

Results of Private Health Insurance Study

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Document information

This is a study of private health insurance in Sri Lanka, which was conducted as background research for a Harvard University-commissioned study of resource mobilisation experience in Sri Lanka.

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Introduction

This paper reports the results of a study of private health insurance in Sri Lanka, which was conducted as background research for a Harvard University-commissioned study of resource mobilisation experience in Sri Lanka.

As part of this study, IPS entered into an agreement with three insurance companies, to provide analytical feedback in exchange for access to individual insurance claim records. The agreement stipulated that the identities of the insurance companies would be kept confidential. Hence, they are referred to as COM1, COM2 and COM3. The three companies are amongst the five largest health insurance providers, who account for 98% of the health insurance policies in the country.

Description of data

The IPS data set consists of 1,823 insurance claim records provided by the three insurance companies,¹ and aggregate data regarding insurance costs and revenues from the yearly accounts and statistics of the insurance companies. A random selection of insurance claims file was made at each of the three insurance companies. These files each contained information on single illness episodes and the associated insurance claims. Data were extracted from the files and entered into a dBase computer file. The resulting data set was then cleaned and converted into Stata format for analysis.

Insurance claim records data

The following information was extracted from the insurance claim records.

1. Basic data

- (a) Insurance Company
- (b) Type of Insurance
- (c) Group/Individual
- (d) Policy Number
- (e) Claim Number

2. Patient's demographic data

- (a) Age (years)
- (b) Sex
- (c) Status (i.e., Employee, Spouse, Child)
- (d) Area (Village/Town)
- (e) District

3. Details about the illness and treatment

- (a) Type of illness / Injury
- (b) In patient / Out patient
- (c) Type of Treatment (Western, Ayurvedic, other)

¹ IPS collected over 2,500 claims records from four companies, but since data entry was not completed at the time of writing, all the results reported pertain to analysis of the 1,823 files from three companies.

4. Details about the treatment center and admission

- (a) Type of the treatment center (government hospital, private hospital, private dispensary, private doctor's clinic, government ayurvedic hospital, private ayurvedic hospital, other)
- (b) Name of the treatment center
- (c) Date of admission
- (d) Date of discharge
- (e) Number of days spend at the treatment center
- (f) Doctor's name
- (g) Specialist/Non-specialist

5. Details about the cost of treatment

- (a) Total amount spent on drugs
- (b) Total amount spent on doctors
- (c) Total amount spent on medical tests
- (d) Nursing charges
- (e) Admission charges
- (f) Room charges
- (g) Travel
- (h) Labour and other charges

6. Details about the limits in the associated insurance policy

- (a) Total limit
- (b) Admission and room
- (c) Doctors fees
- (d) Tests
- (e) Nursing and drugs
- (f) Travel
- (g) Other

7. Details about the claim

- (a) Total amount claimed
- (b) Date of claim
- (c) Total amount reimbursed by the insurance company
- (d) Date of settlement of the claim

The following is an overview of the data by year of claim, company and type of claim (i.e. inpatient or outpatient). The total number of records is 1,823. Most of the records are of claims submitted in 1994. Information on claims submitted in 1993 was available only from one company, and the number of such records was too small (especially for inpatient claims) to carry out a significant statistical analysis on 1993 data alone.

Table B.1: Distribution of insurance claims in IPS sample by year

<i>Company</i>	<i>Inpatient</i>			<i>Outpatient</i>		
	<i>1993</i>	<i>1994</i>	<i>1995</i>	<i>1993</i>	<i>1994</i>	<i>1995</i>
COM1	28	118	10	80	473	51
COM2	-	288	45	-	181	40
COM3	-	430	54	-	22	3
Total	28	836	109	80	676	94

Methodology and Analysis

Regression analysis has been used to look differentials in costs faced by different companies and types of schemes. Some qualitative analysis was also attempted on the basis of the structures of different PHI schemes. In such cases the analysis had to remain qualitative since the structures and variations of the schemes do not suggest a rationale for codification. Conclusions were also drawn by comparing the quantitative results of the insurance data with the quantitative results of other house-hold health expenditure surveys.

PHI companies

Claims faced by insurance companies

The largest percentage of inpatient claims and the smallest percentage of outpatient claims were found with COM3. Since the sampling was random, this distribution of out and inpatient coverage can be expected to represent the global pattern of insurance claims. (Aggregate figures of out and inpatient claims are not available from the companies themselves).

