

WHO FAIRNESS IN FINANCING STUDY

**Estimates for Sri Lanka 1995/96
using WHO Methodology**

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Abstract

In Sri Lanka, 50% of total financing for health comes from government, funded mainly by general revenue taxation. The remaining 50% is mostly accounted for by out-of-pocket payments by households. Applying the WHO methodology, the Fairness in Financing score as defined by WHO is estimated to be 0.941 for Sri Lanka. The estimate is based on analysis of the Census and Statistics Department's Household Income and Expenditure Survey 1995/96, a nationally representative household consumption survey, in which responses were obtained from 19,753 households. National health accounts data are derived from Sri Lanka's official National Health Accounts, which are compiled in accordance with the OECD System of Health Accounts. The analysis deviates from the WHO methodology for sake of methodological improvement, by using a larger number of scaling factors than proposed in the original method. The estimate is shown to be robust to the assumptions made during analysis. Simulation of alternative financing scenarios shows that the Fairness in Financing score would be improved substantially by greater reliance on general revenue financing of health care, and that alternative funding scenarios explored would be associated with worse scores. However, even with complete reliance on tax financing, the score would not reach 1.0, because of lack of substantial progressivity in the tax system. Increasing the progressivity of the tax system would be necessary for further improvement. The Fairness in Financing approach is not without problems. Its normative basis has certain deficiencies, and may not be consistent with the social objectives that Sri Lanka has pursued historically. It may also not address dimensions of equity that are of concern to policy-makers in Sri Lanka.

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1. Description of Health Financing System

1.1 Country Background

Sri Lanka's population was 18 million in 1996, with the annual growth in population less than 1% per annum. The country is relatively advanced in the health transition, with both low mortality and fertility rates (Table 1.1). Urbanisation is still limited, with 22% living in urban areas. Sri Lanka is classified by the World Bank as a low-income developing country: per capita GDP was \$759 in 1996. Economic growth in recent years has been driven by expansion in export-oriented manufacturing and services. The bulk of the labour force is employed in the service sector (31.4%) and an increasing number employed in industry (Table 1.2). 18% of GDP is generated by agriculture, 21% by industry and 45% in services.

Table 1.1: Long Term Trends in Health and Social Indicators

Indicator	1930	1950	1970	1990	1996
Birth rate	39	40	29	21	18
Death rate	25	13	7	5	6
Infant mortality rate	175	82	47	22	17
Maternal mortality rate	21	6	2	1	< 1
Life expectancy at birth (years)					
Female	39	55	67	73	75
Male	41	56	64	69	71
Literacy (%)		69	82	88	92
Total fertility rate		5.3	4.2	2.2	2.0
Total population (millions)	5.3	7.7	12.5	16.9	18.3
Population growth rate (%)	1.4	2.8	2.2	1.0	0.9

Source: Official statistics and IPS estimates for 1996.

Table 1.2: Population, Labour Force and Employment

Item	1993	1994	1995	1996	1997
GDP per capita at market prices (US\$)	588	656	719	759	814
GDP real growth rate	6.9	5.6	5.5	3.8	6.3
Population aged 10 years and above ('000s)	12,284	12,479	12,763	12,843	12,863
Labour force ('000s)	6,032	6,142	6,115	6,238	6,218
Total employed ('000s)	5,249	5,299	5,339	5,517	5,571
By Economic Sector (% of work force)					
Agriculture, Livestock & Fisheries	38.0%	29.8%	32.2%	33.3%	31.7%
Mining & Quarrying	1.1%	0.5%	1.5%	1.4%	1.3%
Manufacturing	12.3%	12.5%	14.1%	13.4%	14.5%
Electricity, Gas & Water	0.9%	0.4%	0.2%	0.4%	0.3%
Construction	2.8%	4.2%	4.4%	4.6%	4.8%
Trade & Hotels	10.5%	9.7%	11.1%	10.4%	8.6%
Transport, Storage & Communications	3.7%	4.4%	4.7%	4.2%	4.9%
Insurance & Real Estate	1.3%	1.7%	1.8%	1.7%	1.3%
Services	12.9%	15.6%	15.4%	15.6%	16.5%
Other Services (Not Defined)	3.9%	4.9%	4.5%	3.9%	3.8%

Source: Department of Census and Statistics Quarterly Labour Force Survey.

Notes: Figures are those for the third quarter of each year, and exclude Northern and Eastern Provinces.

The tax regime has shifted since the 1970s from a reliance on export taxes to mostly turnover taxes and import duties (Figure 1). Despite facing a large fiscal deficit which

averaged 9% of GDP during the 1990s, the Government has largely responded by cutting taxes and reducing spending, although this has had no net impact on the fiscal deficit. During 1998-99, several turnover taxes were replaced by General Sales Tax (GST), but this resulted in a fall in overall tax revenues (Table 1.3).

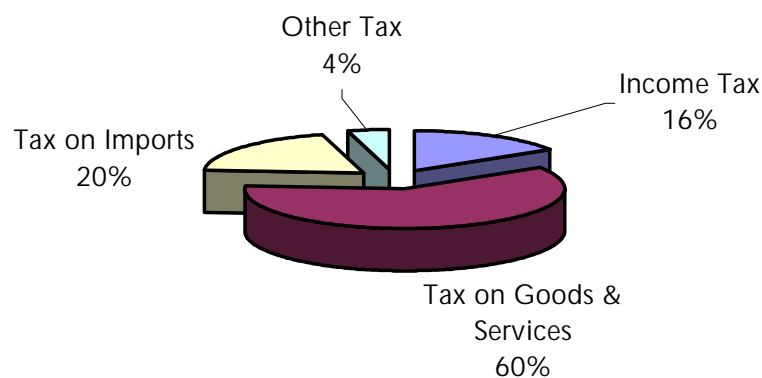
96% of all taxes are raised by the central government, although responsibility for most health and educational services lies with the Provincial Councils, which are the major sub-national level of government. There are nine Provinces altogether, although two are temporarily merged (Northern and Eastern Provinces). Provincial councils are mostly funded by block transfers from central government.

Table 1.3: Government Tax Revenue (as percentage of GDP)

Item	1986-88	1989-91	1992-94	1995-96	1997-98	1999-00
Tax revenue	17.2	18.7	17.4	17.4	15.3	15.5
Taxes on foreign trade	6.1	5.9	4.4	3.5	2.9	2.3
Exports	0.9	0.6	0.1	0.0	0.0	-
Imports	5.2	5.4	4.3	3.5	2.9	2.3
Taxes on domestic goods & services	8.0	8.6	9.5	10.3	9.4	10.1
Taxes on net income and profits	2.4	2.3	2.6	2.7	2.2	2.4
Taxes on property	1.4	1.0	0.8	0.8	0.7	0.7
Non-tax revenue	3.2	2.3	2.2	2.4	2.6	2.7
Current revenue	3.2	2.3	2.2	2.4	2.6	2.7

Source: Central Bank of Sri Lanka, Annual Reports (various issues).

Figure 1.1: Composition of Tax Revenue in 1996



1.2 Health Status and Health System

Overall population health status is the best in South Asia, and health statistics are close to many European nations. Disparities in health status as measured in DHS surveys are less by educational level and between urban and rural residents than for most developing countries. Sri Lankans are highly health conscious and make frequent and early use of medical services when sick. Overall utilisation rates of modern medical treatment is high, with 4.5 physician contacts per capita annually, and an inpatient admission rate of 20% per annum. Surveys show that per capita utilisation rates of formal medical services is equal across all income quintiles. Poorer households use predominantly government services, while richer households are more likely to use private services. Most households use government hospitals for inpatient care.

The government health system is similar to those found in many other ex-British colonies, such as Malaysia, Jamaica, Mauritius and Hong Kong. The government health care system consists primarily of a network of more than 500 hospitals, arranged in several tiers of increasing complexity and facilities. Government hospitals provide both inpatient and outpatient services. There is also a network of smaller facilities providing ambulatory care, which are most important in the delivery of MCH and family planning services. The government system accounts for >95% of all inpatient admissions, and 55% of all outpatient consultations.

The private sector provision consists mainly of private medical clinics, which account for approximately 40% of outpatient consultations. Approximately a third of these clinics are run by ~ 900 full-time private general practitioners, and most of the rest are staffed by government medical officers who are permitted to conduct private practice in their off-duty hours. Most private doctors dispense medicines, but Sri Lankans also make extensive use of pharmacies. There are approximately 100 private hospitals in the country, comprising < 5% of total hospital bed capacity. Most of these are located in the more developed Western Province, and all are in urban areas.

Sri Lanka has an old and well-established system of indigenous medicine, which is supported by the government. Some government health facilities provide indigenous medical services, and government universities train indigenous medical practitioners to degree level. However, use of indigenous providers has been declining since the 1950s, and only a tenth of all outpatient consultations are now at indigenous providers (Tables 1.4 & 1.5).

Table 1.4: Sources of Treatment Used by Sick Persons

Source of treatment	1978/79	1981/82	1986/87	1991	1996/97
Western government sector	42.6%	45.6%	44.1%	48.9%	48.9%
Ayurvedic government sector	1.9%	2.2%	1.9%	3.1%	1.9%
Western private sector	34.3%	34.2%	37.2%	37.5%	36.8%
Ayurvedic private sector	16.1%	12.1%	12.9%	9.0%	7.3%
Others	5.1%	6.0%	3.8%	1.5%	1.6%
No treatment					3.5%

Source: Central Bank Consumer Finance Surveys for 1978-1996/97, and MOH/IDA Household Health Utilisation Survey for 1991.

Table 1.5: Trends in public/private provision of services, 1990s

	1990	1992	1994	1996 ¹	1997
Government sector					
Beds	42,079	48,061	50,091	52,613	55,441
Doctors	2,440	3,345	4,037	5,117	5,628
Nurses	12,418	17,460	17,577	13,3933	13,815
Other staff	6,1781	-	-	-	-
Inpatient admissions ('000s)	2,533	3,023	3,204	3,339	3,454
Outpatient visits ('000s)	28,401	36,827	35,276	35,348	39,503
Private sector					
Beds	1,872	1,886	2,138	2,275	2,305
Doctors ²	~ 600	-	~ 1,000	-	-
Nurses	> 2,000	> 2,000	-	-	-
Other staff	> 3,000	> 3,000	-	-	-
Ayurvedic practitioners	13,284	13,131	13,264	14,808	15,078
Inpatient admissions ('000s)	117	135	153	176	204
Outpatient visits ('000s)	~ 30- 34,000	~ 32- 35,000			~ 32- 36,000

Notes: ¹ Excludes some districts in Northern and Eastern provinces. ² Full-time private physicians only. Private sector and ayurvedic numbers are estimates. Outpatient visits counts visits for both curative, preventive and family planning services.

