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THE IMPACT OF THE INDONESIAN FINANCIAL CRISIS ON CHILDREN: AN ANALYSIS USING THE 100 VILLAGES DATA

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This paper examines the impact of the Asian financial crisis on children in Indonesia. Specifically, data from four rounds of the 100 Villages Survey are used to examine changes in school attendance rates, child labour force participation and health status. The paper also examines ways in which households are coping with the crisis. The findings provide little evidence that the crisis has had a dramatic negative impact on children. School attendance dropped slightly after the onset of the crisis but has since rebounded to higher than pre-crisis levels. Fewer children are now working, although the older children who are working and not attending school seem to be working longer hours. Comparisons of child health status indicators over time are complicated by changes in the questionnaire but appear to show a relatively stable pattern of child health.

INTRODUCTION

The extent of the social impact of the financial crisis in Indonesia has been the subject of considerable debate. Soon after the onset of the crisis, many media commentators were talking of lost generations and complete national disaster. These comments were often spurred by the off-the-cuff remarks of politicians and government officials – like the widely reported prediction that one in five Indonesian children would drop out of school. These initial predictions have not received much support from studies that have since carefully examined household-level data from the crisis period. The findings of these studies can largely be summarised as showing that, rather than being uniformly negative and severe, the impact of the crisis has been quite heterogeneous, depending on geographic location and household socio-economic status. Overwhelmingly, households have been shown to be very resilient in the face of hardship.[1]

This paper focuses specifically on the impact of the Indonesian financial crisis on children, using data from four rounds of the 100 Villages Survey (Survei Seratus Desa). These data were collected three times after the onset of the crisis – in August and December 1998 and in May 1999.[2] A comparison of the pre- and post-crisis rounds allows us to examine the impact of the crisis and follow its evolution through time. The May 1999 data extend the period of study beyond what has been possible using other data sources. They also allow us to examine two points in time – one before the crisis (May 1997) and one after it (May 1999) – at the same point in the annual calendar and so deal with the

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possibility that differences are due to seasonal variation.

Like previous studies, our research finds no evidence of severe social impacts. There is little change in school attendance; child labour force participation has actually declined; and there is little evidence of a deterioration in children's health. It is of course possible that the crisis will have longer-term effects that are not captured in the current data. This may be true in particular of health status.

Legitimate early concerns about severe social impacts resulted in a wide-ranging Social Safety Net (Jaring Pengamanan Sosial, JPS) program being put in place. This consists of a scholarships program, a food program, an employment creation program, subsidised credit, a health program and a nutrition program. The limited social impacts observed in the data may be attributable to these programs but could just as plausibly be due to a variety of other factors. Some detail on a few of these programs is given below but we do not attempt to assess them explicitly here.[3]

DATA

The data from the 100 Villages Survey cover 120 households in each of 100 villages across Indonesia. The survey is conducted by the Central Statistics Agency (BPS) and funded by UNICEF. The villages are located in 10 districts (*kabupaten*), spread across eight of Indonesia's then 27 provinces.[4] They were chosen to represent different types of villages: 'poor' and 'non-poor', settlements in Java and the Outer Islands, in east and west Indonesia, and in urban, rural, coastal and inland areas. However, the survey was not designed to generate a nationally representative sample and focuses disproportionately on rural and relatively poor areas. It is therefore not appropriate to generalise the specific results to the country at large. The school attendance rates calculated here, for instance, should not be thought of as national attendance rates but rather as attendance rates in the villages studied. There is no reason to expect, however, that they would differ substantially from those of many other villages around Indonesia.

The first round of the survey was conducted in 1994.[5] Further rounds were conducted in May 1997, August 1998, December 1998, May 1999 and August 1999.[6] The data can in theory be merged across time to form a panel, because in each round the majority of households from the previous round were re-interviewed. In this paper we do not attempt to exploit the panel nature of the data, for a number of reasons. First, merging the data across rounds is not easy. It is necessary to match households manually using the village of residence and the name of the household head. This is very time consuming and at the time of writing only the May 1997, August 1998 and December 1998 rounds had been matched successfully. Second, not all households were tracked across time. Of the 12,000 households interviewed in May 1997, only 8,142 were re-interviewed in August 1998, and only 6,201 of these appear again in the December 1998 data. The merged sample would be even smaller if it included the later, May 1999, round – and significantly smaller than the original sample. There are also legitimate concerns about sample attrition bias. The sample would remain representative if those households that were followed were chosen randomly. Although this was part of the initial sample design, it is not clear that this was followed in practice. It is plausible that the households who appear in the matched sample are those that were easier to track and so may have differing characteristics from those who left the sample.[7] By using the entire sample

in each round (that is, not restricting our attention to the merged households) we avoid a large part of this problem.[8]

The 100 Villages Survey provides information both on the household in which the child lives and on the individual characteristics of the child. Information is gathered on the demographic attributes of the interviewees, as well as on education, health and fertility behaviour, migration, labour market activity, socio-economic status and crime. The post-crisis surveys focus to a greater extent on the living standards of households, and gather information on how they were coping with the effects of the crisis.[9]

Finally, it should be noted that in addition to the financial crisis, Indonesia was suffering from a severe El Ni o-induced drought from April 1997 to April 1998.[10] Thus the impacts examined below may best be considered the result of *kristal* – the 'total crisis', incorporating both financial and weather effects. To the extent that the drought reduced incomes and work opportunities, one would expect it to have had an effect on educational, health and labour market outcomes similar to that of the financial crisis. Its impact on health could possibly be more severe, as the drought directly affected households' ability to produce their own food.

The comparisons of the May 1997 and May 1999 data are argued here to be the most informative because the seasonal component that exists when comparing different points in the calendar year is removed. It is true that May 1997 falls within the drought period, but as it was very early on in the drought this is unlikely to severely bias our estimates of the impact of the crisis. The findings presented here are also consistent with those from data which extend back to the pre-drought period.

RESULTS

Educational Outcomes

Table 1 shows attendance rates by school level for each of the survey rounds. Children are designated as being of primary school age if they are 6–12 years old, lower secondary if they are 13–15 years old and upper secondary if they are aged 16–18 years.[11]

