Household budgets, household composition and the crisis in Indonesia: Evidence from longitudinal household survey data

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Abstract

Using panel data from Indonesia, the impact of the financial crisis on the welfare of households is examined. Contrasting consumption of the same households in late 1997 and late 1998, mean per capita expenditure (PCE) has declined by around 25% while median PCE has remained constant. The crisis has had its biggest impact on households in the top and bottom quartiles of the PCE distribution. However, estimates of the magnitude of the crisis are very sensitive to assumptions about inflation. Moreover, for all households, there have been substantial increases in the share of the budget spent on food and, especially, staples suggesting a decline in welfare across the board. This reflects, in part, increases in the relative price of foods. To partially side-step the tricky issues revolving around the measurement of prices, we focus on comparisons across demographic sub-groups and examine changes in the "costs" of each group as implied by the weight they carry in the allocation of the household budget. Special attention is paid to investments in human capital of the next generation and, in particular, expenditures on education. Among poor households in urban areas, 15-19 year old males have been largely protected from the crisis at the expense of their younger brothers and sisters. In the rural sector, poor households have substantially cut back on education expenditures and the axe has fallen on 15-19 year old males as well as 10-14 year old males and females. The results suggest that for these households the impact of the crisis is likely to be felt for many years to come.

1. Introduction

After almost three decades of sustained economic growth, Indonesia is currently in the midst of a major economic and financial crisis. Output in 1998 is estimated to be about 15% below its level in 1997 and there have been dramatic shifts in both the economic and political landscape in the country. (See, for example, Ahuja et al, 1997 and Cameron, 1999.)

As indicated in Figure 1, the rupiah came under pressure in the last half of 1997 when the exchange rate began showing signs of weakness. The rupiah fell from around 2,400 per US$ to about 4,800 per US$ by December 1997. In January 1998, the rupiah collapsed. Over the course of a few days, the exchange rate fell by a factor of three to Rp15,000 per US$. Although it soon recovered, by the middle of the year the rupiah had slumped back to the lows of January, 1998. Since June 1998, the rupiah has strengthened so that by the end of 1998 it stood at around Rp8,000-Rp9,000 to the US$. This strengthening of the rupiah reflects, at least in part, the tightening of monetary policy in the middle of the year. However, throughout the period, the exchange rate been characterized by extremely high volatility which has contributed to greater uncertainty in the financial markets.

Interest rates have behaved much like the exchange rate: they spiked in August 1997 -- when they quadrupled -- and they have remained extremely volatile since then. Chaos has reigned in the banking sector. Several major banks have been taken over by the Indonesian Bank Restructuring Agency. All of this turmoil has wreaked havoc with both the confidence of investors and the availability of credit.

Prices of many commodities spiralled upwards during the first three quarters of 1998. Annual inflation is estimated by the Central Statistical Bureau to be about 80% for 1998. Subsidies have been removed on several goods -- most notably rice, oil and fuel. Food prices, especially staples, have risen about 20% more than the general price index. This suggests that (net) food consumers are likely to be severely impacted by the crisis whereas food producers may have had some protection. However, the prolonged drought of 1997 tempers that inference and so it is unclear what the net effect of the combined shocks has been.

Simultaneously, Indonesia is undergoing dramatic transformation in the political sector. After over three decades as President, Suharto resigned in May 1998. Within days, the incoming president, Habibie, declared multi-party elections for the middle of 1999 and pledged reforms that would revive political

activity in the country. How effective these reforms will ultimately be remains to be seen: protests, in some cases violent, continue to rock the country.

Few Indonesians have remained untouched by the upheavals of the last year. For some, the turmoil has been devastating. For others, it has brought new opportunities. Exporters, export producers and food producers are likely to have fared far better than those engaged in the production of services and non-tradeables or those on fixed incomes. There are many dimensions to the crisis in Indonesia and many ways in which individuals and families are likely to have responded to it. Precisely because of this complexity, in the absence of empirical evidence, it will be difficult to predict with much confidence what the combined impact of all facets of the crisis are likely to be -- and how the impacts are likely to vary across socio-economic groups and across demographic groups.

Fallon and Lucas (1999) provide an excellent summary of the evidence on the effect of a major economic shock on household well-being. Frankenberg, Beegle and Thomas (1999) describe early evidence from survey data in Indonesia; those and other results are summarised in Poppele, Sudarno and Pritchett (1999). Levinsohn, Berry and Friedman (1999) explore the likely effects of the crisis using household budget data collected prior to the crisis.

This paper uses household budget data collected from the same households prior to the full brunt of the crisis unfolding and again a year later. The focus is on attempting to measure the magnitude of the crisis and identify those demographic groups that have been more severely affected by the crisis. The data are drawn from two waves of the Indonesian Family Life Survey (IFLS), IFLS2, conducted in late 1997, and IFLS2+, which was conducted in late 1998. The latter survey was specially designed for this purpose. The economic status of households that were interviewed in 1998 is compared with their economic status as reported by them about a year earlier in 1997. We focus on two dimensions of economic status: household *per capita* expenditure and the allocation of the budget among goods. Special attention is paid to the distributional consequences of the crisis and, in particular, to investments in the human capital of the next generation.

The crisis has affected the poorest, the middle income and households in the upper part of the income distribution in Indonesia. While the precise magnitude of the crisis is subject to controversy (and depends critically on assumptions about changes in prices), there is unambiguous evidence in our data that the crisis has had a far-reaching effect on the purchasing power of all our respondents. The share of the

household budget spent on food, and especially staples, has increased significantly and these increases are largest for the poorest. To make room for these expenditures, purchases of semi-durables appear to have been delayed. There have been significant declines in the share of the budget spent on education, especially among the poorest, and on the share spent on health.

Declines in the share of the budget allocated to education is related to household demographic composition. Among poor households in urban areas, education expenditures of 15-19 year olds (particularly males) appear to have been largely protected from the crisis at the expense of their younger brothers and sisters. In the rural sector, poor households have substantially cut back on education expenditures and the axe has fallen on 15-29 year old males as well as 10-14 year old males and females. The results suggest that, for these households, the impact of the crisis is likely to be felt for many years to come.

The next section provides a description of the data and the IFLS sample. It is followed by the results. We begin with a discussion of the magnitude of the crisis as indicated in the IFLS data and the correlates of changes in levels of household consumption. Several issues that complicate interpretation of changes in level of household consumption are raised. This leads us to a discussion of the allocation of the budget to different commodities and the relationship between changes in those allocation and household characteristics. Special attention is paid to the role of resources and household composition. The final section concludes.

2. Data

The IFLS is a large-scale integrated socio-economic and health survey that collects extensive information on the lives of individuals, their households, their families and the communities in which they live. The sample is representative of about 83% of the Indonesian population and contains over 30,000 individuals living in 13 of the 27 provinces in the country.

An on-going longitudinal survey, the first wave was conducted in 1993/94 (IFLS1), with a follow-up in 1997/98 (IFLS2) and a special follow-up, designed for this project, in late 1998 (IFLS2+). This special follow-up sampled 25% of the fuller IFLS sample and contains information on almost 10,000

individuals living in around 2,000 households. In this study, we draw primarily on interviews with these households in 1997 and 1998.

A broad-purpose survey, the IFLS contains a wealth of information about each household including consumption, assets, income and family businesses. In addition, individual members are interviewed to obtain information on, *inter alia,* use of health care and health status, fertility, contraception and marriage; education, migration and labor market behavior; participation in community activities, interactions with non co-resident family members and their role in household decision-making. The IFLS contains an integrated series of community surveys which are linked to the household survey; they include interviews with the community leader and head of the village women's group, as well interviews with knowledgeable informants at multiple schools and multiple public and private health care providers in each IFLS community. We will rely primarily on the consumption data in this paper; see Frankenberg, Thomas and Beegle (1999) for a discussion of a broader array of indicators of well-being.

The IFLS Sample

The IFLS sampling scheme was designed to balance the costs of surveying the more remote and sparsely-populated regions of Indonesia against the benefits of capturing the ethnic and socioeconomic diversity of the country. The scheme stratified on provinces, then randomly sampled within enumeration areas (EAs) in each of the 13 selected provinces.[1] A total of 321 EAs were selected from a nationally representative sample frame used in the 1993 SUSENAS (a survey of about 60,000 households). Within each EA, households were randomly selected using the 1993 SUSENAS listings obtained from regional offices of the Bureau Pusat Statistik (BPS). Urban EAs and EAs in smaller provinces were over-sampled to facilitate urban-rural and Javanese-non-Javanese comparisons. A total of 7,730 households were included in the original listing for the first wave; 7,224 households (93%) were interviewed.[2]

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[1]The provinces are four on Sumatra (North Sumatra, West Sumatra, South Sumatra, and Lampung), all five of the Javanese provinces (DKI Jakarta, West Java, Central Java, DI Yogyakarta, and East Java), and four provinces covering the remaining major island groups (Bali, West Nusa Tenggara, South Kalimantan, and South Sulawesi).

