

Health Care During Financial Crisis

What can we Learn from the Indonesian National Socioeconomic Survey?

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**HEALTH CARE DURING FINANCIAL CRISIS:
WHAT CAN WE LEARN FROM THE INDONESIAN NATIONAL
SOCIOECONOMIC SURVEY?**

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Introduction

This paper presents the results of a trend analysis of key health indicators in Indonesia. The analysis is based on data from the National Socioeconomic Survey for Indonesia (SUSENAS) for the years 1995, 1997, and 1998. The analysis is part of an effort to monitor the impact of the country's current economic crisis on health outcomes and to identify groups that may have benefited or been disadvantaged in recent years.

The economic crisis could affect health outcomes in a number of ways. First, occurrence of illness may be higher because of increased exposure to risk factors (both physical and psychological ones) stemming from the crisis. Second, the economic crisis changes the relative prices of commodities, which in turn will change household consumption patterns. Third, some health care inputs have high import components—for example, pharmaceuticals—whose prices are likely to increase substantially and whose availability may also be in question. Moreover, changes in employment patterns and incomes that occurred as a result of the crisis are also likely to have had an effect on health outcomes and the demand for health care. Thus, understanding the impact of the crisis on health care is a complicated and difficult matter. In this paper, we attempt to analyze the health information available through the SUSENAS to establish baselines against which to compare future trends and possible impacts on the health sector. We also discuss some possible hypotheses for how the crisis may be affecting health care utilization.

The paper starts with a brief description of the data sources followed by a descriptive analysis of trends in morbidity, household health expenditures and choice of health providers. The descriptive analysis revealed that the utilization of the public health services dropped much more than for the private sector (contrary to some of the hypothesis set a priori). The last part of the paper attempts to explain the reasons behind this drop in the public sector using a series of multivariate analysis. The results indicate that the deterioration in access and/or quality of the public services may explain the shift from public to private sector.

Data Source

The SUSENAS is Indonesia's main socioeconomic household survey and has nationwide coverage. The survey includes a set of health-related questions in its main (core) question-

naire. In addition, the survey includes a detailed health module that is usually administered to about one-third of the sample and is in the survey every 3 years. The health module was included in the 1995 and 1998 surveys. Thus, the 1995 survey provides a good base against which to compare the health module results. In addition, the 1997 survey provides the most recent estimate against which to view the 1998 results. This analysis uses data from all three surveys—1995, 1997, and 1998. The sample sizes for the different surveys are 873,643 individuals for the 1995 survey, 887,266 for the 1997 survey, and 880,040 for the 1998 survey.

It is important to note that the timing of the 1998 survey—January through February 1998—makes it a good baseline for future analysis of the impact of the crisis on health outcomes. The timing also provides insight into possible early effects of the crisis on health outcomes, since the data were collected a few months after the financial crisis started but before it reached its peak.

Morbidity

Morbidity is self-reported in the SUSENAS. The respondents are asked whether they felt sick in the previous month. The responses indicate that the gains in terms of a drop in morbidity of slightly more than 1 percentage point over the period 1995–97 (from 25.5 percent to 24.4 percent) were lost in the year that followed. From 1997 to 1998, morbidity rose back to 25.5 percent. Disruptive morbidity, defined as morbidity that disrupts daily activities, shows a similar pattern—dropping from 9.6 percent in 1995 to 9.1 percent in 1997 and then increasing to 10.6 percent in 1998, 1 percentage point above the level in 1995. While in 1998 the same percentage of people experienced illness as in 1995, their illnesses seemed to be more severe in the sense that these illnesses more often disrupted their daily activities.

Differences in morbidity among regions is marked (figures 1 and 2). All except urban Kalimantan show improvements in morbidity over the period 1995–97. However, generally morbidity in urban areas increased over the period 1997–98. With the exception of the “other islands” region—comprising Nusa Tenggara, Timor, Maluku, and Irian Jaya—morbidity levels in 1998 exceeded those in 1997. Morbidity also increased in rural areas over this period, mostly as a result of increases in morbidity in Java/Bali and Kalimantan. However, Java/Bali is the only region where morbidity in 1998 exceeded the 1995 level in both urban and rural areas, although these differences are small. Urban areas in Kalimantan have experienced a substantial increase in morbidity. Over the period 1995–98, morbidity rose from 24.3 percent (7.3 percent for disruptive morbidity) to 29.1 percent (10.1 percent for disruptive morbidity).

¹ The “Other islands” region comprises Nusa Tenggara, Timor, Maluku and Irian Jaya.

Figure 1 Changes in urban morbidity by region (percent)

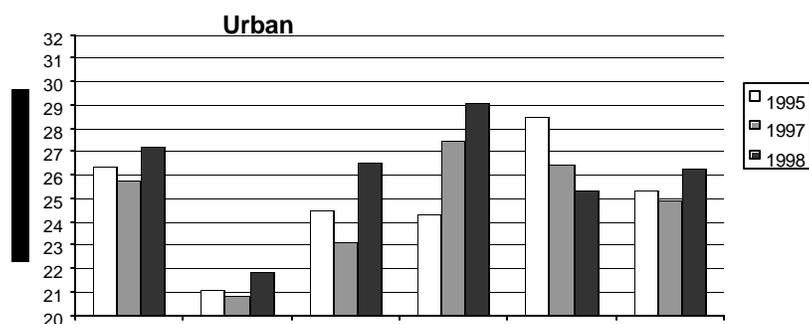
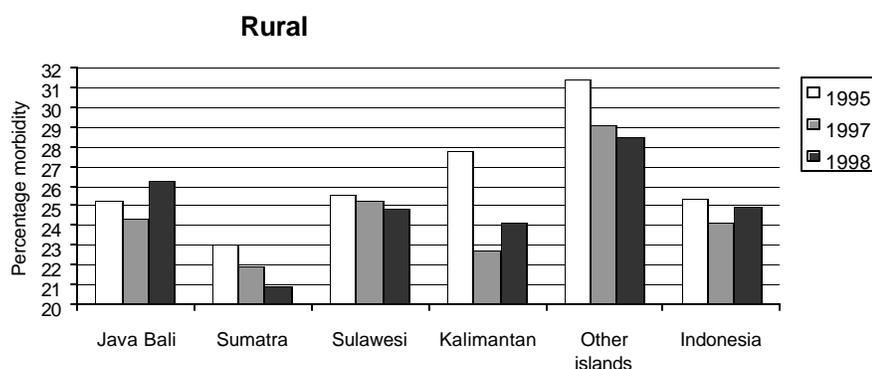


Figure 2 Changes in rural morbidity by region (percent)

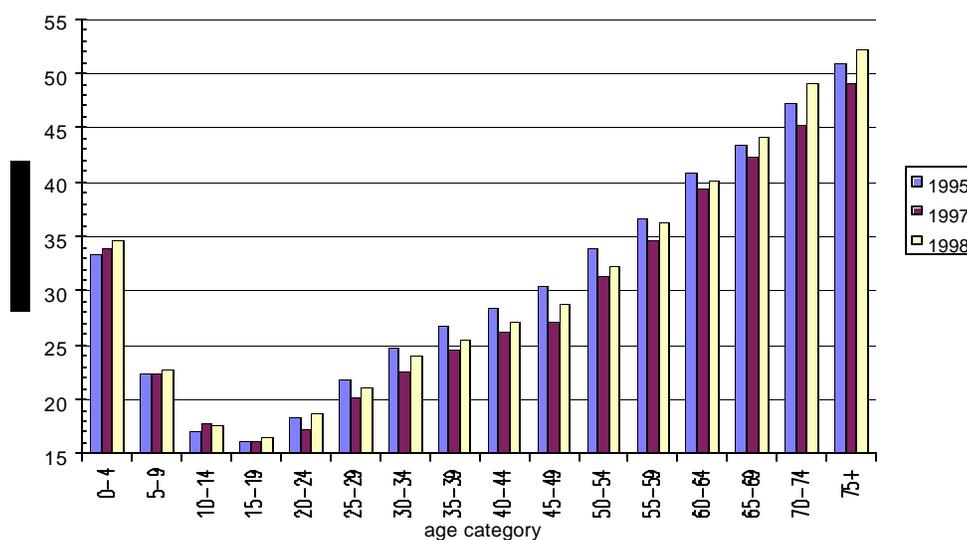


The other regions recorded a drop in morbidity. The “other islands” region experienced a continuous decrease in morbidity over the period 1995–98, although it still faces the highest morbidity levels in Indonesia. Sumatra also experienced a continuous decline in morbidity as a result of improvements in the rural areas.