Sources: IPS estimates derived from data of MOH, Central Bank and IPS.

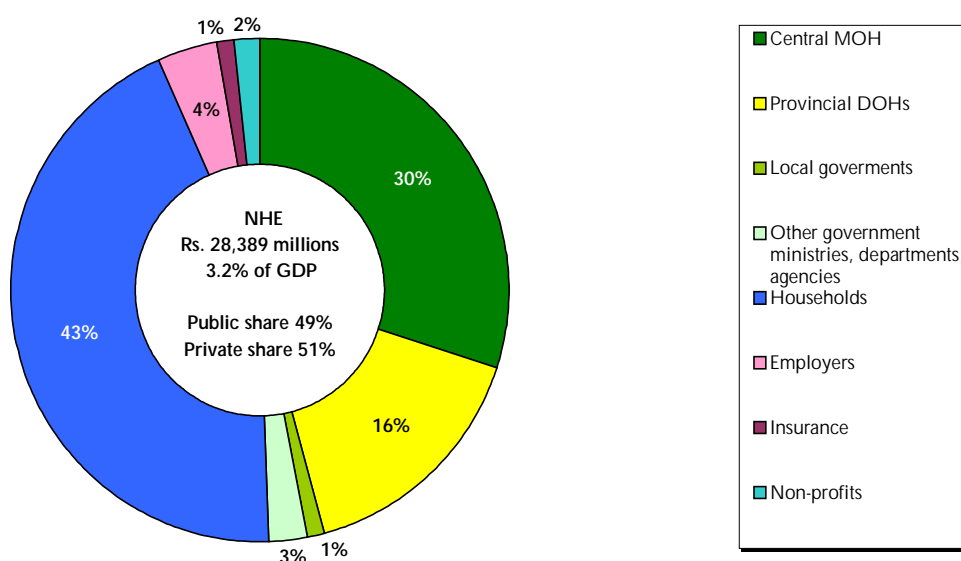
1.3 Financing of Health System

The government health system is almost wholly funded from general revenues (> 98%). Virtually all government services are free with no user charges, with the exception of family planning services for which there are nominal charges. There is no social insurance system, although the government has a non-contributory scheme to provide medical insurance to civil servants. However, this scheme in practice is not effective, with only minimal expenditures by it to date. Foreign assistance accounts for less than 10% of all public sector health financing. Government financing is not used to fund private provision, with the exception of some limited assistance to a few non-profit institutions. Government financing accounts for approximately half of all health sector funding.

Most private sector services are paid for out-of-pocket, including private hospital services. There is an increasing availability of commercial health insurance, but this covered less than 1% of the population in 1996, and accounted for a similar proportion of national health financing. Larger employers tend to provide medical benefit schemes, which mostly reimburse eligible workers for fees paid to private doctors and hospitals. Employer spending accounts for less than 5% of total national financing.

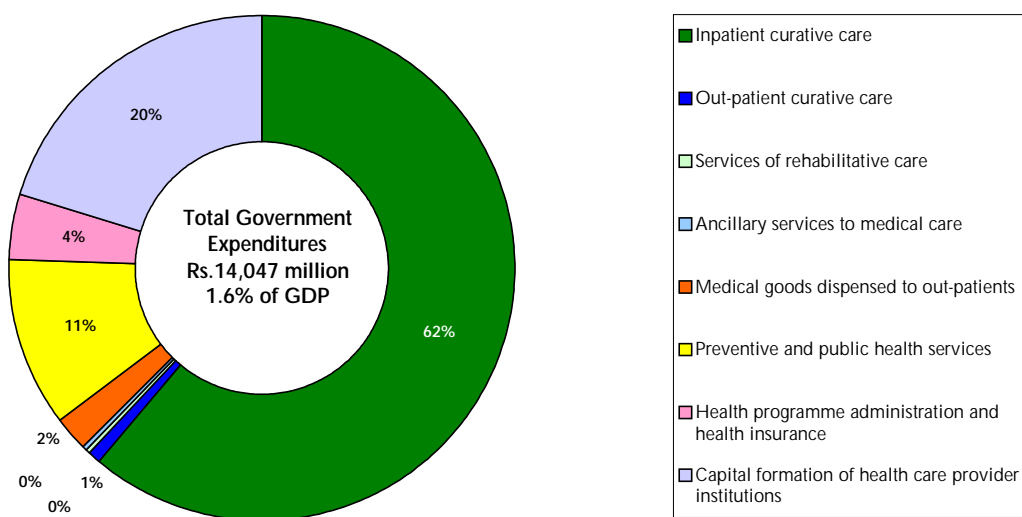
Sri Lanka's National Health Accounts (SLNHA) estimates that total national health expenditures were Rs. 25,068 Millions in 1996, equivalent to 3.3% of GDP. Of total financing, 50% was estimated to come from government sources, and 50% from private sources. The breakdown and use of spending in 1997 is shown in Figures 1.2 - 1.6.

Figure 1.2: National Health Expenditure by Source, 1997



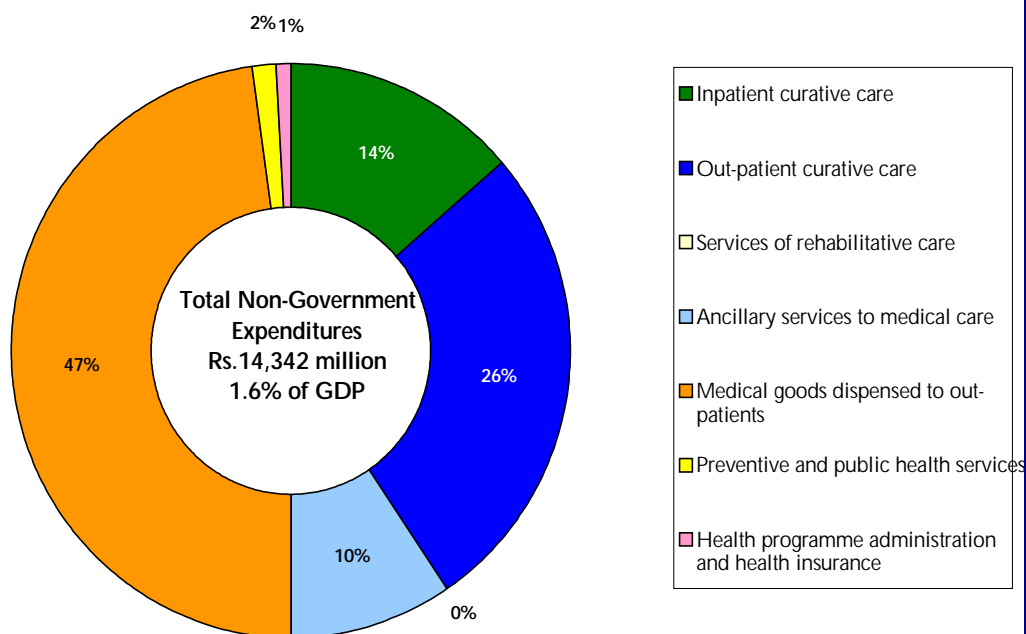
Source: Sri Lanka National Health Accounts 2001

Figure 1.3: Total Government Expenditures by Function, 1997



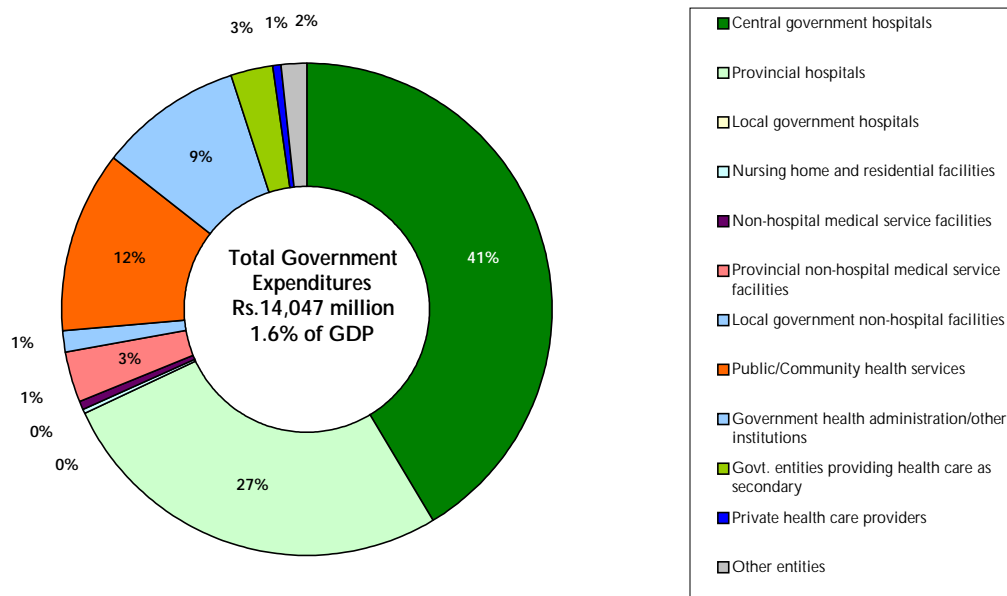
Source: Sri Lanka National Health Accounts 2001

