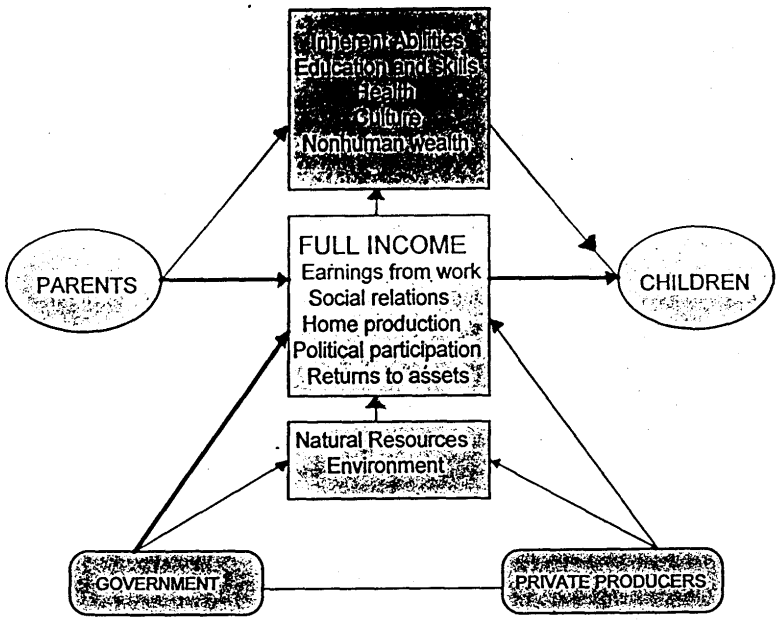
Human capital is formed over time and across generations, and various forms of HC interact. For example, inherited ability determines the rate at which knowledge and training are acquired. A healthier person learns faster; conversely, a more educated person is likely to be better informed on health practices.

The processes affecting the acquisition of human capital are summarized in Figure 12. It shows the nature of human capital processes — the interactions among the HC forms, their inter-temporal nature and the intergenerational transfers. One oval represents the parents' HC and another for their children's HC. Investments in HC are made now in anticipation of benefits in the future. Parents decide for their children at some stages and jointly with the children at other stages; this is obvious in the choice of schools and careers, for example. Parents directly transmit values, discipline, and some genetic characteristics. Their decisions are influenced by government policies, particularly those that affect their full income and what they can spend for their children, as well as by the cost and returns of each HC alternative. Policies on education and health generally have an impact on the prices of services. Economic development and other macroeconomic policies determine employment opportunities for both parents and children. Policies on education and health determine their prices.

Within each box or for each individual, there are interactions among the different HC components. The inter-generational transfer of HC is shown by the arrows that link the parents' and the children's ovals. The government is part of the environment in which the HC processes take place. It directly affects parents' full income and the prices and returns of children's HC.

People cannot borrow money to fund human capital investments for themselves or their children as easily as they might borrow money for a business (a difficult proposition in itself). For the most part, therefore, the parents' existing HC level will determine their full income and will set the amount and forms of human capital they can afford for their children. In addition, parents bequeath to their children heritable HC. For both reasons, there is a strong link between the level of parents' human capital and that of their children. Par-

Figure 12
HUMAN CAPITAL AND FULL INCOME GENERATIONS



ents with good education, health, and "social background" are better able to send their children to good schools and provide for health care and a supportive home environment. Thus, without social intervention, discrepancy in poverty and wealth is perpetuated across generations, reinforcing the common notion that "the rich become richer, and the poor poorer."

Kinds of human capital

Different forms of HC will have widely different costs, such as primary education in private versus public schools, university versus high school education, outpatient health service versus confinement or surgical service. Few families will be able to afford more expensive forms of human capital. Transportation costs and the time required to obtain an HC service will further raise the effective price. The poorer and more remote the household, the fewer the HC options for the children. An initial distribution of HC or income and cost structure of HC services will determine the next generation's distribution of HC and income.

Among HC alternatives, education is the most crucial for social mobility and equity. Apart from improving job and pay prospects, education helps improve decisionmaking and the scope of choice in many areas. Better educated people have more information on nutrition, the location and price of social services, and others. They adjust more readily to labor market changes; for example, a worker who has finished high school has the option to study for a college degree and to improve prospects, while a worker with only elementary education has no such option. Those in college, in turn, can change fields. The occupations available to the more highly educated — such as the professional, academic, and administrative positions — usually cultivate personal traits that encourage more independent and enterprising or innovative views and undertakings. In contrast, blue-collar works that impose discipline and docility among workers cultivate the opposite traits. Occupational traits are transmitted to children and so

they are perpetuated inter-generationally. Even supposedly "inherent" ability, as measured by IQ, is found to improve with education. As a result, the inequality in income and education tends to persist, trapping those in the lowest rung of the distribution.

The contribution of health to HC differs from that of education. A minimum level of health is a fundamental constraint on all activities, including work and further HC investments such as education. This minimum health level is achieved by the fulfillment of basic needs: subsistence food, minimum shelter, and clothing. What is known as the *poverty income threshold* is simply that amount needed to procure these basic needs.

Above this minimum, health may be further improved, but its additional contribution to full income becomes less. For this reason, health levels will not vary as widely among people compared with education or incomes. Beyond a certain point, even if they could afford it, most people would not spend larger amounts on further improvements in health since normal functioning would be less dependent on it. But this also means that public interest must focus on the distribution of health below the threshold. In contrast, education can be increased virtually indefinitely. Inequality in education would tend to be worse for any given level of per capita income, income inequality, or government subsidy.

Differences in intervention

Because the two forms of HC differ by nature, they entail different types of intervention. Health is probably easier to influence than education. Health strategies are fairly straightforward, e.g., campaigns for nutrition education, nutrition supplements, provision of clean water and sanitary sewage facilities, control of parasitic diseases, immunization against common diseases, and maternal care. The income elasticity of health is also likely to be quite high. As family incomes increase and the standard of living rises, health improvements are quick and substantial.

Education is more complex and, therefore, it is more difficult to change its distribution. Policy must aim first of all at reducing the initial handicaps in values, customs, and information among poor families before poor children can even begin to compete in the markets for education and labor. Moreover, expenditures on education are "lumpy," entailing substantial amounts over a definite period of time of one's life. As a result, even if incomes should subsequently increase, the demand for education would not respond quickly.

Finally, the provision of quality education is uneven and its effects are difficult to monitor since they depend on individual characteristics and choices. This implies that subsidies intending to change the distribution of education are bound to involve larger amounts and more complex policy designs.

Trends in Human Capital Indicators and Policy

The various indicators for education and health have been rising over the last four decades, even during the 1980s when the country suffered a series of major economic upheavals. The annual growth of GNP averaged 4.9 percent in the 1960s, 5.9 percent in the 1970s, but only 1.6 percent in the 1980s.

In the 1960s and 1970s, when per capita incomes were rising, households had increasing resources to spend for consumption and investments, including investments in human capital. The government also had higher revenues and could borrow externally in the 1970s to spend for social services. As a result, the HC indices improved. Literacy rate rose from 82.6 to 83.3 percent, and life expectancy from 58.1 to 61.6 years, between 1970 and 1980 (Table 20).

Effects of recession

Surprisingly, HC development continued to improve during the difficult decade of the 1980s. Real income per capita had declined from P12,620 to P10,461 in 1980-1985. The trend reversed in 1986, but per capita income recovered slowly to P11,592 in 1990. Nonetheless, by 1990, the literacy rate had improved significantly to 93.5 percent and life expectancy had risen to 64.6 years.

These improvements are consistent with more proximate HC indicators such as the infant mortality rate, nutritional status, and enrolment rates. The overall death rate declined from 6.1 to 5.4 per 1,000 people, and infant mortality declined from 44.1 to 27.5 per 1,000 live births. The nutritional status of children, as measured anthropometrically, improved significantly. Among the 0-6 years old, the percentage of underweight (those

Table 20
DISTRIBUTION OF GOVERNMENT EXPENDITURE IN SOCIAL SERVICES, DEBT SERVICE AND DEFENSE, 1970-1992

Year	Real GDP Per Capita (1985 prices)	Total Govt Expenditures[a] (%)	Social Services Share[b] (%)	Education Share[b] (%)	Health Share[b] (%)	Debt Service Share[b] (%)	Defense Share[b] (%)	Literacy (%)	Life Expectancy (years)
1970	9,170	9.7	34.8	28.0	5.6	6.0	15.2	82.6	58.1
1980	12,620	15.6	20.8	10.7	3.7	9.4	15.1	83.3	61.6
1985	10,461	13.4	19.8	14.0	4.1	24.5	13.1		63.1
1986	10,560	18.8	18.3	13.0	3.1	24.5	10.1		63.4
1987	10,805	23.1	17.7	11.0	2.6	45.1	8.1		63.7
1988	11,213	21.1	18.5	13.1	3.3	42.5	10.9		64.0
1989	11,612	19.0	19.1	13.5	3.9	41.2	9.8		64.3
1990	11,592	21.2	19.2	13.1	3.1	41.6	8.9	93.5	64.6
1991		20.7	17.6	11.4	3.1	41.1	8.5		64.9
1992			20.6	12.2	3.0	36.4	8.0		65.2

[a] As a percentage of GNP

[b] As a percentage of total government expenditures.

Sources: *Philippine Statistical Yearbook*, 1982, 1991, and 1992;
NSO Census of Population and Housing, 1970, 1980 and 1990;
International Financial Statistic Yearbook 1992.

weighing less than 75 percent of normal body weight) and stunted (those weighing below 90 percent of standard weight but not below 75 percent) improved in 10 out of 11 regions, including Metro Manila.

The problem of illiteracy appears to exist only among the adult population who were unable to enrol in school when they were of school age. As time passed, their share in total population has gradually fallen, thus, raising the share of the literate population. Economic recession had little negative impact on this trend since most children were able to continue going to elementary school. The enrolment rate at this level has remained stable. On the other hand, enrolment rates at the secondary and tertiary levels declined slightly during the 1980s. This is expected since high school and college education cost much more than elementary education. Consequently, they have been more strongly affected by the recession. At the same time, unemployment among the better educated increased, thus, the attractiveness of further schooling has diminished.

As a percentage of GNP, government expenditures increased from about 10 percent in 1970 to 15.6 percent in 1980. This increased further under the Aquino administration, despite the fact that debt service absorbed as much as 39.3 percent of the budget between 1986-1991 and prevented significant increases in social service expenditures. Education obtained only 12.5 percent share, and health a much smaller share of 3.2 percent (Table 20). Real per capita expenditure on health averaged less than P30.

Spending on health

Per capita public expenditures on health increased marginally by a few pesos in the latter part of the 1980s, while the allocation to primary and tertiary health care remained about the same as in the 1970s. However, the government's delivery system for primary health care seemed to have improved tremendously. Better delivery is the most probable explanation for the upward trend in access and in the use of various public health services. The use of safe water by households increased from 65 to 75 percent. Access to health care facilities, especially in rural areas, also increased as the government spread barangay health stations (BHS) and mu-

nicipal health centers. BHS and rural health units increased from 9,982 to 12,982, or by 20 percent, from 1981 to 1991. Each BHS is manned by a midwife who provides initial diagnosis, simple treatment, and referrals for the more serious ailments. The immunization campaign was a priority program during the Aquino administration (1986-1992) and is being intensified under the current one. Improvements in sanitation and primary health care led to a reduction in infection and parasitic assaults and, thus, prevented significant nutritional losses.

One of the important concerns in the coming years, however, is ensuring that the devolution of responsibilities to the various local governments does not result in major disruptions in the provision of health services.

Spending on education

The education budget has been devoted mostly to the elementary level, since public efforts have concentrated in providing universal primary education to the ever increasing young children. Population growth has been high at about 2.4 percent per year.