Changes in morbidity rates varied according to gender during 1995–97 but were similar in 1997–98. The decline over the period 1995–97 was higher for males than for females. While morbidity fell by 1.1 percentage point for males, it fell by only 0.6 percentage point for females. Disruptive morbidity fell by 0.7 percentage point for males and to 0.4 percentage point for females. Over the period 1997–98, morbidity rose for both males and females by about 1 percentage point. Similar patterns are found for disruptive morbidity.

For children and the elderly, morbidity generally worsened over the period 1995–98. For the elderly, the increase in 1998 was greater than the drop in morbidity in the previous years. For children, we observed a continuous increase in reported morbidity over the period 1995–98. In contrast, the working-age population—ages 25 to 64—reported ill less often. For this group, the drop in morbidity over the period 1995–97 was greater than the increase in the year that followed. (The results are shown in Figure 3.)

Figure 3 Changes in morbidity by age category (percent)



Over the period 1995–98, the poor have experienced a small increase in morbidity, while the rich experienced a decrease. The gains in health status achieved over the period 1995–97 observed for all income groups were sustained for the poor (Table 1). Throughout, the rich report higher morbidity than the poor. This is because morbidity is self-reported and richer people tend to report themselves sick more often. It is unlikely that this is because of differences in health status.

Table 1 Morbidity by consumption quintile (percent)

Consumption quintile	1995	1997	1998
1 (poor)	23.0	22.3	23.7
2	24.2	23.5	24.6
3	25.7	24.8	25.7
4	26.7	25.7	26.8
5 (rich)	27.3	25.8	26.6

Source: Authors' calculations based on 1995, 1997, 1998 surveys.

not

Changes in morbidity by main source of household income are shown in

Table 2. In the period 1995–98, the two sectors most severely hit by the economic crisis—the financial sector and construction—have experienced the greatest increases in morbidity. Households that received most of their income from the financial or construction sector experienced an increase in morbidity of 3.2 and 1.7 percentage points, respectively. In the financial sector, the bulk of the increase took place over the period 1995–97. In construction, the effects were stronger from 1997 to 1998. In industry, the gains in morbidity of 2.5 percentage points over the period 1995–97 were lost in the year thereafter. Farmers experienced a decrease in morbidity over the period 1995–97 of 1.4 percentage point. In the year thereafter, morbidity increased by 0.5 percentage point.

Table 2 Changes in morbidity by main source of household income

(percent)

Source of income	1995	Change— 1995–97	1997	Change— 1997–98	1998
Agriculture	25.0	–1.4	23.6	0.5	24.1
Mining and quarrying	25.1	–1.5	23.6	1.1	24.7
Industry	26.7	–2.5	24.2	2.6	26.8
Electricity, gas, and water	24.8	1.2	26.0	–2.1	23.9
Construction	24.8	0.3	25.1	1.4	26.5
Trade	24.9	–0.7	24.2	1.8	26.0
Transport and communication	26.0	0.1	26.1	–0.2	25.9
Financial services	21.9	2.8	24.7	0.4	25.1
Services	25.2	–1.1	24.1	1.3	25.4
Other activities	25.9	–0.3	25.6	–1.0	24.6
Pension, gifts	29.9	–0.5	29.4	1.7	31.1
Indonesia	25.4	–1.0	24.4	1.1	25.5
Number of observations	873,643		887,266		880,040

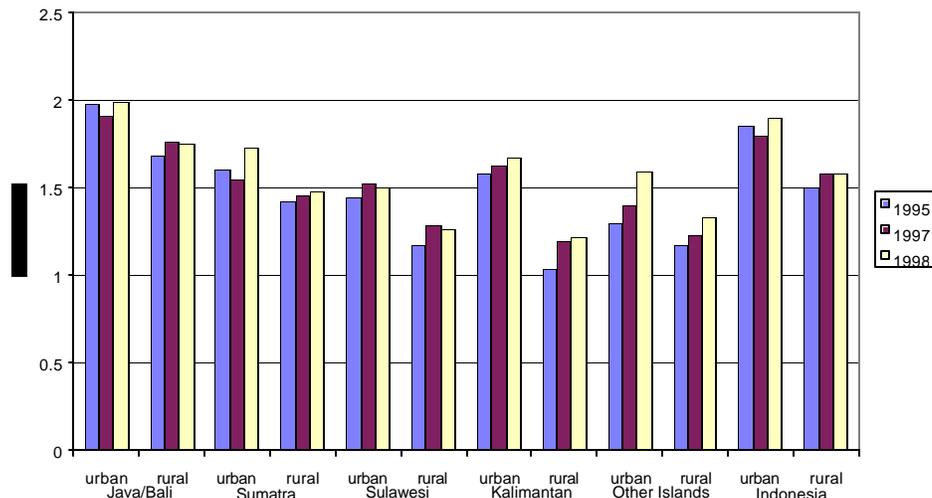
Regarding the type of illness, the highest increases are found for lower respiratory tract infections, which include cough, shortness of breath, and asthma. For Indonesia as a whole, the percentage of individuals who suffered from such infections in the previous month increased from 7.8 in 1995 to 9.4 in 1997 to 10.7 in 1998.

Health Expenditures

Health expenditure data are collected for the last year through responses to a single question on the survey. A small increase in health expenditures, from 1.5 to 1.6 percent, was found in the rural areas for the 1995–98 period. In the urban areas a U-shaped pattern was found. Figure 4 shows the changes in health care expenditures by region. The most marked increases were in rural Kalimantan and the urban areas in “other islands.”

² These include cough, shortness of breath and asthma.

Figure 4 Changes in the budget share of health care expenditures by region

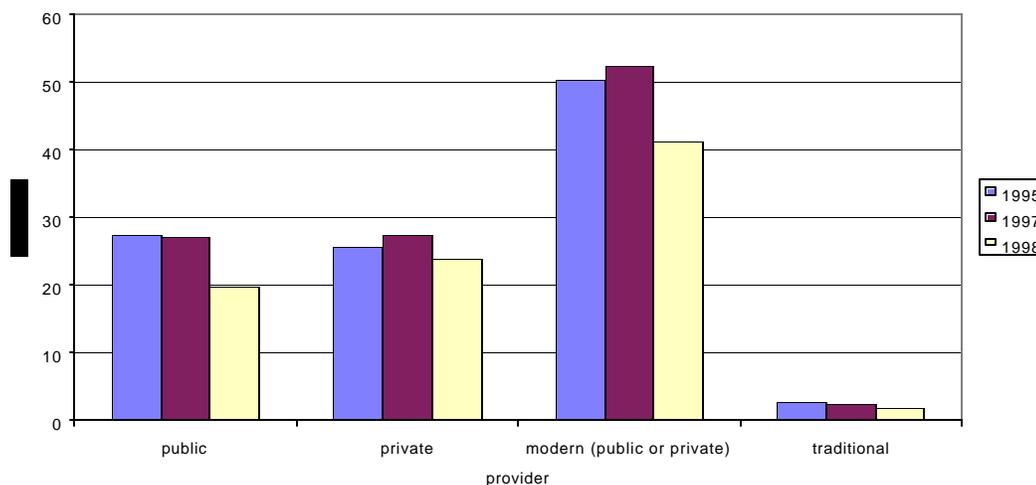


The increase in health expenditures was spread rather evenly over the subgroups of the population that have been used in this analysis. For all consumption quintiles, an increase in the budget share of health expenditures was found to be in the order of zero to 0.1 percentage point. Looking at subgroups defined by the main source of income, we found that the increased morbidity in the financial sector also translated into a higher budget share of medical expenditures. This was not the case for families that received their income from construction or industry.