Figure 1.4: Total Non-Government Expenditures by Function, 1997



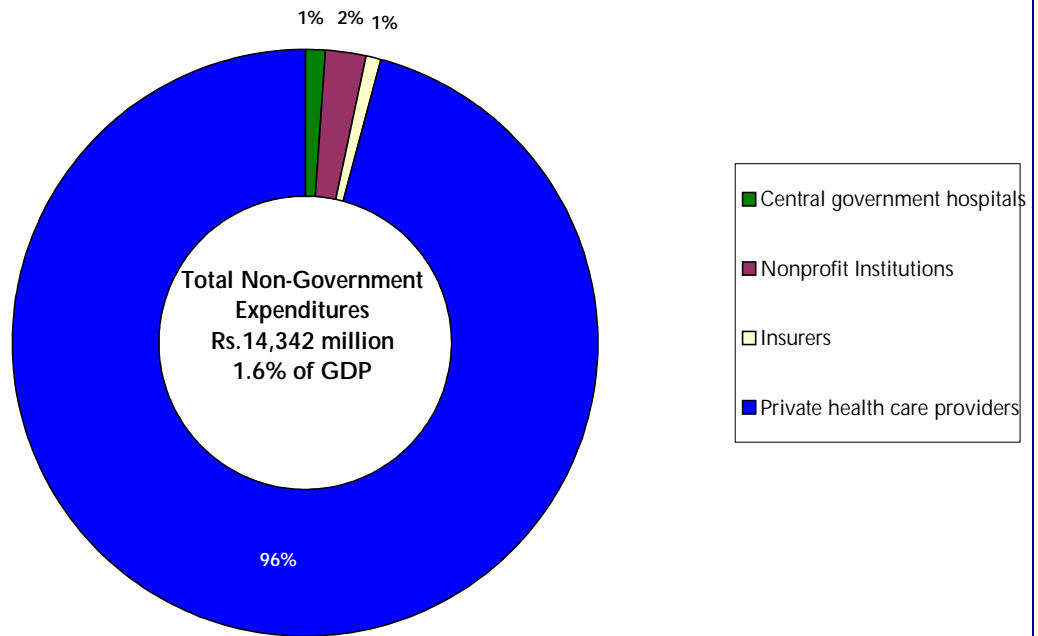
Source: Sri Lanka National Health Accounts 2001

Figure 1.5: Total Government Expenditures by Provider, 1997



Source: Sri Lanka National Health Accounts 2001

Figure 1.6: Total Non-Government Expenditures by Provider, 1997



Source: Sri Lanka National Health Accounts 2001

2. Methodology

2.1 Basic methodology

The methodology used in this study for estimation of “Fairness in Financing” as defined by WHO was based on the method prescribed in Kawabata et al. (2000). A number of modifications were made to this as described in text. All computations were carried out using the computer statistical package Stata (version 6.0).

2.2 Data sources

The data sources used are listed below.

1. **Household Income and Expenditure Survey 1995/96 (HIES95/96)** conducted by the Census and Statistics Department. This was a nationally representative household consumption survey of 21,220 households, of which responses were obtained from 19,753 households. The sample design involved a multi-stage, stratified sample drawn from all areas of the island, except the Northern-Eastern Province, where security conditions did not permit fieldwork. Details were recorded for all items of household income and expenditure, including medical expenses. The recall period for food was usually one week, and for most other items one month. The recall period for medical expenses was one month. Fieldwork was conducted by the permanent trained survey staff of the Department of Census and Statistics, continuously during a 12 months period, between November 1995 and October 1996.
2. **Sri Lanka National Health Accounts (SLNHA)** database (maintained by IPS on behalf of Ministry of Health). SLNHA is a complete implementation of the System of Health Accounts (SHA) published by OECD (2000), with a few modifications as specified by the Sri Lankan national framework for health accounts. Modifications include explicit counting of expenditures for services of indigenous and unlicensed providers (these are excluded by OECD SHA), and a more elaborate disaggregation of the public health functions. SLNHA conforms to the System of Health Accounts by using the Total Expenditure on Health (THE) criterion as its definition of national health expenditures. THE sums total current expenditures on health (TCHE) and gross capital formation in health care industries. SLNHA disaggregates all expenditures according to source, functional use, provider and geographical location of expenditure. Supplementary studies are being done to estimate the distribution of all health spending by income group and demographic categories.
3. **Government Gazettes** were used as the source of all information on tax rates during the period under review – January 1995 – December 1996. (See Annex for a table of tax rates by commodities).
4. **Other official sources:** The government’s appropriations accounts and Central Bank reports were used to determine national government revenues by specific tax. A detailed breakdown of tax revenue for 1995 and 1996 is given in Table 2.1. Where relevant, additional information was obtained directly from officials of the Department of Excise Tax, Department of Inland Revenue, Sri Lanka Customs Department, etc. Macroeconomic indicators were derived from Central Bank data.

Table 2.1: Detailed Breakdown of Tax Revenue in Years 1995 and 1996 (Rupees)

	Year 1995	Year 1996
Total Government Revenue	136,258,000,000	146,279,000,000
Total tax revenue	118,543,000,000	130,202,000,000
<i>Taxes on Income</i>		
Personal	7,358,000,000	7,315,000,000
Personal - PAYE	3,605,420,000	3,598,000,000
Personal - Other	3,752,580,000	3,717,000,000
Corporate	9,803,000,000	13,311,000,000
Save the nation contribution	0	125,000,000
<i>Selective Sales Tax</i>		
Excise tax - liquor	6,297,986,774	5,839,083,973
Excise tax - cigarettes & tobacco	8,788,322,495	12,833,190,773
Excise tax - petrol & diesel	1,627,833,920	2,923,000,000
National security levy	14,407,841,256	16,441,088,315
Other tax	2,722,166,080	472,000,000
<i>General Sale & TT (on domestic goods and services)</i>		
Manufacturing	9,906,000,000	8,874,000,000
Food, beverages and tobacco	4,547,782,922	3,454,912,894
Textiles, wearing apparels and leather products	281,625,594	154,189,436
Wood and wood products	86,109,205	102,082,070
Non-manufacturing	7,073,794,523	9,710,879,398
Trade	186,692,771	173,312,545
Services	6,806,550,011	9,443,238,950
Professions	80,551,741	94,327,903
Imports	19,449,000,000	19,046,000,000
<i>Import duties</i>	24,365,000,000	25,459,000,000
Vegetable products	1,509,000,000	1,588,000,000
Prepared food, beverages, tobacco	2,840,000,000	2,838,000,000
Textiles and textile articles	1,185,000,000	1,415,000,000
Mineral products	6,840,000,000	8,049,000,000
Products of Chemical and allied industries	1,089,000,000	1,338,000,000
Artificial Resins, plastic materials, rubber etc.	1,148,000,000	1,165,000,000
Paper making materials	888,000,000	692,000,000
Base metal and articles of metal	1,538,000,000	1,587,000,000
Machinery and Mechanical appliances, Electrical equipment etc.	2,429,000,000	2,457,000,000
Vehicles, aircrafts, vessels	3,565,000,000	3,337,000,000
Other	2,269,000,000	2,353,000,000
<i>Export duties</i>	8,000,000	5,000,000

<i>Licence taxes</i>	524,000,000	966,000,000
Licence tax on motor vehicles	19,063,236	12,282,316
Licence fee on liquor (taverns)	43,178,914	28,778,337
Radio & TV licence fee	14,439,782	75,649
<i>Property transfer tax</i>	5,162,000,000	5,279,000,000
Tax on sale of motor cars	2,446,175	2,649,615
Motor vehicle tax under Finance Act	166,662,665	830,597,978
Taxes on treasury bills	1,050,000,000	1,604,000,000
Non-tax revenue	17,715,000,000	16,077,000,000
Interest and dividends	12,011,000,000	10,059,000,000
Gross Receipts of trading enterprises	1,751,000,000	2,827,000,000
SLT profits levy	399,000,000	0
Other	1,352,000,000	2,827,000,000
Other current receipts	3,953,000,000	3,191,000,000
National lottery	125,267,390	168,946,303
Other	3,827,732,610	3,022,053,697

Source: Central Bank of Sri Lanka, Annual Reports 1996 & 1997, and Estimates of Revenue and Expenditure of the Government of Sri Lanka 1997 & 1998.

2.3 Adaptations of Methodology and Data

Following review, some modifications were made to the methodology and data sources, for sake of improvement. We understand that the essence of the WHO method is to correctly scale all household expenditures (for all items, for medical services, and for tax payments) in the survey to equal those implied by the national income accounts and national health accounts, and only then to calculate the HFC quotient. Our method deviates from the suggested method in that it applies a more differentiated set of scaling adjustments than proposed. Other modifications were necessary because of issues related to sampling design. Specific details are discussed below.

Scaling factors

Kawabata et al. (2000) correctly notes the discrepancy between overall household expenditures reported in surveys and private consumption in the national income accounts. This is a well-known problem in the survey research literature since at least the 1950s, and is due to non-sampling bias, which is almost universal in all such surveys. In Sri Lanka's case the main national household consumption surveys usually under-report household expenditures by 40-50%. WHO's proposed solution is to scale all expenditures (or tax payments) by a common scaling factor.

However, we believe this is not necessarily sufficient, since the same survey research literature which identifies non-sampling bias as significant in consumption surveys, also

indicates that the bias is not identical across all items or even across all respondents. If scaling is appropriate as a means of correcting for reporting biases in a survey, then logically scaling should be considered for application to all items for which this is feasible. In this case, since the object of the study is the ratio of medical expenses and tax payments to other household spending, separate scaling factors should be applied to each type of medical expenditure and tax payment.

In our modification, we have taken the estimates of private expenditures on health in SLNHA as being accurate, since they incorporate all known information on private health spending. The different categories of spending identified in SLNHA were mapped to the extent possible to each of the separate subcategories of medical expenses recorded in HIES95/96. Our method then derives and applies separate scaling factors for each type of medical spending analysed. Table 2.2 indicates the correspondence between the different SLNHA expenditure categories and the categories of medical spending used in the analysis. A total of six different scaling factors were estimated and applied to household medical expenses.

Table 2.2: Correspondence between SLNHA data and categories of analysis in study

Item Code	Item in HIES 95/96 Questionnaire	SLNHA Item
4801	Fees to general medical practitioners	Services of medical practitioners (13110), outpatient dental care (13500)
4805	Purchases of medical & pharmaceutical products	Pharmaceuticals and other medical non-durables (51000)
4802	Consultation fees to specialists	Hospital inpatient care (11100) by private medical specialists, Services of medical practitioners (13120) by medical specialists
4803	Payments to medical & dental laboratories	Clinical laboratory services (41000), Diagnostic imaging services (42000)
4804	Payments to private hospitals	Revenues of private hospitals and cooperative hospitals, private ambulance services(43000), (commercial insurance administration (72000)
4806	Payments for indigenous treatment	Services of traditional medical practitioners (13400), traditional medicines (51300), charms (59000)
4899	Payments for other health goods and services	Other goods and services not tabulated above (inc. small amount of NGO expenditures)

Note: Figures in parentheses in third column refer to the corresponding database codes for functional use of expenditures in SLNHA.