In the early 1970s, however, the share of tertiary education started to rise.when the system of state universities and colleges (SUCs) was expanded. Until then, state-supported tertiary education consisted only of one prestigious university, the University of the Philippines (UP), and two special colleges (one agricultural and one teacher training). There were secondary and post-secondary "trade" or vocational schools. The Marcos government decided to expand the university system and spread its presence in all the regions of the country. Vocational institutes were converted to colleges or universities, and new ones were established. The number had reached 85 by 1992.

SUCs generally charge minimal tuition to all students irrespective of field, level of specialization, and family background. Admission is based on a cognitive type entrance examination, which has proved to be biased in favor of students from urban and higher socio-economic background.[2] The SUCs differ in quality, as reflected in the quality of schooling achieved by their faculty. Inefficiencies in SUC operations are apparent from wide differences in costs per student, which range from P4,000 to P38,000 (1989). High costs are due not to better quality but mainly to small enrolment size. The highest-cost SUCs are small provincial colleges that have failed to attract enough students because of their poor quality and unmarketable program offerings.

As for the public secondary schools, they were the responsibility of local governments until 1988, supported by student tuition and local government funds. The national government operated a few special high schools such as the Philippine Science High School. In 1988, the Free High School Law was enacted by Congress, providing for free education in all public high schools. The national government contributes to the local government finances, standardizes teachers' salaries, and subsidizes the tuition in private schools of students who cannot be accommodated in the public high schools.

These changes meant a greater role of the national government in the provision of education and a greater degree of centralization of the two higher education levels. The new SUCs intensified the proliferation of higher educational institutions but added little to the system's efficiency and equity. The SUCs were increased at a time when unemployment among college graduates was already high. Obviously, the elementary level is being crowded out. The share in the national budget of elementary education has declined from 86.6 percent in 1980 (larger than in 1970) to 63.7 percent in 1990 (Table 21). On the other hand, the budget share of high school education increased from 11.0 to 33.2 percent for the same year, and that of tertiary education from 2.4 to 3.1 percent. The cost per student in public elementary school rose from P314 to P1,161, and that in public high school from P210 to P2,258. The average cost at SUCs is about P10,000. These figures imply that providing an additional place for a high school student costs twice as much as that for an elementary pupil. To accommodate an additional college student costs about 10 times as much.

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[2]UP instituted a socialized tuition scheme where tuition rates are scaled down according to student's family income and wealth. Full tuition is set below cost so all UP students continue to be subsidized. The current full tuition level is about 50 percent of the tuition rate in the two most prestigious private universities, P12,000 vs P26,000. About 50 percent of UP students come from urban rich families.

Table 21
DISTRIBUTION OF EDUCATION BUDGET BY LEVEL
AND REAL PER CAPITA COST OF EDUCATION IN PUBLIC SCHOOLS

	Percent of Budget			Cost per Student	
Year	Elementary	High School	College	Elementary	High School
1980	86.6	11.0	2.4	314.0	210.7
1981	83.6	13.6	2.8	341.2	281.8
1982	84.3	13.0	2.7	394.9	293.6
1983	83.7	13.6	2.7	457.7	338.0
1984	84.6	13.0	2.4	479.4	306.2
1985	84.4	13.2	2.4	540.1	370.4
1986	85.0	12.8	2.2	693.5	447.3
1987	83.0	14.6	2.4	867.3	652.7
1988	81.2	16.1	2.7	952.4	763.0
1989	78.2	18.6	3.2	1,099.0	1,001.0
1990	63.7	33.2	3.1	1,160.7	2,258.1
1991	69.3	27.3	3.4	1,148.1	1,644.5
1992	76.7	20.7	2.6		

Distribution of Health and Education Across Regions

There are significant differences in each HC index across the various regions (Table 22). These differences are in turn related to differences in the regional distribution of income and to differing access to government facilities.

The first four columns of Table 22 give the level of per capita real GDP (1990), the share of income of the first two deciles of families, and the poverty incidence across 13 regions of the country. Wide regional variations in all four income variables are observed. Per capita income ranges from P4,675 in Region V to P28,273 in NCR (1990). Region IV, a neighboring region of Manila, has the second highest income, even higher than that of Region VII which contains the second most industrialized city.

In all the regions, the share in income of the 50 percent poorest families is less than 7 percent. Income inequality partly explains the high poverty incidence in all regions. Poverty incidence ranges from 22.6 percent in NCR to 66.6 percent in Region XII. Region X is noteworthy for having high income per capita but with the highest poverty incidence of 58.8 percent. This is partly because its poorest 20 percent of families share only 5.3 percent of total income.

The last five columns of Table 22 are primary HC indicators — life expectancy (LE), infant mortality rate (IMR), child mortality rate (CMR), literacy rate, and mean years of schooling. LE ranges from 68.4 years for NCR to 54.4 years for Region XII. IMR has an even wider range. It is as low as 11.9 (per 1,000 live births) in Region I and as high as 69.6 in Region II. CMR has a similarly wide range of from 6.9 to 20.5 per 1,000. Literacy rate and mean years of education, in contrast to the health indicator, have narrower variations. The widespread presence of elementary schools all over the country has allowed for a more equal distribution of literacy and mean years of schooling. At higher levels of education, however, the distribution is very unequal.

Using pooled-time series of regional data, the 1993 World Bank country study estimates that a 1 percent increase in family spending improves life expectancy

Table 22

PER CAPITA INCOME, SHARE OF THE POOR IN INCOME, POVERTY INCIDENCE, HEALTH EXPENDITURES PER CAPITA, BY REGION, 1988-1991

	Region	GDP per capita (1985 prices) 1990	Income share of poorest 20 percent (in percent) 1991		Percent poor head count (1991)	Per capita health spending (1980 prices) 1990	Life expectancy (1990)	[illegible] mortality (per 1,000 live births)	[illegible]	[illegible] (1990)	Years of schooling (19[illegible])
			First 10%	Second 10%							
	NCR	28,273	2.4	2.5	14.9	5.0	68.4	21.9	8.9	99.1	9.7
I	Ilocos	7,030	2.4	3.7	49.4	21.3	66.0	11.8	7.4	95.8	7.7
II	Cagayan Valley	5,860	2.4	3.6	43.1	25.8	61.3	69.6	18.5	91.3	7.3
III	C. Luzon	11,135	2.1	3.6	44.0	16.7	68.0	25.2	7.3	97.8	7.7
IV	S. Tagalog	12,504	2.2	3.4	38.0	17.5	67.1	51.1	14.3	96.8	7.5
V	Bicol	4,675	2.5	4.0	56.1	26.8	64.0	32.8	15.0	95.3	6.9
VI	W. Visayas	8,828	2.7	4.0	46.7	20.6	65.0	33.7	11.4	93.0	7.0
VII	C. Visayas	10,101	1.7	3.0	42.4	18.7	66.9	20.3	6.9	91.0	6.5
VIII	E. Visayas	5,373	2.3	3.5	40.7	31.5	61.3	50.2	15.4	89.8	6.5
IX	W. Mindanao	6,635	2.4	3.7	54.5	19.8	54.4	15.9	9.6	81.3	6.0
X	N. Mindanao	10,528	2.0	3.3	55.2	19.8	58.8	55.6	18.0	92.9	7.5
XI	S. Mindanao	11,730	2.0	3.2	47.5	16.3	57.4	34.2	8.4	91.9	7.3
XII	C Mindanao	8,599	2.7	4.0	51.0	14.6	54.4	54.2	20.5	83.0	6.6
PHILIPPINES		**11,592**	**1.8**	**2.9**	**40.1**		**64.6**	**35.3**	**12.0**	**93.5**	**7.5**

Sources: GDP/capita from 1992 *Philippine Statistical Yearbook;*
NSO: NSCB Share in Income (1 + 2 quintile) from 1991 FIES.
World Bank Report No. 11061-PH, April 1993.

by 0.3 percent. A 1 percent increase in government expenditures on health, on the other hand, was found to raise life expectancy by a larger figure, about 0.5 percent. The greater efficacy of public health provision in raising life expectancy is an important argument for expanding access to it.

Distribution of education across regions

In all regions, the enrolment rate at the elementary level was more than 100 percent. This means that the number of pupils enroled, as a proportion of school-age children, is 100 percent[3] (Table 23).

At the high school and college levels, enrolment rates are lower and vary widely across regions. For 1987, the rate ranged from 47.7 percent in Region IX to 102.8 percent in NCR for the high school level. At the college level, the range was wider: from 14.3 percent for Region IV to 97.2 percent for NCR.

How deeply has the educational system affected the work force in each region? The picture is given in Table 24, which divides the labor force according to educational attainment based on 1988 data. Note the proportions of the labor force at the two ends of educational attainment — zero schooling and completed college

[3]The enrolment figure includes repeaters, so that the figure of 100 percent does not imply that all school-age children are actually enroled.

Table 23
ENROLMENT RATES BY LEVEL OF SCHOOLING AND BY REGION, 1980 and 1987 (in percent)

		Elementary		High School		Tertiary	
	Region	1980	1987	1980	1987	1980	1987
	NCR	107.3	105.6	110.0	102.8	91.2	97.1
I	Ilocos	111.5	111.5	87.6	80.9	34.1	32.0
II	Cagayan Valley	111.0	104.2	63.6	58.8	16.9	18.0
III	Central Luzon	113.0	107.7	66.7	72.8	19.5	21.8
IV	S. Tagalog	108.7	106.9	65.4	72.3	13.9	14.3
V	Bicol	113.7	105.4	60.4	56.6	20.2	19.0
VI	W. Visayas	115.0	104.0	73.6	63.9	36.2	29.8
VII	C. Visayas	109.3	103.5	56.8	56.7	42.1	29.2
VIII	E. Visayas	100.9	99.2	56.9	49.2	19.4	20.8
IX	W. Mindanao	102.0	110.3	39.7	47.7	17.2	17.5
X	N. Mindanao	109.8	114.9	58.9	63.1	26.1	28.7
XI	S. Mindanao	110.4	116.8	58.6	63.6	22.0	20.1
XII	C. Mindanao	116.1	121.0	51.5	54.4	44.2	18.7
PHILIPPINES		**110.1**	**108.0**	**67.3**	**67.3**	**32.8**	**30.6**

Enrolment rate for elementary is total enrolment divided by population aged 7-12; the rate for high school is for aged 13-16, that for college is 17-20. The actual ages of those enroled in each level include those below and above the age range. This explains the greater than 100 percent enrolment in elementary school. The high rate in NCR is explained by the fact that the concentration of tertiary institutions attract students from the provinces.

education. In the NCR, less than 1 percent of the labor force has no education. In Region XII, the proportion is as high as 12.1 percent. Almost 70 percent of the labor force have four to six years of elementary and high school attainment, but this proportion varies across regions. Similarly, the proportion of the labor force with college education is 11.3 percent for the nation as a whole, but the figures range from 7.6 percent for Region IX to as high as 21.6 percent for NCR.

The *Gini ratio* is a common measure of inequality, typically used for incomes. It ranges from 0 in the case of complete equality in the distribution, to 1 in the case of complete inequality. It is commonly used to measure income inequality, but here it shall be used to examine the distribution of education. If 10 percent of all graduates originate from the poorest 10 percent of the population, 20 percent of graduates from the poorest 20 percent, and so on, then education may be said to be evenly distributed, and the corresponding *Gini* is equal to zero. The larger the deviations from this ideal, the closer the *Gini ratio* is to one (Box 3.1 describes a way of visualizing this).

The *Gini ratio* is estimated here for each major educational level (Table 25). As expected, and consistent with the more than 100 percent enrolment rate in the first four years of elementary education, the *Gini* for elementary schooling is close to zero.