Choice of Health Care Provider

In 1998, fewer people consulted providers of modern medical care when ill compared with 1995. Outpatient user rates for those ill are shown in Figure 5. In 1995, 50 percent of those reporting ill visited a modern health care provider. This share increased to 53 percent in 1997 and dropped to 41 percent in 1998. This constitutes a more than 10 percentage point drop over the period 1997–98. The drop is caused by a decline in the user rate for public facilities. Public outpatient user rates remained about constant over the period 1995–97 but dropped considerably thereafter. The changes for private outpatient contact rates have been less dramatic, and the slight increase in the user rate over the period 1995–97 was offset in the following year.

Figure 5 Portion of ill people that consulted a health care provider, on an outpatient basis, in 1995 and 1998, by type of provider (percent)



As a consequence, the contact rate (percent of respondents who visited a facility in the past month) for modern care dropped from by 2.3 percent—from 12.8 to 10.5 percent—over the period 1997–98. Most of the drop in contact rates for modern care occurred as a result of a general drop in contact rates for public facilities (from 6.7 percent in 1997 to 5.0 percent in 1998). In 1995, the contact rate for public facilities was higher than for private doctors (7.0 percent, versus 6.5 percent in 1998). In 1997 the contact rate for the two types of facilities was equalized. By 1998 the contact rate of private facilities (6.1 percent) had exceeded that of public facilities (5.0 percent), although use of either type of facility had declined.

The drop in the utilization of public sector health services is also found in an independent survey, the Indonesian Family Life Survey.³ Beegle et al. (1999) report a 1.8 percentage point drop in public health services and a 0.02 to 0.17 percentage point (depending on the matching method applied) drop in private health services.

The overall drop in the use of outpatient health services is mostly a result of a lower user rate for the health centers (*puskesmas*). The contact rate for the health centers dropped from 4.6 percent in 1995 to 3.3 percent in 1998. For subsidiary health centers, the contact rate dropped from 1.7 percent to 1.0 percent over the same period. The declining trend in the use of these two centers already started in the period 1995–97. Contact rates for the village health posts (*posyandu*) also declined between 1995 and 1997. As for contact rates for hospital services, those remained about constant over the period 1995–98. The details for each type of provider are given in Table 3.

³ Indonesian Family Life Survey is a longitudinal household survey of about 2,000 households. The interviews were held around November 1997 and October 1998. The survey contains data from seven provinces.

Table 3 Changes in contact rates by type of provider (percentage of population that visited provider at least once in previous month)

Provider	Contact rate		
	1995	1997	1998
Public hospital	0.64	0.60	0.64
Private hospital	0.40	0.41	0.40
Private doctor	3.01	3.14	2.84
Primary health center	4.66	4.31	3.25
Subsidiary health center	1.69	1.66	1.01
Clinic	0.42	0.39	0.34
<i>Posyandu</i>	0.19	0.20	0.12
Paramedical practitioner	2.82	2.93	2.80
Traditional healer	0.73	0.63	0.43

Recorded self-treatment increased substantially from 1997 to 1998. This is most likely a result of changes in questionnaire design. In 1995 and 1997 self-treatment was collected as one of the options in outpatient treatment, while in 1998 it was included as a separate question. Self-treatment for those who were ill increased from 32 percent in 1995 to 37 percent in 1997 to 62 percent in 1998.

Explaining the Changes in Health Care Utilization

The drop in the use of public services is an policy issue. This observed trend is different from that reported in other South East Asian countries. For instance, in Thailand and Korea a shift from the private to the public hospitals is observed (UNFPA, 1998). Thailand also observed an increase in public services as a result of increase in use of public health schemes aimed at protecting the vulnerable groups and near poor (World Bank, 1999). With increasing morbidity and a fall in real incomes as a result of the economic crisis, the public sector can play a pivotal role in maintaining health status. Defining an appropriate policy response would require obtaining further insight into the underlying reasons for the observed drop in the use of public services. We tested for three possible explanations for the drop:

1. The relative price of public sector services increased.
2. As a result of the crisis the poor could no longer afford public sector health care
3. Quality or accessibility of public health services deteriorated relative to private health services.

As we explain below, we rejected the first hypothesis because the change in price was modest. However, we also conclude that the second hypothesis can only explain a very small fraction of the observed drop in public sector utilization. As a result, we tend to opt for

the third explanation. The remainder of this section is devoted to a further discussion of the hypotheses and the empirical evidence.

Hypothesis 1—Increases in the relative price of public sector services caused reduced utilization

The modules of the 1995 and 1998 SUSENAS collect data on health expenditures related to in- and outpatient visits to health services. These data, matched with the utilization data, enabled us to construct unit prices. We report those of outpatient visits.

The drop in the contact rate for (subsidiary) health centers cannot be explained on the basis of increase in user fees. Table 4 presents mean and median prices in 1995 and 1998 per outpatient visit (nominal prices—not corrected for inflation), as collected in the health module of the SUSENAS. Very modest nominal price decreases and increases are found for health centers and subsidiary health centers, respectively. They charged almost the same in 1995 and 1998. For the rest of the providers, prices for outpatient care have increased more dramatically in the past years. While median prices have risen only a small amount and have at time even fallen, mean prices have risen substantially. Hospitals and clinics charged lower median prices in 1998 compared with 1995, but the mean unit price for a hospital visit has increased considerably. Hospitals have become much more expensive, with an outpatient visit to a public hospital has doubled in price. The mean price of traditional healers has also risen significantly. Prices for doctors, polyclinics, paramedical practitioners, and *posyandu* dropped in real terms.

Table 4 Median and mean prices per outpatient visit by provider (rupiah)

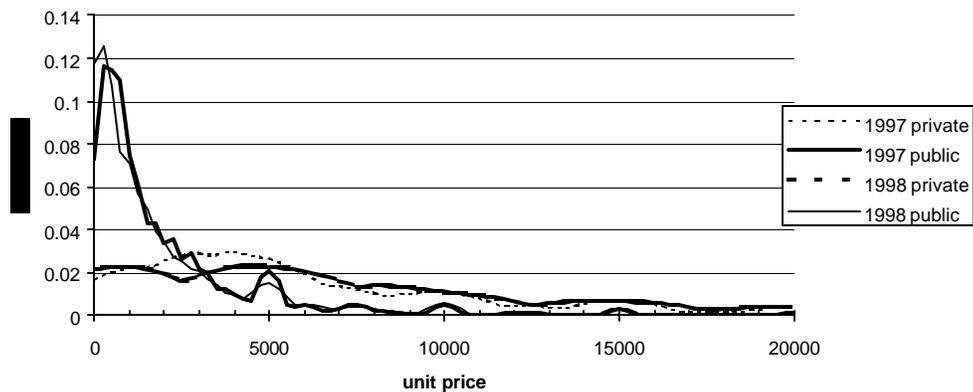
Provider	Median price per visit			Mean price per visit		
	1995	1998	Difference	1995	1998	Difference
Public hospital	3,000 (1,466)	2,000 (1,534)	-1,000 (-1,534)	12,066 (18,331)	25,000 (18,331)	12,934 (6,265)
Private hospital	8,000 (5,499)	7,500 (2,501)	-500 (-2,501)	25,793 (30,463)	41,546 (30,463)	15,753 (4,670)
Doctor	9,500 (7,332)	10,000 (2,168)	500 (-2,168)	15,383 (14,534)	19,822 (14,534)	4,439 (-849)
Primary health center	1,000 (733)	1,000 (733)	0 (-267)	2,545 (1,661)	2,265 (1,661)	-280 (-884)
Subsidiary health center	1,000 (733)	1,000 (733)	0 (-267)	2,059 (1,691)	2,306 (1,691)	248 (-368)
Polyclinic	2,500 (0)	0 (0)	-2,500 (-2,500)	5,063 (4,930)	6,724 (4,930)	1,661 (-133)
Paramedical practitioner	3,250 (3,300)	4,500 (3,300)	1,250 (50)	5,284 (4,614)	6,292 (4,614)	1,008 (-670)
Traditional healer	1,500 (1,118)	1,525 (1,118)	25 (-382)	3,958 (6,929)	9,450 (6,929)	5,492 (2,971)
<i>Posyandu</i>	600 (0)	0 (0)	-600 (-600)	1,592 (478)	652 (478)	-939 (-1,114)

Notes: Prices are nominal. Parentheses indicate 1995 prices that have been adjusted to the 1998 equivalent on the basis of the consumer price index; costs refer to those born by household only. Prices are based on visits in the last month. 1995 data are calculated using only observations on users who visited one type of provider.