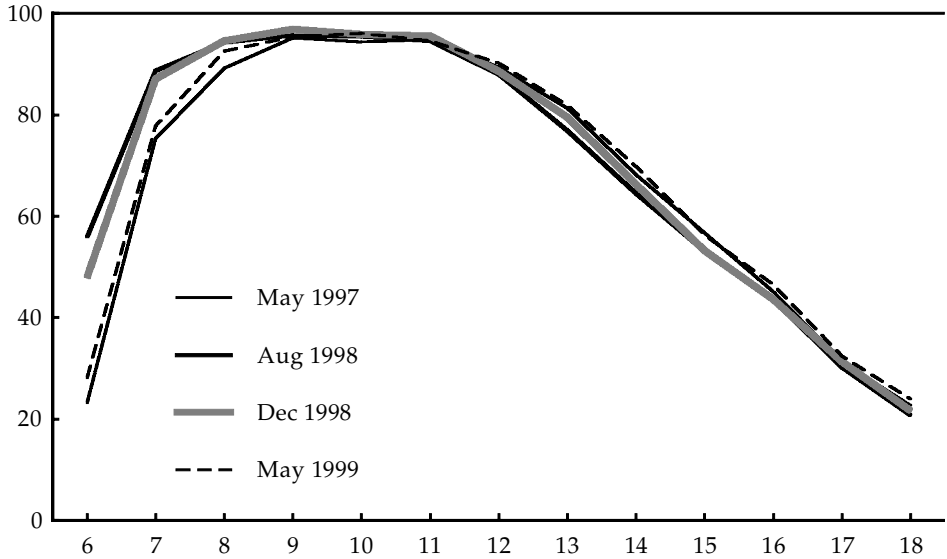
The primary school attendance rates are clearly affected by the month in which the survey was conducted. The school attendance rate for children aged 6–12 increases markedly from 80% in May 1997 to 87% in August 1998. This is because May is towards the end of the school year whereas August is at its start. Some six-year-olds are enrolled in their first year of school in August; in May, however, most children who have turned six during the preceding year will not attend school until the new school year begins. Figure 1 shows this clearly. For ages 6–8 years, the August and December attendance figures lie considerably above the May figures for both 1997 and 1999. Comparing May 1997 with May 1999 removes this effect. In every age group, the May 1999 attendance rates are either equal to or higher than the May 1997 (pre-crisis) rates. This can also be seen in table 1. Overall primary school attendance increased from 80% in 1997 to 82% in 1999.

The secondary school attendance figures are less susceptible to monthly variation. Figures for lower secondary school show that attendance decreased significantly from 69% in May 1997 to 65% in August 1998. This dip could understate the true decrease (if there were a significant drop-out rate during the school year). However, lower secondary attendance rates rebounded to 67% in December 1998, and the May 1999 figures show higher attendance (70%) than in May 1997.

TABLE 1 *School Attendance Rates by Level of Schooling, 1997–99 (%)*

	May 1997	Aug 1998	Dec 1998	May 1999
Entire sample				
Primary (6–12 years)	80.4	87.4	86.4	81.8
Lower secondary (13–15 years)	69.0	65.2	66.7	69.7
Upper secondary (16–18 years)	33.1	31.5	32.2	34.3
Urban/rural attendance				
Primary				
Urban	84.8	90.4	88.7	84.4
Rural	79.4	86.7	85.8	81.1
Ratio	1.07	1.04	1.03	1.04
Lower secondary				
Urban	80.6	77.8	80.0	80.9
Rural	66.0	61.9	63.3	66.8
Ratio	1.22	1.26	1.26	1.21
Upper secondary				
Urban	47.6	50.7	49.4	53.4
Rural	28.6	25.8	26.8	28.5
Ratio	1.66	1.97	1.84	1.87
Male/female attendance				
Primary				
Male	79.1	86.5	85.5	81.1
Female	81.8	88.4	87.4	82.4
Ratio	0.97	0.98	0.98	0.98
Lower secondary				
Male	67.5	65.1	66.4	68.4
Female	70.6	65.2	67.1	71.1
Ratio	0.96	1.00	0.99	0.96
Upper secondary				
Male	34.7	32.5	33.1	34.4
Female	31.5	30.5	31.2	34.2
Ratio	1.10	1.07	1.06	1.01
Outer Islands/Java–Bali attendance				
Primary				
Outer Islands	80.4	87.1	86.2	81.9
Java–Bali	80.5	87.8	86.6	81.6
Ratio	1.00	0.99	1.00	1.00
Lower secondary				
Outer Islands	71.3	69.7	69.5	71.2
Java–Bali	65.9	59.6	63.2	67.7
Ratio	1.08	1.17	1.10	1.05
Upper secondary				
Outer Islands	35.6	34.3	34.9	34.9
Java–Bali	29.9	28.2	29.1	33.6
Ratio	1.19	1.22	1.20	1.04

FIGURE 1 *School Attendance by Age, 1997–99*
(%)



Molyneaux and Brooks (2000) argue that the dip in August 1998 could be consistent with stable enrolments. Enrolment occurs at one point in the calendar year. The cohort of children who are 13 in August (and thus classified in table 1 as being in lower secondary school) has a greater proportion in higher grades than the cohorts who are 13 years old in May and December. This would lead one to expect lower school attendance in the August round even in the absence of the crisis.[12]

The upper secondary figures show a similar, albeit smaller, dip from 33% in May 1997 to 32% in August 1998. Upper secondary attendance had increased to above its pre-crisis level by May 1999 (34%). These changes are very small and so could just reflect random measurement error.

There are a number of other sources of information on school attendance. The nationally representative National Socio-Economic Survey (Susenas), conducted annually in February by the BPS, is the most comprehensive source of information on enrolment rates. The Susenas data reveal only a slight decline in enrolments from 1997 to 1998 at the primary and junior secondary levels and an increase at all three levels over their pre-crisis levels by 1999 (Jones, Hagul and Damayanti 2000; Pradhan and Sparrow 2000). This pattern also appears in the Ministry of Education's own enrolment data.

The Indonesian Family Life Survey (IFLS) is a further source of information on school enrolments.[13] The IFLS is a panel survey. The first round was conducted in 1993/94 and the second just before the crisis in 1997/98. A subsample was re-interviewed after the onset of the crisis in late 1998 to allow an assessment of its impact. Frankenberg, Thomas and Beegle (1999), in their analysis of the IFLS data, similarly find much smaller declines in enrolments than were originally feared, but larger declines than are evident from the Susenas and from the Ministry of Education's data.[14]

In magnitude, the initial dip in lower secondary school attendance shown in the 100 Villages data is larger than that in the Susenas but smaller than that in the IFLS.[15] The pattern for upper secondary attendance is consistent with the 1999 Susenas figures.

The Ministry of Education also releases data on continuation rates. They show that continuation rates from primary to secondary school increased from the late 1980s and then fell in the 1996/97 school year and again in the 1997/98 school year (Jones, Hagul and Damayanti 2000; Booth 1999). The fall in 1996/97 occurred before the onset of the crisis. It may have been due to the drought, but this seems unlikely given that the drought started only late in the school year. Jones, Hagul and Damayanti (2000) have questioned the reliability of these data.

Table 1 further disaggregates school attendance figures to examine changes by urban/rural status, sex and geographic location. At primary and lower secondary levels, similar patterns are observed for rural and urban areas. At the upper secondary level, rural areas lost ground relative to urban areas from 1997 to 1999. The large increase in urban school attendance at the upper secondary level may be attributable to the lack of work for children in this age group in the cities, whereas in the rural districts children can be absorbed into self-employment on farms. The August and December urban/rural comparisons are likely to be influenced by seasonality in the agricultural sector. These findings are slightly at odds with those of some previous studies, which tend to show declines in enrolments in urban areas at the upper secondary level. In contrast, the Susenas data do not reveal any significant difference between changes in enrolment rates in rural and urban areas.