[2]IFLS1 exceeded the goal of obtaining a final sample size of 7,000 completed households. The assumed non-participation rate of about 10% was based on BPS experience. Approximately 2% of households refused and 5% were not found. In about two-thirds of those not found, no interview was obtained either because the building was vacated (14%), the household refused (25%), or no one was at home (29%). Other households were not interviewed due to a demolished building, illness, or an inability to locate the building.

The second wave of the IFLS (IFLS2) was fielded four years later, between August 1997 and January 1998, (Figure 1). The goal was to recontact all 7,224 households interviewed in IFLS1. If during the course of the fieldwork, we discovered that a household had moved, we obtained information about their new location and followed them as long as they resided in any of the 13 IFLS provinces. This means that, by design, we lose households that have moved abroad or to a non-IFLS province; they account for a very small proportion of our households (<1%) and are excluded because the costs of finding them are prohibitive.

Large scale longitudinal household surveys remain rare in developing countries and there is considerable skepticism that they can be fielded without suffering from high attrition because of the lack of communication infrastructure and distances that need to be traveled. A respondent is typically not a phone call away. By the standard of most longitudinal surveys, the four year hiatus between IFLS1 and IFLS2 is long which likely compounds this difficulty.

Results from IFLS2 suggest that high attrition is not inevitable: 93.3% of the IFLS1 households were re-contacted and successfully re-interviewed. Excluding those households in which everyone has died (usually single-person households), the success rate is 94%.[3]

Given this success, and the timing, IFLS2 was uniquely well-positioned to serve as a baseline for another interview with the IFLS respondents to provide some early indicators of how they have been affected by the economic crisis. In August-December, 1998, we fielded IFLS2+.

In a study of this nature, time is of the essence. It took two years to plan and test IFLS2. We did not have two years for IFLS2+. Nor could we raise the resources necessary to mount a survey of the same magnitude as IFLS2. Funding availability and human resources dictated that we field a scaled down survey.

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[3]Few of the respondents refused to participate (1%) and so the vast majority of those households that were not re-interviewed were not found. About 15% of these are known to have moved to destinations outside Indonesia or in a non-IFLS province; they were, therefore, not followed. The rest are households that have moved but that we were unable to relocate. This was particularly a problem in Jakarta both because of development which has changed the landscape in some of our EAs and because people are relatively mobile, often having only a tenuous connection with their neighbors. One of our EAs, for example, was bulldozed and turned into a shopping complex between IFLS1 and IFLS2. None of our 20 households lived in the vicinity in 1997. Nevertheless, by drawing on all our tracking techniques, we were able to identify one household that had died, one who refused and we successfully re-interviewed all 18 of the rest giving us a 90% success rate in that EA. Many of these respondents had moved out of Jakarta and so were tracked to their new homes in other provinces.

By design, IFLS2+ re-administers many of the IFLS1 and IFLS2 questions so that comparisons across rounds can be made for characteristics of households and individuals (although some sub-modules were cut to reduce costs). The key dimension in which the survey was scaled down is sample size. Using all of the original 321 IFLS EAs as our sampling frame, we drew the IFLS2+ sample in two stages. First, to keep costs down, we decided to revisit 7 of the 13 IFLS provinces: North Sumatra, South Sumatra, Jakarta, West Java, Central Java, West Nusa Tenggara and South Kalimantan. These provinces were picked so that they spanned the full spectrum of socio-economic status and economic activity in the fuller IFLS sample. Second, within those provinces, we randomly drew 80 EAs (25%) with weighted probabilities in order to match the IFLS sample as closely as possible.[4] These weights were based on the marginal distributions of sector of residence (urban or rural), household size, education level of the household head and quartiles of per capita expenditure (measured in 1993). The IFLS2+ sample is representative of the entire IFLS sample and our purposive sampling has, in fact, achieved a very high level of overall efficiency -- 74% relative to a simple random sample. This is very good given that the sample size is only 25% of the original sample.

Counting all the original households in IFLS1 (whether or not they were interviewed in IFLS2) as well as the split-offs in IFLS2, there are 2,066 households in the IFLS2+ target sample. The turmoil in Indonesia during 1998 made relocating and interviewing these households particularly tricky. Fortunately, the combination of outstanding fieldworkers, the experience of IFLS2 and the willingness of our respondents to participate meant that we achieved an even higher success rate than in IFLS2. As shown in Panel A of Table 1, over 95% of the target households were re-interviewed; excluding those households that are known to have died by 1998, the household completion rate increases to 96%. The re-interview rate exceeds 90% in all provinces and exceeds 95% in 5 of the 7 provinces.

Attrition in IFLS2+

From a scientific point of view, it is important to retain all the original respondents in our target sample, even if they were not interviewed in IFLS2. This means, therefore, that our target sample includes the (approximately) 6% of households in the IFLS2+ EAs that were not interviewed in 1997. In 1998,

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[4]After picking the random sample of 80 EAs, an additional 10 EAs were selected because they were in areas that were inundated with smoke from the fires on Borneo and Sumatra in late 1997. Those EAs are not included in this study.

we successfully contacted over 60% of those households. However, for the purposes of this paper, the households of central interest are those that were interviewed in both 1997 and 1998 since it is only for these households that we can contrast their lives now with their lives a year ago. These are the households which form the analytic sample used in the rest of this paper. Restricting ourselves to these 1,934 households, we re-interviewed over 98% of the IFLS2 households. The completion rate exceeds 95% in every province and in one province, West Nusa Tenggara, we re-interviewed every IFLS2 household.[5]

While we have succeeded in keeping attrition low in the survey, it is important to recognize that the households that were not recontacted are not likely to be random. To provide some sense of the magnitude of the problem, we can compare the observed characteristics (measured in 1993) of the households that were recontacted with the target sample of all IFLS households. Results for some key households characteristics are reported in Panel C of Table 1. The differences between the full sample of IFLS households in the EAs included in IFLS2+ and the households that were re-interviewed (in 1997 and again in 1998) is, in all cases, small and not significant. Households that were not re-interviewed tend to have slightly higher levels of *per capita* expenditure (PCE), lower food shares and fewer members than the full sample.

We know a little more about households that have been lost to attrition. Recall, in 1998, we found 60% of the households that were originally living in IFLS2+ EAs but were not found in 1997. In terms of their characteristics in 1993 and 1998, these households are not significantly different from the sample of households that were interviewed in all three waves. We conclude, therefore, that attrition bias is not likely to be of overwhelming importance in the analyses of expenditure patterns discussed below.

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[5]It is useful to put these numbers into perspective by contrasting these results with other longitudinal surveys. The Panel Study of Income Dynamics began in 1968 in the United States and has been fielded every year since then. The attrition between the first and second waves was 11.9% and 3.5% between waves two and three (although they did not attempt to interview respondents who had attrited between wave one and two). The cumulative attrition over the first three waves is, therefore 15%. The Health and Retirement Survey is a recently implemented longitudinal survey that is generally recognized as being state-of-the-art. There is a two year hiatus between each wave of those surveys. Attrition between the first and second wave of the HRS is 8.9% and between the second and third waves 8.1% (including respondents who were not interviewed in wave 2 and so this is the cumulative attrition by the end of the third wave). Perhaps the best large scale longitudinal household survey in a developing country (in terms of low attrition) is the China Health and Nutrition Survey (conducted by Barry Popkin and his colleagues at the University of North Carolina). The survey interviewed 3,795 households in 8 provinces in China in 1989 and re-interviewed 95% of those two years later and 91% four years later, yielding a 9% attrition rate after 4 years. The comparable numbers in the IFLS are 6% and 5% after 4 and 5 years respectively.