Source: SUSENAS, 1995 and 1998 modules.

A possible explanation of the drop in public health services could be the rise of a two-tier private health sector, where the lower tier provides cheap care with better service than the public sector. However, we found only weak evidence for this. A two-tier private sector would mean a change in the price distributions of the private sector services. Figure 6 presents the distributions of the price per visit (in nominal terms) in 1995 and 1998 in the public and private sectors. In 1998, the private sector catered somewhat more towards the visits costing 2,000 to 5,000 rupiah. While 34 percent of the visits costing 5,000 rupiah were carried out by the private sector in 1997, this increased to 36 percent in 1998.

Figure 6 Changes in (nominal) unit price distribution for private and public outpatient visit



Considering that changes in prices cannot account for the change in user patterns, we turned our attention to the second posed explanation.

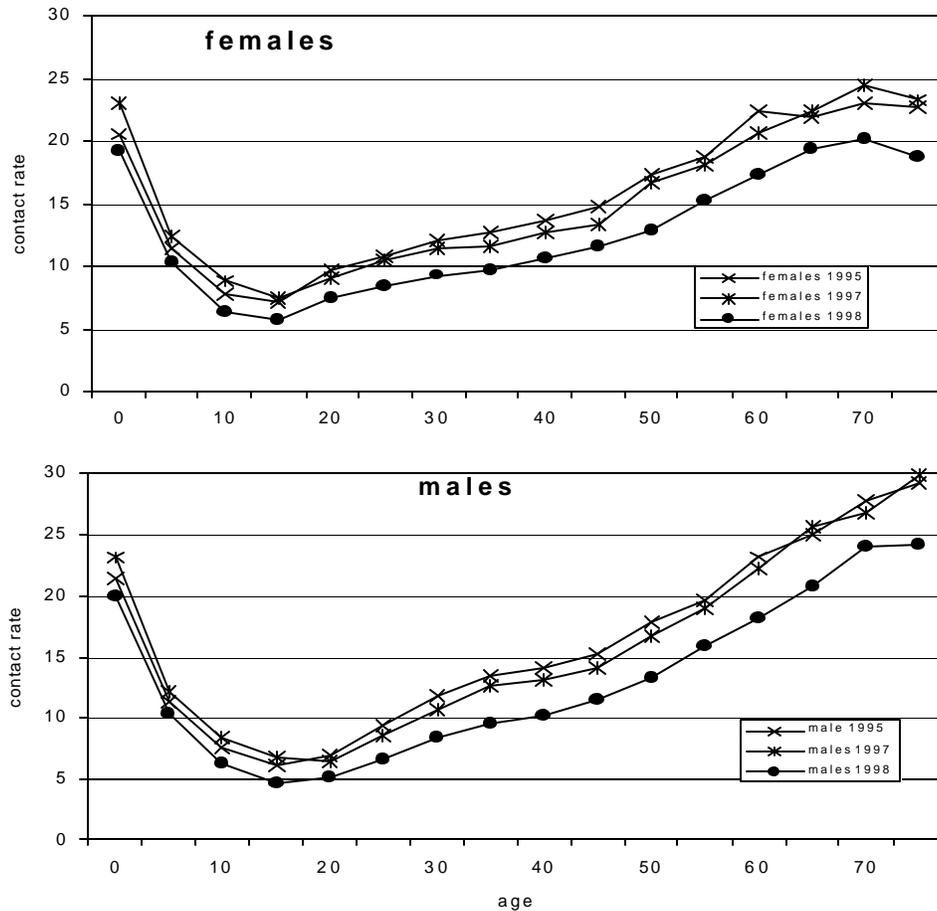
Hypothesis 2—As a result of the crisis the poor could no longer afford public sector health care

Under this hypothesis, the fall is caused by demand factors. First, we looked at whether the drop can be attributed to certain subgroups of the population. If we could identify which groups caused the drop in public sector utilization, we could relate their characteristics to how they were affected by the crisis. Although we found differences in the utilization patterns of the different sub-groups, we did not find clear patterns that can relate the observed changes to the financial crisis. Second, we analyzed the possible effect of changes in expenditures on utilization of health services.

The contact rate for modern medical care has fallen by similar magnitudes for all age groups for both sexes. (Contact rates by age group are shown in Figure 7.) The age profile remained about constant over time. (Table 5 presents the contact rate for children younger than 15.) The utilization rate for public health care services dropped by 1.7 percentage point from 1997 to 1998. The utilization of private services remained almost constant. Reports based on Indonesian Family Life Survey 2+ (see Frankenberg et al. 1999) show a 1.6 percentage point drop in the use of (subsidiary) health centers for the same age group compared with 1.7 percentage point drop found on the basis of the SUSENAS. The utilization

of *posyandu* services dropped by almost half, a pattern that is also found in the Indonesian Family Life Survey analysis.⁴

Figure 7 Contact rates (percent of individuals who visited provider in past month) for outpatient modern medical care (public plus private) by age for males and females



⁴ In absolute terms, the Indonesian Family Life Survey reports much higher utilization rates for *posyandu* than the SUSENAS does. While in the SUSENAS the contact rate for young children was in the order of 0.8 percent in 1998, the Indonesian Family Life Survey reported a utilization of 28 percent. The relative changes over time are comparable, however.

Table 5 Change in outpatient contact rates for children under 15 years of age by type of facility and sex (percent)

Facility	Patients								
	Boys			Girls			Total		
	1995	1997	1998	1995	1997	1998	1995	1997	1998
Public hospital	0.48	0.48	0.51	0.45	0.49	0.47	0.46	0.48	0.49
Private hospital	0.34	0.35	0.35	0.31	0.36	0.32	0.32	0.35	0.33
Private doctor	2.47	2.85	2.79	2.41	2.95	2.58	2.44	2.90	2.68
Primary health center	5.12	5.20	4.20	5.20	5.19	4.21	5.16	5.20	4.20
Subsidiary health center	1.92	1.92	1.25	1.86	2.07	1.28	1.89	2.00	1.27
Clinic	0.45	0.46	0.40	0.45	0.44	0.35	0.45	0.45	0.37
<i>Posyandu</i> ^a	1.27	1.35	0.74	1.22	1.34	0.81	1.24	1.34	0.78
Paramedical practitioner	2.43	2.91	2.80	2.39	2.90	2.87	2.41	2.91	2.84
Traditional	0.59	0.58	0.37	0.59	0.55	0.33	0.59	0.57	0.35
All public services	7.71	7.88	6.22	7.68	8.06	6.29	7.70	7.97	6.25
All private services	5.58	6.46	6.12	5.49	6.55	5.94	5.53	6.50	6.03

a. For *posyandu*, the results are for children younger than 5.