Table B.2: Inpatient and outpatient distribution of claims in sample for 1994

<i>Company</i>	<i>Distribution of claims</i>			
	<i>Number</i>	<i>Inpatient</i>	<i>Number</i>	<i>Outpatient</i>
		<i>Percentage of total</i>		<i>Percentage of total</i>
COM1	118	14.1	473	70.0
COM2	288	34.4	181	26.8
COM3	430	51.4	22	3.2
Total	836	100.0	676	100.0

Efficiency of claim processing

The following table sets out the mean number of days taken by individual PHI companies to process claims. The duration of processing is calculated as the time between the first intimation (i.e. notification of claim along with the documentation) by the claimant or insurance agent and the date of writing the reimbursement check to the claimant.² There is substantial variation in this measure of administrative efficiency between companies.

Table B.3: Variation in time for processing insurance claims by company

	<i>Mean number of days to process insurance claims</i>		
	<i>COM1</i>	<i>COM2</i>	<i>COM3</i>
Inpatient claims	11.2	19.2	28.5
Outpatient claims	12.2	11.8	35.3

Cost of insurance-financed treatment episodes

Table B.4 gives the average cost of different items of service per treatment episode according to the insurance claims received by each company. COM3 outpatient beneficiaries are incurring a very much higher level of costs than outpatient

² Collection of this information was suggested by Dr. AK Nandakumar of Harvard University.

beneficiaries of other insurance companies (three to six times the cost of COM2 and COM1). This difference in cost derives from very high doctors and nursing charges (5 to 10 times the cost of COM2 and COM1).

Table B.4: Mean unit costs faced in rupees for each category of charge by company

	<i>COM1</i>		<i>COM2</i>		<i>COM3</i>	
	<i>Inpatient</i>	<i>Outpatient</i>	<i>Inpatient</i>	<i>Outpatient</i>	<i>Inpatient</i>	<i>Outpatient</i>
Admission and room	3,241	-	3,803	-	3,075	-
Doctors fee	3,527	227	4,206	367	4,227	2,001
Nursing charges	1,753	5	1,128	13	1,321	488
Drug expenses	2,655	312	3,100	480	3,880	190
Charges for tests	1,057	103	1,295	103	1,361	491
Other fees	382	10	220	72	186	23
Cost of bed per day	625	-	698		705	-
Total cost	12,615	657	13,752	1,035	14,050	3,193
Total claimed	12,706	655	12,745	1,100	14,541	3,238
Total reimbursed	9,420	490	9,268	964	10,644	2,989
Percentage reimbursed	74.1%	74.8%	72.7%	87.6%	73.2%	92.3%

The above results suggest that the COM3 clientele is more affluent, and therefore demand a higher level of outpatient health care. The inpatient costs for COM3 claims are only marginally higher than the costs for claims faced by other companies. The following model was used to estimate the significance and degree of cost difference faced by both inpatient and outpatient claims between COM3 and other insurance companies. (The model will henceforth be referred to as Model 1).

$$\text{Total cost} = \text{male} + \text{employer} + \text{specialist doctor} + \text{western treatment} + \text{COM1} + \text{COM2}$$

The following results were obtained from OLS regression analysis.

Table B.5: Results of regression analysis using Model 1

<i>Using outpatient claims</i>			<i>Using inpatient claims</i>		
<i>Variable</i>	<i>Coefficient</i>	<i>t-value</i>	<i>Variable</i>	<i>Coefficient</i>	<i>t-value</i>
COM1	-2051.77	-9.567	COM1	-1269.98	-0.725
COM2	-2418.96	-11.54	COM2	-1287.51	-0.642
male	170.1542	2.196	male	-3187.36	-2.172
employer	-507.464	-4.8	employer	-1018.02	-0.526
specialist	260.3693	3.441	specialist	3475.179	0.935
western	338.2672	1.073	western	5549.999	0.713
constant	2930.582	7.834	constant	7855.137	1.051
R ² =	0.2		R ² =	0.01	

The regression results suggest that differences in inpatient costs between COM3 and other companies are not statistically significant. But the difference in outpatient cost is both large (Rs. 2,000 to 2,500) and statistically significant.