The majority of longitudinal household surveys in developing countries have not attempted to follow households that move out of the community in which they were interviewed in the baseline. In the IFLS, we did attempt to follow movers. Had we followed the strategy of simply interviewing people who still live in their original housing structure, we would have re-interviewed approximately 83% of the IFLS1 households in IFLS2 and only 77% of the target households in IFLS2+ rather than the 96% that we did achieve. Thus, movers contribute about 20% to the total IFLS2+ sample and they are extremely important in terms of their contribution to the information content of the sample. This is apparent in the last two columns of Panel C of Table 1 which present the characteristics (measured in 1993) of households that were found in the original location in 1997 and 1998 (column 4) and movers (column 5). Mover households are smaller, younger and had higher expenditures in 1993.[6] Given our goal is to examine the impact of the crisis on expenditures of households, the act that movers have expenditures that are 50% higher than stayers indicates the critical importance of following movers in order to interpret the evidence. Had we not attempted to follow movers, we would have started out with a substantially biased sample. (For a fuller discussion of attrition in the IFLS along with a discussion of the costs and benefits of tracking movers in longitudinal surveys, see Thomas, Frankenberg and Smith, 1999.)

3. Results

We turn now to a description of the changes between 1997 and 1998 experienced by the households that were interviewed in IFLS2 and IFLS2+; attention is restricted to the 1,883 households for whom we have complete information on expenditure, household composition and location.[7] Drawing on household expenditures, we describe the magnitude of the crisis and present some evidence on the characteristics of the households and communities that have been most affected by the crisis. This is followed by an analysis of changes in the allocation of the household budget among goods, placing particular emphasis on the relationship with household demographic composition.

Household expenditure

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[6]These differences are all significant; the relevant t statistics are 4.1, 3.4 and 3.8, respectively.

[7]The expenditure module was not completed in either IFLS2 or IFLS2+ by 20 (1%) of the households.

To put the magnitude of the crisis in perspective, we begin with household expenditure patterns.[8] Mean total monthly household expenditure in 1997 is reported in the first column of Table 2: it is close to Rp 1 million. Inflation for 1998 is estimated to be around 80%. It is thus important to deflate expenditures in 1998 so that they are comparable with 1997; we use a province-specific index based on urban price data from BPS.[9] Real monthly expenditure for the same households is reported in the second column of the table. The mean of the difference in expenditure (1998-1997) is reported in the third column. On average, total household expenditure has declined by 10%. A similar comparison is drawn for changes in monthly *per capita* expenditure (PCE): it has declined, on average, by 25%, which is both

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[8]Household expenditure in the IFLS is based on respondents' recall of outlays for a series of different goods (or categories of goods); for each item, the respondent is asked first about money expenditures and then about the imputed value of consumption out of own production, consumption that is provided in kind, gifts and transfers. The reference period for the recall varies depending on the good. The respondent is asked about food expenditures over the previous week for 37 food items/groups of items (such as rice; cassava, tapioca, dried cassava; tofu, tempe, etc.; oil; and so on. For those people who produce their own food, the respondent is asked to value the amount consumed in the previous week. There are 19 non-food items; for some we use a reference period of the previous month (electricity, water, fuel; recurrent transport expenses; domestic services) and for others, the reference period is a year (clothing, medical costs, education). It is difficult to get good measures of housing expenses in these sorts of surveys. We record rental costs (for those who are renting) and ask the respondent for an estimated rental equivalent (for those who are owner-occupiers/live rent free). All expenditures are cumulated and converted to a monthly equivalent. The sample is restricted to those households who completed the expenditure module in both IFLS2 and IFLS2+.

[9]To this end, we have deflated 1998 expenditures using a province-specific price deflator that is based on the BPS price indices reported for 45 cities in Indonesia. We matched the cities in the BPS database to our provinces and used the (simple) average of the price index for provinces with more than one city. We use price indices for August, September, October and November, deflating all 1998 expenditures to December 1997. The inflation rates we used are:

| | Inflation rate (relative to December 1997) | | | |
Province	August	September	October	November
North Sumatra	68.2	78.2	76.7	77.9
West Sumatra	74.6	85.1	81.7	85.1
South Sumatra	76.4	87.7	85.4	85.0
Lampung	79.6	86.9	86.2	86.2
Jakarta	68.6	74.1	72.9	71.7
West Java	61.5	67.4	68.1	67.0
Central Java	61.4	67.6	67.3	68.1
East Java	69.2	76.7	76.4	76.0
Yogyakarta	78.8	83.4	83.6	85.0
Bali	62.7	70.5	71.3	73.8
NTB	73.5	82.9	85.1	89.0
South Kalimantan	63.2	74.0	74.1	72.7
South Sulawesi	70.0	77.1	77.0	78.3

very large and significant. Looking at median expenditure, the story is strikingly different. It has remained stable during this period.

Essentially all the changes in the distribution of PCE have occurred in the bottom and top quartiles of the distribution, as is shown in the box and whisker plots in Figure 2. PCEs of households in the top of the distribution is substantially lower in 1998, relative to 1997; the bottom tail has moved much less in absolute terms although there is a suggestion that PCE among the very poorest is lower in 1998, relative to 1997. This is reflected in Table 2 which indicates that the poverty rate has increased from 11% to about 14%.[10]

Figure 2 suggests that inequality has declined during the period. This is confirmed by estimates of the standard deviation of the logarithm of PCE (which has fallen from 0.94 to 0.86) and is depicted in the Lorenz curve in Figure 3. The apparent decline in inequality can be attributed to two factors: the reduction in PCE at the top of the distribution and the reduction in the mean of PCE.

We conclude that there has been a substantial shift in the structure of the distribution of expenditure with the center of the distribution remaining relatively stable, the right tail being substantially truncated between 1997 and 1998 and the left tail becoming fatter. These facts are illustrated in the upper panel of Figure 4 which is a non-parametric estimate of the density of PCE. It indicates that the poor, the middle class and the better off have all been affected by this crisis.[11]

Urban and rural differences

The second panel of Table 2 distinguishes those households that were living in an urban area in 1997 from those living in a rural area. (We are, obviously, ignoring inter-sectoral migration since 1997.) The data suggest that urban households have been more seriously impacted by the crisis. PCE of the average urban household has declined by 33% and the poverty rate has increased by 30%. In contrast, PCE in rural households is estimated to have declined by 13%. However, the price indices available from BPS are based only on urban markets and so, implicitly, the assumption is made that inflation in the urban

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[10]The appropriate definition of the poverty line is controvesial. Province- and sector-specific poverty lines have been chosen so that estimated poverty rates in IFLS2 correspond with the BPS province- and sector-specific poverty rates for 1996, the most recent poverty estimates for Indonesia. Thus, the 11% poverty rate is constructed to match the official rate.

[11]The figure is a non-parametric estimate of the density of PCE. It is based on an Epanechikov kernel with a 10% bandwidth.

and rural sector is the same. We can test that assumption using data reported in the IFLS community surveys. Those surveys collect information on 10 prices of standardized commodities from up to 3 local stores and markets in each community; in addition, prices for 39 items are asked of the *Ibu PKK* (leader of the local women's group) and knowledgeable informants at up to 3 *posyandus* (health posts) in each community. Using those prices, in combination with the household-level expenditure data, we have calculated EA-specific (Laspeyres) price indices for the IFLS communities for 1997 and 1998. Based on those numbers, we estimate that in our EAs rural inflation is about 5% higher than urban inflation.

In the final panel of Table 2, therefore, we deflate rural expenditures by an additional 5% over and above the BPS province-specific rates. Making only this adjustment, the decline in PCE rises by 25% (to 17%) and the poverty rate is estimated to have increased by 30% between 1997 and 1998. This is the same as in urban areas. Clearly, estimates of the magnitude of the decline in PCE are sensitive to assumptions about the inflation rate and small changes in these assumptions have large effects on estimates of poverty rates.

Sensitivity to estimates of inflation rate

In an environment of rapidly changing prices, estimation of the inflation rate is not easy. In the BPS estimates, there is substantial heterogeneity in inflation across the 44 cities that are included in the calculation of the national rate, ranging between 50% and 90%. See Levinsohn, Berry and Friedman (1999) for an insightful discussion and evidence. With this in mind, we have attempted to estimate the inflation rate that would be implied by the price data reported in the IFLS for the EAs included in IFLS2+. Because we do not have a complete set of prices in IFLS, we have matched the IFLS prices with sub-aggregates reported by BPS and compared the implied inflation rates for this subset of commodities. Using the IFLS data, we estimate inflation between the rounds of the survey to be about 15% higher than the BPS rate. While it is important to emphasize that the IFLS is not designed to collect the detailed data necessary to calculate price indices, this difference gives us pause. It might arise if our EAs are drawn from relatively high inflation areas or it may reflect bias in either the BPS or IFLS estimates of inflation (or both). The difference, however, is large and suggests that it would, at least, be prudent to assess the robustness of the results discussed above to alternative estimates of inflation.