Contact rates for modern care have dropped for all education groups. (Figure 8 shows the adult contact rate by the level of education.) From 1995 to 1997, the outpatient contact rate for modern care dropped slightly except for those with a senior secondary education-background. All education groups showed a substantial drop in contacts from 1997 to 1998.

Figure 8 Adult contact outpatient rates for modern (private and public) medical care by education level and sex (percent aged 18 and above that visited health care facility)

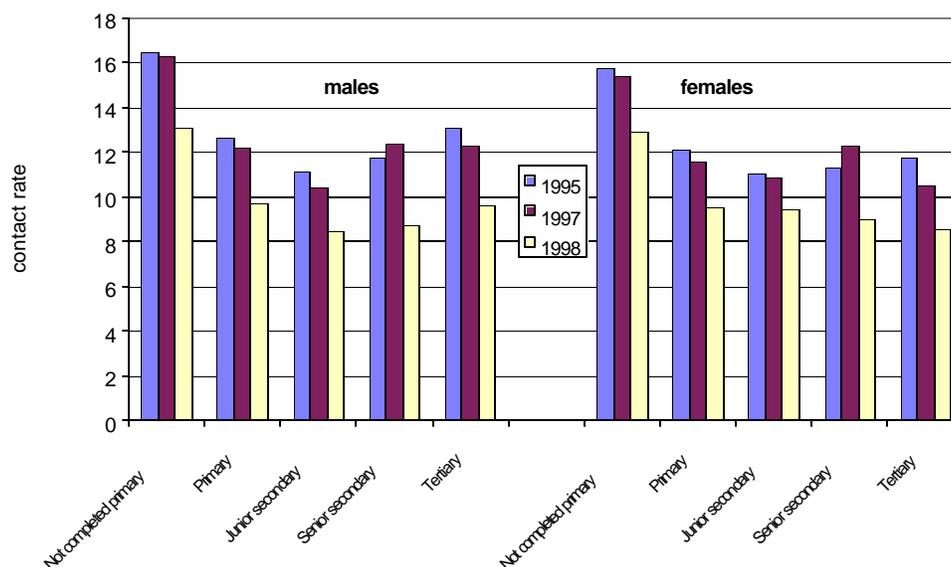


Figure 9 shows the contact rate for outpatient public and private health care by household income quintile. The largest drops in the use of public services are found in the middle quintiles. For the second to fourth quintile, the drop ranged from 1.8 to 2 percentage point. For the poorest and richest quintile, the recorded drops were 1.3 and 1.4 percentage point, respectively. For private outpatient health services, we found that, for the poorest three quintiles, the contact rate in 1998 is back to the 1995 level. The increases observed over the period 1995–97 was lost in the year thereafter. For the richer quintiles, we find a continuous drop in the use of private outpatient care. For the period 1995–97, this can partly be explained by improvements in morbidity.

Figure 9 Contact rate for outpatient public and private health care by household income quintile (percent)

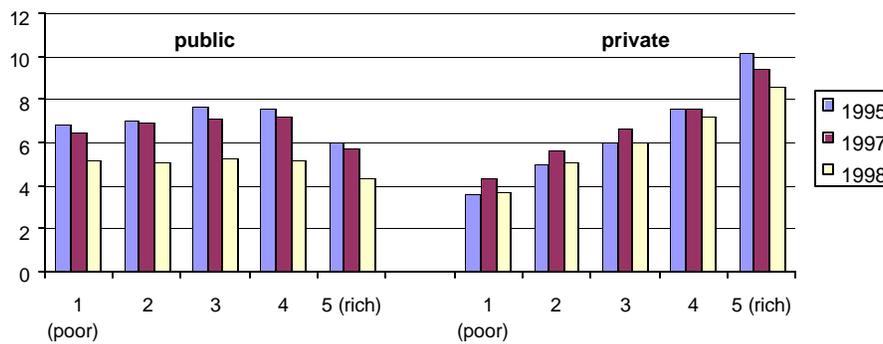


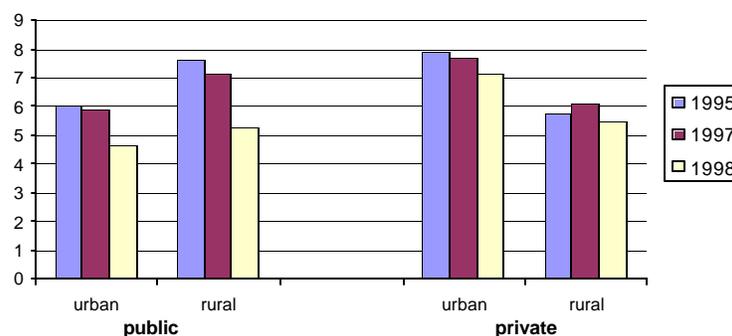
Table 6 shows changes in the outpatient contact rate by main source of household income. Looking at different economic groups, we find that the largest drop in the use of public health services occurred with families that derived most of their household income from the mining and quarrying and the electricity, gas, and water sectors. Those in agriculture experienced a 1.9 percentage point drop from 1997 to 1998 and a 2.4 percentage point drop from 1995 to 1998. However, these figures should be interpreted with caution, since the composition of the subgroups has changed over time.

Table 6 Contact rate for outpatient public and private health care by main source of household income (percent)

Main source of household income	Public			Private		
	1995	1997	1998	1995	1997	1998
Agriculture	7.4	6.9	5.0	5.0	5.4	4.7
Mining and quarrying	6.0	7.0	4.6	7.0	6.5	6.1
Industry	6.1	5.5	4.4	8.5	7.9	7.4
Electricity, gas, and water	6.2	6.5	4.0	8.5	10.2	7.8
Construction	7.0	6.8	5.3	6.5	6.9	6.6
Trade	6.0	6.0	4.6	7.4	7.4	7.0
Transport and communication	6.9	6.9	5.1	7.7	7.6	6.6
Financial services	3.8	4.3	3.0	8.8	9.8	8.4
Services	7.3	6.8	5.6	7.4	7.5	6.8
Other activities	5.9	8.7	4.3	7.2	9.6	5.5
Pension, gifts, etc.	8.2	7.8	6.4	9.1	9.2	8.6

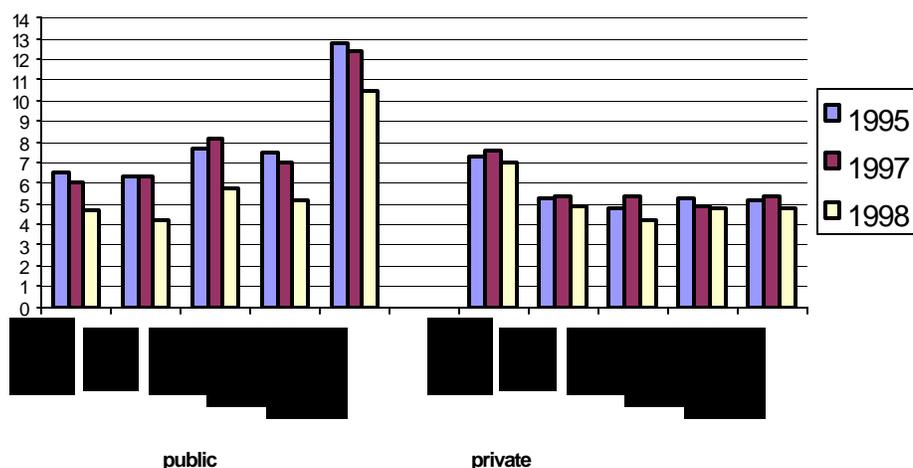
The drop in the use of public services has been highest in rural areas, where it dropped 1.8 percentage point; it dropped 1.3 percentage point in urban areas. For private care, the contact rate has been dropping continuously in the urban areas. In contrast, the contact rate in the private sector was almost the same in 1995 and 1998. (The results are presented in Figure 10.)