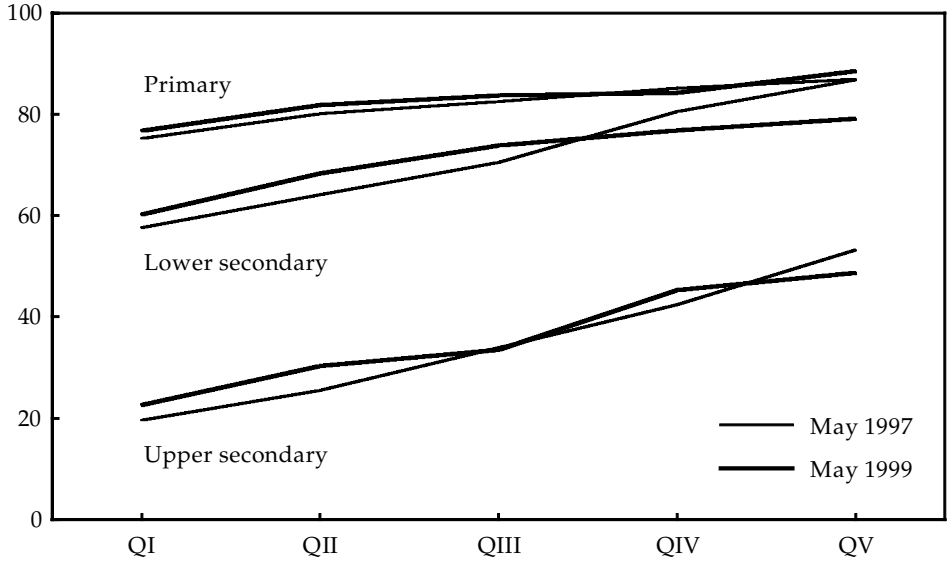
The figures by sex show that the decline in attendance at the lower secondary level in August and December 1998 was greater for girls than for boys. By May 1999, however, attendance for both sexes was back to pre-crisis levels. At upper secondary level girls had actually gained on boys by May 1999.[16]

At the lower secondary level, the initial decline in attendance in 1998 is almost entirely within Java–Bali, although by May 1999 school attendance in these provinces had increased relative to the Outer Islands. This was also the case at the upper secondary level.

Figure 2 presents changes in school attendance rates by per capita expenditure quintile and school level for May 1997 and May 1999.[17] At the primary school level there is little difference across the quintiles. At the lower secondary level, attendance drops for children in the higher expenditure quintiles, but increases for those in the lower quintiles. This may reflect the larger room for increases among children in the lower quintiles. It is also consistent with the greater adverse impact of the crisis on households at the upper end of the expenditure distribution. The IFLS shows a quite marked decrease in enrolments among poorer children which is not evident here. The 100 Villages Survey results are, however, consistent with the Susenas as reported in Jones, Hagul and Damayanti (2000). They are also consistent with higher income earners being more mobile: households that move are less likely to put their children back in school. A similar pattern is apparent at the upper secondary level, where school attendance rates drop only in the upper quintile of the distribution.[18]

Coping Mechanisms. In addition to school attendance figures, the 100 Villages Survey provides information on how households coped with the crisis. For instance, in the post-crisis period

FIGURE 2 *School Attendance by per Capita Expenditure Quintile (Q) and School Level, 1997–99*
(%)



households were asked whether they had resorted to withdrawing children from school or sending them out to work.[19] Table 2 shows that only a very small number of households withdrew their children from school (3% in August 1998, declining to 1% in May 1999). A larger percentage reported sending children out to work (about 10% in each year). Since we do not have any pre-crisis figures with which to compare these percentages, we do not know if this is more or less than would have occurred before the crisis. It may be that these children would have been removed from school or made to work regardless of the crisis. The school attendance figures discussed above and the child labour force participation rates that follow suggest that these are not large increases over previous years.

Households were asked in the post-crisis surveys about the number of days children had been absent from school in the previous three months. The number of school days missed increased from an average of 16.6 days in August 1998 to approximately 25 days in both December 1998 and May 1999 (table 2). This increase mainly arose from children staying home to help in the house. Again, given the lack of May 1997 data, it is difficult to interpret this change. It is possible, for instance, that this reflects seasonal variation rather than crisis impact.

Table 2 also provides information on whether households had experienced difficulty in paying school expenses. Although pre-crisis figures are not available for comparison, the way in which the figures generally decline over time is consistent with the effects of the crisis dissipating some time between August 1998 and May 1999. For instance, the numbers reporting difficulty in paying fees decreased from 28% in August 1998 to 23% in December 1998 and stayed around that level in May 1999.

This decrease in the number of households reporting difficulties in meeting

TABLE 2 *Educational Costs, Attitudes and Coping Mechanisms of Households, 1998–99 (%)*

	Aug 1998	Dec 1998	May 1999
Coping mechanism			
Withdrew child from school	2.8	1.9	1.0
Sent child out to work	11.3	11.4	10.1
Experienced difficulty in paying for:			
Fees	28.3	22.7	24.0
Books	41.0	41.8	35.0
Transportation	9.1	9.3	9.0
Other	12.1	13.8	14.0
Educational costs covered by:			
Self	n.a.	95.9	94.7
Scholarship	n.a.	5.5	6.5
Letter of exemption	n.a.	1.1	0.9
Fee relief	n.a.	4.2	3.1
Overcame difficulty in paying school fees by:[a]			
Delaying payment	33.0	26.6	52.0
Borrowing from others	24.0	23.8	46.0
Requesting help from others	6.7	7.7	13.0
Selling/pawning assets	9.3	7.0	12.0
Finding additional work	20.0	17.8	26.0
Obtaining letter of exemption	n.a.	0.8	2.0
Other	16.7	14.1	27.0
No. of days absent from school in previous 3 months	16.6	24.0	25.8
Reason for absence			
Sickness	69.5	66.3	64.3
Cost of schooling	5.0	1.2	2.6
To earn money	0.9	1.4	0.8
To help in the house	5.0	11.4	8.4
Punishment	0.6	1.1	1.5
Other	31	32.5	21.0
Reason for absence from school at time of survey			
Age	1.2	1.5	0.3
Cost of schooling	54.5	15.3	11.9
Marriage	4.2	3.6	3.1
To help in the house	1.5	1.9	1.0
Education finished	4.1	7.7	8.4
Distance from school	4.8	5.7	8.2
Feel incapable	7.2	7.5	6.0
Work	9.1	14.0	11.8
Parents unemployed	n.a.	0.2	0.2
Parents' income too low	n.a.	25.2	25.9
Sick	n.a.	n.a.	1.4
Lazy	n.a.	n.a.	15.4
Scared	n.a.	n.a.	0.5
Expelled	n.a.	n.a.	0.2
Other	13.6	17.3	5.9

[a]In May 1999, the question was asked about the household as a whole, whereas in the 1998 surveys it had been asked about each child in the household. Therefore, the two data sets may not be directly comparable.

school expenses could be due to the introduction of the JPS scholarships program in the 1998/99 school year. This program is ongoing and seeks to provide Rp 10,000 per month to 6% of primary school students, Rp 20,000 per month to 17% of lower secondary students and Rp 30,000 per month to 10% of upper secondary students. Students from poorer socio-economic backgrounds are targeted, with payments more than covering the cost of their tuition. The targeting is accomplished by allocating more scholarship funds to poorer regions, and selecting the poorer students from within those regions.[20]

Households were asked in August and December 1998 how they had gone about overcoming difficulties in paying school fees.[21] The possible responses were to delay payment, borrow, request help, sell or pawn assets, find additional work, obtain a letter of exemption from the village head and 'other responses'. The figures do not vary much between the two rounds, with the exception of those who delay payment. The number of households who reported doing this dropped six percentage points from 33% in August to 27% in December. Interestingly, this is the exact proportion of households that reported receiving a scholarship in that year.