To this end, we have explored the implications of the difference in the estimates of inflation both for the magnitude of the crisis and for the identification of who has been most seriously impacted by the crisis. Maintaining the 5% gap between rural and urban inflation implied by the IFLS, we have adjusted the BPS province-specific price indices to match the IFLS inflation rate; specifically, we have inflated urban prices by an additional 14% and rural prices by an additional 16%. We will refer to these as BPS-adjusted prices. The results are presented in Table 3 and in the lower panel of Figure 4.

As is readily apparent from a comparison of the two panels in Figure 4, the entire PCE distribution is shifted to the left when the higher, BPS-adjusted inflation rate is applied to the data. This is reflected in Table 4: not only is there a decline in mean PCE but also the median and there is a very substantial increase in the fraction of the population below the poverty line.

The implications of getting prices right are graphically illustrated in Figures 5 and 6 which present the cumulative distribution of PCE for 1997 and 1998. The figures tell us what fraction of the population is living below a particular level of PCE; it is, therefore, a useful tool for examining the robustness of estimates of poverty rates to changes in the poverty line.[12] For example, say the poverty line were set at Rp40,000. Figure 5, which is based on the BPS estimates of inflation, indicates that the poverty rate is about the same in both 1997 and 1998 at around 10%. Whether poverty has increased or decreased depends critically on the poverty level chosen: if it is below Rp30,000 or above Rp65,000, Figure 5 indicates that *fewer* people are below the poverty line in 1998, relative to 1997. Figure 6 is based on the inflation estimates after incorporating the IFLS adjustment. Under this assumption, estimates of changes in poverty rates are dramatically different and are quite robust: the estimates suggest there has been a 70-80% increase in the poverty rate for all poverty lines that lie below median PCE.

Differences between the urban and rural sector are displayed in Figures 7 and 8 which use the BPS inflation rate and the adjusted inflation rate, respectively. According to the estimates based on the BPS rate, the poverty rate has increased slightly for all poverty lines between Rp40,000 and Rp100,000. Using the adjusted inflation rate, the poverty rate has increased substantially for all poverty lines below Rp100,000. The differences between the sets of estimates are more dramatic in the rural sector. According to the estimates that use the BPS inflation rate, for any poverty line between Rp40,000 and

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[12]Reading along the x-axis, we choose a level of PCE and then read off the value of the distribution function, at that level of PCE to give us the fraction of the population who fall below that poverty line.

Rp100,000 the poverty rate has declined; the adjusted rates indicate that poverty in rural areas has increased substantially for any poverty line below Rp100,000.

In our judgement, it is likely that reality lies between these two extremes.[13] What is abundantly clear is that dire predictions of massive poverty spreading all over Indonesia are simply wrong. However, in a world of very high inflation, estimates of well-being based exclusively on PCE (or income) may be seriously misleading. Moreover, there are some conceptual concerns that are extremely difficult to address even with very good price data. The inflation rate that is relevant for a particular household will depend on its consumption patterns which may not be the same as the average household, which is what is used in the construction of indices. Specifically, poorer households typically spend a greater fraction of their budget on food; since the rate of increase in food prices is about 20% higher than the overall inflation rate, price changes for the poor are likely higher than those for the middle income. People are likely to substitute away from commodities that become relatively expensive in which case inflation rates based on a fixed bundle of goods will tend to overstate actual inflation. If the poorest households have less scope for substitution than other households (say because most of their budget is spent on staples), they are likely to be more severely affected by price increases than households who are better off.

Correlates of changes in ℓnPCE

As a first step in putting the issue of measuring inflation into the background, we turn to an examination of the covariates that are associated with changes in ℓnPCE in a multivariate context. To the extent that these covariates are not related to price changes, we can interpret the regression coefficients as providing descriptive information about the types of households and communities that have been most seriously impacted by the crisis. Results are summarized in Table 4. A negative coefficient indicates that ℓnPCE in 1998 is lower than ℓnPCE in 1997. Estimates of standard errors are robust to arbitrary forms of heteroskedasticity and permit within-cluster correlations in unobservables.

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[13] It is extremely difficult to estimate inflation when prices change as rapidly as they have done in Indonesia in 1998. Based on other evidence in the IFLS, we conjecture that the IFLS-based estimates of inflation are biased upwards. We do not have enough information in the market-based surveys to use those data alone and so we have combined them with information obtained from the PKK and posyandu informants who appear to have over-stated price increases. However, we have no reason to suppose that this overstatement is greater for rural, relative to urban households, and so in the absence of a better source for rural prices, we are inclined to rely on the IFLS estimate that rural inflation is slightly higher than urban inflation.

Estimates are presented separately for urban and rural households. In each panel, regressions reported in the first two columns are based on the BPS inflation rates, column 3 repeats the second regression using estimates of changes in ℓnPCE based on the adjusted-inflation rate and column 4 includes a community-level fixed effect which sweeps out all fixed (and additive) community-level heterogeneity including prices. The results in this column should, therefore, be robust to different estimates of the rate of inflation.

The first set of covariates are measured at the community-level. They indicate that communities in which the main activity is agriculture (in rural areas) and those that have a higher fraction of households operating farm businesses (in urban areas) have, relative to other communities, had a positive income innovation over the last year. This suggests these communities are net food producers and that they have, on net, benefitted from the increase in the relative price of foods over the last year. Rural communities that are primarily trading have also received a positive income innovation although this is more than offset if the community is accessible by road throughout the year. Innovations have been especially negative in rural areas that serve as the kecamatan capital;[14] these areas have concentrations of civil servants and the nominal incomes of most government workers have increased only slightly over the last year so that their real incomes have declined dramatically. Rural communities in North Sumatra have fared especially poorly whereas those in South Sumatra appear to be doing slightly better than West Java, the excluded province.[15]

Among rural households, it is apparently those living in remote, agricultural communities that have been most protected from the deleterious impact of the crisis. This is plausible given that the crisis is to a large extent financial and these communities are likely to have the least interaction with monetized sectors of the economy.

In the urban sector, communities that produce services (which are typically non-tradeable) have seen their incomes decline more than in other areas. There is also a suggestion that poorer communities and communities with greater inequality have experienced relatively large negative income innovations.

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[14]By way of comparison, a kecamatan is smaller than a county but larger than a zip code in the United States.

[15]We observed a very substantial increase in migration rates out of North Sumatra between 1997 and 1998 with a large fraction of the movers re-locating in neighboring Riau which, relatively speaking, has been a boom area over the last year.

This suggests that poor urban communities -- and the poorest households within them -- may be worthy of special attention. These inferences, however, should be tempered by the fact that the significance of the effects of the services indicator and the community-level measures of PCE is, at best, marginal when we use the adjusted-inflation rates. Getting inflation right is a substantive and serious concern.

The second part of Table 4 reports the relationship between changes in ℓnPCE and household characteristics. The estimates are remarkably robust to assumptions about the inflation rate including the model in the fourth column which contains community fixed-effects and, therefore, permits an arbitrary rate of change of the price level in each community.

The age of the head, education of the head and whether the head is male are not correlated with the impact of the crisis. This is, perhaps, surprising given that these characteristics are likely to be associated with higher levels of assets and, therefore, would be expected to be related to smoothing of consumption smoothing over time. (Future work will examine this issue directly.)

Household size, in contrast, is associated with protection from the impact of the crisis: PCE has declined least in larger households. Not all household members are equal. In both the rural and urban sector, households that contain more prime age women (25-64 years olds) have seen the smallest declines in PCE; in the urban sector, more younger women (15-25 year olds) in the household is also correlated with smaller declines in PCE. This is likely to be a reflection of an increase between 1997 and 1998 in the labor supply of these women.

This inference can be tested directly. In each wave of the IFLS, adult individuals are asked about their time allocation. Among prime age adults, almost all men (99%) were working in both years but, among women, there was a substantial increase in the fraction who reported themselves as working (from 70% to 83%) and this difference (or change) is significant (t statistics=8.9). The difference-in-difference (the gap in the change in participation rates between men and women) is both large (12%) and significant (t statistic=7.4). Many people in Indonesia work in family enterprises and those enterprises have absorbed all the new entrants or re-entrants into the labor force. Between 1997 and 1998, there has been a decline in the probability a prime age man is working for pay (from 91% to 87%) and no change in the probability a prime age woman is working for pay (42%). This difference-in-difference (4%) is also significant (t statistic=2.1). We conclude that there has been a significant shift in the allocation of time

with prime age women playing a bigger role in both family enterprises and in paid work. This is true in both the rural and urban sector.