As one moves to higher levels, however, the share of the poor in education falls at increasing rate. Only 2.9 percent of high school graduates and 0.7 percent of college graduates come from the poorest 10 percent of families. In contrast, 20.4 percent and 36.8 percent, respectively, originate from the richest 10 percent of the labor force. The *Gini ratios* for the four schooling levels are 0.014, 0.115, 0.322, and 0.580.

Table 24
PERCENTAGE DISTRIBUTION OF THE LABOR FORCE BY EDUCATION AND LOCATION, 1988

		0 Education	1-3 Elementary	4-6 Elementary	High School	1-3 College	Complete College
	NCR	0.6	1.5	16.1	46.5	21.6	13.7
I	Ilocos	4.3	6.0	33.7	38.8	10.3	6.9
II	Cagayan Valley	3.2	8.0	39.2	34.1	7.8	7.4
III	C. Luzon	2.9	5.9	37.0	37.3	10.6	6.3
IV	S. Tagalog	3.1	7.2	38.4	34.4	10.4	6.6
V	Bicol	3.1	7.7	48.5	28.1	7.2	5.4
VI	W. Visayas	4.3	10.7	38.8	30.4	9.0	6.8
VII	C. Visayas	5.7	11.7	42.1	26.9	8.2	5.4
VIII	E. Visayas	4.7	11.6	43.7	27.1	7.4	5.6
IX	W. Mindanao	11.3	12.6	38.8	26.1	7.6	3.6
X	N. Mindanao	2.4	8.0	37.5	33.8	11.1	7.2
XI	S. Mindanao	3.2	8.8	36.4	35.1	10.3	6.1
XII	C. Mindanao	12.1	8.2	33.2	31.2	10.1	5.3
	ARMM	6.6	7.7	34.6	36.7	9.3	5.3
	PHILIPPINES	4.1	7.6	35.6	34.2	11.1	7.2
	Urban	1.7	3.4	23.8	41.4	17.4	12.3
	Rural	5.6	10.3	43.3	29.9	7.0	3.9
	Male	3.5	8.4	35.4	35.4	11.5	5.7
	Female	4.6	6.8	35.8	33.4	10.7	8.6

Being in an urban location where schools are more accessible substantially raises the completion rate of high school and college education.Table 26 shows that the *Gini ratio* for high school is 0.185 for urban areas, versus 0.313 for rural. For college, the *Gini ratio* is 0.426 for urban and 0.610 for rural.

Health across regions

On the distribution of health, the national average life expectancy (LE) improved only marginally over the 1981-1989 period. On the other hand, the mortality rate, especially among infants, declined rather significantly. LE estimates differ. Flieger gave relatively large gains in LE of 52.7, 55.8 and 59.3 years for 1960, 1970 and 1975, while Cabigon's figures are 56.9, 59.3, 60.5 and 62.6 years for 1960, 1970, 1975 and 1980 (Herrin 1993). Flieger's estimates seem to correspond better with the drop in mortality rates. The levels and the gains differ among the regions. For males, there is a difference of 14.1 years in LE between NCR and Region XII, or 65.8 vs 51.7 years. For female, the figures are 69.2 versus 54.8 years.

The nutritional indicators for children are measured anthropometrically and by food intake (Table 27). *Severe malnutrition* is said to prevail for children who weigh less than 75 percent of the normal weight for their age. *Stunting*, on the other hand, is described as a condition where the child's weight is less than 90 percent of normal (but not less than 75 percent). Among children 0-6 years of age, some 14 percent were severely

Table 25
PERCENT DISTRIBUTION OF SCHOOLING BY INCOME DECILE

Income Decile	Finished Primary Education (Gr. 4)	Finished Elementary	Finished High School	Finished College
1st	9.65	6.57	2.87	0.73
2nd	9.62	7.64	4.11	1.11
3rd	9.72	8.19	4.87	1.72
4th	9.81	9.06	6.16	2.07
5th	10.01	9.58	7.51	3.25
6th	9.87	10.12	9.26	4.93
7th	10.30	11.20	11.64	9.40
8th	10.42	12.07	14.93	15.03
9th	10.43	12.71	18.24	25.00
10th	10.17	12.85	20.42	36.77
Gini ratio	0.014	0.115	0.322	0.580

malnourished in 1989. The malnutrition rate among female children was almost twice that for males. On the other hand, 11.6 percent of children in the same age group were stunted, with marginal differences between sexes.

Stunting worsens with age as undernourishment continues and its effects cumulate. The average stunting rate is higher for children aged 7-10 years at 14.2 percent. The rate of stunting for each age group is highest in Regions VIII and V, and lowest for NCR and Regions I and II. The low rate of stunting in Region I is a minor surprise since it is a poor agricultural area, but it may have to do with better eating habits. In Regions IV, VIII and X, about 20 percent of 7- 10-year olds were stunted.

The number of underweight children will obviously decline as incomes rise. Tables 28 and 29 show this relationship clearly for the country and by region. For the country as a whole, the rate declines from 16.4 percent underweight for the poorest one- fourth of the population to 8.4 percent for the richest one- fourth. The pattern for the 12 regions is similar. In Bicol, 28.6 percent of the children in the poorest quartile were

Table 26
PERCENT DISTRIBUTION OF SCHOOLING BY INCOME DECILE AND RURAL-URBAN LOCATION

Income decile	Finished primary education (Gr. 4)		Finished elementary		Finished high school		Finished college	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
1st	7.92	9.09	6.20	6.64	3.35	3.58	1.36	1.0
2nd	8.65	9.04	7.63	7.31	5.13	4.31	1.82	1.0
3rd	9.23	9.48	8.56	8.13	6.41	5.24	2.23	1.7
4th	9.29	9.59	9.08	8.64	7.85	5.67	3.58	2.3
5th	10.19	9.70	9.97	9.23	8.79	7.46	5.73	2.6
6th	10.50	10.05	10.81	9.97	10.71	8.08	7.76	3.6
7th	10.82	9.99	11.36	10.33	12.54	9.48	12.63	5.5
8th	11.24	10.55	12.04	11.71	13.99	12.73	16.12	10.9
9th	11.64	10.99	12.64	13.10	15.87	18.07	22.53	21.3
10th	10.52	11.52	11.70	14.93	15.36	25.40	26.24	49.8
Gini ratio	0.005	0.013	0.055	0.108	0.185	0.313	0.426	0.610

Source: 1988 Labor Force Survey, Second quarter.

Table 27
PERCENTAGE OF NUTRITIONALLY-AT-RISK CHILDREN (0-6, AND 7-10 YEARS OLD) BY REGION (1978, 1982, and 1989)

	1978	1982	1989	1989 Male	1989 Female	1982	1989	1989 Male	1989 Female	1989	1989 Male	1989 Female	1989	1989
NCR	14.7	16.8	10.8	6.5	11.1	14.1	6.0	6.9	5.0	10.0	7.9	12.2	12.8	7.4
Region I	18.0	18.0	14.2	11.2	14.3	22.2	7.7	6.9	8.6	9.3	9.1	9.7	7.0	9.9
Region II	15.7	14.9	11.2	5.2	13.4	22.9	7.8	10.3	5.4	8.5	6.0	11.1	8.6	11.5
Region III	15.1	16.7	14.8	8.8	16.4	15.1	12.7	12.7	12.7	9.7	5.9	13.9	15.0	12.5
Region IV	22.6	18.7	14.4	9.1	15.8	21.2	9.4	8.4	10.3	10.4	6.0	14.8	13.8	18.8
Region V	24.0	15.5	19.4	16.2	22.1	21.1	16.5	17.1	15.8	11.8	10.1	13.7	18.9	19.4
Region VI	27.1	16.8	16.2	12.5	19.7	19.5	13.1	14.0	13.9	8.8	7.5	9.8	22.0	12.1
Region VII	29.3	15.2	14.8	9.8	19.9	21.6	12.8	11.6	13.9	9.5	5.2	13.5	13.5	20.6
Region VIII	28.5	20.1	16.7	13.0	19.7	25.6	17.4	17.5	17.4	9.7	7.9	11.2	12.9	13.7
Region IX	n.a.	n.a.	11.3	7.0	18.6	n.a.	11.8	13.8	9.9	8.3	4.0	12.6	14.0	20.3
Region X	16.1	16.1	9.4	5.8	15.1	22.1	10.0	10.0	10.0	6.0	2.7	11.0	9.6	12.2
Region XI	27.7	20.0	14.1	10.0	16.9	27.8	9.0	8.4	9.5	8.1	7.8	8.7	11.7	15.0
Region XII	n.a.	n.a.	11.3	8.8	13.9	n.a.	10.5	9.8	11.1	5.6	5.6	5.6	—	—
PHILIPPINES	—	—	14.0	9.8	17.0	—	11.6	11.8	11.6	9.0	6.7	11.4	13.9	14.2

Source: Food and Nutrition Research Institute.

severely malnourished; in Region VIII, the rate was 31.2 percent. In Regions X and XI, the rates were only 9.0 percent and 9.6 percent, respectively.

The other important determinants of health are access and actual use of health facilities. Tables 30 and 31 show the physicians, midwives and hospital beds available to the population of the 13 regions. In regions with large rural areas, government midwives rather than doctors predominate. Rural areas are provided with barangay health stations manned by midwives for first aid and diagnoses for referral to appropriate health facilities. Essentially, the number of private hospitals, doctors, dentists and nurses in a region is determined by demand, i.e., population size and income. Government provision of these health facilities and personnel complements the private supply. The regional variation in the per capita supply shows how well or how poorly the government is able to compensate for the lack of private services.

Deliveries attended by physicians significantly increase as family income increases (Table 31 and Figure 13). As may be expected, the rates of attendance by physicians differ substantially between urban and rural families. In the urban areas, deliveries attended by physicians were about 24 percent in the lowest income class and 61.8 percent in the highest income class. The corresponding figures for rural areas are 4.8 percent and 27.1 percent, respectively. A very similar pattern is observed for deliveries in hospitals. It is noteworthy, however, that in urban centers, the percentage of families going to government hospitals does not differ too much across income classes. What does differ is the percentage of families who use private hospitals; this clearly rises with income. The use of hospitals is much lower in rural areas than in urban areas and increases with income for both types of hospital. The poor in the villages are unable to use either type of hospital. Dis-

Table 28
PERCENTAGE OF 0-6 YEAR-OLD CHILDREN WITH 75 PERCENT OR LESS OF WEIGHT- FOR-AGE STANDARD BY FOOD EXPENDITURE QUARTILE AND BY REGION, 1989-1990

	Region	First Quartile	Second Quartile	Third Quartile	Fourth Quartile	[illegible]
	NCR	[illegible]	7.8	6.6	[illegible]	[illegible]
I	Ilocos	19.8	9.0	14.9	8.6	728
II	Cagayan Valley	11.7	4.4	12.0	9.2	628
III	C. Luzon	19.4	10.9	12.4	7.4	625
IV	S. Tagalog	12.9	17.7	10.4	6.0	1,146
V	Bicol	20.6	26.1	19.7	11.9	623
VI	W. Visayas	16.9	19.3	15.9	10.5	520
VII	C. Visayas	14.7	22.5	16.1	7.1	312
VIII	E. Visayas	31.2	14.3	12.0	5.7	520
IX	W. Mindanao	11.4	11.2	12.4	8.4	520
X	N. Mindanao	9.0	14.6	9.2	8.9	623
XI	S. Mindanao	9.6	10.8	20.6	9.8	513
XII	C. Mindanao	19.5	10.3	6.7	8.3	416
	PHILIPPINES	**16.4**	**14.6**	**13.7**	**8.4**	**8,008**