Assignment of taxes to households

For many consumption taxes, the relationship with the quantity or value consumed is non-linear. Although the survey contains details of tobacco consumption and expenditures, the taxes on tobacco are complex and not levied according to some simple ad-valorem basis. For example, the excise rate on cigarettes is based partly on the length of the cigarette. Similar problems arise with other goods such as liquor and petrol. For this reason, the relevant national tax payment associated with these goods by a household was estimated using the following relationship:

$$Tax_{jkh} = Tax_{jkn} \left(\frac{Exp_{jh}}{\sum_h Exp_{jh}} \right)$$

where:

- Tax_{jkh} = Tax payment through tax k on good j for household h
 Tax_{jkn} = Total national tax payment through tax k on good j
 Exp_{jh} = Expenditure on good j reported in survey by household h
 H = Total number of all households in survey

A related problem arose with turn-over taxes which are levied at the whole-sale level. The percentage rate applied at the whole-sale level is not the same as the ultimate percentage of the final retail price paid by consumers. Although it would be easier to discard information on these taxes, valuable information would be lost. The relative distribution of incidence was indirectly inferred from the different rates levied on different goods and the different expenditures on each type of good. A method similar to above was applied, where the incidence of all whole-sale taxes on specific goods was assumed to fall ultimately on final consumers, and proportionately according to the relevant rate. This implicitly assumes that there is no difference in retail price margins for different goods, once wholesale taxes are levied.

Adjustments for non-enforcement of tax laws

Although taxes are ostensibly levied on virtually all goods and services in Sri Lanka, enforcement of tax collection is less comprehensive in rural areas with respect to urban areas, and in relation to small scale retail outlets, wholesalers, and manufacturers. Recognising this, two arbitrary adjustments were made to the imputation of turnover and consumption taxes. First, in the case of all domestically-produced fresh vegetables and fruits consumed in rural areas, taxes estimated were reduced by 25%. Second, in the Northern-Eastern Province, where the government's writ is less effective in many areas, all sales and wholesales tax payments as initially estimated were reduced by an additional 20%.

Incorporation of non-sampled population

Owing to the security situation, Census and Statistics Department did not survey the temporarily merged Northern-Eastern Province. However, the similar Central Bank Consumer Finances and Socio Economic Survey 1996/97 did survey parts of the province. Although results for the Northern-Eastern Province were not published, Central Bank has made available to IPS unpublished tabulations of household consumption and medical expenses in the province as recorded in its survey. Examination of these data indicated that the consumption pattern and levels of expenditures were closest to certain other districts of Sri Lanka. To take account of this, the sampling weights for those districts were expanded, so that their households were also taken to represent households in the Northern-Eastern Province also.

In making the adjustment of sampling weights, an additional difficulty was which population numbers to use for the Northern-Eastern Province. Unfortunately, because of the violent insurgency being waged by the LTTE terrorist organisation, it was not possible to conduct a national census in 1991, and all current official population numbers for Sri Lanka are based on projections of the 1981 census supplemented by vital registration and other administrative data. To complicate matters, a large percentage of the population of the original population of the Northern-Eastern provinces has been forced to leave as a consequence of a campaign of ethnic cleansing conducted by the LTTE since 1984. A larger number of residents have also moved out of the province in search of more secure surroundings in the other provinces, or have emigrated altogether. The number of persons who have been displaced from the Northern Province alone amounts to half its 1990 population. There appears to have been a commensurate increase in the resident population in some of the other provinces. Since official provincial population numbers are not considered reliable, IPS staff estimates, based on published academic estimates, were used to modify the post-survey sampling weights in each province.

Despite these adjustments, the HFC estimates will remain biased. In most areas of the Northern-Eastern province, there are no private medical providers, and all medical care is obtained from government medical services, which are free. Because of this omission, it is likely that the Inequality Index is biased downwards from one, since most health services in the province are tax-funded. However, the size of this problem should not be overestimated, since the total population of the Northern-Eastern Province is less than 11% of the national population. We also report a sensitivity analysis that indicates that these adjustments do not significantly alter the final results.

Treatment of own account production

It is assumed that food produced and consumed by the household on its own account is not subject to taxation. However, the survey data do not distinguish between consumption of own produce and purchased items. To make an approximate adjustment for this, the income module in the survey data was analysed. This asked for the total value of the previous year's agricultural production that was consumed in the household. This was then multiplied by 1.10, to take into account inflation, and divided by 12 to obtain an estimate of own account consumption in the current month. This was estimated separately for consumption of own-produced rice, chillies, onions, vegetables and fruits, meat and fish. This quantity was then divided into current month's consumption of that category of food to obtain an estimate of the ratio of own produce to all produce for each of these food categories in the current month. One minus this ratio was then multiplied into the estimate of tax payments associated with that category of food to obtain an adjusted estimate of the tax payment.

Treatment of specific taxes

Taxes on capital consist of taxes on corporations, interest payments and share dividends. Since all corporations are ultimately owned by households, it is not clear who bears the final incidence of these taxes. Nevertheless, HIES95/96 does contain some information on

the distribution of income from share dividends and bank interest. The analysis assigns 50% of all capital taxes to households according to their income in these categories. The other 50% is distributed according to the distribution of all taxes, since it is recognised that the data for capital income is subject to considerable sampling error and non-sampling bias.

For similar reasons, not all taxes on motor vehicles and petrol can be assumed to fall directly on households, since petrol and motor vehicles are important intermediate inputs in the economy, in production, distribution and transport.. For this reason, only 50% of such taxes are assigned to households according to their reported expenditures on motor vehicles, petrol and diesel. The remaining 50% is distributed according to the distribution of all taxes. A somewhat better alternative might have been to distribute the 50% according to an analysis of the role of petroleum inputs in the final production of services and goods consumed by households. However, this was not done for lack of time.

2.4 Creation of variables

Since we applied a larger number of scaling factors than proposed in Kawabata et al. (2000), we adapted the calculations and formulae.¹ A total of 20 separate scaling factors were estimated in two steps. In the first stage, overall household spending was split into medical and non-medical expenditures. A single scaling factor was derived to equalise all non-medical expenditures with national private consumption minus private health expenditures. This scaling factor was then applied to all items of expenditure, including medical expenses. In the second stage, separate scaling factors were estimated by dividing each estimate (as adjusted in first stage) of item of expenditure (or tax payments) into the corresponding national total. Table 2.2 summarises the scaling factors obtained.

¹ All formulae were also revised to delete references to private insurance and social security. There is no social security financing of health in Sri Lanka. Private insurance is minimal, and the sample in HIES95/96 is too small to obtain reliable estimates of the distribution of payments for these expenditures.

Table 2.3: Description of scaling variables used in analysis

Variable name	Value	Purpose
adjgross	2.018	To scale non-health household expenditures to value implied by national income and health accounts
adjinctx	5.101	To scale individual income tax to value implied by national income tax revenue
adjpaye	0.629	To scale PAYE income tax to national levels
adjunc	0.479	To scale 'Save the Nation Contribution (SNC)' made by households to national snc levels.
adjsales	0.333	To scale all sales taxes to value implied by national sales tax revenue.
adjpetro	4.382	To scale excise tax on petrol and diesel to a value of 50% of the national total tax from petrol and diesel taxes.
adjtobac	1.614	To scale tobacco and cigarette tax to value implied by national tax revenue from tobacco & cigarette tax.
adjliqor	2.026	To scale liquor tax to value implied by national excise tax on liquor.
adjmotor	1.692	To scale sales tax on motor vehicles to value implied by national sales tax on motor vehicles.
adjtele	0.037	To scale household telephone charges to value implied by the non-tax revenue from Sri Lanka Telecom.
adjlotte	0.163	To scale household expenditure on lotteries to value implied by non-tax revenue from Lotteries Board.
adjradio	0.001	To scale household radio & TV licence fees to value implied by national tax from radio & TV licenses.
adjKapin	5.112	To scale interest and dividend income of households to value implied by 50% of Corporate income tax and Tax on treasury bills.
adjother	1.637	To scale total adjusted tax from households to value implied by other non-allocated national taxes.
adjmed1	1.053	To scale household fees to general medical practitioners and cost of medicine to corresponding value implied by SLNHA.
adjmed2	1.558	To scale consultation fees to specialists to corresponding SLNHA value.
adjmed3	4.144	To scale payments to medical & dental laboratories to corresponding SLNHA value.
adjmed4	2.593	To scale payments to private hospitals and nursing homes to corresponding SLNHA value.
adjmed5	3.176	To scale household payments for indigenous treatment to corresponding SLNHA value.
adjmed6	4.645	To scale household payments to other health goods and services to corresponding SLNHA value.

3. Results

3.1 WHO Fairness in Financing Contribution Score

The results of the analysis are as follows (values of database variables are given in Annex Table A2). Note that all results reported are weighted as required by the sampling design.

Mean value of HFC = 0.086 (Standard deviation = 0.086)

Inequality Index = 0.0164

Fairness in Financing Contribution Score = 0.934

3.2 Sensitivity Analysis

We have conducted a sensitivity analysis to estimate the potential impact of several of our assumptions. The HFC indexes were re-estimated making the following adjustments to our base-line assumptions:

- 1) Assuming no reduction in effectiveness of tax collection in rural areas.
- 2) Assuming no additional reduction in effectiveness of tax collection in Northern-Eastern Province.
- 3) Making no adjustments to sample weights to take account the non-coverage of Northern-Eastern Province.
- 4) Assuming that the distribution of taxes on capital is not related to the distribution of interest and dividend income, treating these as taxes distributed indirectly at end.

Results of changing these assumptions are given in Table 3.1. As can be seen the main result is not sensitive to the above assumptions.

Table 3.1: Results of sensitivity analysis

Assumption	HFC	Standard deviation in HFC	Inequality Index	FFC Score
Baseline result	0.086	0.086	0.0164	0.934
1	0.086	0.086	0.0164	0.934
2	0.086	0.086	0.0164	0.934
3	0.085	0.086	0.0166	0.934
4	0.089	0.085	0.0156	0.938

Note: Numbers in first column refer to changes in assumptions as discussed in text.

4. Discussion

4.1 Alternative financing scenarios

The methodology lends itself to exploration of the impact of alternative financing scenarios on the WHO inequality index. The distribution and level of payments can be altered in a simulation, as well as other parameters and variables in the data set. These simulations allow us to estimate the purely mechanical contribution made by the choice of mechanism itself to the WHO inequality index. However, these should not be taken as indicating what would happen in a real-world context if such alternative policies were attempted, since we do not take account of dynamic responses to the policy change by households, firms and providers, transaction costs, inefficiencies, political and social constraints, etc. Nor should it imply that maximising the WHO fairness in financing score is either the sole goal of health policy or even a desirable one, since Sri Lanka pursues many goals in its health policy, and the WHO inequality index does not correspond to the overall equity goals important to the country.