Among younger adults (15-24) the story is quite different. Both males and females are more likely to be working and to be working for pay in 1998, relative to 1997. This is to be expected for life-course reasons alone. There are no significant differences in the rate of take up of work between males and females except for one instance: among urban households, 15-20 year old males are 4% less likely to have taken on work that pays between 1997 and 1998, relative to a 15-20 year old female (and this effect is marginally significant, t statistic=1.8).

PCE appears to have been protected in those urban households with more young girls (0-4 year olds) and in rural households with more young boys (0-9 year olds, particularly 5-9 year olds). It is unlikely that these children are going out to work -- rather, the estimates suggest that women with young children have attempted to keep household income from falling presumably because they would like to protect their children from the deleterious impact of real income declines. While the gender differences between urban and rural households are intriguing, they are not significant and so we do not wish to make too much of them.

Household budget shares

We have noted above that there have been large changes in both the absolute price level and in relative prices in Indonesia over the last year. We have also noted that interpretation of changes in (real) ℓnPCE is complicated by the uncertainty revolving around the changes in prices that households face. The analyses presented above are silent about the effects on household well-being of changes in relative prices. To address this issue, we turn to the allocation of the household budget to goods.

Table 5 reports the mean share of the household budget spent on 15 commodity groups in 1997 and 1998 along with the change in the share (column 3) and the change as a percentage of the 1997 share (column 4); urban households are reported in the left panel, rural households in the right panel. The BPS inflation rates are used throughout this section. Clearly changes in budget shares captures the impact of both changes in purchasing power and changes in relative prices.

Estimates of OLS regressions that describe the relationship between changes in budget shares and household characteristics are reported in Table 6. In order to put inflation into the background, the

regressions include a community-level fixed effect. The covariates in the regressions, which are all measured in 1997, fall into three groups: income (which is entered as a spline in ℓnPCE with a knot at median PCE); household composition; and the demographic characteristics of the head. In this section, we focus on changes in budget shares and their association with household income. A discussion of the links with household composition are deferred to the next sub-section.

Food accounts for more than half the budget of the average household in Indonesia and the food share has increased (significantly) between 1997 and 1998. According to Engel's Law (which says that household welfare is inversely related to the food share), the average Indonesian household is worse off today than it was a year ago. In 1988, urban households allocated 60% of their budget on food and rural households spent 80% of their budget on food.

To a large extent the increase in the food share reflects an increase in the allocation of expenditure to staples (primarily rice). Among urban households, the staple share has increased by over 50% (to account for one-fifth of the total budget) and in rural households it has increased by 30% (to account for two-fifths of the total budget). These are very large increases. They are partially offset by a significant reduction (of about 20%) in the share of the budget spent on meat. Taken together, the results indicate a decline in the quality of the diet of the average Indonesian.

The estimates of income effects at the top of Table 6 provide insights into how these changes are distributed across households. In both the urban and rural sector, food shares have increased the most for the poorest. For households below median PCE in 1997, the increase in the food share declines as PCE increases; above median PCE, there is no link between the change in the food share and PCE. A similar pattern emerges for staples in rural areas. In urban areas, the staple share has increased by the same amount for all households below median PCE and it is only among those households with PCE above median that the increase in the staple share declines as PCE increases. Thus, the increase in the price of rice has had its biggest impact on the shares of the poorest.

It would be premature to conclude that the poorest are necessarily the worst off since some of these households are likely to be rice producers. Both their total expenditure and the share of the budget spent on rice, staples and food will have increased simply because of the increase in the price of rice even if they neither buy nor sell any rice.

There is some evidence along these lines when we turn to meat shares which have, on average, declined. The decline is greatest for the median household -- in both the rural and urban sector -- with the poorest having protected their budgets allocated to meat. In the urban sector, the meat share rises with PCE among those households with PCE above the median. The results underscore the fact that the impact of the crisis on household well-being is both complex and nuanced.

Alcohol and tobacco accounts for about 5% of the budget of the average households. In urban areas, the share spent on these commodities has increased and the increase is equally distributed across the PCE distribution. Among rural households, the poorest have cut back on the allocation to these goods which account for proportionately more of the budget in 1997, relative to 1997, among those at the top of the PCE distribution.

Since food shares have increased, non-food shares must have declined. The share of the budget spent on household goods (such as furniture and kitchen equipment) clothing, housing and recreation have decreased in both the urban and rural sector. The declines are greatest for the poorest; this is demonstrated for clothing in Table 6. These might all be thought of as expenditures that can be delayed without serious immediate consequences and so may serve as a natural mechanism for smoothing consumption in the face of a negative income innovation.

There have also been declines in the share of the budget spent on health and education services. Health expenditures include the cost of preventive and curative visits to private or public health facilities as well as the costs of drugs and medications. Education expenditures include the costs of tuition and fees at schools, uniforms and transport for schools and the costs of materials required at school.

In the urban sector, the decline in the health share is evenly distributed across the PCE distribution but the education share has been cut most by those in the bottom half of the distribution. For example, among households in the bottom quartile of PCE, the education share has been cut by 20% (and this cut is significant).

In the rural sector, the share of the budget spent on health has declined by 40%; the share on education has declined by a quarter. These are both significant. Moreover, the declines are concentrated among the poorest. Households in the bottom quartile of PCE have cut the share of their budget spent on education by 50% which is both very large and significant.

While neither health nor education accounts for a large fraction of the total budget, it is potentially troubling that the cuts tend to be concentrated among the poorest. Moreover, reductions in these expenditures may portend deleterious consequences for particular demographic sub-groups. Cuts in education expenditures, for example, will likely affect those who are of school age and have little impact on adults or very young household members. Reductions in the allocation to health is likely to have its biggest impact on young children, pregnant women and the elderly. With this in mind, we turn next to examine the relationship between changes in budget shares and household composition and focus on expenditures associated with investments in human capital.

Household budget shares and household composition

The regressions in Table 6 include controls for the number of household members in each of 9 age groups, stratified by gender.[16] The key finding among urban household pertains to education expenditures. The shares are higher in households with more 15-19 year old males but this is not true for households that have more females in that age group. The difference between the male and female effects is significant. Additional adolescent females (10-14 year olds) in the households are associated with significantly lower education shares. Thus, young men (age 15-19) stand out as the only group associated with increases in education shares.

While the regressions estimates do not tell us who is benefitting from these higher shares, two obvious interpretations suggest themselves. First, households that have more young working-age men may be able to maintain their income by having these men enter the labor force; the rest of the household benefits from this additional income by increasing shares of commodities that are income elastic. That interpretation does not have a great deal of appeal since there is no evidence that any other shares are impacted by the presence of males in this age group. If the males are bringing income to the household, one would expect that income to be distributed to more goods than only education services. Moreover, this explanation does not provide a reason to expect the presence of teenage females to be associated with lower education shares as is observed.

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[16]The models include the number of members in each demographic group. We have experimented with including total household size and the number of members (excluding one group) to separate the effects of size from composition. The substantive results are essentially identical and so we report these estimates which are slightly more directly interpreted.

An alternative explanation is that it is these young men who are benefitting from the higher education shares and their sisters are making room for them in the household budget by having less spent on their own schooling. Two pieces of evidence provide some evidence in support of this interpretation. As discussed above, there is evidence that in the urban sector more young women have entered the labor market than young men between 1997 and 1998. 15-19 year old women are associated with higher shares spent on clothing -- possibly in order to find or keep employment.

The issue is explored further in Table 7 which is based on the same education share regression but it has been expanded to include an interaction between ℓnPCE and each of the household composition covariates. The estimates are standardized so that the direct effect (in the first column) is the effect of more members in each demographic group on education shares for the poorest household.

Among the poorest, education shares are significantly higher if there are more males age 15 to 19 and this effect declines with expenditure. In poor households, additional females in this age group are associated with higher education shares although the effect is much smaller than it is for males and it is not significant. (The difference between the male and female effect is significant.) Thus, the poor are not choosing to spend more on the schooling of the young men in the household while cutting education expenses for their sisters in the same age group: they are spending more on males while maintaining resources for both males and females to remain in school. Rather, the evidence indicates that among the poorest households, it is younger males *and* females (10-14 year olds) who are making room for the education expenses of their older siblings.   Low income households with more children in this age group have lower education shares. These (negative) effects are large and significant at the bottom of the PCE distribution but disappear as PCE increases indicating that the poorest children are likely paying a very large price in terms of foregone education opportunities.