Table 29
PERCENTAGE OF 7-10 YEAR OLD CHILDREN WITH 70 PERCENT OR LESS OF WEIGHT FOR AGE STANDARD BY FOOD EXPENDITURE QUARTILE AND BY REGION, 1989-1990

	Region	First Quartile	Second Quartile	Third Quartile	Fourth Quartile	Total Sample
	NCR	7.1	3.6	1.9	[illegible]	446
I	Ilocos	6.1	2.9	3.7	[illegible]	392
II	Cagayan Valley	5.5		0.3	2.4	332
III	Central Luzon	16.0	5.4	3.9	0.5	335
IV	S. Tagalog	7.6	3.7	4.1	1.5	614
V	Bicol	10.5	5.9	7.3	2.9	337
VI	W. Visayas	9.4	9.8	12.1	2.7	280
VII	C. Visayas	8.9	4.9	3.8	6.1	168
VIII	E. Visayas	12.9	3.9	3.4	3.7	280
IX	W. Mindanao	2.0	1.0	6.8	2.3	280
X	N. Mindanao	9.6	2.2	3.1	6.9	336
XI	S. Mindanao	2.6	2.3	0.9	0.8	282
XII	C. Mindanao	5.2	6.6	5.0	3.0	224
	PHILIPPINES	**8.4**	**4.5**	**5.7**	**2.8**	**4,306**

Table 30
ACCESS TO SAFE DRINKING WATER AND POPULATION PER HEALTH FACILITY AND HEALTH PERSONNEL

Region	With Access To Sanitary Toilet (Percent of Households)		With Access To Safe Drinking Water (Percent of Households)		Population Per Physician		Population Per Hospital Bed		Population Per Midwife	
	1981	1989	1981	1987	1981	1986	1981	1987	1975	1987
NCR	84.7	94.0	94.4	99.4	7308	3938	198	258	5353	4167
I Ilocos	80.1	80.9	61.0	91.1	5603	4746	630	723	4957	3222
II Cagayan Valley	78.7	79.2	56.5	87.5	8663	5187	782	827	6121	3408
III Central Luzon	59.1	80.1	70.4	89.2	7167	7347	757	1022	4008	4093
IV S. Tagalog	56.3	71.0	68.2	91.3	8766	7793	744	1017		4977
V Bicol	32.0	68.5	60.3	85.3	18372	7483	790	831	8525	4183
VI W. Visayas	27.7	59.4	61.7	87.7	11733	8432	896	1134	5219	4526
VII C.. Visayas	57.1	67.0	72.5	88.1	6661	7460	655	704	5999	3991
VIII E. Visayas	53.7	60.7	48.5	88.4	9566	5812	1034	1061	8158	3060
IX W. Mindanao	31.0	52.3	44.6	80.9	16681	7633	1056	968	8331	4371
X N. Mindanao	66.3	81.4	65.0	93.2	6764	6807	604	655	5178	3175
XI S. Mindanao	49.3	83.2	50.0	94.5	15773	10253	715	644	8147	4267
XII C. Mindanao	39.1	51.0	46.3	71.1	21438	7593	819	673	7082	2939
PHILIPPINES	56.5	73.2	64.5	89.6	8942	6427	562	654	5772	3926

Sources: DOH, 1987 *National Health Survey*, APMC, *Physician and Nurse Manpower Survey Report*, 1971; ROP, *Strategy for Actions (Health Sector)*, 1974-1975; NEDA, Social Services Division; Professional Regulation Commission; PMA Membership List; PDA Membership List; DOH Bureau of Dental Services; DOH Bureau of Licensing and Regulations Hospital Statistical Reports; DOH Planning Services; DECS Health Nutrition Center; *PNA Nurse Manpower Survey*, 1980 and 1987; Medicare Hospital Accreditation Forms

tance and travel cost are likely to be important reasons. Access to and use of safe water is also positively related to income. The proportions of use of sanitary water are only 56.6 percent for the poorest families and 92.9 percent for the richest. The corresponding figures for sanitary toilet use are 58.6 and 91.0 percent, respectively (Table 32).

Monetary Outcomes of Education

In a previous section, it was seen that families whose heads have higher education and higher income have better nutrition and better access to health facilities. We examine more closely the income-education relationship by looking at intervening variables such as employment/unemployment and hours of work. In a situation of high open unemployment and underemployment, as has prevailed over the past decade, total earnings are likely to be as importantly determined by actual time worked as by the wage rate or hourly earnings. We find that unemployment and hours of work differ across labor force categories and are related, to some extent, to education level.

Unemployment has worsened since the downturn of the economy in the 1980s, with open unemployment rate increasing from 5.3 percent to 13.3 percent in 1986. It

Figure 13
PERCENT OF DELIVERIES ATTENDED BY PHYSICIANS BY INCOME BRACKET

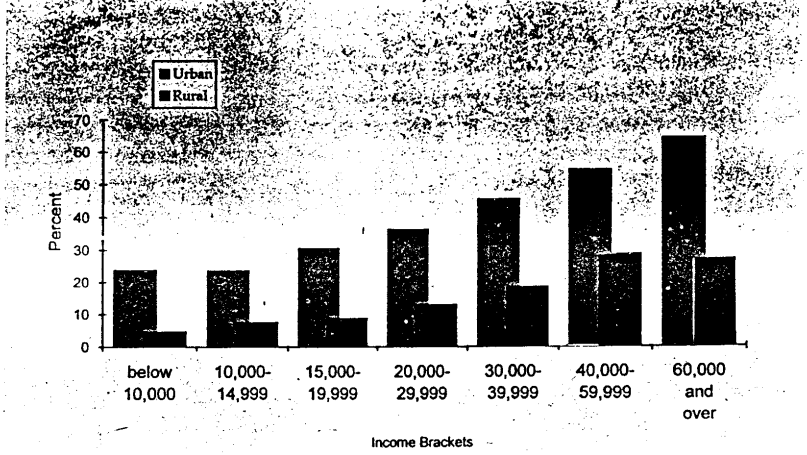

Table 31
ACCESS TO SELECTED HEALTH SERVICES AND FACILITIES BY INCOME CLASS AND RURAL-URBAN LOCATION, 1987

Income Class (in pesos)	Delivery Attended by Physician		Delivery in Government Hospitals		Delivery in Private Hospitals	
	Urban	Rural	Urban	Rural	Urban	Rural
Below 10,000	24.0	4.8	23.3	3.3	3.6	0.5
10,000-14,999	23.8	7.6	17.7	6.1	5.1	1.6
15,000-19,999	30.6	8.8	19.8	6.9	10.6	1.8
20,000-29,999	36.3	13.0	26.4	7.3	11.6	4.6
30,000-39,999	45.3	18.4	24.1	9.9	22.1	8.7
40,000-59,999	54.2	28.7	29.3	13.6	27.1	18.1
60,000 and more	64.0	27.1	20.5	13.4	44.7	12.8
Not reported	61.8		41.6			

Source: National Health Survey, 1987.

Table 32
ACCESS TO SAFE WATER AND SANITARY TOILETS BY INCOME CLASS, 1987

Income class (in pesos)	Access to Safe Water	Access to Sanitary Toilet
Below 10,000	56.6	58.6
10,000-14,999	62.1	75.2
15,000-19,999	75.1	78.7
20,000-29,999	78.1	82.4
30,000-39,999	92.7	87.0
40,000-59,999	90.3	96.9
60,000 and more	92.9	91.0

Source: National Health Survey, 1987.

has declined slowly since then, reaching 9.0 percent in 1991. Underemployment[4] had been high, about 25 percent in the 1980s and 22.0 in 1991. Both open unemployment and underemployment vary by education (Table 33). The open unemployment rate tends to rise with higher educational attainment, but the underemployment rate has the opposite pattern. Fewer college graduates are underemployed, 13.1 percent versus 25.0 percent for those with only elementary schooling. The open unemployment rates for both groups are 12.5 percent and 5.5 percent, respectively.

Most college graduates work in wage jobs (90 percent), and the greater majority are in the professional, administrative, and clerical occupations (70 percent). Close to half of them work in government agencies where the civil service law provides them with greater job stability. The proportion in wage jobs for all workers is 45.4 percent and for government service, 5.5 percent. When the unemployment rate is adjusted for underemployment in time worked, the fulltime equivalent unemployment rate of college graduates turns out to be the lowest at 15.0 percent versus 18.1 percent for the elementary educated and a little over 20 percent for those with high school education.

At present, there is little research on hours worked. In the Philippines, underemployment definitely explains the differences in hours worked, but it is also possible that it is partly due to ill health. Individuals whose physiological development has been impaired by inadequate nutrition and more serious bouts of common diseases may be unable to meet the normal physical requirements of blue-collar work (Tan 1989). Workers may adjust to this physical handicap by reducing the total time worked or by working in less physically strenuous jobs, which seems to be in short supply. The observable outcomes are in the form of shorter work day, intermittent absences, and early retirement. Earnings are reduced by shorter hours, due to lack of labor market opportunities and/or poor health. These reasons are confounded in the data and it is still not possible to distinguish their relative influence on average hours worked.

There is an inter-generational trap in health and earnings. Those with lower education tend to work in blue-collar jobs which require more physical exertions. If these workers also have poorer health and, therefore, unable to work the full hours, their earnings are reduced, resulting in less resources for their children. Data show that those with higher education are mostly in white collar occupations and are earning more because their wage rate is generallly higher, they work longer, and have lower effective rates of unemployment.

A separate study (Appendix 3.1) conducted for this report quantifies the effect of various levels of education, location, and hours worked on total household income. It is designed to take the inter-generational effects into account, since what is measured is not simply the household head's income but that of the entire family. The objective is to confirm that education matters a lot in increasing household income.

The effect of education varies widely across regions. It is low in NCR where most of the higher educated labor force are already to be found. It is also lower in Region X which has relatively abundant university facilities. The varied effect of education across regions suggests that there may be large opportunities for increasing incomes if people are able to move around (Table 34).

[4]Defined here as the proportion of the employed who desire additional hours of work whether or not they are already working the standard 40-hour week.

Table 33
LABOR FORCE PARTICIPATION, UNEMPLOYMENT, AND UNDEREMPLOYMENT, BY LEVEL OF EDUCATION (October 1991)

Educational Attainment	Labor Force Participation Rate (%)	Open Unemployment (%)	Unemployment Adjusted for Hours (%)	Underemployment (%)
No education	56.5	5.4	17.4	21.2
Grade 1-5	70.9	5.1	18.2	25.0
Elementary graduate	69.7	5.9	18.0	25.4
High school 1-3	49.2	9.6	20.7	23.6
High school graduate	67.5	12.6	20.2	20.5
College 1-3	50.6	14.4	20.9	18.8
College graduate	84.9	12.5	15.0	13.1
PHILIPPINES	**64.5**	**9.0**	**18.7**	**22.1**

Source: G. Camaje (1993) "Unemployment of higher-educated labor." Dissertation draft, UPSE 1993, using data from the Labor Force Survey, October 1991.

Human Capital Among Women

Available data support the impression that women in the Philippines experience much less sexual discrimination than in most other countries. Their average educational attainment is only slightly lower than that of men, but their life expectancy is higher. Employment experience is mixed, however. Women have a disproportionately larger share in the professional, administrative, and executive occupational category (Table 35). It should be thought that this is generally desirable, even prestigious. After all, the working environment in this occupational category is generally regarded as safer, cleaner, and more comfortable. But two things should be noted: first, women are to be found in the lower rungs of this category. The majority are school teachers and nurses. Fewer women reach the very top positions in business and government; they are a minority in Congress, the courts, and the Cabinet. (See also Chapter 5.)

Second, this pattern reflects the traditional role assigned to women, which discourages them from participating more in the labor-force, except in occupations that are deemed appropriate to them, i.e., those entailing lighter work and a safer environment. Positions in other job categories (such as in agriculture, construction, transport), which in other countries may also be done by women, may simply not be available to them. As an indication, more women (22.4 percent) than men (11.1 percent) are employed as unpaid family workers.