For children who were not in school at the time the survey was conducted, questions were asked about the reasons for non-attendance. Changes in the range of possible responses to the question make interpretation of the results difficult. Nevertheless, consistent with the above results, it does look as though the cost of education became less of a pressing concern after August 1998. About 54% of households cited the cost of schooling as the reason for their child not being in school at that date, compared with just over 40% in December 1998 (the sum of those who reported cost of schooling, low parental income or parents being unemployed as reasons for non-attendance).

The absence of sharp declines in attendance rates may be a sign of the success of the JPS scholarships scheme. It may also reflect other factors, such as the decline in work opportunities for children during the crisis, the dropping of the requirement that children wear school uniforms, schools no longer expelling children for non-payment of fees, and the high value that Indonesian parents place on education, leading them to shield their children from the worst effects of the crisis. Cameron (2000) explicitly estimated the impact of the JPS scholarships program on school drop-out rates, and found that it reduced the rate by 2.4 percentage points in lower secondary schools but did not have any discernible impact at other levels. The study found the program to be well targeted.

In summary, the results show no evidence of a large decline in school attendance. In this respect they are largely consistent with the findings of other studies – although contrary to the depiction of the crisis in the international media. They show Java–Bali initially being more adversely affected than other regions, but rebounding by 1999, and very little difference in changes in school attendance between rural and urban areas. Girls at the lower secondary level may have borne more of the brunt of the crisis initially but this situation has righted itself. Decreases in attendance are occurring largely in the upper per capita expenditure quintiles. The data on coping mechanisms are difficult to interpret due to the lack of pre-crisis observations and changes in the survey questions post-crisis. Relatively few households reported withdrawing their

children from school, however, and it appears that the crisis may be dissipating.

Labour Force Participation

The 100 Villages Survey enquired about the time allocation of all householders aged 10 years and over. Individuals were specifically asked whether they worked and, if so, how many hours. They were then asked about their sector of work and their work status. In the post-crisis surveys they were also asked why they had stopped work if they had done so recently.[22]

Table 3 presents summary statistics for the answers to these questions. We will focus on the May 1997 and May 1999 results to eliminate concerns about seasonality.[23] The figures suggest that

TABLE 3 *Impact of the Crisis on Employment of Children Aged 10–17 Years, 1997–99*

	May 1997	Aug 1998	Dec 1998	May 1999
Working (%)	19.7	18.8	21.6	17.4
Looking for work (%)	2.6	1.4	1.1	1.2
Total	22.3	20.2	22.7	18.6
Proportion working by age (%)				
10–15 years	14.4	13.4	15.8	11.8
16–17 years	39.7	37.9	42.5	36.8
Average hours of those working				
10–15 years	24.3	25.8	25.8	25
16–17 years	32	33.3	32.7	33.1
Sector of work (%)[a]				
Agriculture	72.3	71.6	74.5	70.2
Industry	10.3	9.9	9.3	11.3
Trade	9.8	7.9	7.3	8.0
Services	7.2	7.6	5.4	7.5
Other	0.4	3.0	3.4	3.0
Work status (%)				
Self-employed	17.5	15.8	15.1	16.2
Employee	12.2	13.5	12.4	14.9
Family worker	70.1	70.7	72.5	68.9
Recently stopped work (%)		6.5	8.4	7.7
Reason				
Lost job		7.6	4.5	3.5
Business folded		21.9	14.0	19.3
To help at home		4.8	3.9	11.7
Inappropriate work		10.5	6.2	6.9
Low salary		17.1	8.4	16.6
Work environment		12.4	5.6	3.5
Other		25.7	57.3	38.6

[a]In May 1997, mining and construction were classified as 'industry', and transport and communication as 'services'.

fewer children were working or looking for work in May 1999 than in May 1997. This was true of both 10–15-year-olds and 16–17-year-olds. Figure 3a plots labour force participation by age. It shows that at every age above 10 and below 17, the participation rate in May 1999 was lower than in May 1997. In previous studies, less attention has generally been paid to child labour force participation than to changes in enrolment rates. However, Pradhan and Sparrow (2000) have examined the impact of the crisis on child labour as revealed by the Susenas. They found that child labour market participation dropped continuously over the period 1995–98. Thus the 100 Villages Survey results are consistent with the Susenas findings.

Figure 3b plots by age the number of hours worked by children who were working. It shows that children under 13 were working fewer hours in May 1999 than two years earlier, but that children aged over 13 were working more hours.[24] This suggests that it may be the children who have left school and so are bona fide workers that are working longer hours to make ends meet. Figure 4 explores this explicitly. It shows that for children who are attending school and working there is no systematic change in hours worked. For children who are not attending school, those aged under 13 are working far fewer hours post-crisis, whereas those aged 14 and over are working more hours. Thus older children who have left school and taken on the responsibility of earning an income appear to be working longer hours. Younger children seem to be sheltered from this, possibly because of a lack of jobs for them.[25]

Consistent with the observed overall decline in labour force participation by children, quite a high percentage of the sample of children in the post-crisis years reported having stopped work recently. The reasons given do not present us with a clear picture as to why this was. The number who reported that their business had folded or that they had lost their job does seem to decline after August 1998, however. (Of those who stopped working, 29.5% gave these as the reasons in August 1998, compared with just over 23% in May 1999.)

Given that the crisis has been largely a formal sector phenomenon, one might expect to see changes in the sector of employment and/or in work status that reflect this. One might, for example, expect to find a decrease in employees relative to family workers and the self-employed. There are no systematic changes in children's sector of employment across the years, however, nor in work status.

In summary, children seem to be working less on average since the crisis. This finding is consistent with the story coming out of the Susenas. This may be due to the difficulty of finding work in a market in which there are so many underemployed adults. Older children who are working and not attending school seem to be shouldering some of the burden by working longer hours than they did before the financial crisis.