The estimations have been repeated under the following scenarios (Table 4.1):

- 1) **Poll tax:** Replacing the current tax financing system by a flat tax contribution for health care in which the same amount of government revenue financing is raised as now for health, but in the form of an identical contribution by all households. The distribution of household out-of-pocket expenditures and other tax payments remain the same as observed now. This can be regarded as equivalent to replacing the current tax payments for health by a poll tax levied on each household.
- 2) **Flat out-of-pocket fee:** Replacing all out-of-pocket payments with a single and equal out-of-pocket payment for all households. This can be regarded equivalent to replacing private payments by either a poll tax, or an insurance system funded by an actuarially equivalent flat premium.
- 3) **Pure tax financing.** Increasing tax payments for health to replace all private payments. This involves essentially doubling the amount levied on each household through their tax payments for health, and eliminating out-of-pocket fees. It makes no adjustment in payments for any cost savings that might result from purely government financing.

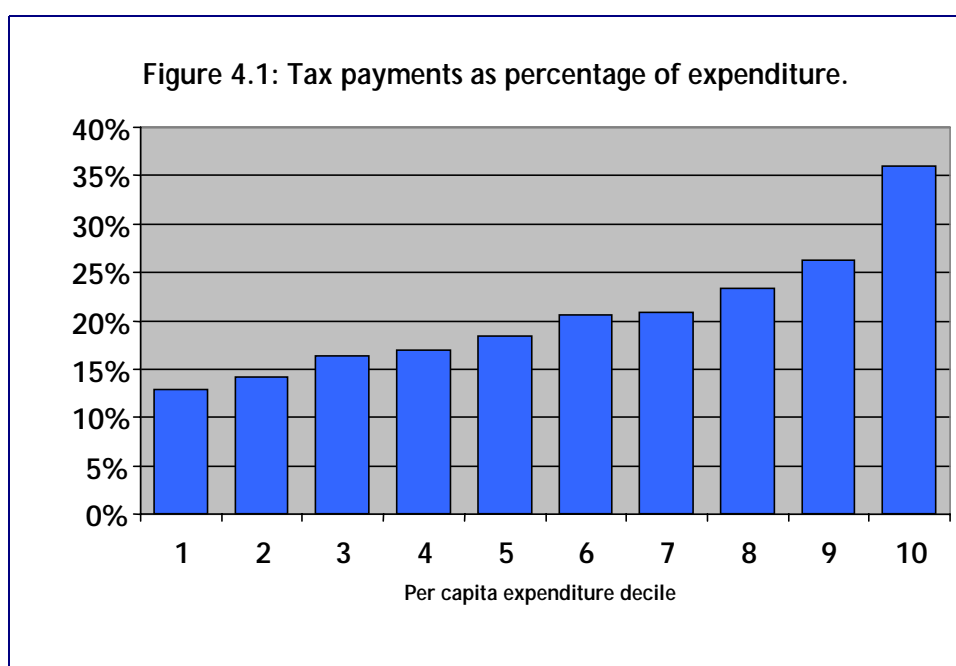
Table 4.1: Inequality index estimates under different financing scenarios

Alternative Scenario	HFC		Inequality	
	Mean	Standard deviation	Index	FFC Score
Baseline estimate	0.086	0.086	0.0164	0.934
Poll tax	0.119	0.108	0.030	0.879
Flat out-of-pocket fee	0.149	0.111	0.036	0.857
Pure tax financing	0.085	0.089	0.020	0.921

The alternative financing scenarios imply that greater reliance on the general revenue funding for financing health care would improve the FFC score. However, the FFC score will still be less than the perfect 1.0, given that the current tax system is only modestly progressive. However, the current reliance on sales taxes is better than the alternative of a

poll tax. Under the poll tax scenario, the FFC score falls to 0.879. Replacing the out-of-pocket fees by a flat insurance premium and retaining the current tax payments would do even worse.

The general conclusion would be that if one is concerned only with improving the FFC score, there should be increased reliance on revenue financing. This is fairer than relying on out-of-pocket payments. However, this should not be the only concern. Figure 4.1 shows the distribution of tax payments as a proportion of total household expenditures as estimated using the methodology of this study. The figure does not show tax payments as a ratio of household capacity to pay, which would show a much less progressive profile. The tax system is only modestly progressive. The tax system must be made more progressive, if the objective is increasing the FFC score to one.



Source: Based on Household income & expenditure survey 1995/96 data

4.2 Problems with WHO Fairness in Financing Approach

We have two types of concern with the WHO Fairness in Financing Approach. One is of a normative nature, and the second involves methodology.

Conceptual problems

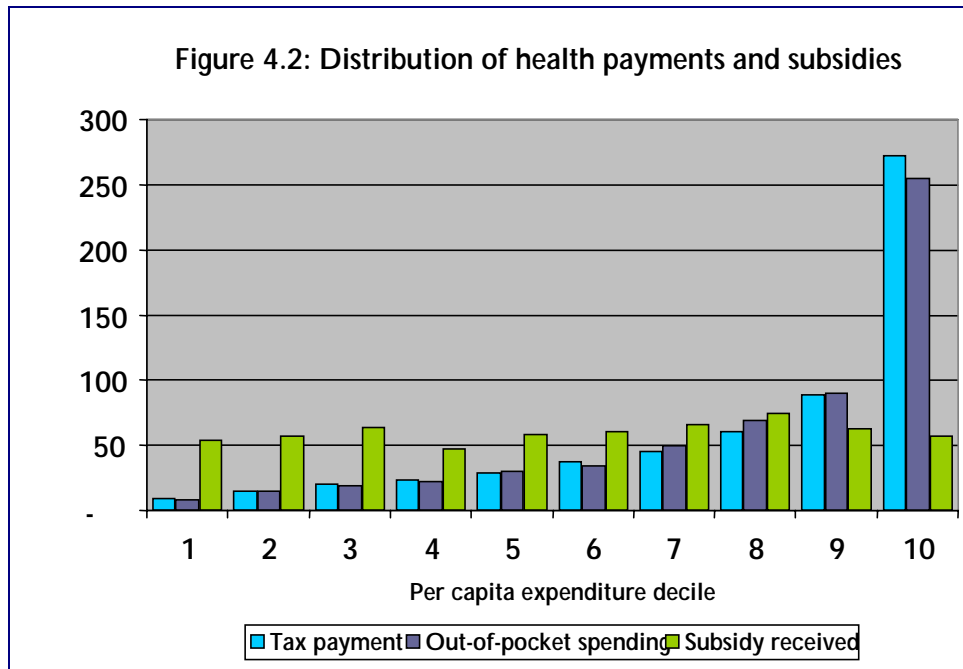
WHO Fair Financing concept is intended to be used as one input into a single-dimensional index to assess national health systems. The use of a single-index for assessment is flawed in that no single index can capture the many different dimensions of performance in health care systems that are of policy importance and concern. Although it is theoretically possible to combine several dimensions into one score, this does require weighting. The advanced nations, represented in the OECD, have chosen not to attempt such weighting because of

the many conceptual and practical difficulties in such an exercise, and because there is no agreement as to the basis of any weighting (Hurst and Jee-Hughes, 2001). It is perhaps inappropriate of WHO to attempt therefore such weighting for all countries, and without the substantive prior dialogue and consultation with member countries that has at least taken place in the OECD on these matters.

The Fair Financing concept is the only element in the WHO health systems performance methodology which directly relates to equity in the financing and delivery of health care. It is quite evident that at least in Sri Lanka (and most other democratic states in Asia and OECD regions) that equity in access to health care services has been as important a social objective, if not more important, than equity in financing. There is a strong element of practical realism in this. Policy-makers often have less flexibility in changing funding systems than in changing access to health systems. The research on equity in health systems in advanced nations has paid much attention to equity in delivery of services, and this has been a perennial concern for Sri Lankan society and policy-makers (Hsiao et al., 2000, Rannan-Eliya et al, 1999). One can also argue that this particular concern in Sri Lanka is the major factor behind Sri Lanka's superior health performance during the past fifty years.

The lack of attention to equity in access and in delivery of services is a major deficiency in the WHO assessment approach. In fact, the distribution of services across households (equity in access to services/delivery) is the counterpart to equity in financing that the WHO Fair Financing analysis addresses. In order to judge the optimality of the distribution of financing, one must look also at the distribution of resources funded through that financing. In Sri Lanka's case, the government-funded health care system has a good record in targeting its services to the poorer households. Figure 4.2 combines the results of this study with those from some ongoing work funded by SEARO for Sri Lanka's national health accounts. It shows the distribution of prepayments and out-of-pocket payments by expenditure decile contrasted with an estimate of the distribution of government health subsidies. This pattern has meant that even if the tax system had been regressive, the overall impact of Sri Lanka's health financing and provision system was to redistribute resources to the poor. It has also made a significant contribution to poverty alleviation by preventing poorer households being forced into penury by catastrophic illness.

Of course, the WHO approach explicitly rejects any notion that the health financing mechanism has any concern with overall income redistribution, or any non-health components of welfare. This does seem rather a narrow perspective. It is certainly not consistent with Sri Lankan experience, where the importance of the health system as a means of preventing or ameliorating poverty was recognised by the government as early as the 1930s. In Sri Lanka's case, societal decisions about the financing of health care have been mediated in a political process involving democratic accountability through regular elections in which virtually all citizens participate. In such a context it is not possible to isolate health policy decisions from wider social objectives. Choices about health care financing – both the types and levels of financing – have inevitably involved trade-offs with other social concerns, the relative weighting of which has been subject to the influence of public preferences.



Source: Based on Household income & expenditure survey 1995/96 data

One can imagine two scenarios. In the first, a country achieves a score of 0.92 in the Inequality Index, but achieves a pro-poor bias in actual distribution of health care services, such that there is a net redistribution of resources to the poorer 50% of households. In the second scenario, a country achieves a perfect score of one in the Inequality Index, but distributes 60% of all health care resources to the richest quintile of households. There are clearly some ethical frameworks and policy perspectives that would regard the first scenario as more preferable.¹ In practice, countries cannot design the delivery of health care systems in isolation from the financing of those systems, so this need to look at both sides of the financing coin is unavoidable. To the extent, that such policy choices in democratic states reflect the underlying preferences of society and citizens (as is the case in Sri Lanka historically), the WHO approach appears to be making implicit ethical judgements which may not be consistent with what people in member states might actually make. This is particularly troubling, since policy makers in Sri Lanka must in practice, and perhaps rightly, pay more attention to the concerns of their citizens than those of WHO. A counter-argument to this might be that the Fair Financing concept is only concerned with the fair distribution of financing of contributions across households, and does not attempt to imply anything about the distribution in use of such resources. However, this would still point to a serious deficiency in the concept of fairness being used in the WHO approach, and a lack of attention to all dimensions of equity.²

¹ In many ethical and normative approaches, this is regardless of the actual distribution of health outcomes

² For these reasons, other approaches to assessment of fairness and equity as have been developed in OECD nations seem more likely to be of policy value in Sri Lanka than the Fair Financing concept.