Women appear to suffer from some discrimination in human capital investment during childhood. A smaller proportion of women than men finish elementary and move on to high school and college. According to the population census of 1990, females made up half of the population of school age (7 years), but they also comprised more than half (51.9 percent) of those who had *no* schooling, suggesting a disparity. Six percent of the total female population of school age had completed no schooling, while the figure for males was 5.6 percent. Similarly, females made up 49.3 percent of those who had reached elementary level, a figure smaller than their share of the relevant population. Again, this indicates that a disparity exists and suggests at the least, that schooling among females may be typically delayed (Table 36).

A smaller proportion of women than men complete elementary education and move on to high school and college. In the 1990 Census, 25.79 percent of school-age females reached high school, slightly lower than the figure of 26.52 percent for males. The female-male ratio is then 0.9725 for high school and 0.9513 for college.

On the other hand, women seem able in later life to overcome the discrimination in human capital investment which they suffered during childhood. More

Table 34
ESTIMATED PERCENTAGE DIFFERENCES IN HOUSEHOLD INCOMES FOR DIFFERENT LEVELS OF EDUCATIONAL ATTAINMENT OF THE HOUSEHOLD HEAD (No education = 100)

Region	No Schooling Completed	Some Elementary	Elementary Graduate	Some High School	High School Graduate	Some College	College Graduate
NCR	100	111	122	126	142	161	281
I Ilocos	100	157	211	234	314	410	919
II Cagayan Valley	100	155	208	229	305	397	885
III C. Luzon	100	128	154	166	205	252	302
IV S. Tagalog	100	138	173	188	240	303	636
V Bicol	100	185	264	299	418	560	1,315
VI W. Visayas	100	185	226	253	343	452	1,031
VII C. Visayas	100	185	265	300	419	561	1,319
VIII E. Visayas	100	205	302	345	491	665	1,593
IX W. Mindanao	100	144	184	202	263	336	723
X N. Mindanao	100	108	112	115	124	134	190
XI S. Mindanao	100	142	181	198	256	326	698
XII C. Mindanao	100	138	189	183	233	292	608
XIII ARMM	100	154	205	227	302	392	873
Average income for sample (in pesos)	P27,285	P34,347	P40,940	P43,848	P53,678	P65,456	P128,189

women than men are able to complete college education. Thirty-six percent more young women than young men completed a college degree (1.798 versus 1.322 million), suggesting a greater perseverance among women to finish the tertiary level. This greater drive may be related to the fact that, for this kind of investment, the kinds of work open to these women are more limited to the upper categories, and to the fact that they are accorded lower priority in the inheritance of land and other non-human wealth.

Women have a higher life expectancy despite the fact that they suffer a higher rate of nutritional deficiency during early childhood. Families appear to give preference to boys in the allocation of food. The proportion of malnourished children is significantly higher for girls than for boys. Underweight children, on the average, is 14.0 percent for boys and 17.0 percent for girls. The difference varies across regions, ranging respectively from 5.8 percent versus 15.1 percent in Region IX, and 11.2 percent versus 14.3 percent in Region I. A similar pattern is observed for other measures of malnutrition. Malnutrition among girls is countered by lower mortality among women at older ages, and this explains the higher statistic on life expectancy observed for women as a whole.

Conclusions and Recommendations

Inequality in income and human capital (HC) tends to be transmitted from generation to generation. Parents' initial endowment of both human and non-human capital determines the level of their monetary and non-monetary income and, consequently the level of affordable capital they can invest in and directly transfer to their children. Government subsidy lowers the price in the use of income and so relaxes the income constraint

Table 35
DISTRIBUTION OF THE EMPLOYED BY OCCUPATION

Occupation	Distribution of Males (percent)	Distribution of Females (percent)	Female Share in Occupation (percent)
Professional, administrative, and executive	4.8	11.2	57.3
Clerical workers	3.3	6.5	53.1
Sales workers	7.2	25.5	66.7
Service workers	6.0	14.1	56.9
Agriculture, forestry, and related occupations	51.8	30.0	24.7
Production and transport	26.8	12.5	20.9
Others	0.2	0.1	33.3
Total	100.0	100.0	36.2

Source: Integrated Survey of Households Bulletin (Series No. 63) January, July, and October 1990.

with respect to choices of use. The paper looked at the distribution of income and the various forms of HC, particularly health and education. Health is indicated by the nutritional status of children, life expectancy, and mortality rates; education by the level of schooling. The distribution of health by class of income is less unequal than the distribution of education by level. The difference in the distribution of these HC forms may be attributed to the difference in their nature and to government policy. Health is an output of the consumption of basic needs. Families who are able to meet basic needs would achieve some minimum level of health. Higher consumption levels will improve health further but at fast diminishing rate. On the other hand, educational investment depends on survival or on having minimum health first. And even with marginal increases in income, the amount of educational investment especially at the higher levels makes the investment less income elastic.

The government has succeeded in providing some basic health facilities. About 78 percent of households have access to a sanitary source of water, and 73 percent use sanitary toilets. Government hospitals, community clinics, and village health stations are present in the countryside. However, access to these are still unequally distributed, specially between urban and rural households. Child nutrition is still a problem. Severe malnutrition of children is very high at 14 percent. Poverty only partly explains malnutrition, since it is observed across all income classes. Among others, this likely implies poor nutrition education.

In education, the government has succeeded in enroling most every child in the first grade. With the free high school law in place, the secondary level is likely to be more equally distributed. But very little has been

Table 36
HOUSEHOLD POPULATION 7 YEARS OLD AND ABOVE, BY HIGHEST GRADE COMPLETED AND SEX, 1990

	Male	Female	Total	Female Share (percent)
No Grade	1,366,127	1,472,717	2,838,844	51.88
Elementary			24,630,569	49.31
High School	6,482,427	6,297,766	12,780,193	49.28
College	1,916,612	1,820,852	3,737,464	48.72
Degree Holder	1,322,972	1,798,372	3,121,344	57.62
Others	873,921	883,007	1,756,928	50.26
Total	24,447,551	24,417,791	48,865,342	49.97

Source: 1990 Philippine Population Census.

done about the distribution of the tertiary level, which exhibits very intense inequality. The University of the Philippine's socialized tuition scheme is reaching only about 10,000 out of about one million college students. While the provincial public universities may be catering to the middle classes who could not otherwise afford private college education, little of the subsidy reaches the poor.

Rural households are less able to access health care facilities and to invest in higher education than urban households. There are stark differences in the Gini ratios for urban and rural secondary and tertiary education. Access to and use of clean water, sanitary toilets, and hospitals and doctors are also substantially lower in rural areas. Policymakers can make use of the statistics presented here to identify targets for their health and education programs.

The *public provision* of social services, such as primary education and primary health care, is the single most important determinant of the poor's access to and use of such services. Universal enrolment at the primary level had been achieved largely due to the accessibility of primary schools in all towns and most villages in the country. The consumption of sanitary water was also due to its widespread availability.

Other social services have not been as accessible; therefore, their consumption had remained limited to a few. The free high school law guarantees universal secondary enrolment and provides tuition to students who are not admitted to public high schools. But the subsidy is limited to school fees or public school costs, and does not cover the opportunity cost of the student's time.

At the college level, distribution is even worse. Admission to state universities and colleges, which charge minimal tuition, tends to be biased for the higher income groups. The subsidy for higher education is geared neither toward achieving efficiency or equity, yet state subsidy for higher education has been increasing and is apparently eating into the subsidy for primary and high school education and primary health care — which by contrast *are* more equitably distributed.

The national budget for social services should be reallocated. The budget for tertiary education may be gradually reduced over three years by 50 percent or more. The amount saved may then be used to improve the quality of primary and secondary education and to expand access to primary health care.

The budget for health care is too meager, ranging from P5 to P31 per capita in 1990, and must be increased. The child-feeding program does not appear to be a priority of the current administiration, although child malnutrition remains serious. With overall limits to spending, it may be necessary to realign the budgets of other line agencies in order to provide the poor with basic needs in health.

While physical access to primary and secondary education is high, the quality of instruction must be substantially improved. The obviously superior performance of affluent students in admission tests at the state university is a consequence of the inferior quality of previous schooling among those who could not afford better but expensive private schools.

The budget that remains for higher education may be allocated to scholarships and research support programs. Programs with potentially high development impact should be emphasized, e.g., graduate studies in the sciences, history, and environment.

Scholarships should be directed to poor but bright students, awarded to individuals, and transferable across both private and public institutions. Students at state institutions must be charged full tuition, with those on scholarship paying the fees directly. This financing system is meant to compel public institutions to compete with the private sector and allow the government to direct its subsidy programs to specific groups of deserving students.

Appendix 3.1
WHAT DETERMINES HOW MUCH THE HOUSEHOLDS EARN?

We estimated an eclectic household earnings function by linear ordinary least squares (OLS):

$$Y = a_0 + a_1E + a_2R + a_3A + a_4A^2 + a_5L + a_6H + e$$

where

Y = household annual income;

E = education of head: elementary, incomplete high school, complete high school,incomplete college and complete college;

R = regional location of household, 1, 2,... 12, NCR = 0;

L = urban or rural location of household;

A = age in years of head;

H = hours worked of all members of the household.

The idea of the function is to show that the advantages of household head's education redounds not just to his own labor market opportunities but also to the members of his family. The income is not just labor income but also includes income from physical wealth and the effect of better decisions. The function tells more about inter-generational linkages; it is not an estimate of the rate of return to schooling.

We applied the OLS estimate to the whole sample and separately for each occupation. While it is true that the "higher" occupations (professional, administrative and executive) generally require college education and are in fact manned mainly by college educated people, other occupations also have highly educated workers. The separate regressions would show the relative importance of education in each occupation (see Appendix Table 3.1.1).

For the whole sample, all independent variables except Age^2 are significant at the 5 percent level or better. Education helps increase household income. The completion of college increases household income by P100,904 from zero education, while completion of high school raises it by just one-fourth that of college. Each year of experience, as proxied by age, adds an average of P2,010 to income, while every hour of work per week adds P159. If the total unemployment rate of about 15 percent is reduced to zero, the equivalent increase in income would be P49,600 per household (52 weeks x 40 x .15 x P159). Eliminating unemployment will wipe out poverty.

The separate regression runs for the various occupations have interesting results as seen in the accompanying table. In agriculture and production, education, age, hours worked and urban location have significant coefficients of the expected sign. However, not all the regional dummies have a significant influence on household income. In the service occupation, only the three highest education categories are significant; age is significant but hours worked is not. Again, some regional dummies are significant. For the professional group, only college education matters. The table text summarizes the effect of education and of location on household income. The relative influence of education and region on household income can be more easily compared. For the total sample, households with zero education have an average income of P27,285. The increment in income per change in education category is U-shaped. It is quite high between zero and some elementary education, with a 25.4 percent increase, then the rate of increase falls in the next two education categories, to only 7.1 percent between completed elementary and some high school. Completion of high school increases income by 22.4 percent but completion of college almost doubles the income. The effect of education varies widely across regions. It is very low in NCR where most of the higher educated labor force is to be found, and lower in Region X which has relatively abundant university facilities.