Figure 10 Contact rate for outpatient public and private care by urban and rural areas (percent)



The largest drops in the use of public services over 1995–98 were outside of Java/Bali. In Java and Bali, the drop was 1.3 percentage point. In the other regions the drop ranged from 1.9 to 2.4 percentage point. The largest drops were in Sulawesi. For this region we also observed a large drop in the use of private services, 1.2 percentage point. (The results are shown in Figure 11.)

Figure 11 Contact rate for outpatient public and private care by region (percent)



The analysis by subgroups shows that the drop in the use of public services has been across the board. None of the identified subgroups is responsible for the observed changes in utilization.

The second piece of analysis of effects on demand focused on the extent to which changes in observed demand can be explained by changes in expenditures, other observed characteristics, or a combination of the two. For this purpose, we estimated a multivariate model that correlates demand for public and private health services to observed characteristics. We used a multinomial logit model that distinguishes three possible states:

- Not visiting any service in the past month
- Visiting a public service in the past month
- Visiting a private health service in the past month.

The first is chosen as the exclusion category. The estimation results are shown in Table 7 and discussed in the rest of the section. The models are estimated separately for 1997 and 1998. Per capita consumption, one of the explanatory variables, is converted to 1997 prices on the basis of the consumer price index of February 1997 and 1998.⁵ Per capita consumption and age are included, for which we used a linear spline specification.⁶

⁵ Using the consumer price index of February 1997 and 1998, the inflation rate is 30 percent. Per capita consumption is based on the core of the SUSENAS. Using this consumption measure, the average real per capita consumption dropped from 60,459 to 56,495 rupiah per month. These figures should be interpreted with caution, since the core of the SUSENAS collects consumption on the basis of 23 questions only. The resulting measure is not suitable for poverty analysis.

⁶ Linear splines imply a piecewise linear specification. The points at which the slope coefficient may change are set a priori. For per capita consumption, the break points are set at 20,000, 30,000, 40,000, 50,000, 75,000 and 100,000 rupiah. For age, the break points are 10, 20, 30, and 50.

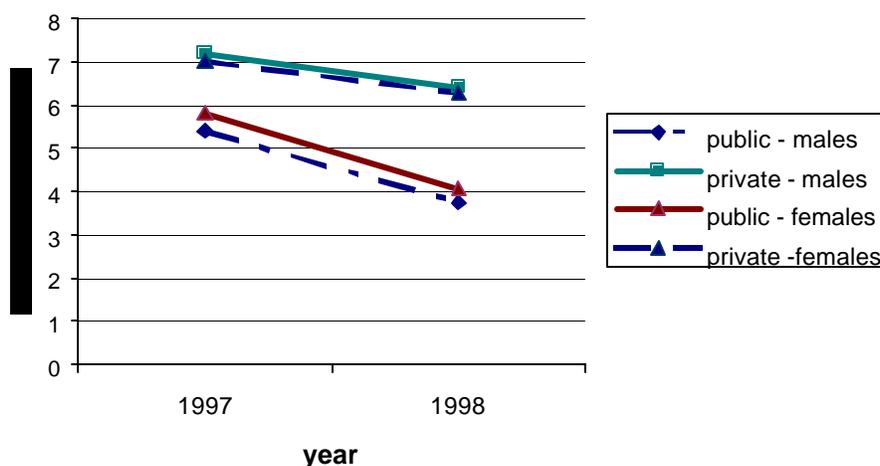
Table 7 Estimated coefficients multinomial logit model explaining utilization of public and private outpatient health care (estimated coefficients)

	1997		1998	
	Public	Private	Public	Private
Per capita consumption				
< 20,000	0.015 (1.91)	0.022 (1.58)	0.022 (1.88)	-0.014 (-2.28)
20,000-30,000	0.003 (1.00)	0.035 (8.53)	0.035 (2.75)	0.059 (14.95)
30,000-40,000	0.013 (6.14)	0.023 (8.96)	0.023 (1.20)	0.022 (8.44)
40,000-50,000	0.006 (3.42)	0.021 (10.14)	0.021 (5.49)	0.020 (9.17)
50,000-75,000	0.005 (5.84)	0.010 (11.93)	0.010 (-0.78)	0.009 (9.81)
75,000-100,000	-0.008 (-9.28)	0.009 (11.84)	0.009 (-5.54)	0.008 (9.21)
> 75,000	-0.001 (-6.13)	0.001 (9.17)	0.001 (-8.70)	0.000 (-1.46)
Urban	-0.100 (-9.82)	0.036 (3.41)	0.036 (-1.34)	0.050 (4.47)
Female	0.078 (9.46)	-0.023 (-2.52)	-0.023 (9.07)	-0.021 (-2.21)
Household size	-0.034 (-15.00)	0.000 (0.04)	0.0001 (-14.61)	-0.007 (-2.57)
Age (years)				
< 10	-0.128 (-62.56)	-0.131 (-53.38)	-0.131 (-58.55)	-0.152 (-57.16)
10-20	-0.036 (-16.08)	-0.025 (-9.75)	-0.025 (-15.07)	-0.014 (-4.89)
20-30	0.040 (18.72)	0.055 (23.71)	0.055 (17.69)	0.050 (19.50)
30-50	0.023 (24.01)	0.023 (23.12)	0.023 (21.99)	0.024 (22.31)
> 50	0.021 (22.99)	0.029 (32.57)	0.029 (20.29)	0.028 (30.90)
Region:				
Sumatra	-0.026 (-2.25)	-0.350 (-30.09)	-0.350 (-7.55)	-0.429 (-33.74)
Sulawesi	0.218 (16.47)	-0.395 (-25.62)	-0.395 (9.71)	-0.538 (-31.41)
Kalimantan	0.092 (5.67)	-0.565 (-30.42)	-0.565 (1.31)	-0.474 (-24.98)
Other islands	0.716 (61.23)	-0.384 (-23.85)	-0.384 (55.78)	-0.455 (-25.44)
Constant	-1.939 (-12.98)	-2.817 (-10.50)	-2.817 (-21.41)	-2.263 (-19.66)

Notes: Values in parentheses are *t* values. Consumption is in 1997 prices/1,000 people. For regions, Java/Bali is excluded

Until 1998, individuals living in urban areas were less likely to visit public health facilities than those living in rural areas. This effect vanished in 1998. This change corresponds to the greater drop in the use of public health services observed in rural areas. Those living in urban areas are more likely to visit a private facility than those who are in the rural areas. Females are significantly more likely to visit a public facility and less likely to visit a private facility than males. The magnitude of the difference for public facilities became smaller in 1998. (Figure 12 shows the predicted probabilities when all other explanatory variables are kept constant.)

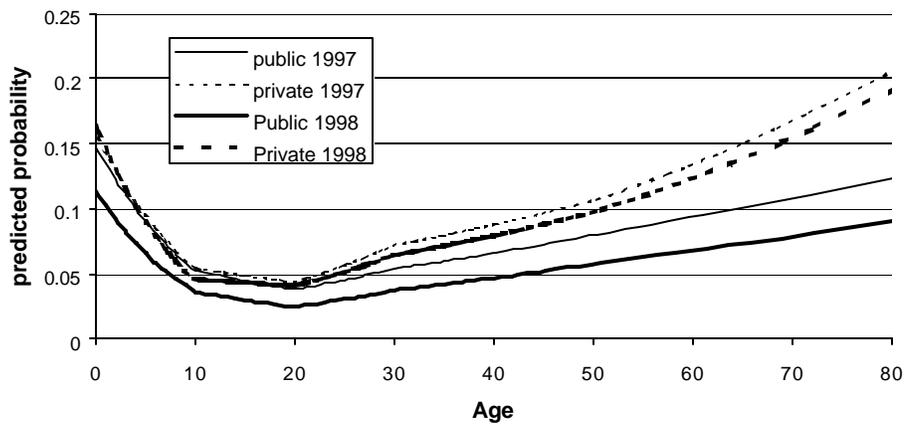
Figure 12 Predicted utilization of public and private health services by sex in 1997 and 1998



Larger households are less likely to visit a public facility. Compared with Java/Bali, inhabitants of other areas are less likely to visit a health facility. The difference increased for the public facilities from 1997 to 1998. In Sulawesi, public facilities (*cetirus paribus*) were more frequently visited than in Java/Bali in 1997; this pattern reversed in 1998. Private facilities are less frequently visited. In Kalimantan and the “other islands,” the popularity of public sector services declined relative to Java/Bali.