The reason for these high claims could be tied up with the manner in which COM3 issues outpatient coverage. COM3 accepts health and outpatient coverage only from those that are willing to invest all their other general insurance business with COM3.

This results in targeting very exclusive clients who have both a propensity to spend and claim larger amounts.

Beneficiaries

The profile of the Beneficiaries of PHI was analyzed in terms of sex and age categories. The following profile covers only the inpatient cases since demographic data for outpatient cases are mostly unavailable.

Table B.6: Profile of beneficiaries by sex and age categories for insured inpatients

<i>Age group (years)</i>	<i>Female</i>	<i>Male</i>	<i>Total</i>	<i>Age group (years)</i>	<i>Female</i>	<i>Male</i>	<i>Total</i>
00-01	10 2.6	11 2.8	21 2.7	36-40	51 13.4	50 12.6	101 13.0
01-05	19 4.9	34 8.6	53 6.8	41-45	28 7.4	48 12.1	76 9.8
06-10	15 3.9	23 5.8	38 4.9	46-50	29 7.6	32 8.1	61 7.8
11-15	7 1.8	7 1.8	14 1.8	51-55	17 4.5	31 7.8	48 6.2
16-20	16 4.2	16 4.0	32 4.1	56-60	6 1.6	24 6.0	30 3.9
21-25	29 7.6	22 5.5	51 6.6	61-65	2 0.5	11 2.8	13 1.7
26-30	76 19.9	40 10.1	116 14.9	66-70	0 0	4 1.0	4 0.5
31-35	76 19.9	44 11.1	120 15.4	Total	381 100	397 100	778 100

Note: Each cell contains two numbers. The upper one is the actual number in the sample, and the number below is the percentage of the total for that gender.

Of the 778 claims for which age was available almost 50% of the cases were between 20-40 years of age. The incidence of claims is highest between the ages of 25-35 with 30% of the claims coming from this group. The result is interestingly counter-intuitive. More claims should be expected from the lowest and highest age categories since probability of illness is greater amongst those age categories than amongst the middle age categories. The above 20 age group represents the individuals that are most likely to be holding jobs that give group insurance coverage. Health insurance schemes tend to exclude the older age groups from normal coverage. The intermediate age categories represent the individuals most likely to be covered. One explanation of the high incidence of claims amongst the intermediate age categories is that family members of group schemes do not receive the same benefits as the employed individuals. Thus thought there is greater need for PHI cover for the lowest and highest age categories, it is the lowest health risk group with the lesser need that benefits the most from PHI coverage.

Mean cost for patient visits shows a trend similar to the incidence of claims. (The high mean cost for 65-70 year olds is an outlier that can be disregarded since it samples only

four visits by males and no visits by females). This suggests that the age group which is least burdensome on the health care system in terms of incidence and cost of health problems is doubly favoured by the PHI industry. Not only are they the most frequent beneficiaries but their mean cost per treatment visit is also the highest. Evidently, most of the resources mobilized through PHI are allocated to the age groups that are least in need of them.

Table B.7: Geographical distribution of household of PHI claimants

District	Percentage distribution of PHI claimants			Population share in 1994 (%)
	Outpatients	Inpatients	Total	
Colombo	92.1	88.8	90.5	11.5
Gampaha	0.9	2.2	1.5	8.8
Kalutara	1.2	2.9	2.0	5.4
Kandy	1.9	2.8	2.3	7.2
Matale		0.2	0.1	2.4
Nuwara Eliya	0.1	0.2	0.2	3.1
Galle	0.4	0.2	0.3	5.5
Matara		0.4	0.2	4.5
Hambantota				3.0
Jaffna				5.0
Mannar				0.8
Vavuniya				0.7
Mullaitivu				0.5
Batticaloa				2.5
Ampara				2.9
Trincomalee				1.8
Kurunegala	0.7	0.6	0.6	8.3
Puttalam				3.5
Anuradhapura				4.2
Polonnaruwa				1.9
Badulla	0.5	0.6	0.6	4.1
Moneragala				2.1
Ratnapura	1.2	1.3	1.3	5.4
Kegalle	0.7		0.4	4.3

Source: See text. Share of national population is provisional estimate for 1994 (Statistics Department, 1995).

90% of the claimants were from Colombo district. Geographically, the current benefits of PHI are strongly in favor of those residing in and around the most developed city of Colombo.