Methodological problems

Taking the implicit objectives of WHO as given, there are a number of potential weaknesses in the methodology itself, especially if it is to be used to generate numbers for inter-country comparison. Each of these could introduce biases into the when making intercountry comparisons.

The calculation of the Inequality Index depends on the inter-household distribution of payments. To a large extent when taxes are mostly consumption taxes and are levied on a wide range of goods, the major contribution to inter-household disparities is from differences in reported out-of-pocket expenditures. In using household survey data, there are a number of factors that will effect reliability of inter-country comparisons using such data. These largely relate to known problems in recall bias, and issues of survey design.

Effect of recall period and recall lapse

The greater the recall period the greater the likelihood that a household will report some out-of-pocket expenditures. In addition, the frequency of reported expenditures is not only a function of the actual number of events, but also the net impact of other biases such as recall loss. These non-sampling biases do vary systematically between surveys and between countries, often in relation to the quality of national survey organisations. In fact the existence of such biases is explicitly recognised in Kawabata et al. (2000) by the use of scalar adjustment factors. However, the scaling adjustments in Kawabata et al. only adjust for the level of an individual household's health expenditures in the cases where households report such expenditures, but the survey research literature indicates that the major reason for under-reporting is failure to remember events.

Differences in recall lapse between surveys can introduce biases when making inter-country comparisons. An additional complication in all this is that some expenditures are more subject to recall lapse than others, and the direction of this bias is correlated with the size of expenditures. Inpatient expenditures (which are less frequent) are less likely to be forgotten than outpatient expenditures (which are more frequent).

This can be illustrated by the Sri Lankan data. We simulated the impact if 50% of households who reported expenditures on drugs and doctors fees actually reported zero such expenditures. This would be equivalent to the situation in a country where either recall rates were 50% of those in HIES95/96, or where a 2 week recall period was used instead of a 4 week recall period. This resulted in a downward shift in the Inequality Index to 0.902. 56% of all households in HIES95/96 in fact did report such expenditures in the one-month recall period, which is probably high in comparison to comparable surveys from other lower-income developing countries. Much greater variations in results might be expected in countries where utilisation of health services is much less than in Sri Lanka.

Composition and size of household

The estimation of household capacity to pay does not suggest use of an equivalence scale to adjust for household composition. Most published studies of equity in financing in advanced countries do this, and similar ongoing work in Sri Lanka also makes this

adjustment. Making an adjustment for numbers of adults and children is particularly important in developing country settings where large households can be associated with higher fertility in general.

The Inequality Index is also sensitive to the size of households in a population. The larger the households in a country, the less the degree of variation between households in any given time period. We can simulate this using the Sri Lankan data by aggregating pairs of adjacent households, after arranging them by sector of residence and per capita expenditure level. The Inequality Index re-estimated under these circumstances increases to 0.967. This result implies that larger household units in a survey will lead to higher scores in themselves.

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Attachments

1. Sri Lanka National Health Accounts Interim Final Report (February 2001).
2. Department of Census & Statistics - Household Income & Expenditure Survey 1995/96 questionnaire.
3. Stata programme files used in analysis

Annex

Table A1: Different Tax Rates by Commodities Used in the Survey

Item code	Item	Turnover tax rate (%)			Value-added tax rate (%)		Excise tax rate (Rs)
		May95-Mar96	Apr-Jun96	Jul-Nov96	Jun95- Jun96	Jul96-Nov96	Jun95-Nov96
0101	Rice	0	0	0	0	0	0
0102	Wheat Flour	5	5	5	0	0	0
0103	Kurakkan	5	5	5	0	0	0
0104	Maize	5	5	5	0	0	0
0199	Other (Sorgham barle etc.)	5	5	5	0	0	0
0201	Bread	0	0	0	0	0	0
0202	Buns	5	5	5	0	0	0
0203	Cakes	20	20	20	0	0	0
0299	Other	20	20	20	0	0	0
0301	Hoppers	5	5	5	0	0	0
0302	String Hoppers	5	5	5	0	0	0
0303	Thosai	5	5	5	0	0	0
0304	Pittu	5	5	5	0	0	0
0399	Other (Roti, Vadai, Short eats etc.)	20	20	20	0	0	0
0401	Papadams	5	5	5	0	0	0
0402	Noodles	20	20	20	0	0	0
0499	Other	20	20	20	0	0	0
0501	Triposha	0	0	0	0	0	0
0502	Corn flakes	20	20	20	0	0	0
0503	Infant's cereal food(nestum cereal)	0	0	0	0	0	0
0504	Oats,rye,barley	5	5	5	0	0	0
0599	Other	0	0	0	0	0	0
0601	Dried chillies	10	10	10	0	0	0
0602	Chillie powder	0	0	0	0	0	0
0603	Red onions	20	20	0	0	0	0
0604	Bombay onions	20	20	0	0	0	0
0605	Garlic	20	20	0	0	0	0
0606	Cummin seeds	20	20	20	0	0	0
0607	Pannel seeds	0	0	0	0	0	0
0608	Mathe seeds	0	0	0	0	0	0
0609	Corriander	20	20	20	0	0	0
0610	Maldive fish	6	6	6	0	0	0
0611	Ginger	20	20	20	0	0	0
0612	Turmeric	20	20	20	0	0	0
0613	Mustard	20	20	20	0	0	0
0614	Tamarind	0	0	0	0	0	0
0615	Goraka	0	0	0	0	0	0
0616	Green chillies	20	20	20	0	0	0
0617	Salt	0	0	0	0	0	0
0618	Pepper	0	0	6	0	0	0
0619	Limes	20	20	20	0	0	0
0620	Cinnamon	0	0	0	0	0	0
0621	Curry powder	20	20	20	0	0	0
0622	Curry leaves	20	20	20	0	0	0
0623	Vinegar	5	5	5	0	0	0
0624	Sauce	20	20	20	0	0	0
0699	Other condiments	20	20	20	0	0	0

0701	Dhall(mysoor, thora, kadala etc.)	0	0	0	0	0	0
0702	Green gram	20	20	20	0	0	0
0703	Gram	20	20	20	0	0	0
0704	Cowpea	20	20	20	0	0	0
0705	Soya	20	20	20	0	0	0
0799	Other	20	20	20	0	0	0
0801	Gotukola	0	0	0	0	0	0
0802	Kankun	0	0	0	0	0	0
0803	Mukunuwenna	0	0	0	0	0	0
0804	Nivithi	0	0	0	0	0	0
0805	Thampala	0	0	0	0	0	0
0806	Sarana	0	0	0	0	0	0
0807	Kohila leaves	0	0	0	0	0	0
0808	Katurumurunga	0	0	0	0	0	0
0809	Onion leaves	20	20	0	0	0	0
0810	Cabbage leaves	20	20	20	0	0	0
0899	Other (leafy vegetables)	0	0	0	0	0	0
0901	Ash pumpkins	0	0	0	0	0	0
0902	Ash plantains	0	0	0	0	0	0
0903	Brinjal	0	0	0	0	0	0
0904	Bandakka	0	0	0	0	0	0
0905	Bitter gourd	0	0	0	0	0	0
0906	Cucumber	20	20	20	0	0	0
0907	Drumstick	0	0	0	0	0	0
0908	Kohilla yams	0	0	0	0	0	0
0909	Long beans	20	20	20	0	0	0
0910	Snack gourd	0	0	0	0	0	0
0911	Ridge gourd	0	0	0	0	0	0
0912	Sweet pumpkin	0	0	0	0	0	0
0913	Beans	20	20	20	0	0	0
0914	Carrot	20	20	20	0	0	0
0915	Beet root	20	20	20	0	0	0
0916	Cabbage	20	20	20	0	0	0
0917	Knol khol	0	0	0	0	0	0
0918	Tomatoes	20	20	20	0	0	0
0919	Leeks	20	20	20	0	0	0
0920	Elabattu	0	0	0	0	0	0
0921	Katurumurunga flowers	0	0	0	0	0	0
0922	Lotus stemo	0	0	0	0	0	0
0923	Plantain flower	0	0	0	0	0	0
0924	Amberalla	0	0	0	0	0	0
0925	Capsicum chillies	0	0	0	0	0	0
0926	Raddish	20	20	20	0	0	0
0927	Dambala	0	0	0	0	0	0
0928	Mushrooms	20	20	20	0	0	0
0999	Other	0	0	0	0	0	0
1001	Jak	20	20	20	0	0	0
1002	Jak seeds	20	20	20	0	0	0
1003	Potatoes	20	20	0	0	0	0
1004	Bread fruit	0	0	0	0	0	0
1005	Sweet potatoes	20	20	0	0	0	0
1006	Mannioc	0	0	0	0	0	0
1007	Kiriala	20	20	20	0	0	0
1008	Innala	20	20	20	0	0	0
1099	Other	0	0	0	0	0	0
1101	Half nut	20	20	20	0	0	0
1102	Coconut milk powder	20	20	20	0	0	0
1201	Beef	20	20	20	0	0	0
1202	Mutton	20	20	20	0	0	0
1203	Pork	20	20	20	0	0	0
1204	Chicken	20	20	20	0	0	0
1205	Liver	20	20	20	0	0	0
1206	Other meat	20	20	20	0	0	0
1207	Tinned meat corned beef corned	20	20	20	20	0	0