To facilitate the interpretation of the age splines, Figure 13 shows the predicted probability of visiting a public and private health care facility in 1997 and 1998 as a function of age, with all other explanatory variables kept constant. In 1997, the likelihood that a child would visit a public or private facility was about equal. For adults the probabilities start to diverge, with a the likelihood of visiting a private facility increasing. Private facilities showed no change in user patterns from 1997 to 1998. Adults use private facilities less. For public facilities, use declined for both children and adults.

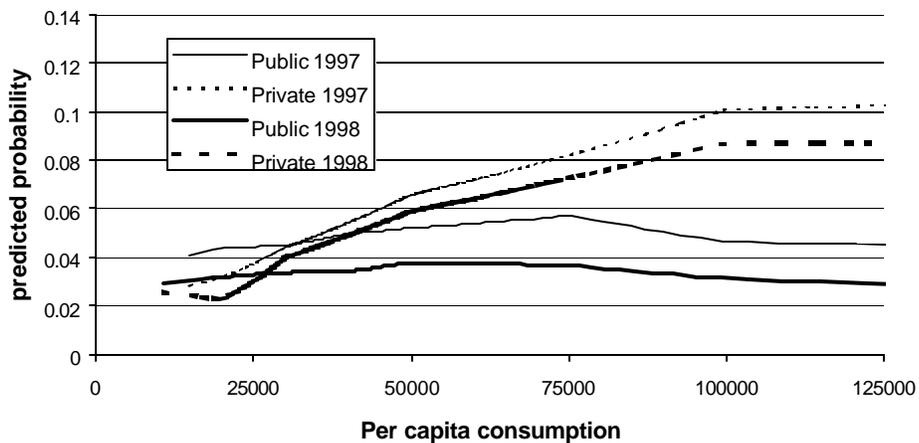
Figure 13 Predicted utilization of public and private health services as a function age in 1997 and 1998



To facilitate the interpretation of the spline coefficients on per capita consumption,

Figure 14 shows the predicted probabilities of visiting a private or public health care service as a function of per capita consumption, holding all other explanatory variables constant.⁷ The graph shows that the income elasticity for private care is much higher than for public care. For public care, utilization increased slightly as per capita consumption increased up to 75,000 rupiah. With higher per capita consumption, the income elasticity turns negative. Considering these estimates, one would expect a larger fall in the utilization for private sector services as real incomes fall.

Figure 14 Predicted per capita utilization of public and private health services as a function of per capita consumption in 1997 and 1998



The changes in overall consumption that occurred from 1997 to 1998 cannot account for the drop in the user rate of public health services. This is confirmed in a simulation exercise.

⁷ The values of the other explanatory variables are set at rural, male, Java/Bali, and household size of five.

If we use the 1998 data in combination with the estimates of the 1997 model, we observe a very small drop in the user rate of private services. (The results are shown in Table 8.) The reported within-sample predictions for 1997 and 1998 are very close to the observed frequencies.

Table 8 Predicted probabilities of using private and public facilities

Facility type	Predicted probability (percent)		
	1997 data with 1997 model	1998 data with 1997 model	1998 data with 1998 model
Public	7.3	7.3	5.3
Private	6.1	6.0	5.3
No visit	86.5	86.7	89.4

One could argue that, because the relative price increase of food has been higher than that of nonfood, considering the effect of total per capita consumption alone leads to biased results. For this reason, we have estimated the same model and included also food share as one of the explanatory variables. The results change very little. Using these models, Table 8 would have looked like Table 9.

Table 9 Predicted probabilities of private and public facility when food share is included in model (percent)

Type of visit	Predicted probability		
	1997 data with 1997 model	1998 data with 1997 model	1998 data with 1998 model
Public	7.4	7.4	5.3
Private	6.1	5.9	5.3
No visit	86.4	86.7	89.4

Having discarded changes in user fees and demand effects as satisfactory explanations for the drop utilization of public health services, we now turn to the third alternative explanation.

Hypothesis 3—Quality or accessibility of public health services deteriorated relative to private health services

The SUSENAS does not collect information on quality of health services. For this reason, we have to turn to other sources of information. To test hypothesis 3, we used (a) data from a nationwide survey that was conducted in September 1998 and that collected information about each sub-district (*kecamatan*) through a questionnaire addressed to key informants in each sub-district (Sumarto, Wetterberg, and Pritchett 1999); (b) the results of a participatory study carried out by the Bureau of Statistics that focuses on the effect of the crisis; and (c) and the Indonesian Family Life Survey. At most, the analysis provides anecdotal support

for the posed hypothesis.⁸ Further analysis is planned using the Indonesian Family Life Survey to further substantiate the analysis.

From the *kecamatan* survey, we used the answers given by the *puskesmas* doctor regarding changes in the services of the *puskesmas* and change in the availability of medicines at *puskesmas*.

Both answers were collected using a qualitative response defined as being one of the following:

1. Major, negative change
2. More moderate, but still negative change
3. Limited but noticeable negative change
4. No change
5. Positive change or improvement.

The data from the *kecamatan* survey are merged with a pseudo panel we constructed on the basis of the 1997 and 1998 SUSENAS. We constructed the pseudo panel by averaging over all observations by *kecamatan* for each year. Using the *kecamatan* identifier as the key, we then merged the resulting two data sets. The analysis relates the average fall in the use of public services to the changes in average consumption in the *kecamatan*, the composition of the population in 1997, and the qualitative answers collected in the *kecamatan* survey. A linear regression model is used. When using the qualitative responses on the right hand side of the equation, we simply inserted the numerical values associated with each of the answers (as described in the previous paragraph).

The results, shown in Table 10, provide little additional insight. None of the qualitative information from the *kecamatan* survey has any significant effects. The analysis is inconclusive with regards to the question of whether quality changes can explain the drop in the use of public health services.

⁸ We are planning more analysis of the effect of health quality, using the Indonesian Family Life Survey to further substantiate the hypothesis.

Table 10 Regression results explaining the percentage point drop in the use of public health services

	coefficient	t value
Percent increase in consumption in 1998 over 1997 (per 10,000)	0.603	1.14
Log(per capita consumption 1997)	-0.015	-3.01
Region:		
Sumatra ^a	-0.004	-1.20
Sulawesi ^a	-0.012	-2.56
Kalimantan ^a	-0.003	-0.56
Other islands ^a	-0.021	-4.19
Urban	0.001	0.23
Quality of service in <i>puskesmas</i> ^b	-0.001	-0.75
Availability of medicines in <i>puskesmas</i> ^b	0.001	0.41
Work activities :		
Mining and quarrying ^c	-0.058	-1.90
Industry ^c	0.008	0.51
Electricity, gas , and water ^c	-0.077	-0.53
Construction ^c	0.018	0.83
Trade ^c	0.033	2.52
Transport and communication ^c	0.038	1.65
Financial services ^c	-0.051	-0.67
Services ^c	0.024	1.72
Other activities ^c	0.019	0.66
Pension, gifts etc.	0.007	0.26
Constant	0.146	2.69
R squared	0.02	

a. The Java/Bali category is excluded.

b. 1 = major negative change ; 5 = positive change.

c. The fraction of the population deriving the most household income from the sector. The agriculture category is excluded.

Note: The dependent variable is contact rate in 1998 minus contact rate in 1997.