Utilization

Distribution of utilization of services

The following table show a breakdown of the utilization of services by those making insurance claims. 60% of the insurance claimants sought treatment at private hospitals. 91% of both inpatient and outpatient cases received treatment in private hospitals, dispensaries or clinics. There is a strong relationship between PHI coverage and the private provision of health care - especially private hospitals.

Table B.8: Utilization by provider type for insured patients

<i>Provider type</i>	<i>Percentage of total claims</i>		
	<i>Outpatient claims (%)</i>	<i>Inpatient claims (%)</i>	<i>All claims (%)</i>
Government hospital	1.0	7.4	4.1
Private hospital	32.7	91.4	60.5
Private dispensary	38.7		20.4
Private doctor	21.1		11.1
Ayurvedic hospital	0.0	0.9	0.4
Ayurvedic doctor	0.5		0.3
Other	1.7		0.9
Pharmacy	4.2		2.2
Foreign hospital	0.0	0.2	0.1
Total	100.0	100.0	100.0

Since government facilities (except for SJGH) don't charge for health care, visits to such institutions will not be visible through the PHI claims. Also since non-charging government institutions also tend to have non-monetary costs for patients, such as inefficiency in the admission process, lower standards of sanitation and cleanliness, over-crowding and disrespectful treatment of patients, it is to be expected that those with PHI switch to private hospitals, where such non-monetary costs may be lower.

Usage of bed-days by inpatients

The following table shows the average duration of stay in hospital, by type of hospital. We notice here that the average length of stay at government hospitals is more than double the length of stay at private hospitals; ayurvedic hospitals have the longest average stays. Further analysis is warranted to understand these differences. Differences in case mix may be important.

Table B.9: Average length of stay for insured admissions by provider type

<i>Provider type</i>	<i>Mean ALOS</i>	<i>N</i>
Government hospital	9.4	64
Private hospital	4.5	786
Ayurvedic hospital	11.7	8
Foreign hospital	7.5	2
Total sample	5.0	860

Health Care Providers

As observed above, the health care providers used by insured patients are predominantly private hospitals. The following table lists the market share of the leading individual private hospitals as evidenced in the insurance claims sampled. More than 50% of the hospital visits and patient bed days are accounted for by the three market leaders in private hospital provision.

Table B.10: Inpatient market share of the private hospitals most used by PHI beneficiaries in 1994

<i>Hospital</i>	<i>Number of cases</i>	<i>Percentage market share by admissions (%)</i>	<i>Average length of stay</i>	<i>Number of bed days</i>	<i>Percentage of market share by bed days (%)</i>
Nawaloka	221	28.5	5.5	1,217	31.5
Asiri	114	14.7	4.2	478	12.4
Durdans	92	11.9	4.7	432	11.2
Delmon	36	4.6	3.3	118	3.1
St.Michaels	35	4.5	4.4	155	4.0
SJGH	34	4.4	6.7	227	5.9
Ratnam	25	3.2	4.0	99	2.6
Maccarthy	23	3.0	4.7	109	2.8
Central Hospitals	21	2.7	4.0	84	2.2
Sulaiman	19	2.4	3.6	69	1.8
Joseph Fraser	14	1.8	5.0	70	1.8
Others	142	18.3	5.7	802	20.7
Total	776	100.0	5.0	3,861	100.0

Table B.11: Outpatient and total market shares of the private hospitals most used by PHI beneficiaries in 1994

<i>Hospital</i>	<i>Number of cases</i>	<i>Percentage market share of outpatients (%)</i>	<i>Number of total cases</i>	<i>Percentage of market share by total cases (%)</i>
Nawaloka	80	15.2	301	23.1
Asiri	53	10.1	167	12.8
Durdans	11	2.1	103	7.9
Delmon	9	1.7	45	3.5
St.Michaels	13	2.5	48	3.7
SJGH	2	0.4	36	2.8
Ratnam	4	0.8	29	2.2
Maccarthy	9	1.7	32	2.5
Central Hospitals	13	2.5	34	2.6
Sulaiman	5	0.9	24	1.8
Joseph Fraser	10	1.9	24	1.8
Others	317	60.0	459	34.8
Total	526	100.0	1,302	100.0

In the case of outpatient claims the two market leaders in private health care provision capture 25% of the market.

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