Appendix Table 3.1.1

FACTORS INFLUENCING HOUSEHOLD INCOME (PESOS PER ANNUM) BY OCCUPATION
(ordinary least square estimates)

	Agriculture, Forestry, and Fishing	Production and Industrial	Service	Sales	Clerical	Professional, Executive, Administrative
Constant	23,058,888[a]	-42,370[a]	-52,102[a]	8,896	67,662[b]	10,820
Grade 1	4,412[a]	8,039[b]	-1,807	23,340	58,504[a]	50,541
Elementary graduate	8,869[a]	13,024[a]	5,961	33,301	-29,742[a]	81,112
High school	12,929[a]	16,083[a]	7,725	37,472	-35,637[a]	90,246
High school graduate	17,387[a]	23,144[a]	23,316[c]	52,417[c]	-22,862[a]	176,639[c]
College undergraduate	23,062[a]	32,425[a]	32,230[b]	69,061[b]	-8,716	13,369
College graduate	44,782[a]	61,991[a]	64,225[a]	148,943[a]	155,943[a]	182,497[b]
Age	3,005[a]	2,372[a]	3,005[a]	-19	606	-692
Age^2	-11[a]	-19[a]	-24[a]	18	3	58
Urban	5,608a	4,134[a]	6,882[b]	10,013	22,352	22,352
Hours worked	161[a]	122[a]	42	51	-302	249
Region 1	-10,980[b]	-15,630[a]	-20,875[a]	-64,041[a]	-21279[c]	-204,200[a]
Region 2	-9,142[c]	-12,159[a]	-18,138[b]	-69,591[b]	-9,090	-217,451[a]
Region 3	-2,323	1,006	-6,697	-56,334[a]	-11,124	-191,666[a]
Region 4	-8,101	-6,818[a]	-8,087[c]	-59,020[a]	-12,166[c]	-207,640[a]
Region 5	-15,020[a]	-18,129[a]	-10,542	-70,869[a]	-31,704[a]	-220,530[a]
Region 6	-11,092[b]	-17,617[a]	-15,522[a]	-63,977[a]	-12,868	-198,982[a]
Region 7	-17,420[a]	-16,123[a]	-18,275[a]	-64,979[a]	-28,407[a]	-200,500[a]
Region 8	-16,256[a]	-17,777[a]	-24,523[a]	-56,664[b]	-41,238[a]	-230,547[a]
Region 9	-88,78[c]	-10,031[a]	-21,009[a]	-46,879[c]	-29,316[b]	-227,644[a]
Region 10	-5,959	-12,855[a]	-10,947[c]	-71,727[a]	-2,131[b]	-235,608
Region 11	-7,640	-7,284[a]	-1,122	-58,571[a]	-20,371[b]	-198,256[a]
Region 12	-4,635	-7710[b]	-14,734[b]	-48,370[b]	-9,370	-191,826[a]
Region 13	-15,580[a]	-7565[a]	-1,171	-47,788	-28,689[b]	-213,725[a]

Significant at

[a] 0.001 level

[b] 0.01 level

[c] 0.1 level'

Appendix 3.2
FINANCING SOCIAL PROGRAMS IN THE PHILIPPINES: PUBLIC POLICY AND BUDGET RESTRUCTURING*

*Rosario G. Manasan and Gilberto M. Llanto***

With the economic crisis of 1984-1985, the worst in postwar years, in which the gross domestic product (GDP) shrunk considerably, the Philippines performed dismally in terms of most human indicators. Infant mortality rate hovered between 59 to 57 per 1,000 live births from 1980 to 1990. Between 1989 and 1990, 14 percent of pre-school children were underweight, 11.6 percent stunted, and 9 percent wasted. In 1990, only 80 percent of the population had access to safe water and 70 percent to sanitary toilets.

As of 1989, more than a quarter of the population was found to be functional illiterates. The drop-out rate in the primary grades was 30 percent. Even at present, there are barangays without an elementary school, and most of the existing ones have inadequate facilities.

In response to these problems, the government prioritized social and human development goals in the *Medium-Term Philippine Development Plan, 1993-1998*. Mid-decade goals (MDGs) for Filipino children and mothers were laid down in health, education, water supply, and sanitation. However, the biggest constraint in achieving these goals was financing.

In 1993, for example, the fund available from both government and donors was only ₱798 million, or 65.4 percent of the estimated total cost of the MDGs. Given the fiscal constraints in the public sector, there is an urgent need for innovative ways to mobilize more resources for the social sector.

Government Revenues

Government revenues may come from tax and non-tax sources. Taxes, the principal source of income for the government, accounted for 86 percent of national revenues in 1992. On the other hand, non- tax revenues, such as grants, user charges, income from public sector enterprises and proceeds from privatization, constituted the remaining 14 percent.

Reforms in both the structure and administration of the tax system in the last half of the 1980s have improved the government's revenue performance, as evidenced by a favorable growth in tax revenue and an improved buoyancy of the tax system since 1986. However, estimates of tax evasion in recent years indicate that vast opportunities exist for collecting more taxes without raising the rate of existing taxes or imposing new taxes. Assuming that the margin of error in the estimated tax evasion level is 50 percent and that the government is able to collect 50 percent of the amount of taxes evaded, about ₱17.6 billion can be raised yearly by curbing evasion of the individual income tax and the VAT alone.

The revenue potential of user charges, or the fees that the government exacts from the private sector beneficiaries of publicly provided goods or services, has not been fully exploited. The share of user charges to total national government revenues has continuously declined from 15.3 percent in 1976 to 5.8 percent in 1992, largely due to government's failure to automatically adjust user charges to reflect changes in cost of producing goods or services.

Capital receipts from the sale of government properties, on the other hand, significantly improved non-tax revenues between 1987 and 1992. If the government's divestment program is accelerated, some 3.2 billion can be generated yearly within the next five years. However, the potential income from this source is expected to dwindle as the privatization program winds up in the medium-term.

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*This is one of UNICEF-commissioned studies in four countries in support of "20/20: Mobilizing Resources for Children in the 1990s."

**Research Fellows, Philippine Institute for Development Studies (PIDS). The views expressed herein are not necessarily those of UNICEF.

Official Development Assistance (ODA)

The country funded 2.9 percent of its GNP in 1990-1991 from ODA sources. Major sources of ODA and other official flows are Japan, the World Bank, Asian Development Bank, the United States, Germany, Canada, Australia, and the Netherlands. Their priority areas of assistance are economic and infrastructure development, poverty alleviation, environmental protection, structural adjustment, population planning, democratic reforms, protection of human rights, and improved administration. Recently, there has been a focus on social and human development.

From 1989 to 1991, the average amount of external assistance disbursed to the Philippines was $1.5 billion a year. This financed projects in agriculture, energy, transport, communications, natural resources, local area development, and industry. Health, education, and other social development projects accounted for only 11.4 percent of total ODA disbursement in 1991. This relatively low allocation was partly due to the donors' preference for other areas of assistance. It was also a manifestation of the government's failure to push for the social sector in its negotiations, and of official reluctance to use official loans to fund human development projects.

In May 1991, the United Nations Development Programme (UNDP) proposed what is now known as the "20/20" initiative, which calls on developing countries to devote at least 20 percent of their budgets, or 5 percent of their GNP, to basic human needs. It also appeals to all donors to allot 20 percent of development aid for the same purpose. This initiative underscores the importance of restructuring national budgets and international development aid in line with the priorities established at the World Summit for Children.

Government Expenditures in the Non-Social Sectors

Total government expenditure was reduced by an annual average of 11 percent in real terms during the economic crisis of 1984-1985. National defense and security, social services, and the economic sector suffered the brunt of the adjustment. When the economy recovered, real total government expenditure increased by an average of 8.4 percent yearly between 1986 and 1993. Government resources were reallocated from the economic sector and national defense to debt service, general public administration, and social services.

This rapid expansion of government expenditures during the period did not indicate growth; rather, it was due to the huge debt service which accounted for 30.3 percent of the total budget. Net of debt service, total government expenditure actually contracted from 15.3 percent in 1975-1982 to 11.1 percent in 1983-1985, then slightly recovered to 13.1 percent in 1986-1993. Per capita government expenditure net of debt service in real terms was lower in 1992 (1,733) than in 1981 (2,031). In effect, debt burden hampered the government's capacity to provide services to the people.

External debt jumped from $2 billion in 1970 to $24 billion in 1983. Domestic debt accumulated from 1986 to 1991 when the government was unable to borrow from foreign banks. Through a number of debt reduction schemes instituted since 1986, the government has freed some resources to augment the budgetary allocation for the social sector. Domestic debt grew at an annual average rate of 28.3 percent, which was twice the growth rate of the GNP. Coupled with high interest rate regime, this led to an unsustainable situation in which the large stock of domestic debt resulted in an ever-increasing domestic debt burden, which led to further increases in the fiscal deficit that had to be financed by more domestic borrowing and, consequently, to an ever-growing debt stock. Other analysts have suggested that the problem may be mitigated by increasing the average maturity of public sector debt, improving the efficiency of the primary and secondary market for debt issues, and developing a small savers instrument. These moves were expected to lower the interest rate on holders of government securities. Analysts have shown that a 1 percentage point reduction in interest rate leads to a 1.4 billion reduction in interest payments.

Next to debt service, general public administration is the second fastest-growing major item in the government's budget. In 1990, it was 2.7 percent of the GNP. If the budget for general public administration is pegged at its 1975-1985 level (1.4 percent of GNP) or set at a level similar to Thailand's (1.2 percent of GNP), then the government can save, annually, 7.5 billion or

10.2 billion, respectively.

Government expenditure on national defense and peace and order declined from 3.5 percent of GNP in 1975 to 1.6 percent in 1985. In 1993, it settled at 1.9 percent. Relative to other ASEAN countries, this budget allocation is the lowest, yet it is still three times larger than the national budget on health.

Outlay for the economic service sector was the slowest-growing major expenditure item in the budget from 1975 to 1982 and from 1986 to 1993. Government expenditure for this sector dropped from 7.6 percent of GNP to 5.5 percent, and the share of this sector to total budget went down from 45.6 percent to 24.8 percent during the same period.

The marked increase in total national government capital outlay between 1986 and 1993 was largely the effect of the dramatic increase in current expenditure from 11.6 percent of GNP in 1975-1985 to 18.3 percent in 1986-1993. The rapid growth was due to increases in three items — interest payment, personal services expenditure, and current transfers (or subsidies) to government corporations.

Given the government's limited capacity to generate resources, an evaluation of the relative benefits and costs arising from its various subsidy programs must be undertaken. Some 4 billion can be saved yearly if the fiscal incentive package of the Board of Investments (BOI) is limited to exports while net operating loss carry-over and accelerated depreciation are provided to all firms (to allow the Philippines to remain competitive in drawing foreign direct investments). Similarly, the 0.8 billion spent yearly on explicit and implicit subsidy to the National Food Authority (NFA) may be reallocated to other areas since the NFA had not been effective in stabilizing the price of palay and rice and in reaching a substantial number of farmer and consumer beneficiaries.

Government Expenditures in the Social Sector

National government expenditures in the social services sector grew substantially in both nominal and real terms in 1986-1993 following an improvement in the macroeconomic environment and in the government's commitment to social service concerns. Government outlay for the sector rose from 3.2 percent of GNP in 1975-1985 to 4.1 percent in the last eight years.

The share of the social services sector in the national budget (social allocation ratio) declined from 20.9 percent in 1981-1982 to 16.7 percent in 1983-1985, but rose to 18.5 percent in 1986- 1993. However, the social allocation ratio, when measured relative to total government expenditure net of debt service, increased from 22.8 percent to 24.0 percent and 30.1 percent, respectively. Despite this relative improvement, the ratio is still low compared to the UNDP target of 40 percent and to the ratios in many Asian countries.

On the other hand, the social priority ratio (i.e., the share of expenditure on human development priorities relative to the total expenditure on the social services sector) was less affected by the macroeconomic environment. It rose constantly from 39.2 percent in 1981 to 59.1 percent in 1991. The country's social priority ratio is higher than the average for most developing countries and the UNDP target of 50 percent.