The interaction between ℓnPCE and the number of females age 15 to 19 in Table 7 is negative and significant. This indicates that the lower education shares associated with additional 15-19 year old females in the household (in Table 6) is important among higher PCE households.   It is apparently young women in these households who are less likely to be in school and, as noted above, more likely to be joining the labor force.

The links between household consumption and household composition are markedly different in the rural sector.   Food shares (and staple shares) are lower in households with more older women and

female infants. This suggests that older women are either cutting their own consumption or searching out ways to cut the fraction of the budget spent on food (say, by preparing less expensive foods or preparing more food at home). Whereas education shares are higher among urban households with more males age 15 to 19, in the rural sector, additional males in this age group are associated with lower education shares. Additional females in this age group have no impact on education shares.

Turning to the interactive model in Table 7, we see the same pattern for younger children that was observed in the urban sector: education shares are substantially and significantly reduced in low PCE households that have more 10 to 14 year old children. The cuts are the same for male and female children and the magnitude of the cut declines as PCE increases. Furthermore, in rural households, there is a suggestion that education shares are lower if there are more young boys (5-9 year olds) in the household.

Summarizing these results, there have been substantial reductions in the share of the household budget allocated to schooling between 1997 and 1998. The reductions are concentrated among the poorest households. The regression results suggest that poor households in both urban and rural areas are investing less in the schooling of their young children (10-14 year olds). Frankenberg, Beegle, Thomas and Suriastini (1999) provide direct evidence in support of this interpretation. They show there has been a substantial reduction in enrollments and increase in drop-outs among children in this age group living in poor households. For example, among households in the bottom quintile of PCE, in 1997 5 out of every 100 children were not enrolled in school; by 1998, that number had doubled to 10. If these children do not enrol in school soon, they will likely bear the costs of the crisis their entire lives.

Among older children, the story is slightly more complex. In the urban sector, the schooling of older males (15 to 19) appears to be protected, particularly among the poorest whereas in the rural sector, the education of males in this age group is less likely to be protected. Urban women in this age group are more likely to have entered the labor force between 1997 and 1998, particularly those from higher PCE households; in the rural sector, males in this age group are more likely to have started working. The net effect is that there are significant declines in enrollment rates between 1997 and 1998 for this age group but no gender differences in the age-specific enrollment rates. (See Frankenberg, Beegle, Thomas and Suriastini, 1999.)

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4. Conclusion

In the mid-nineties, Indonesia was often cited as a remarkable success as it had emerged from one of the poorest nations three decades ago to being on the cusp of joining the middle income countries. In early 1998, the tables had turned and Indonesian was in the midst of a serious crisis. While the Government was negotiating for assistance from the IMF and international donors, there were dire predictions that the poverty rate in Indonesia would increase from around 10% to 50%, turning back three decades of progress. While the crisis in Indonesia is without doubt large and very far-reaching, those predictions are simply wrong.

Measuring the precise magnitude of the crisis is controversial. Nevertheless, the evidence in the IFLS suggests that its impact has been felt by households across the entire income distribution -- the poorest, the middle income groups and those who are better off -- although the effects have substantially differed across the income distribution and across space. There is evidence that households living in communities that are net food producers have been protected from the crisis presumably because they have benefitted from the relative increase in the price of food, particularly rice.

Households in the top and bottom quartile of the expenditure distribution have seen dramatic cuts in the real value of their resources. The higher relative price of food has resulted in all households allocating a bigger share of their outlays to food, and especially, staples. These increases are particularly large among the poorest households. Following Engel's Law -- which says that food shares are inversely related to welfare -- we would conclude that Indonesians are significantly and substantially worse off in late 1998 than they were a year previously.

Since food shares have increased, the share of the budget spent on non-foods must fall. Among other goods, there have been substantial declines in spending on health and education. Reductions in the share of the budget spent on education have been largest in the poorest households and they have been particularly marked in households with relatively more 10 to 14 year old children. Among 15-19 year olds, education expenses of males in urban households appear to have been protected, whereas the expenses of females in that age group appear to have been protected in rural households.

Together, the evidence presented here suggests that the immediate impacts of the crisis are unlikely to be the same as the medium- and longer-term effects. To the extent that mechanisms to smooth

consumption have consequences for human capital investments in children and young adults, the effects of the crisis may be felt by that generation for many years to come. Evidence in the IFLS suggests that these concerns are particularly germane for the poorest.

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Figure 1: Timing of IFLS & Indonesian exchange rate
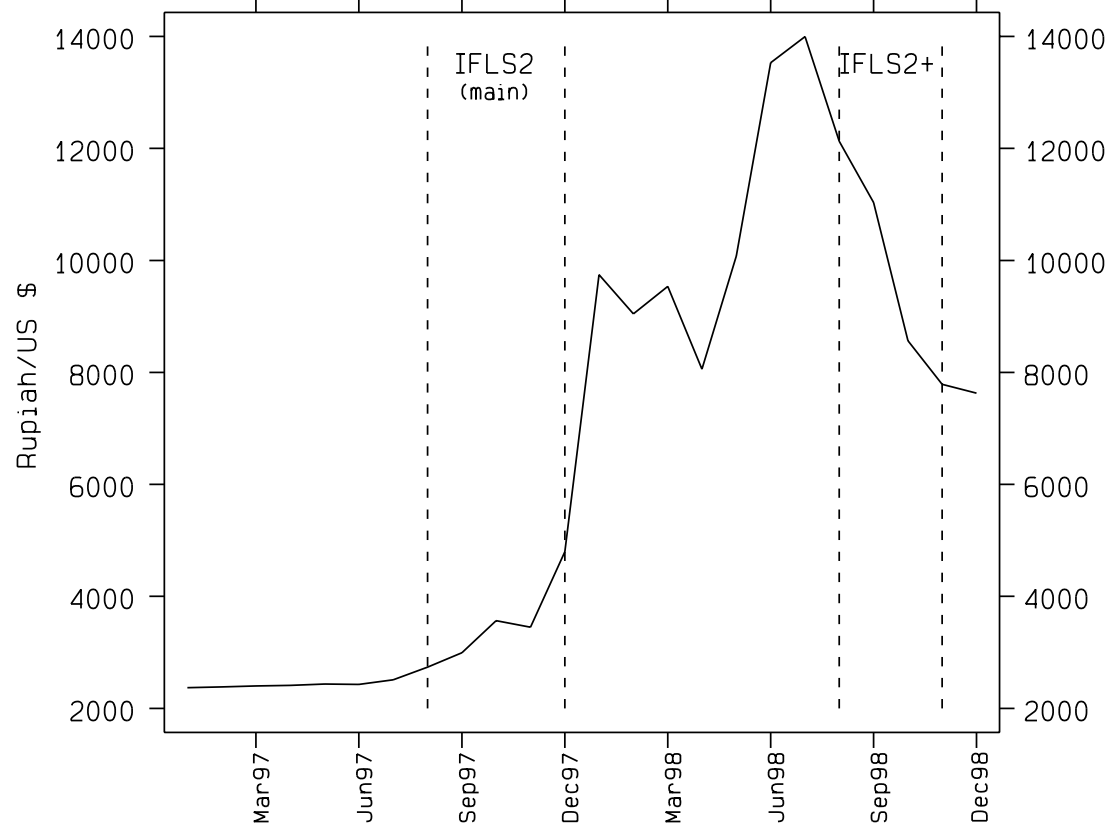
Figure 2: Distribution of lnPCE
Box and whisker plot
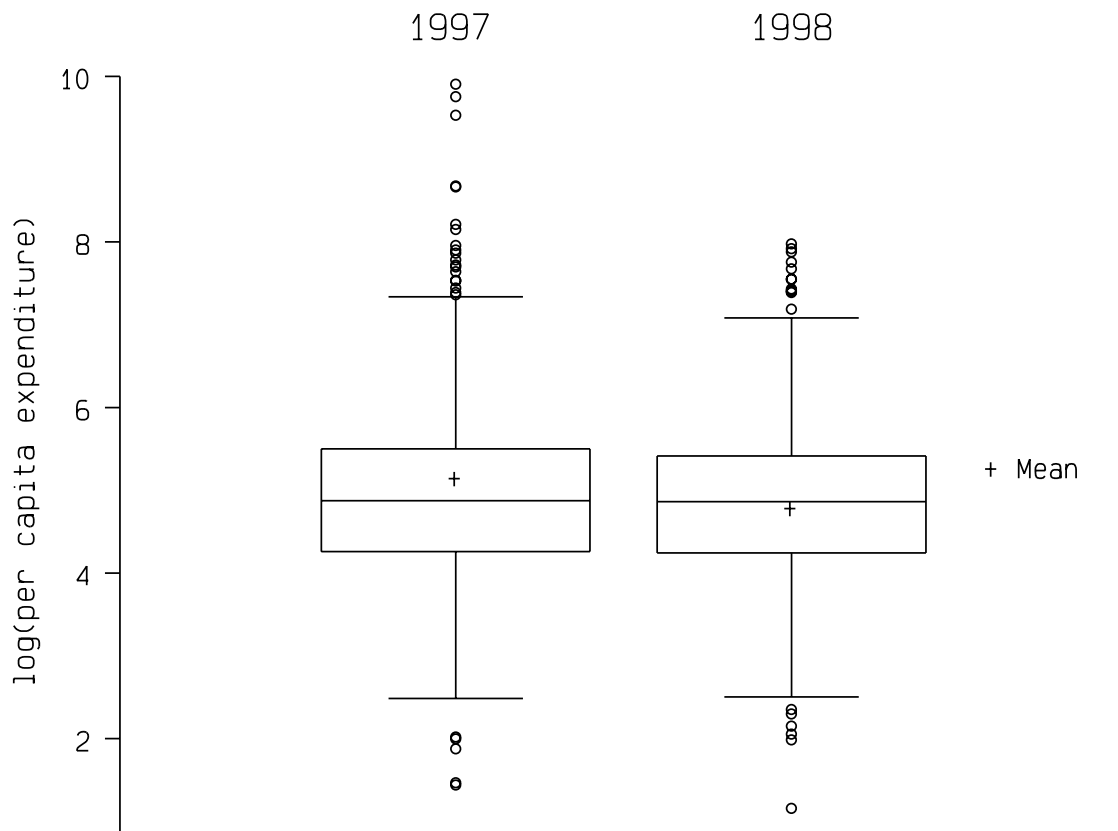
Figure 3: Distribution of PCE