Health Indicators

In the post-crisis rounds of the survey, households were asked whether they had experienced a shortage of food in the period preceding the survey: 17.6% reported that they had in the 12 months preceding August 1998; 14.8% had in the three months preceding December 1998; and 12.37% had in the three months prior to May 1999. Food shortages and other crisis-related stresses can lead to a deterioration in individuals' health status, although switching to

FIGURE 3a *Labour Force Participation by Age, 1997–99*
(%)

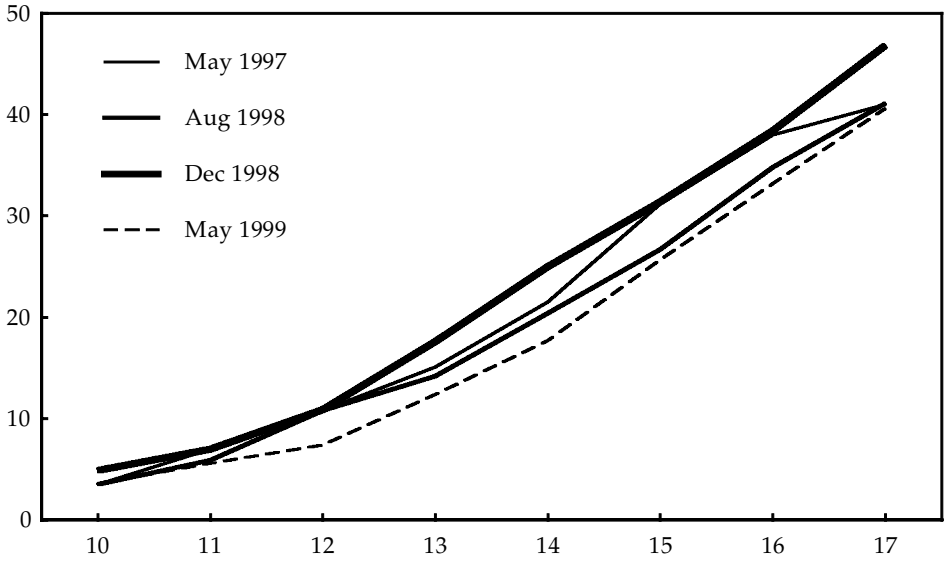
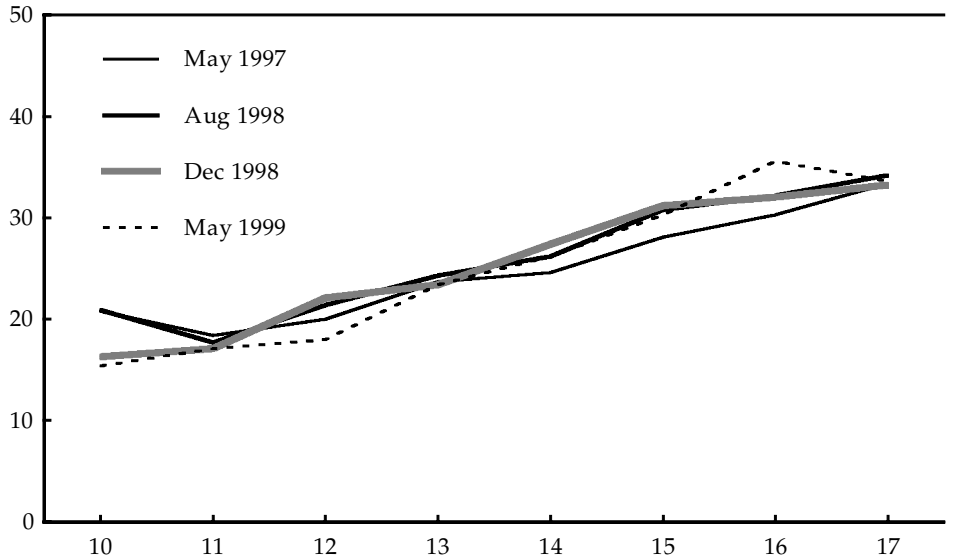


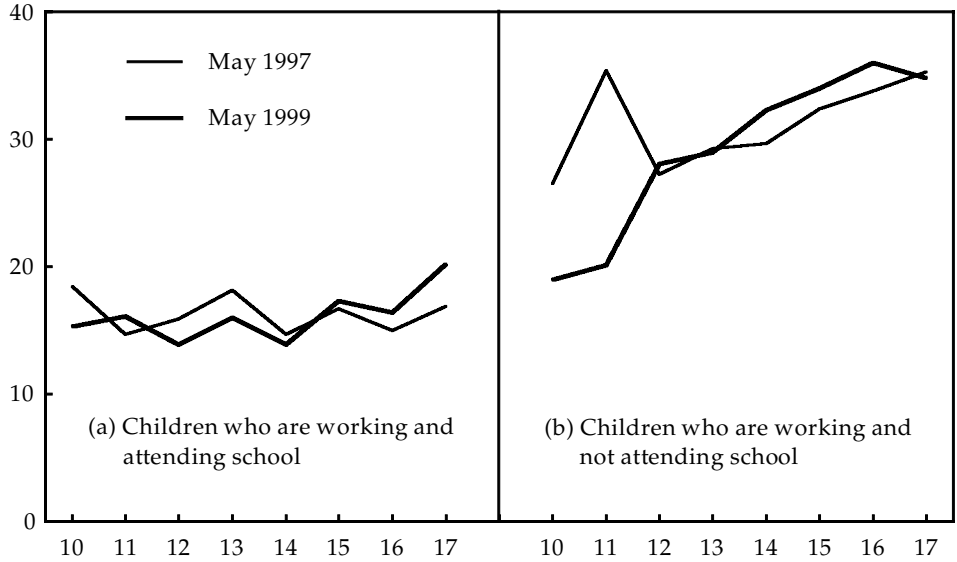
FIGURE 3b *Hours Worked by Working Children, by Age, 1997–99*
(no. of hours)



cheaper, less preferred foods may not necessarily be nutritionally undesirable. (Eating more vegetables and less tinned food, for example, could actually improve intakes of proteins and vitamins.)

Ailments. The survey specifically enquires about a range of health ailments. This question was asked both before and after the crisis and so potentially can be used to examine the impact of the crisis on health. Unfortunately, how-

FIGURE 4 *Hours Worked by Working Children, by Age and School Attendance, 1997–99 (no. of hours)*



ever, differences in the pre-crisis and post-crisis questionnaires make this difficult. Although the question itself does not change, in the post-crisis rounds interviewers are prompted to read out a list of possible ailments when asking individuals if they had been sick, rather than simply asking them if they had been ill and then allowing them to nominate their ailments. This is likely to have resulted in increased reporting of ill health post-crisis. In fact, as shown in table 4, the reporting of ailments for children aged 10 and under does increase sharply after the onset of the crisis. (We focus on this age group in this section because younger children are more susceptible to ill health.)[26] Most of this rise is due to increases in the reporting of coughs, colds and fevers. For example, the percentage of children reported as having had a cough in the month preceding the survey almost doubled from 7.5% in May 1997 to 14.6% in May 1999. It is impossible to tell whether this was due to the change in the questionnaire or an actual increase in illness.