Like the social allocation ratio, the human expenditure ratio (ratio of expenditure on human development priorities to GNP) is vulnerable to overall economic developments. Thus, the human expenditure ratio dropped from 1.5 percent in 1980-1981 to 1.25 percent in 1983-1985, but increased to 2.3 percent in 1986-1989 before dropping again to 1.9 percent in 1990.

1. Health and Nutrition

The country's overall health status in terms of mortality, morbidity and nutrition has not improved over the last decade. The trend is closely linked to high fertility level, low level of education among women, and poor environmental sanitation.

Government expenditure on health, nutrition and population sectors dipped from 0.6 percent of GNP in 1975-1982 to 0.5 percent in 1983-1985. This recovered in 1986 and peaked at 0.7 percent in 1990, only to settle back at 0.5 percent in 1991 and onwards. In contrast, the average expenditure for these sectors in 17 selected Asian countries is 1.4 percent of GDP and 5 percent of total central government expenditure in 1990.

In 1980-1990, 51 percent of total government expenditure on health was allocated for maintenance and operating expenditure, 41 percent for personal services expenditure, and 8 percent for capital outlays.

By function, 70 percent of the Department of Health (DOH) budget is allocated for curative care, 20 percent for preventive care, and 10 percent for administrative services.

The DOH administers some 26 national level public health programs. In 1993, it appropriated 1.1 billion for these programs; donors committed another 1 billion. The more important of these programs and their budgets are:

- Family Planning Program - 395 million, largely financed by donors
- Tuberculosis Control Program - 365 million, primarily financed by government
- Environmental Health Program - 236 million, 54 percent of which is government fund
- Expanded Program of Immunization - 225 million, 40 percent of which is provided by the government
- Malaria Control Program - 212 million, and
- Nutrition Programs - 119 million.

Among the issues and challenges that confront the health sector are:

UNDER-INVESTMENT IN THE HEALTH SECTOR RELATIVE TO OTHER SECTORS. Per capita general government expenditure on health reached 192 ($7.22) in 1993. Even if all this amount is spent on basic health care, it is not enough to cover the price of a minimum package of basic health interventions, estimated by the World Bank to cost $12 per capita in 1990 (or $12.61 in 1993, assuming an inflation rate of 2.5 percent yearly).

OVER-ALLOCATION FOR CURATIVE CARE. Given that the primary goal of resource allocation is to obtain the maximum health gain per peso spent, the strongest argument for increasing government expenditure on public health services is the cost-effectiveness of preventive/ community health interventions relative to curative care interventions. Although existing estimates of the cost-effectiveness of alternative types of health interventions are crude, they indicate that the cost of saving life is much higher (at least two to five times as much) in curative care than in preventive care. Ironically, 70 percent of the DOH budget is spent on curative care.

OVER-ALLOCATION FOR ADMINISTRATIVE SERVICES. The devolution of a substantial number of DOH personnel (45,000 out of 75,000) and amount of budget (3.9 billion out of 10 billion) should have led to a proportionate reduction in the outlay for general administrative services. On the contrary, DOH appropriation for this item rose by 86.1 percent in 1993. Even after adjusting for inflation and regular growth in government expenditure, this allocation was about 382 million higher than what the DOH's reduced personnel and budget warranted.[1]

UNDER-FUNDING OF MAINTENANCE AND OPERATING EXPENDITURES. The production of health services is labor-intensive. However, the shortage of complementary inputs like drugs, medicines, supplies, fuel, and building and vehicle maintenance reduces the effectiveness of the health staff. The ratio of real DOH personal services expenditure to maintenance and operating expenditure rose from an average of 0.63 in 1980-1982 to 1.02 in 1989-1991. Considering the government's proclivity to impose across-the- board reductions in maintenance expenditure during periods of budgetary restraint, this trend is worrisome and efforts should be made to secure financing of this expenditure item.

USE OF LESS COST-EFFECTIVE INTERVENTIONS. In 1991, only 49.5 percent of diarrheal cases among children under five were treated with oral rehydration therapy (ORT). Moreover, 84 percent of hospitalization cases in 1989 were due to respiratory and gastrointestinal infections, both of which can be treated in Barangay Health Stations (BHS).

POOR LOGISTICS MANAGEMENT SYSTEM. Logistics problems are pervasive, particularly in the distribution of drugs and medicines. The DOH logistics system for drugs and medicines is riddled with problems in the following areas: planning, accreditation of suppliers, procurement, distribution, and inventory management. Reforms in the system have been initiated and have to be sustained.

LOW COST RECOVERY IN GOVERNMENT HOSPITALS. In 1993, 1.8 billion was allocated for hospital facilities retained by DOH (640 million for eight tertiary medical centers in Metro Manila and 1.2 billion for regional

[1]Similarly, some P106.5 million could have been saved in 1993 if the Department of Social Welfare and Development (DSWD) reduced its appropriation for general administrative expenditures after devolution.

medical centers and hospitals). On the average, government tertiary hospitals recover about 5 percent of their expenditures. If another 10 percent of their operations costs are recovered from fees and charges (bringing the recovery level to 15 percent), some 180 million in additional revenues can be generated. This amount is almost sufficient to finance the cost (186 million) of achieving the Expanded Program of Immunization (EPI) targets under the mid-decade goals in 1993. Similarly, the cost of operating LGU hospitals was 3.3 billion in 1993. If another 10 percent of this cost is recovered from user fees, another 330 million can be mobilized by LGUs.

2. Education

The country performed well in terms of enrolment and literacy rates in the 1980s. Gross enrolment in formal education grew by an average of 2.37 percent annually in the last decade. By 1993, gross enrolment was 16.5 million compared to 12.8 million in 1981.

The share of public schools in the total elementary enrolment slightly declined to 92.6 percent in 1992-1993 from 93.3 percent in 1989-1990 and 94.8 percent in 1981-1982. At the secondary level, the public schools' share increased to 65 percent from 63.5 percent and 54.2 percent, respectively, during the same periods. Meanwhile, of the total enrolment in the tertiary level in 1992-1993, 19 percent was in public schools, compared to 10 percent in 1981-1982. The increase in enrolment in public secondary and tertiary schools can be traced to the provision of free secondary education and accessibility of public schools following the creation of barangay/ rural high schools and several state colleges and universities.

Dropout rate, or the proportion to total enrolment of pupils who left schools during a given school year, declined substantially at the primary level from 3 percent in 1981-1982 to 1.6 percent in 1992-1993, and slightly at the secondary level from 6.3 percent in 1983-1984 to 5.9 in 1991-1992. Graduation rates for both primary and secondary levels were relatively high at 97 percent and 94 percent, respectively, in 1990-1991 compared to 90 percent and 96 percent, respectively, in 1981-1982.

In 1992-1993, 1.4 million students, or 8 percent of total enrolment, were in tertiary level, of which 81 percent was in private schools. Their survival rate was low primarily due to the difficulty of financially sustaining a college education and to the bleak prospect of finding a job after graduation. Performance rate in licensure examinations was also low at 39 percent.

Latest data show that there are over 2,000 colleges and universities in the country, of which more than three-fourths are private schools. State universities and colleges (SUCs) proliferated between 1975 and 1988 when over a hundred SUCs were either created by statutes or converted by executive orders. This was a remarkable improvement from the situation in 1965-1966 when there were only 466 tertiary schools. The number of elementary and secondary schools also increased from 21,877 and 2,537 to 34,570 and 5,701, respectively, during the same period.

Despite increases in the number of schools and in participation rates in recent years, many areas still lack basic educational facilities. One out of four barangays is without an elementary school, and 61 of the country's 1,540 municipalities nationwide have neither public nor private high school. Moreover, 48 percent of primary schools does not have water supply, while 61 percent does not have electricity. Although enrolment-to-school ratio and teacher-to-pupil ratio are fairly stable, there is an observed deterioration in the quality of education and a continuing problem of lack of access by the disadvantaged. There are also disparities in the regional distribution of educational facilities; thus, the National Capital Region, Central Luzon and Southern Tagalog outrank other regions in terms of educational performance.

In the 1960s and the early 1970s, government allocated almost one-third of its national budget to education. The budget has since decreased to less than 10 percent until 1986 when it started to increase again. The rapid growth of the schoolage population has brought tremendous pressure on existing facilities and personnel resources, making it imperative to increase budget through intersectoral and intrasectoral budget reallocation.

However, public schools tend to be less cost-effective than private schools. Operating cost per student in public elementary schools was estimated at 940 in 1986 compared to 662 in private schools. At the secondary level, cost per student was estimated at 1,250 in public

schools compared to 753 in private schools. At the tertiary level, the estimated cost per student at SUCs in 1993 was 12,800, higher than that in private schools. Increasing the share of tuition from 10 to 20 percent will allow the government to free about 750 million, which can then be used for improving the quality of basic education.

The major issues and challenges that beset the education sector, among others, are: (1) deteriorating quality of basic education; (2) disparity in the quality of education between public and private schools, and among regions, which could be exacerbated by the devolution of education concerns to LGUs; (3) inadequate school facilities; (4) lack of competent teachers; (5) access to higher education by the disadvantaged groups; (6) mismatch between education and skills training and the actual demands for jobs; and (7) rationalization of public tertiary education.

3. Water and Sanitation

Water supply coverage continuously improved from 59 percent to 80 percent of the population from 1980 to 1990, except for a noticeable decline in 1986-1987 due to underinvestment by the Department of Public Works and Highways. In 1992, 62 percent of residents in Manila had access to potable water, 58 percent in other urban areas, and 84 percent in rural areas.

According to a recent survey of households, 12 percent used spring water and other sources due to absence of convenient sources; 19 percent had water for only 6 to 12 hours; 65 percent had water for free; and 30 percent of the 483 communal water facilities inspected was within 10 meters from a latrine. The survey also showed that 85 percent of the households had sanitary toilets; a number of the toilets were in controlled areas but served many households; and 40 percent of the 73 communal sanitation facilities inspected was poorly maintained.

Sanitation also improved from 50 to 70 percent of the population from 1980 to 1989. However, water and sanitation-related diseases such as diarrhea, typhoid fever, infectious hepatitis, and schistosomiasis increased during the same period. In fact, diarrheal morbidity cases increased by 300 percent, making it the third leading cause of deaths among infants and children under five years old. Low health impact is traced largely to inadequate utilization of water and sanitation facilities and poor hygiene practices. Facilities are sometimes installed near sources of contamination, essential parts are poorly installed, or the quality of materials used is substandard. Increasing access to water and sanitation facilities alone is not enough. Experience shows that proper utilization of facilities, effective hygiene education, and viable community participation strategies should be strengthened to effect positive behavioral change.

As of 1991, the Metropolitan Waterworks and Sewerage System (MWSS) serviced a population of 938 million through 709,742 water service connections. Only 42 percent of the daily supply of 2.4 million liters of water generated revenues; the remaining 58 percent was lost due to leakage and firefighting purposes (32%), illegal connection and withdrawals (14%), and measurement errors (12%). A 5 percent reduction in water losses alone would gain for MWSS 388 million. In 1991, collection from illegal connections amounted to 22.8 million.

Despite a return rate of 10.26 percent registered in 1991, the MWSS faced financial difficulties. Between 1986 and 1989, its internal cash generation financed 70 percent of its capital expenditures. The ratio has since declined such that MWSS now depends on foreign financing for its capital programs.

On the other hand, the 578 water districts (WDs) supervised by the Local Waterworks and Utilities Administration (LWUA) covered 5.7 million households in 1991, or 63 percent of all households nationwide. The rest were covered by water systems developed and managed by LGUs or by private utilities. The performance of WDs varies. Several WDs have difficulty paying their debts to LWUA although by virtue of RA 7109 they are exempted from paying income and franchise taxes, and duties and real property taxes until 1996.