PCE Lorenz curves: 1997 & 1998

PCE Generalised Lorenz curves: 1997 & 1998
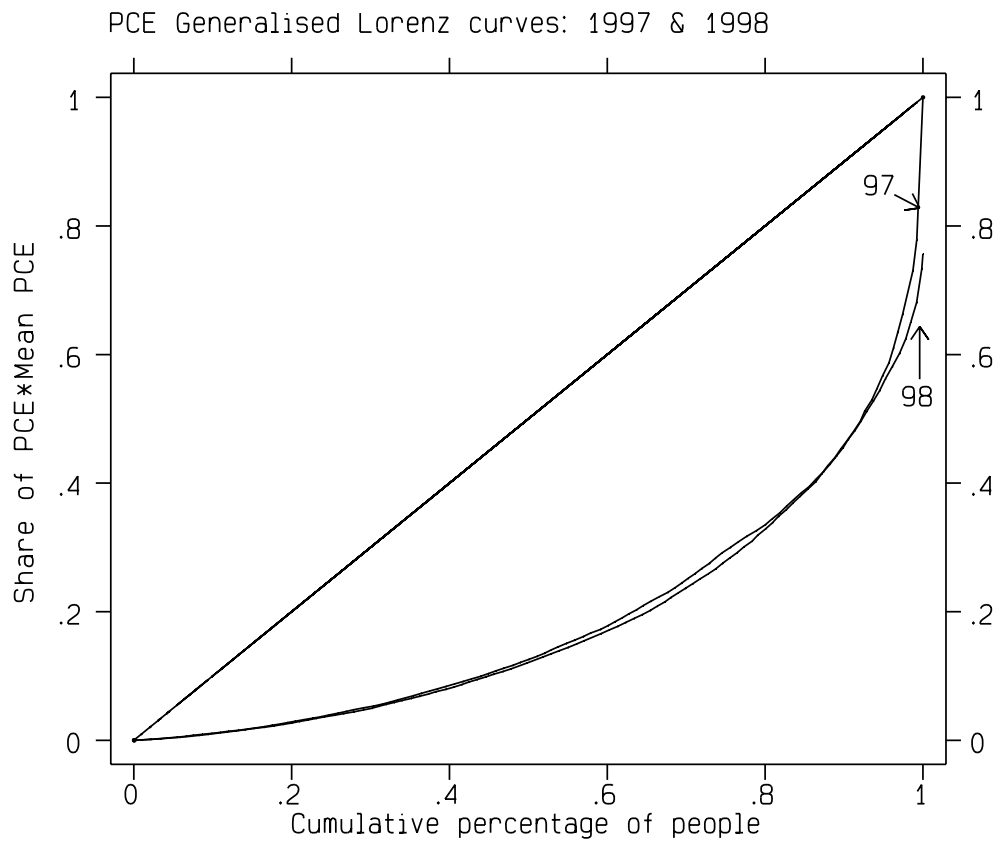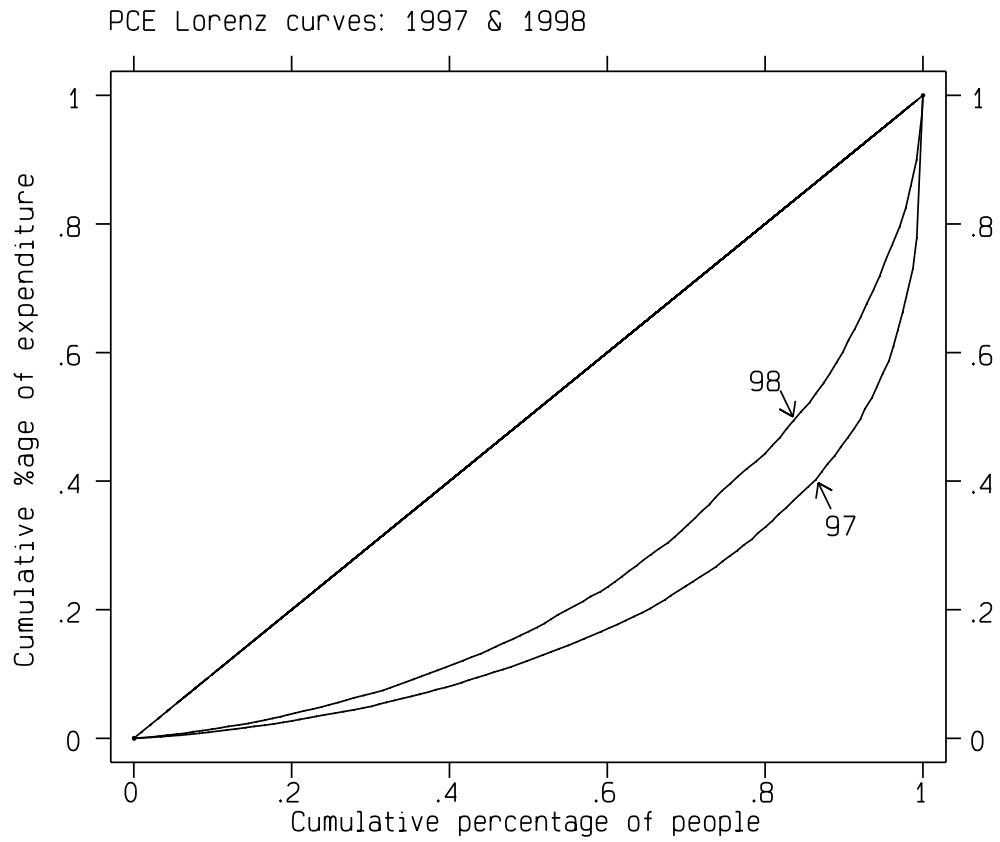
Figure 4
Per capita expenditure distribution: 1997 & 1998