1299	Other meat products (sausages, bacon, etc.)	20	20	20	20	0	0
1301	Balaya, kelavalla	20	0	0	0	0	0
1302	Mullet	20	0	0	0	0	0
1303	Mora	20	0	0	0	0	0
1304	Thalapath	20	0	0	0	0	0
1305	Paraw	20	0	0	0	0	0
1306	Seer	20	0	0	0	0	0
1399	Other	20	0	0	0	0	0
1401	Sprats	20	0	0	0	0	0
1402	Hurulla, salayas	20	0	0	0	0	0
1403	Karalla, katuwalla	20	0	0	0	0	0
1404	Kumbalawa	20	0	0	0	0	0
1405	Paraw,anjlla	20	0	0	0	0	0
1406	Other	20	0	0	0	0	0
1407	Lula	20	0	0	0	0	0
1408	Hunga	20	0	0	0	0	0
1409	Telapiya	20	0	0	0	0	0
1410	Carps	20	0	0	0	0	0
1499	Other	20	0	0	0	0	0
1501	Prawns	20	20	20	0	0	0
1502	Crabs	20	20	20	0	0	0
1599	Cuttle fish and others	20	20	20	0	0	0
1601	Seer, anjlla	20	20	20	0	0	0
1602	Katta	20	20	20	0	0	0
1603	Koduwa	20	20	20	0	0	0
1604	Balaya	20	20	20	0	0	0
1605	Mora	20	20	20	0	0	0
1606	Anguluwa	20	20	20	0	0	0
1607	Paraw	20	20	20	0	0	0
1608	Sprats	0	0	0	0	0	0
1609	Prawns	20	20	20	0	0	0
1610	Keeramin	20	20	20	0	0	0
1611	Fresh water dried fish	20	20	20	0	0	0
1699	Other	20	20	20	0	0	0
1701	Jadi	0	0	0	0	0	0
1702	Canned foods	0	0	0	0	0	0
1703	Other	0	0	0	0	0	0
1801	Cow milk	0	0	0	0	0	0
1802	Goat milk	0	0	0	0	0	0
1803	Curd	20	20	20	0	0	0
1804	Yoghurt or moru	5	5	5	0	0	0
1805	Condensed milk	5	5	5	0	0	0
1806	Milk powder	0	0	0	0	0	0
1807	Infant milk powder	0	0	0	0	0	0
1808	Cheese	20	20	20	0	0	0
1899	Other milk food	5	5	5	0	0	0
1901	Coconut oil (only for consumption)	0	0	0	0	0	0
1902	Gingerley oil	20	20	20	0	0	0
1903	Soya oil	20	20	20	0	0	0
1904	Vegetable oil	20	20	20	0	0	0
1905	Ghee	20	20	20	0	0	0
1906	Butter	20	20	20	0	0	0
1907	Magarine	20	20	20	0	0	0
1999	Other	20	20	20	0	0	0
2001	Hen	5	5	5	0	0	0
2099	Other	5	5	5	0	0	0
2101	Banana	20	20	20	0	0	0
2102	Pineapple	20	20	20	0	0	0
2103	Papaw	20	20	20	0	0	0
2104	Mangoes	20	20	20	0	0	0
2105	Ornages	20	20	20	0	0	0
2106	Avacado	20	20	20	0	0	0
2107	Wood apple	20	20	20	0	0	0

2108	Rambutan	20	20	20	0	0	0
2109	Nelli	20	20	20	0	0	0
2110	Guava	20	20	20	0	0	0
2111	Mangoose	20	20	20	0	0	0
2112	Pomergranate	20	20	20	0	0	0
2113	Waraka/wala	20	20	20	0	0	0
2114	Grapes	20	20	20	0	0	0
2115	Apple	20	20	20	0	0	0
2116	Thambilly/kurumba	20	20	20	0	0	0
2199	Other	20	20	20	0	0	0
2201	Dates	20	20	20	0	0	0
2202	Cadjunuts	20	20	20	0	0	0
2203	Groundnuts	20	20	20	0	0	0
2204	Plums	20	20	20	0	0	0
2299	Other	20	20	20	0	0	0
2301	Pineapple	20	20	20	0	0	0
2302	Mangoes	20	20	20	0	0	0
2399	Other	20	20	20	0	0	0
2401	Tea dust/leaves	20	20	20	0	0	0
2402	Coffee powder/seeds	20	20	20	0	0	0
2403	Aerated water	20	20	20	0	0	Rs. 0.25 per bottle
2404	Food beverages	0	0	0	0	0	0
2405	Fruit drinks cordial and juice	0	0	0	0	0	0
2499	Other	0	0	0	0	0	0
2501	Sugar	5	5	5	0	0	0
2502	Juggery(coconut/kitul/sugar cane/palmyrah)	5	5	5	0	0	0
2503	Treacle(coconut/kitul/sugar cane/palmyrah)	20	20	20	0	0	0
2504	Honey	20	20	20	0	0	0
2599	Other	0	0	0	0	0	0
2601	Jam/jelly	20	20	20	0	0	0
2602	Ice cream	20	20	20	0	0	0
2603	Chocolates	20	20	20	0	0	0
2604	Toffees and sweets				0	0	0
2605	Biscuits	20	20	20	0	0	0
2606	Talabola	0	0	0	0	0	0
2607	Jelly packets	20	20	20	0	0	0
2608	Sweet meats(kokiss/etc.)	0	0	0	0	0	0
2699	Other	0	0	0	0	0	0
2701	Marmite/vegemite	10	10	10	0	0	0
2702	Oxe soup cubes, bovril etc.	20	20	20	0	0	0
2703	Lime pickle and chutney	20	20	20	0	0	0
2704	Soya meat	5	5	5	0	0	0
2799	Other	0	0	0	0	0	0
2801	Other foods	0	0	0	0	0	0
2901	Milk tea	0	0	0	0	0	0
2902	Plain tea	0	0	0	0	0	0
2903	Milk coffee	0	0	0	0	0	0
2904	Palin coffee	0	0	0	0	0	0
2905	Soft drink(bottled)	0	0	0	0	0	0
2906	Soft drink(not bottled)	0	0	0	0	0	0
2907	Herbal podrige	0	0	0	0	0	0
2999	Other	0	0	0	0	0	0
3001	Rice with meat	0	0	0	0	0	0
3002	Rice with fish	0	0	0	0	0	0
3003	Rice with vegetables	0	0	0	0	0	0
3004	Bread and curry	0	0	0	0	0	0
3005	Thosai, itly and curry	0	0	0	0	0	0
3006	Flour preparation and curry	0	0	0	0	0	0
3007	Cutfruits(pineapple, mangoes etc.)	0	0	0	0	0	0
3008	Peanuts, gram etc.	0	0	0	0	0	0
3099	Other	0	0	0	0	0	0

3101	Toddy	20	20	20	0	0	0
3102	Arrack	20	20	20	0	0	0
3103	Beer and stout	20	20	20	0	0	0
3104	Whisky/brandy	20	20	20	0	0	0
3105	Gin	20	20	20	0	0	0
3106	Wine	20	20	20	0	0	0
3107	Kassipu	-	-	-	0	0	0
3108	Other liquor	20	20	20	0	0	0
3199	Other drugs (ganja, haroin etc.)	-	-	-	0	0	0
3201	Cigarettes(local and imported)	20	20	20	0	0	Rs. 2.92 per cigarette
3202	Cigars	20	20	20	0	0	0
3203	Beedi	10	10	10	0	0	0
3204	Pipe tobacco	20	20	20	0	0	Rs.250 per kilo
3299	Other	20	20	20	0	0	0
3301	Beetle leaves	0	0	0	0	0	0
3302	Araanuts	0	0	0	0	0	0
3303	Tobacco chewing	20	20	20	0	0	0
3304	Chunam	0	0	0	0	0	0
3305	Bulathwita	0	0	0	0	0	0
3401	Rent (Including Estimated rent of Owner Occupied)	0	0	0	0	0	0
3402	Rates, Taxes etc	0	0	0	0	0	0
3403	Maintenace	0	0	0	0	0	0
3404	Water bills	0	0	0	0	0	0
3501	Kerosene oil	5	5	5	0	0	0
3502	Firewood	0	0	0	0	0	0
3503	Electricity	20	20	20	0	0	0
3504	Gas	5	5	5	0	0	0
3505	Matches	20	20	20	0	0	0
3506	Candles	0	0	0	0	0	0
3507	Dry cell batteries	0	0	0	0	0	0
3508	Other batteries	0	0	0	0	0	0
3599	Other	0	0	0	0	0	0
3601	Long Trouser Cotton (Denim etc)	20	20	20	0	0	0
3602	Long trousers synthetic	20	20	20	0	0	0
3603	Short trousers cotton	20	20	20	0	0	0
3604	Short trousers Synthetic	20	20	20	0	0	0
3605	Shirts cotton	20	20	20	0	0	0
3606	Shirts synthetic	20	20	20	0	0	0
3607	T shirts	10	10	10	0	0	0
3608	Sarongs	20	20	20	0	0	0
3609	Verties	20	20	20	0	0	0
3610	National dress banians	20	20	20	0	0	0
3611	Cotton Vests and Banians	10	10	10	0	0	0
3612	Socks and Stockings	20	20	20	0	0	0
3613	Underwear	20	20	20	0	0	0
3614	Ties	20	20	20	0	0	0
3615	Handkerchief	20	20	20	0	0	0
3699	Other	20	20	20	0	0	0
3701	Skirts	20	20	20	0	0	0
3702	Frocks	20	20	20	0	0	0
3703	Blouse	20	20	20	0	0	0
3704	Petticoats/underskirts	20	20	20	0	0	0
3705	Housecoats and Kimonos	20	20	20	0	0	0
3706	Slacks	20	20	20	0	0	0
3707	Brassiers	20	20	20	0	0	0
3708	Knickers	20	20	20	0	0	0
3709	Night dresses	20	20	20	0	0	0
3710	Children's dresses	20	20	20	0	0	0
3711	School uniform	20	20	20	0	0	0
3799	Other	20	20	20	0	0	0