Decomposing the figures by urban/rural status and geographic location tentatively suggests that some of this variation may be due to the crisis. Urban areas were more adversely affected owing to their greater reliance on the formal financial market, which was devastated by the crisis. In line with this, table 4 shows larger increases in the incidence of illness in urban areas, although only very slightly from May to May. Similarly, the crisis hit Java–Bali more harshly than the Outer Islands; and the incidence of illness also increased slightly more in Java–Bali.[27] It therefore seems possible that the incidence of illness is reflecting the severity of the crisis, but given the change in the questionnaire, further evidence is needed to confirm whether this is the case.

The IFLS data are the main point of comparison for the health results. Frankenberg, Thomas and Beegle

TABLE 4 *Health Status of Children Aged 10 Years and Under, 1997–99 (%)*

	May 1997	Aug 1998	Dec 1998	May 1999
Type of ailment				
Fever	11.4	18.0	16.3	17.3
Cough	7.5	14.3	13.1	14.6
Cold	7.5	15.2	14.9	15.6
Asthma	0.2	0.4	0.3	0.3
Breathing	0.4	0.6	0.3	0.3
Diarrhoea	1.5	2.5	2.4	1.4
Ear problems	0.1	0.3	0.13	0.1
Jaundice	0.03	0.1	0.02	0.2
Headache	1.8	2.2	1.3	1.0
Toothache	0.6	1.0	0.9	0.6
Other	0.8	4.6	7.4	5.5
Any of the above	18.7	28.4	30.3	27.4
Change in routine due to ailment	12.6	19.6	20.9	21.3
Illness incidence				
Urban/rural				
Urban	16.4	31.0	30.9	24.7
Rural	19.4	27.9	30.2	28.1
Ratio	0.85	1.11	1.02	0.88
Male/female				
Male	18.9	28.8	30.5	28.1
Female	18.7	28.0	30.2	26.7
Ratio	1.01	1.03	1.01	1.05
Outer Islands/Java–Bali				
Outer Islands	18.0	31.8	29.2	25.5
Java–Bali	19.8	23.9	31.9	29.8
Ratio	0.91	1.33	0.92	0.86
Per capita expenditure quintile				
I (poorest)	17.8	28.9	27.6	27.5
II	19.2	25.4	29.9	27.4
III	17.9	26.0	31.7	27.1
IV	20.0	29.2	32.2	26.2
V (richest)	20.6	35.8	34.2	29.3

(1999) find that children's reported health status (self-reported by children over 10 and as reported by the mother for children aged 10 and under) actually improved between 1997 and 1998.

Treatment of Ailments. The survey rounds also provide information on the use of health services. Here again, changes in the questionnaire make comparison less than straightforward. In May 1997, anyone who was sick or had had a health consultation or examination (regardless of whether they had reported an ailment) was asked about the source of treatment. In all of the later

rounds, however, only those who reported an illness were questioned as to the type and source of treatment. Given that many more people reported illness in the post-crisis rounds, we compare the health service utilisation of all children who had reported being treated in 1997 (89% of whom had also reported an illness) with the utilisation of all children reported as being ill in the other rounds (table 5). A further complication is that the types of care allowed for in the questions differed from round to round.

The main result to come out of table 5 is that there has been a marked decrease in reliance on community health centres (*puskesmas*), subcentres (*puskesmas pembantu*) and village health posts (*posyandu*). There has also been a large fall in the percentage of children visiting private health practitioners. The table shows that the use of 'higher' level treatment, such as is available from both public and private hospitals, has declined only slightly but that there has been a large fall in second tier treatment such as is available from clinics and health centres. In May 1997, 55% of children who received any type of treatment were reported to have attended one of these facilities. By August 1998 this had declined to 38%.[28]

Table 5 also breaks down the utilisation of facilities by public and private sector. It shows that reliance on public sector services fell markedly relative to private sector services in August and December 1998 but that the share of public sector treatments had rebounded somewhat towards the pre-crisis level by May 1999. The decline in public sector utilisation is also found in the IFLS data and is probably due to the fall in the quality of service at public facilities, reflected in a lack of medication and an inability to pay staff. By contrast, in the private sector medicines were more widely available but prices had increased to cover the higher costs.

Finally, table 5 presents information on how households met their health expenses. This information is available only for the post-crisis rounds. The JPS health card (*kartu sehat*) program, which provides free public medical services for poor families, had become an important source of funds by 1999.[29] Whereas in August 1998 only 2.7% of all households had covered costs in this way, this had increased to 9.1% by May 1999.

Infants and Young Children. Infants and young children are more susceptible to illness than older children. The 100 Villages Survey provides some information specific to younger children (aged under five years) and to birthing practices. The information on birthing and breastfeeding is summarised in Table A1, and reveals no systematic change in behaviour over the period.[30]

The data sets also provide information on the weight at birth and current weight of children aged under five. The probability density function of weight at birth was estimated non-parametrically for each round of the data and plotted. The densities lay almost exactly on top of one another. Similarly, non-parametric regressions were run for current weight on age for each round. These functions also hardly differed across the different rounds.[31] IFLS respondents were also weighed and measured. This survey, too, found no evidence of a decline in children's weight-for-height or in their height-for-age. There was, however, evidence that adults' body mass indexes[32] had deteriorated over the period – especially in the case of young women, suggesting that parents may be shielding their children from the health impacts of the crisis, to their own detriment.

TABLE 5 *Treatment of Ailments in Children Aged 10 Years and Under, 1997–99 (% of children)*

	May 1997	Aug 1998	Dec 1998	May 1999
Source of treatment				
(a) Public hospital (*RS pemerintah*)	1.9	2.0	1.5	1.1
(b) Private hospital (*RS swasta*)	1.0	0.5	0.7	0.6
(c) Doctor (*praktek dokter*)	10.2	9.1	8.8	9.7
(d) Community health centre (*puskesmas*)	23.5	24.8	19.4	18.3
(e) Community health subcentre (*puskesmas pembantu*)	15.1	n.a.	6.5	10.4
(d)+(e)	38.6	24.8	25.9	28.7
(f) Village health post (*posyandu*)	4.7	1.7	0.7	1.8
(g) Clinic (*poliklinik*)	1.4	0.8	0.6	0.5
(h) Private health practitioner (*praktek petugas kesehatan*)	13.9	9.2	5.8	8.2
(i) Traditional healer (*dukun/tabib/sinse*)	6.5	1.4	1.3	1.3
(j) Midwife (*praktek bidan*)	n.a.	n.a.	4.7	5.5
(k) Village midwife post (*bidan di desa*)	n.a.	2.6	0.7	1.3
(l) Self-treatment (*diobati sendiri*)[a]	38.0	61.4	61.6	55.9
(m) Other (*lainnya*)	1.0	n.a.	n.a.	n.a.
Level of treatment				
Hospital/doctor	12.8	11.5	10.6	11.2
Clinic/community health centre/ village health post	55.0	37.0	26.0	37.8
Traditional healer/self-treatment	40.3	62.5	62.6	56.7
Treatment by sector				
Public (a, d, e, f & k)[b]	43.6	30.3	21.8	31.9
Private (b, c, g, h & j)[b]	25.8	19.1	19.9	24.0
Ratio	1.69	1.59	1.10	1.33
Health expenses covered by:				
Household	n.a.	91.2	92.3	86.1
Insurance/employer	n.a.	5.1	5.5	5.8
Health fund	n.a.	0.5	0.3	1.0
Health card	n.a.	2.7	2.6	9.1
Letter of exemption	n.a.	0.2	0.3	0.1
Other	n.a.	2.6	1.8	1.7

[a]Questionnaires differ for this category. See note 28 for details.