LWUA's financial situation is precarious. In 1988-1992, it relied substantially on national government equity which averaged 245 million a year. Its internal cash generation covered only 16 percent of its capital expenditures. Loan repayment from WDs was only 40 percent of billings. The allocation of its loan portfolio was also unhealthy, such that 35 percent went to only six WDs; thus, its net profits accounted for only 2.5 percent of its equity in 1992.

The four common issues confronting the water sup-

ply and sanitation sector are: policy environment, financing, production and maintenance, and community participation. The issues are interrelated and revolve around the need to improve the overall climate for larger investments in the water sector, expand the role of the private sector, strengthen the implementation capacities of MWSS, LWUA and LGUs, and raise community participation.

Political Economy of Government Budget

The national budget is the financial translation of the national development plan. The budgeting process consists of four phases: budget preparation, budget legislation or authorization, budget execution or implementation, and budget accountability or review.

To a large extent, the budgeting process at the local government levels approximates that of the national government. The difference lies in the budget review in local government, which occurs between budget authorization and budget execution.

During her administration, President Aquino made a strong commitment to support the social services sector. Thus, in 1986- 1990, government expenditure in this sector grew relative to others. However, in the preparation of the 1993 budget, social projects/activities were assigned the same weight as physical infrastructure projects. In the 1994 budget, priority was given to power and foreign-assisted projects. Thus, there appears to be some agreement in the executive branch that the economic sector should be treated more favorably in terms of budget allocation.

Apart from the formal procedure of setting department and agency budget ceilings, there is an informal appeals process through which department heads can try to increase their budget ceilings by asking for reconsideration from the DBM or the President himself. The aggressiveness of the department head in arguing for his agency's case strongly influences the kind of response that he receives.

The present budget allocation process has a tendency to focus on projects and to give priority to foreign-assisted projects. This leads the departments into "projectizing" their activities even if more sustained and long-term programs are needed and into relying on external sources of finance even when the sustainability of these activities are in question.

In enacting the 1993 and the 1994 budgets, Congressional initiatives became more pronounced. The members of Congress tended to increase the budget of one agency at the expense of another. A variance analysis shows that the infrastructure sector tended to be favored relative to other sectors, although there were instances when some social service agencies like the DOH were able to secure additional appropriations from Congress. This appears to be consistent with some observations that the members of Congress tend to focus on quick-impact, high-visibility, district-specific projects (mostly physical infrastructure)

Conclusions and Recommendations

There is an urgent need to empower the people through the provision of basic human needs. This should be given priority considering that higher productivity and growth can only be insured by "a healthy, educated citizenry." Therefore, the government must support social development programs.

There are three broad sources of additional financing for the social sector — increased revenues, intersectoral allocation, and intrasectoral reallocation. Measures to increase revenues include curbing tax evasion, privatization, and improving the capacity of the government to absorb ODA. These measures alone would yield roughly 30 billion a year.

Intersectoral reallocation should consist of the following: (1) policies to lower domestic interest rate, (2) reduced expenditures on general public administration, (3) reduced outlay for general administrative services in DSWD, (4) elimination of NFA subsidy, and (5) restructuring of BOI incentives. Estimated resources from these measures would amount to 14.2 billion.

Intrasectoral allocation, on the other hand, should undertake the following measures: (1) reduced DOH outlay for general administrative services due to devolution, (2) increased cost recovery in government hospitals, (3) improved DOH logistics system, and (4) increased cost recovery in SUCs. These measures would generate an estimated 2.0 billion.

Revenues that can be raised from the two major sources are substantial compared to the third major

source. However, there are competing demands from other government departments and line agencies for resources from these two sources. Thus, the agencies in the social services sector must implement the necessary reforms to have greater control over those resources. Nevertheless, greater and more dedicated advocacy for the social services sector will be necessary to successfully tap greater portions of incremental revenues from the first two major sources.

Appendix Table 3.2.1
ODA FROM SELECTED MAJOR DONORS TO THE PHILIPPINES: SELECTED RATIOS, 1988-1990, 1991

	Aid Social Allocation Ratio[a]			Aid Social Priority Ratio[b]			Aid Human Expenditure Ratio	
	1988-1989	1988-1990	1991	1988-1989	1988-1990	1991	1988	1988-1991
Germany	19.2	30.5		55.4	71.9		.008	.210
Netherlands	21.1	21.1		44.5	49.1		.087	.091
Canada	23.8	19.7		45.9	46.5		.048	.041
United States	16.4	15.9		50.4	52.4		.016	.014
Australia	6.4	14.6		31.4	15.7		.007	.009
Japan	10.7	11.5		25.5	32.0[d]		.008	.012
Philippines		9.9[c]	11.4[d]		45.0[c]	78[d]	.191	.124

Source: UNDP, *Human Development Report* (HDR) 1992, 1993.
[a]Percentage of ODA that goes to the social sector.
[b]Percentage of social sector ODA that goes to human priority areas, e.g., primary health care, nutrition, primary education, family planning, water and sanitation.
[c]In relation to GNP, Philippines.
[d]Source of basic data: UNDP

Appendix Table 3.2.2
AID SOCIAL ALLOCATION RATIO (RATIO OF SOCIAL EXPENDITURES TO TOTAL EXTERNAL ASSISTANCE) TO THE PHILIPPINES, BY MAJOR SOURCE (in percent), 1989-1991

	1989	1990	1991
Australia	42.4	56.0	93.0
United States	11.3	23.2	25.3
Canada	27.1	31.0	17.9
Asian Development Bank	5.7	13.0	15.7
IBRD	24.7	14.0	10.1
Germany	18.0	—	6.8
Japan	15.7	4.8	3.7

Source: UNDP Development Cooperation Reports, 1989-1991; and *Human Development Reports*, 1989-1991.

Appendix Table 3.2.3
GOVERNMENT EXPENDITURE ON HEALTH AND EDUCATION
COMPARED TO GDP AND TOTAL PUBLIC EXPENDITURES IN SELECTED ASIAN COUNTRIES

	H. Exp-GDP Ratio		Ed-Exp-GDP Ratio		H. Exp-CGE Ratio		Ed. Exp-CGE Ratio	
	1986	1990	1986	1990	1986	1990	1986	1990
Bhutan	1.82	2.24	3.40	4.93	5.13	5.54	9.60	12.15
Fiji	2.33	2.20	6.15	6.03	8.88	7.66	23.45	20.99
India	0.34	0.28	0.32	0.43	1.93	1.59	1.83	2.47
Indonesia	0.43	0.46	1.95	1.72	1.87	2.42	8.51	9.07
Korea	0.24	0.33	2.90	3.27	1.51	1.95	18.12	19.47
Malaysia	1.70	1.40[a]	6.80	5.70[a]	4.50	4.60[a]	17.60	19.20[a]
Maldives	1.79	5.81	3.44	6.77	3.97	9.68	7.62	11.27
Myanmar	1.09	-	1.94	-	6.59	6.52	11.68	15.91
Nepal	-	0.94	-	2.15	-	4.80	-	10.95
Pakistan	0.21	-	0.60	-	0.88	-	-	-
Philippines	0.55	0.71	2.29	3.10	2.90	3.00	12.20	13.00
P. New Guinea	3.01	-	4.95	-	9.66	-	15.86	-
Singapore	1.17	1.00	5.23	4.35	4.06	4.58	18.15	19.88
Solomon I.	2.42	-	5.47	-	6.35	-	14.35	-
Sri Lanka	1.25	1.53	2.80	2.80	3.93	5.42	8.79	9.90
Thailand	1.25	1.05	4.01	3.11	6.10	6.77	19.51	20.08
Vanuatu	4.21		9.20	-	12.40	-	27.12	-
Average	**1.47**	**1.38**	**3.84**	**3.70**	**5.04**	**4.96**	**14.29**	**14.18**

[a]Refers to 1988.

Sources: Malaysia: *Government Finance Statistics Yearbook*; Philippines: Department of Budget and Management; All other countries: Parker, David and Eva Jespersen, "20/20 Mobilizing Resources for Children in the 1990's," *UNICEF Staff Working Paper No. 12*, 1994.

Appendix Table 3.4
ESTIMATE OF RESOURCE GAP, 1993 (in thousand pesos)

		SOURCES										
GOAL	Total Resource Needs	GOP	UNICEF	CSP	WHO	PHDP	CIDA	RI	ADAB	USAID	Total Resources	Resource Gap
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(2)-(12)
1. EPI*	679,827	87,573	4,446	50,670	1,227		41,414	38,250	7,750		231,330	448,497
2. CDD	59,466	21,000	2,786	35,241	1,360						60,387	(921)
3. CARI	49,444	16,200	3,750	29,565	2,514	8,917				700	61,646	(12,202)
4. BFHI	31,968			957							957	31,011
5. NUT-RITION**	400,169	68,317									68,317	331,852
TOTAL,	1,220,874	193,090	10,982	116,433	5,101	8,917	41,414	38,250	7,750	700	422,637	798,237

*Includes MDGs for polio, NNT, Measles.

**Includes IDA, VAD and IDD.

Source: Alano, Bienvenido P. Jr., et al, "Cost Estimates of the Philippines' Mid-Decade Goals." Corporate Assistance and Resource Associates, Inc., September 1993.

Appendix Table 3.2.5
POTENTIAL SOURCES OF ADDITIONAL FINANCING FOR SOCIAL SECTOR AND OTHER PROGRAMS, ON A YEARLY BASIS

	SOURCE	AMOUNT
I.	INCREASED REVENUES	
	Curbing tax evasion	P17.6B[1]
	Privatization	3.2B[2]
	Improved capacity to absorb ODA	9.2B[3]
II.	INTER-SECTORAL REALLOCATION	
	Policies to lower domestic interest rate	1.4B[4]
	Reduced expenditures on general public administration	7.5B
	Reduced outlay for general administrative services in DSWSD	0.1B
	Eliminate NFA subsidy	1.2B[5]
	Restructure BOI incentives	4.0B
III.	INTRA-SECTORAL REALLOCATION	
	A. Health and Nutrition	
	Reduced outlay for general administrative services due to devolution	0.4B
	Increased cost recovery in DOH retained government hospitals	0.2B
	Increased cost recovery in devolved hospitals	0.3B
	Improvements in logistics system	*[6]
	Review nature, approaches to treatment and cost effectiveness of present interventions in mental health and leprosy	*[6]
	Shift to more cost effective intervention like ORT BHS treatment and use of simple diagnostic procedures for ARI, etc.	*[6]
	B. Education	
	Increased cost recovery in SUCs	0.6B
	Imrpoving internal efficiency in public schools	*[6]
	C. Water and Sanitation	
	Improving collection efficiency of LWUA	0.245M[7]
	Reduce water losses of MWSS	0.250M[8]
	Increased community participation in management of level I water and sanitation systems	*[6]
	Increased disbursement rates of appropriation for level I water and sanitation systems	*[6]

[1]This assumes that the margin of error in the estimated evasion level is 50 percent and that the government is able to collect 50 percent of the amount of taxes evaded.

[2]This assumes that the privatization program will wind up in five years and that the proceeds from government divestment from the remaining assets are evenly spread out over this period.

[3]This assumes an increase in the availment rate of 149 program and project loans to 80 percent based on 1992 scheduled availment.

[4]This assumes a one percentage point reduction in the interest rate on Treasury Bills.

[5]This refers to the explicit subsidy only.

[6]Estimate not available.

[7]Improved collection efficiency of 72 percent as compared to 55 percent in 1992. This is equal to the average annual government equity infusion to LWUA in 1988-1992.

[8]This assumes a 3 percentage point improvement in water recovery per year to achieve a target rate of 57 percent in five years from 42 percent in 1991. This amount is roughly 85 percent of the P295 million average annual government equity infusion to MWSS in 1988-1992.