3801	Suiting-cotton	10	10	10	0	0	0
3802	Suiting-synthetic	10	10	10	0	0	0
3803	Shirting-ctton	10	10	10	0	0	0
3804	Shirting syntheic	10	10	10	0	0	0
3805	Long cloth	10	10	10	0	0	0
3806	Gray cloth	10	10	10	0	0	0
3807	Poplin	10	10	10	0	0	0
3808	Material for school uniforms	10	10	10	0	0	0
3809	Printed fabric	10	10	10	0	0	0
3810	Pyjama materials	10	10	10	0	0	0
3811	Silk. Art slick, satin. American georgette	0	0	0	0	0	0
3899	Other	10	10	10	0	0	0
3901	Cotton/voile	10	10	10	0	0	0
3902	Pure silk	10	10	10	0	0	0
3903	Synthetic (Nylon, georgette, etc)	10	10	10	0	0	0
3999	Other	10	10	10	0	0	0
4001	Tailoring charges (for garments made to order)	0	0	0	0	0	0
4101	Towels and Towellings	10	10	10	0	0	0
4102	Sheets and sheeting	0	0	0	0	0	0
4103	Pillow cases	0	0	0	0	0	0
4104	Furnishing materials/Curtains	0	0	0	0	0	0
4105	Mosquito nets	0	0	0	0	0	0
4199	Other	0	0	0	0	0	0
4201	Shoes	20	20	20	0	0	0
4202	Sandles and Slippers	10	10	10	0	0	0
4203	Shoe repairs	0	0	0	0	0	0
4299	Other	0	0	0	0	0	0
4301	Umbrellas	20	20	20	0	0	0
4302	Raincoats	0	0	0	0	0	0
4303	Hand bags/ briefcases	0	0	0	0	0	0
4304	Suitcases / Travelling bags	0	0	0	0	0	0
4305	Belts	20	20	20	0	0	0
4306	Head wear	20	20	20	0	0	0
4399	Other	0	0	0	0	0	0
4401	Washing soap/ sunlight etc	10	10	10	0	0	0
4402	Washing powder (rinso etc)	20	20	20	0	0	0
4403	Detergents and disinfectants	20	20	20	0	0	0
4404	Insecticedes (hh use)	0	0	0	0	0	0
4405	Polishes and paints	20	20	20	0	0	0
4406	Sewing thread and twines	20	20	20	0	0	0
4407	Ropes strings and others	20	20	20	0	0	0
4408	Mosquito coils	0	0	0	0	0	0
4501	Cups and saucers	20	20	20	0	0	0
4502	Plates and dishes	20	20	20	0	0	0
4503	Glasswear	20	20	20	0	0	0
4504	Plasticwear	20	20	20	0	0	0
4505	Cutlery	20	20	20	0	0	0
4506	Buckets and basins	20	20	20	0	0	0
4507	Pots and Pans	20	20	20	0	0	0
4508	Aluminium ware	20	20	20	0	0	0
4509	Clayware	20	20	20	0	0	0
4510	Other kitchen utensils	0	0	0	0	0	0
4511	Lamps and lampshades	20	20	20	0	0	0
4512	Mantles and wicks	0	0	0	0	0	0
4513	Electrical bulbs	0	10	10	0	0	0
4514	Flourescent tubes	0	6	6	0	0	0
4515	Brooms and brushes	20	20	20	0	0	0
4516	Baskets and bags	0	0	0	0	0	0
4517	Torches	20	20	20	0	0	0
4518	Thermos flasks	0	0	0	0	0	0
4519	Toys	20	20	20	0	0	0
4599	Other	0	0	0	0	0	0
4601	Wages to servants and chauffers	0	0	0	0	0	0

4602	Laundry	0	0	0	0	0	0
4603	Payment for other household services	0	0	0	0	0	0
4699	Other	0	0	0	0	0	0
4701	Toilet soap	20	20	20	0	0	0
4702	Shaving goods	20	20	20	0	0	0
4703	Tooth paste	10	10	10	0	0	0
4704	Tooth brushes	0	0	0	0	0	0
4705	Powder	20	20	20	0	0	0
4706	Face cream and lotions	20	20	20	0	0	0
4707	Hair oils and cream	20	20	20	0	0	0
4708	Lipstick and nail polish	20	20	20	0	0	0
4709	Perfumes	20	20	20	0	0	0
4710	Hairdressing and shaving				0	0	0
4711	Hair dye	20	20	20	0	0	0
4799	Other				0	0	0
4801	Fees to private medical practitioners	0	0	0	0	0	0
4802	Fees to private medical practitioners (including cost of medicine)	0	0	0	0	0	0
4803	Consultation fees to specialists)	0	0	0	0	0	0
4804	Payments to dental and medical laboratories test analysis	0	0	0	0	0	0
4805	Purchase of medical and pharmaceutical products	0	0	0	0	0	0
4806	Fees to indigenous physicians (including cost of medicine	0	0	0	0	0	0
4899	Other	0	0	0	0	0	0
4901	Train (other than schooling)	0	0	0	0	0	0
4902	Bus (other than schooling)	0	0	0	0	0	0
4903	Transport charges for schooling	0	0	0	0	0	0
4904	Taxi/three wheeler (other than schooling)	0	0	0	0	0	0
4905	Ships and Airlines	0	0	0	0	0	0
4999	Other	0	0	0	0	0	0
5001	Petrol and other fuel	0	0	0	0	0	20
5002	Oil	0	0	0	0	0	0
5003	Cost of servicing vehicles	0	0	0	0	0	0
5004	Tyres and tubes	0	0	0	0	0	0
5005	Repair charges including cost of spare parts and accessories	0	0	0	0	0	0
5006	Licence and insurance	0	0	0	0	0	0
5007	Other	0	0	0	0	0	0
5101	Expenditure on postal and telegraph services	0	0	0	0	0	0
5102	Telephone charges (including rents)	0	0	0	0	0	0
5199	Other	0	0	0	0	0	0
5201	Cinemas	0	0	0	0	0	0
5202	Drama	0	0	0	0	0	0
5203	Sports	0	0	0	0	0	0
5204	Fees to instructors in Arts, Music and Dance	0	0	0	0	0	0
5205	Excursions and Pilgramages	0	0	0	0	0	0
5206	Books, Newspapers and Magazines	0	0	0	0	0	0
5207	Operation and Maintenance of Radio Services	0	0	0	0	0	0
5208	Lotteries, betting video games	0	0	0	0	0	0
5299	Other (pets, aquariums etc)	0	0	0	0	0	0
5301	School fees	0	0	0	0	0	0
5302	Facility fees (govt schools)	0	0	0	0	0	0
5303	Tuition fees (including art music, dancing for exam purposes)	0	0	0	0	0	0
5304	Boarding fees	0	0	0	0	0	0
5305	School textbooks	0	0	0	0	0	0
5306	Stationary, Equipment (exercise books, pencils etc)	0	0	0	0	0	0
5307	Donations	0	0	0	0	0	0

5399	Other	0	0	0	0	0	0
5401	Interests on loan taken for consumption	0	0	0	0	0	0
5402	Expenses on family wedding, funerals etc.	0	0	0	0	0	0
5403	Other social and ceremonial expenses	0	0	0	0	0	0
5501	Furniture (chair, beds, almyrahs etc.)	0	0	0	0	0	0
5502	Clocks and watches	20	20	20	0	0	0
5503	Kerosene	0	0	0	0	0	0
5504	Gas	0	0	0	0	0	0
5505	Electric	0	0	0	0	0	0
5506	Other	0	0	0	0	0	0
5507	Stores, ovens and hotplates	0	0	0	0	0	0
5508	Mixers, grinders and beaters	0	0	0	0	0	0
5509	Other	20	20	20	0	0	0
5510	Irons and Heaters	0	0	0	0	0	0
5511	Refrigerators	20	20	20	0	0	0
5512	Fans	20	20	20	0	0	0
5513	Sewing machines	20	20	20	0	0	0
5514	Radiogramme, Record players and tape recorders etc.	20	20	20	0	0	0
5515	Television sets and and video decks	20	20	20	0	0	0
5516	Musical instruments	20	20	20	0	0	0
5517	Bicycles and Tricycles	20	20	20	0	0	0
5518	Motor cycles and scooters	5	5	5	0	0	0
5519	Motor cars / vans	0	0	0	0	0	0
5520	Prams / gocarts	20	20	20	0	0	0
5521	Gardening tools and equipment	20	20	20	0	0	0
5522	Cameras and projectors	5	5	5	0	0	0
5523	Rugs and carpets	20	20	20	0	0	0
5524	Jewelleries	20	20	20	1	1	0
5525	Personal computers	20	20	20	0	0	0
5599	Other	10	10	10	0	0	0
5601	Providentfund, W&O.P fund etc	0	0	0	0	0	0
5602	Contributions to Trade Unions, Thrift societies etc.	0	0	0	0	0	0
5603	Insurance premiums	0	0	0	0	0	0
5604	Other Savings (including seetu)	0	0	0	0	0	0
5605	Repayments of debts	0	0	0	0	0	0
5606	Gifts and Similar transfers	0	0	0	0	0	0
5607	Income tax	0	0	0	0	0	0
5608	Other direct taxes	0	0	0	0	0	0
5609	Litigation	0	0	0	0	0	0
5610	Other non-consumption outflow	0	0	0	0	0	0
5699	Other	0	0	0	0	0	0
		0	0	0	0	0	0

Source: Various Government Gazettes published during the period January 1995 – December 1996.

Table A2: Values of variables corresponding to WHO methodology

Variable name	Description	Value (mean)
HFC _h	Fairness financing contribution of a household	0.086
HS _h	Total household health expenditure	Rs. 543
Prepay _h	Total household prepayment towards health	Rs. 273
OOP _h	Total household out-of-pocket disbursement towards health	Rs. 269
TGSH _h	Total government spending on health per household	Rs. 273
Scalar X	Adjustment scalar	Not applicable (see text)
GDP _h	Total survey GDP per household	Rs. 16,434
INCTAX _h	Total household income tax payment	Rs. 162
VAT _h	Total household VAT (or sales tax) payments	Rs. 371
Other _h	Total household contribution on other taxes available from the survey	Rs. 631
SSH _h	Total household social health insurance contributions	Zero
Scalar Y	Adjustment scalar	Not applicable (see text)
PRV _h	Total household premiums for household health insurance	Ignored as negligible
Capacity to pay _h	Total household capacity to pay	Rs. 5,987
Exp _h	Total household expenditure	Rs. 12,174
ATax _h	Total households adjusted tax payment used on health	Rs. 191
Food _h	Total household food expenditure	Rs. 6379
PSH _N	Total public spending on health	Rs. 1,018,528,458
TGS _N	Total government spending	Rs. 17,640,791,667
SSH _N	Total social security contribution	Zero
PC%GDP	Private consumption as a share of GDP	74%
SSH%GDP	Social security on health as a share of GDP	Zero

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13	Expenditures for Reproductive Health Services in Egypt and Sri Lanka. <i>Ravi. P. Rannan-Eliya, Peter Berman, Eltigani E. Eltigani, Indralal de Silva, Aparnaa Somanathan, Varuni Sumathiratne</i> 2000

<i>Number</i>	<i>Title</i>
14	Estimation of Confidence Intervals for Estimates of National Health Expenditures derived from Health Accounting Studies. <i>Ravi. P. Rannan-Eliya and Aparnaa Somanathan, 1999</i>
15	WHO Fairness in Financing Study. Estimates for Sri Lanka 1995/96 using WHO Methodology. <i>Tamara Dorabawila, Suharshini De Silva, Jehan Mendis and Ravi P. Rannan-Eliya, 2001</i>