[b]These figures represent the percentage of children who have been treated in a public facility, not the sum of the percentages using each public source of treatment. The latter would double count children using more than one public source of treatment.

CONCLUSIONS

The later rounds of the 100 Villages Survey are consistent with earlier studies in that they provide no evidence of the crisis having had a large, systematic and negative impact on the well-being of children. School attendance rates may have declined slightly at the onset of the crisis but they have since rebounded, and at the time of writing are above their pre-crisis levels. Fewer children are working since the crisis began than were before (probably due to the difficulty of finding work and perhaps also because of the decline in real wages), although older children who are not attending school are working longer hours.

There is no clear indication of a deterioration in children's health status. The distributions of weight at birth and weight by age appear to be stable. The reported incidence of illness has increased and does appear to vary somewhat with crisis impact, but further evidence is needed to confirm that this is not due to changes in the questionnaire across rounds. In terms of the treatment of ailments, there has been a reduction in the reliance on public health services, probably reflecting a decline in the quality of these services. This could constitute a burden on low-income households and have consequences for future changes in health status. It is worth noting that a deterioration in health indicators would be expected to occur predominantly in the mid to long term and that the decline in the utilisation of services could feed into this. That the use of the *kartu sehat* to cover health costs has expanded is promising, as is the finding that birthing and breastfeeding practices have not changed.

The 100 Villages Survey is a valuable resource for examining the impact of the crisis at the household level. Its usefulness is limited, in some cases quite severely, by the lack of comparability between the questionnaires in the different rounds of the survey. Comparisons across different agricultural seasons are also difficult to interpret. It would thus be useful to focus resources on producing a standardised questionnaire which would be repeated annually rather than in the current four-monthly cycle. Although the panel nature of the data was not exploited here, it has the potential to be another valuable offering. It is currently very difficult to merge the survey data across rounds, however. Effort needs to be focused on facilitating the merging of data on households and individuals across rounds, and minimising the attrition bias and the rate of rotation of households through the panel.

NOTES

* I would like to acknowledge funding from UNICEF and the World Bank and thank Friedhelm Betke, Santosh Mehrotra, Duncan Thomas and the two referees for their input and comments. I also thank the SMERU Research Institute for hosting me during some of the period in which this paper was written. Finally, I am very grateful to Asep Suryahadi and Yusuf Suharso for assistance with the data. All errors remain my own.

1 In particular, there has been considerable debate over the extent of the increase in the poverty rate. This debate has been confused by changes in methodology across studies and sometimes across time within studies. Applying the poverty methodology of BPS consistently across

time results in a significant increase in poverty, from about 11.3% of the population before the crisis to 18–20% in 1999 (Suryahadi, Sumarto, Suharso and Pritchett 2000). This increase is much more moderate than the widely cited prediction that 50% of the population would be living in poverty.

2 The survey is ongoing and a further round was conducted in August 1999. These data were unavailable at the time of writing.

3 See Suryahadi, Suharso and Sumarto (1999) for more details on these programs and an examination of their coverage.

4 The provinces covered are Riau, Lampung, West Java, Central Java, Bali, East Nusa Tenggara, East Kalimantan and Southeast Sulawesi. The number of Indonesia's provinces has changed since this study was done. East Timor is no longer a province and parliament has approved the creation of three new provinces. Others are under consideration.

5 I did not have access to these data and they are not well documented. It is not clear in which month the data were collected and whether the villages surveyed were the same as those in subsequent rounds.

6 The August 1999 round was not available for analysis at the time of writing.

7 Thomas, Frankenberg and Smith (2000) examine attrition in the Indonesian Family Life Survey. They find that households that had moved and were the most difficult to track were likely to be smaller and better off than other households. A similar pattern is seen in the 100 Villages Survey: households that appear in the matched sample seem to have slightly lower incomes and expenditures than the others, although they are similar in other respects.

8 The representativeness of each round still depends on the sampling frame used to select households to replace those that should have been tracked but could not be located. If these were chosen randomly, the sample would remain representative of the village populations.

9 The final sample sizes differ slightly across rounds and according to the variable under observation. There were approximately 15,000 school-aged children in each round of the data. About 9,000 in each round were aged 10–17 (constituting the sample used for the analysis of child labour). Approximately 12,500 in each round were aged 10 and under, and 5,300 aged five and under (these constituting the samples used for the analysis of health outcomes).

10 See Fox (1999) for details on the drought.

11 The official age at which children start school in Indonesia is seven years but, as can be seen from figure 1, many children start attending school at six years of age. For this reason we have included six-year-olds in the analysis.

12 In May 1998 enrolment of 13-year-olds is based partly on a cohort born in 1984 who are in sixth grade, and partly on a cohort born in 1985 who are in fifth grade. In December 1998, enrolment of 13-year-olds is based almost entirely on a cohort born in 1984, who are all in sixth grade. But in August 1998, enrolment of 13-year-olds is based partly on a cohort born in 1984, who are now in the seventh grade, and partly on a cohort born in 1985, who are in the sixth grade. Enrolment of 13-year-olds will be an average of sixth and seventh grade enrolments, which will be much lower than the sixth grade enrolments.

13 The survey was conducted by RAND and the Demographic Institute (Lembaga Demografi) at the University of Indonesia. It is representative of about 83% of the Indonesian population.

14 The IFLS figures are not presented separately for lower and upper secondary students but show that the number of 13–19-year-olds currently enrolled in school decreased from 66.8% early in the 1997/98 school year to 61.6% early in the 1998/99 school year. Large declines were also recorded in the Indonesian government and World Bank survey of 600 schools in October 1998, which showed that although junior secondary enrolments decreased by only 1.6% in the 1998/99 school year, there was a much larger drop in urban areas of 6.3% (although curiously this decline seemed to

have started before the crisis). See Filmer *et al*. (1998).

15 Poppele, Sumarto and Pritchett (1999) summarise the IFLS results, those of early rounds of the 100 Villages Survey and those of a further data set – the Rapid Kecamatan Survey. The latter, which only collected data on primary school enrolments, found some evidence of delayed enrolments.

There have also been a number of smaller-scale studies. The Central Independent Monitoring Unit conducted a three-province study in 1999 and a later larger study covering all provinces. The Social Monitoring and Early Response Unit (SMERU) also conducted a survey of schools in the 1999/2000 school year. None of these sources of data show any signs of major declines in school enrolment rates into the 1999/2000 school year at either primary or lower secondary school level.