In December 1998 and March and April 1999, the Bureau of Statistics fielded a participatory assessment study on the social impacts of the crisis in Indonesia (Bureau of Statistics, 1999). The field work was done in 20 villages. One of the findings in health was that the distribution of a health card to the poor as a way to pay for services was not effective because people are not convinced they can get adequate service without paying. This coincides with the hypothesis of deteriorating quality of public health services.

The Indonesian Family Life Survey contains facility-level information. Beegle et al (1999) report the survey's data on drug availability: whereas in 1997 3.5 percent of the public facilities reported drug shortages for penicillin, this increased to 27.6 in 1998. For ampicillin, it increased from 15.6 to 40.8. Drug shortages may be one reason why people turned away from the public sector—one major attraction of the public health service was that the costs

of the visit included the price of drugs. Further analysis is planned to quantify the relationship between drug shortages and visits to public health centers.

Another possible reason for the drop in quality could be reduced accessibility. Many doctors working in the public health centers also maintain a private practice. Possibly, to secure their income from their private practice, doctors working in the public health centers have become less available in the public health center. Further field research is needed to test this hypothesis

Conclusion

In this paper, we investigated trends in morbidity and health care utilization using the 1995, 1997, and 1998 SUSENAS household survey.

We found that morbidity among the surveyed population appeared to have changed little over the 1995–98 period. The percentage of the population reporting an illness during a 1 month period was the same in 1998 as in 1995—25.5 percent; and slightly higher than in 1997—24.4 percent. Illness severe enough to disrupt daily activities decreased from 9.6 percent in 1995 to 9.1 percent in 1997 and rose back to 10.6 percent in 1998. The SUSENAS findings showed marked variations across regions and between urban and rural areas. As compared with the 1997 data, reported illness increased in urban and decreased in rural areas of Sumatra and Sulawesi in 1998. In Java/Bali and Kalimantan, illness rose slightly in both urban and rural areas. Areas included in the “other islands” category experienced a drop in reported illness of about 3 percent in both rural and urban areas over the period of 1995–98.

All age groups experienced an increase in reported morbidity from 1997 to 1998. Children under 5 years experienced a steady increase in reported illness since 1995. For all other age groups, a U-shape pattern is noted, where morbidity declined from 1995 to 1997 and increased from 1997 to 1998. Similar patterns are noted for both males and females.

Indonesians from all consumption quintiles experienced a drop in reported morbidity from 1995 to 1997, a pattern that was reversed from 1997 to 1998. For those from the poorest two quintiles, and from the fourth quintile, morbidity ended up higher in 1998 than in 1995. The morbidity rate for the third quintile, after falling in 1997, regained its 1995 rate in 1998. For the richest quintile, morbidity in 1998 was lower than that of 1995. In comparing 1995 with 1998, we found that people receiving most of their income from the two sectors most severely hit by the economic crises, finance and construction, had the greatest increases in morbidity—3.2 and 1.7 percent, respectively. However, when we compared 1997 with 1998, we found the highest increase in morbidity in industry and trade.

As for the use of medical services, fewer ill people sought modern medical care in 1998 than in 1997. About 53 percent of those reporting an illness visited a modern health care provider in 1997, versus 41 percent in 1998. The drop was similar for males and females and for different educational levels.

A major change in the behavior of those seeking health care was that ill people made fewer visits to public sector facilities. Outpatient utilization rates for the ill from 1997 to 1998

dropped by 8 percent for public sector facilities and by 3.5 percent for private facilities. Whereas 27 percent of the ill went to public facilities and 28 percent to private ones in 1997, 24 percent went to private facilities and 20 percent to public ones in 1998.

From 1997 to 1998, both public and private facilities in urban areas experienced a decrease in outpatient visits, but the decline was greater for public facilities. The drop in the utilization rate of the ill for public services was higher in the rural areas (8.3 in the rural areas versus 6 percent in the urban areas). This shift in utilization from the public to the private sector in the rural areas appears to have started before the crisis.

The decrease in outpatient visits mainly occurred at primary health centers, where the contact rate (percent of the population visiting a provider in the past month) fell from 4.3 percent in 1997 to 3.3 percent in 1998. At subsidiary health centers, the rate went from 1.7 to 1.0 percent. For *posyandu*, the contact rate dropped from 0.20 percent to 0.12 percent. Contact rates for both public and private hospitals remained about constant over the 1995–98 period. All other providers experienced a decrease in visits.⁹

We conducted a number of analyses to try to explain the change in the patterns of health care utilization. The increase in user fees cannot explain the drop in the contact rate at subsidiary health centers, as prices remained almost constant in nominal terms. After rejecting changes in user fees and demand factors as plausible explanations, we tend to opt for the hypothesis that a quality deterioration of services in the public sector relative to the private is the main underlying factor driving the shift in demand. Anecdotal evidence tends to support this hypothesis. Further analysis is planned using the Indonesian Family Life Survey data to further substantiate the analysis.

⁹ Recorded self-treatment increased substantially from 1997 through 1998. This trend is most likely a result of a change in the design of the questionnaire. In 1997 self-treatment was collected as one of the options in outpatient treatment, whereas in 1998 it was included as a separate question.

Definitions of Variables

Disruptive morbidity	The respondent was ill in previous month and this disrupted daily activities, such as working or going to school, for at least 3 days.
Fever	This variable corresponds directly to the reported symptom “fever” (category <i>a</i> in the 1995 and 1998 SUSENAS).
Public health care providers	These include public hospitals, primary health centers (<i>puskesmas</i>), subsidiary health centers, and <i>posyandu</i> (plus <i>polindes</i> in 1998).
Lower respiratory tract infections	Respondent suffered from at least one of the following symptoms: “cough”, “shortness of breath,” or “asthma” (in the SUSENAS, categories <i>c,d,g,h</i> in 1995 and <i>b,d,e</i> in 1998).
Morbidity	Respondent suffered from at least one illness in the month previous to the survey.
Other illness	Respondent suffered from at least one of the following symptoms: “diarrhea,” “convulsions,” “paralysis,” “measles,” “yellow fever,” “accidents,” and “other symptoms” (in the SUSENAS, categories <i>f,i,j,k,m,n,o,p,q,r</i> in 1995 and <i>f,g,i,k,l,m,n,o,p</i> in 1998).
Private health care providers	These include private hospitals, private doctors, private clinics, and paramedical practitioners.
Self-treatment	Self-treatment data were collected in a different way in 1995 and 1998. In 1995, self-treatment was included as one of the options (not exclusive) in outpatient care. In 1998, self-treatment was included as a separate question. This may explain the strong observed increase in self-treatment.
Type of illness	The SUSENAS collects data on multiple type of illnesses. The questionnaire allows for reporting multiple illnesses.
Upper respiratory tract infections	Respondent suffered from at least one of the following symptoms: “head illness,” “cold,” and “ear infection” (in the SUSENAS, category <i>b,e,l</i> in 1995 and <i>c,h,j</i> in 1998).

References

- Beegle, Kathleen, Elizabeth Frankenberg, Duncan Thomas, Wayan Suriastini, and Victoria Beard. 1999. "Indonesia's Economic Crisis and its Effects on Health and Family Planning." Working paper, RAND, Santa Monica.
- Bureau of Statistics, Government of India. 1999. "RETA: 5799—Social Impact of Financial Crisis in Indonesia: Participatory Assessment Study (Preliminary findings)." Bureau of Statistics, Jakarta, Indonesia.
- Frankenberg, E., K. Beegle, D. Thomas, and W. Suriastini. 1999. "Health, Education, and the Economic Crisis in Indonesia." Working paper, RAND, Santa Monica.
- Sumarto, Sudarno, Anna Wetterberg and Lant Prichett. 1999. "The Social Impact of the Crisis in Indonesia: Results from a Nationwide Kecamatan Survey," Working paper, World Bank.
- World Bank (1999). Thailand Social Monitor, Issue # 2 (draft).
- UNFPA and the Australian National University (1998). Southeast Asian Populations in Crisis – Challenges to the Implementation of ICPD Programme of Action



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