Gardiner (1999) and Molyneaux and Brooks (2000) have also examined school attendance data in the first three rounds of the 100 Villages Survey.

16 The Susenas also does not show very marked differences by sex (Jones, Hagul and Damayanti 2000).

17 See King (1997) for a previous examination of the relationship between expenditure quintiles and enrolments in Indonesia.

18 The difference between the IFLS results and those reported here and in the Susenas could reflect differences in the timing of the surveys. Both the May round of the 100 Villages Survey and the Susenas were conducted in 1999, after the peak of the crisis in about December 1998. The post-crisis IFLS round was carried out in late 1998.

19 It appears that only households with children who had been in school were asked whether they had withdrawn their children from school; all households were asked whether a child had been sent out to work.

20 Data from the National Family Planning Coordinating Agency (BKKBN) classify every family in Indonesia as pre-prosperous, prosperous I, prosperous II, prosperous III or prosperous III+. The classification is done on the basis of answers to questions about basic welfare; for example on type of housing, number of meals eaten per day and number of changes of clothing owned. These data were originally used for family planning purposes but are now widely employed for the targeting of JPS programs. Pre-prosperous and prosperous I households are classified as 'poor'. Students eligible for scholarships are selected by local committees consisting of teacher, parent and student representatives and the village head. In addition to the BKKBN data, the committee has access to school data on the socio-economic status of the child's household. There are a number of other criteria that enable committees to choose among poor students. See Cameron (2000) and Jones, Hagul and Damayanti (2000) for more details and an evaluation of the scholarships program.

21 The question was asked again in May 1999, with the percentages for all responses increasing sharply in this round. There is, however, a problem of comparability between the May 1999 figures and those of the previous two rounds. In May 1999, the question was asked about the household as a whole, whereas in the 1998 surveys it had been asked about each child in the household. Although the reported increases are potentially alarming – suggesting growing pressure on parents to take their children out of school – very likely they are due to this change in the questionnaire. Households that had previously reported having difficulty with school fees in the case of one child would now be recorded as having difficulty with fees for all children.

22 These questions were also asked about children aged 5–9 in the post-crisis rounds. Because very few children of this age work, and because no comparable pre-crisis data are available, we restrict our attention here to individuals aged 10–17.

23 The questions on work in the May 1997 questionnaire do differ slightly from those in the post-crisis surveys. The earlier survey asks about the individual's

main activity in the last week and, if 'work' is not nominated, whether the individual worked one hour or more. Those who nominate work as their main activity and those who have worked at least one hour in the previous week are then asked about their hours of work. In contrast, the later surveys ask whether the individual worked in the last week and if so, how many hours. The distributions of hours worked were examined to see if the difference in the questions may have altered the reporting behaviour. Slightly more children reported working fewer than 10 hours in 1997 than in 1999 but this does not seem likely to have been the cause of the systematic differences observed in hours worked.

24 At age 17 the hours worked are approximately equal in both years.

25 Figure A1 shows labour force participation by age and school attendance.

26 A plot of reported illness incidence by age shows that incidence does not vary significantly with age among under-10-year-olds.

27 Note, though, that the incidence of illness increased more in the Outer Islands than in Java in the intervening period.

28 A much larger proportion of the population reported relying on self-treatment in the later rounds of the survey. However, in the post-crisis surveys individuals were specifically prompted as to whether they had treated themselves for an illness in the past month, whereas in May 1997 self-treatment appeared only as one of several options. This change in the questionnaire is likely to have been responsible for at least part of the large increase in self-treatment reported after the crisis. The considerable rise in the number of households reporting visits to midwives can be explained by the existence of the Bidan Desa program. This program is training thousands of midwives, with the aim of having at least one in every village. The midwifery category is one of the problematic ones, though, because visits to midwives only became a possible response from August 1998.

29 This program also uses the BKKBN data to identify poor families.

30 In May 1997 mothers were asked who had assisted them during the birth process. In later rounds they were asked to designate who was the first to help during the birth and who had provided the final assistance. Table A1 presents both sets of figures. The figures on first helper correspond closely to those reported in May 1997.

31 Figures are available from the author on request.

32 Body mass index is defined as weight (in kilograms)/height (in metres)^2.

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APPENDIX

FIGURE A1 *Labour Force Participation by Age and School Attendance, 1997–99*
(%)

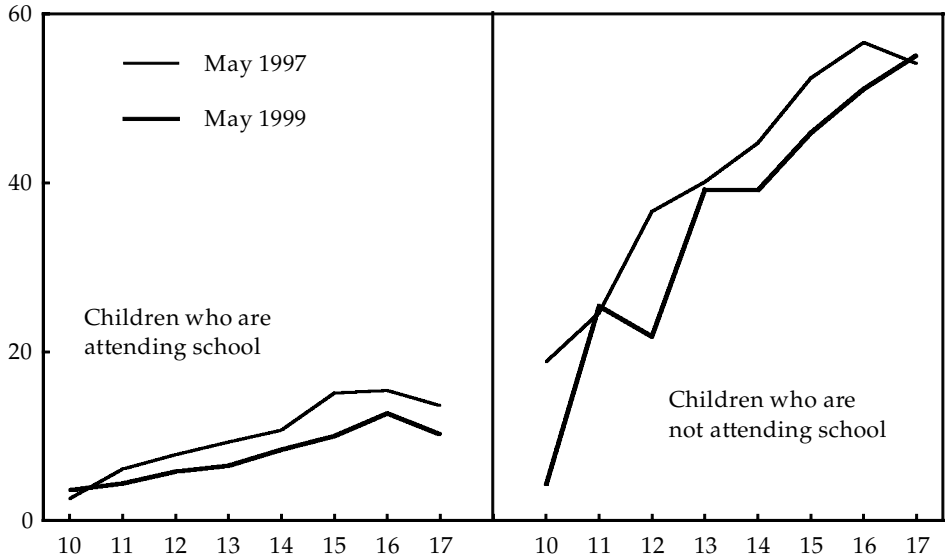

TABLE A1 *Birthing and Breastfeeding Summary Statistics*
(%)

	May 1997	Aug 1998		Dec 1998		May 1999	
		First[a]	Last[a]	First[a]	Last[a]	First[a]	Last[a]
Present at birth							
Doctor	2.7	3.3	3.6	3.0	3.8	2.6	3.0
Midwife	24.0	24.5	28.3	22.9	27.9	24.3	29.6
Other medical practitioner	0.9	0.4	0.6	0.3	0.6	0.6	0.9
Traditional healer	65.5	65.3	60.8	67.5	61.6	66.1	60.5
Family	4.9	5.6	5.5	5.9	5.5	5.5	5.4
Other	2.1	0.9	1.2	0.3	0.7	0.8	0.6
Whether breastfeeding							
Yes	98.0	97.9		n.a.		98.3	
No	2.0	2.1		n.a.		1.7	

[a]'First' and 'last' refer respectively to the first and the last person to assist during the birth. These data are only available for the post-crisis rounds.

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