A: BPS Inflation rate
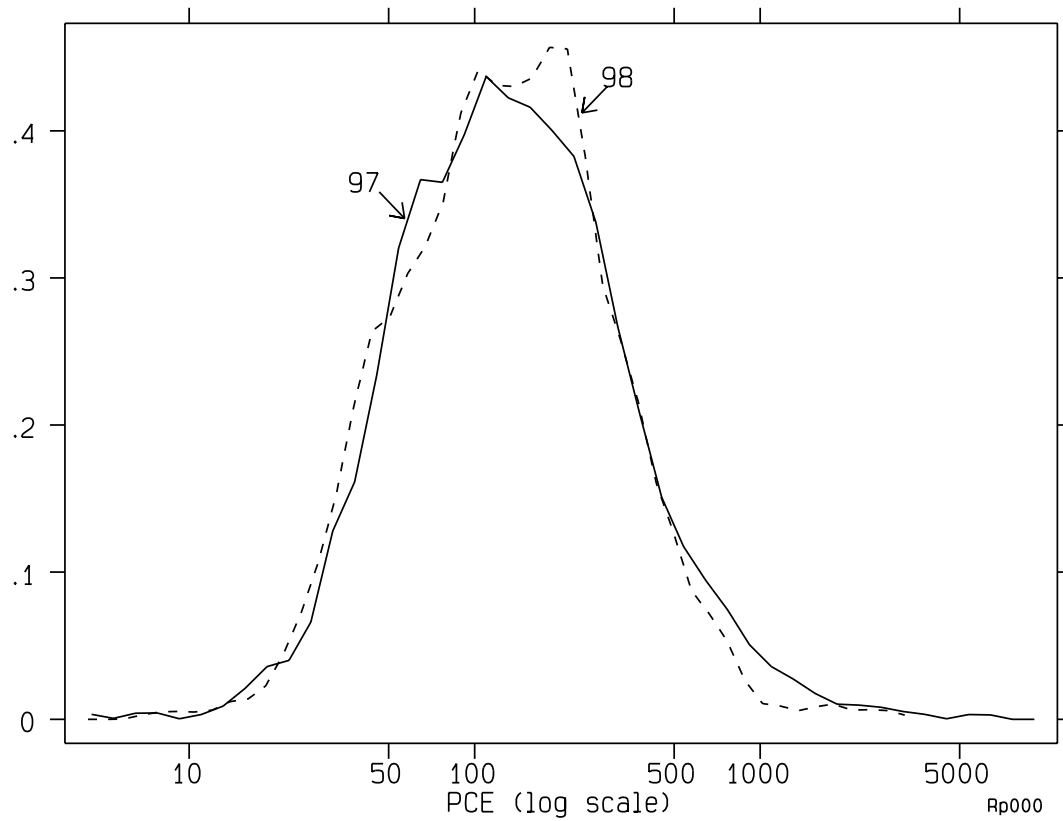
B: BPS-adjusted inflation rate
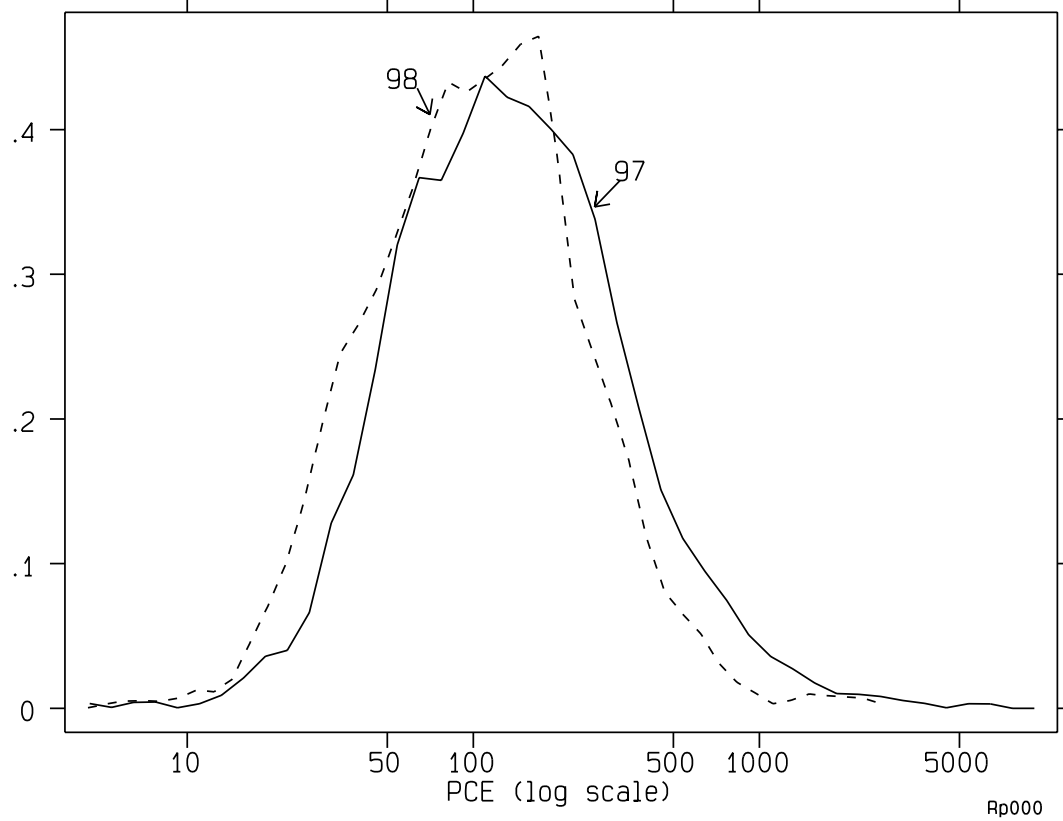
Figure 5: Distribution of PCE (BPS inflation rate)

PCE cumulative distribution: 1997 & 1998

Distribution to Rp100,000

Distribution to Rp50,000
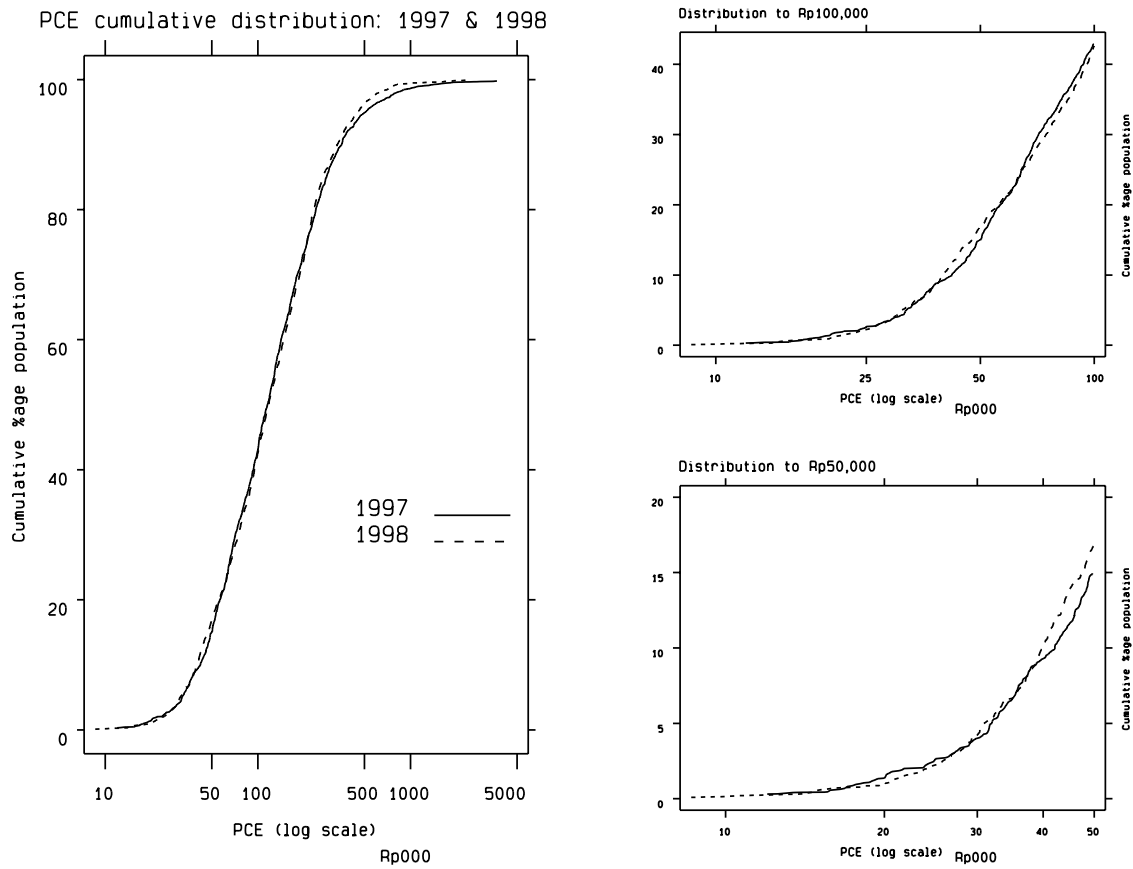
Figure 6: Distribution of PCE (BPS-adjusted inflation)

PCE cumulative distribution: 1997 & 1998

Distribution to Rp100,000

Distribution to Rp50,000
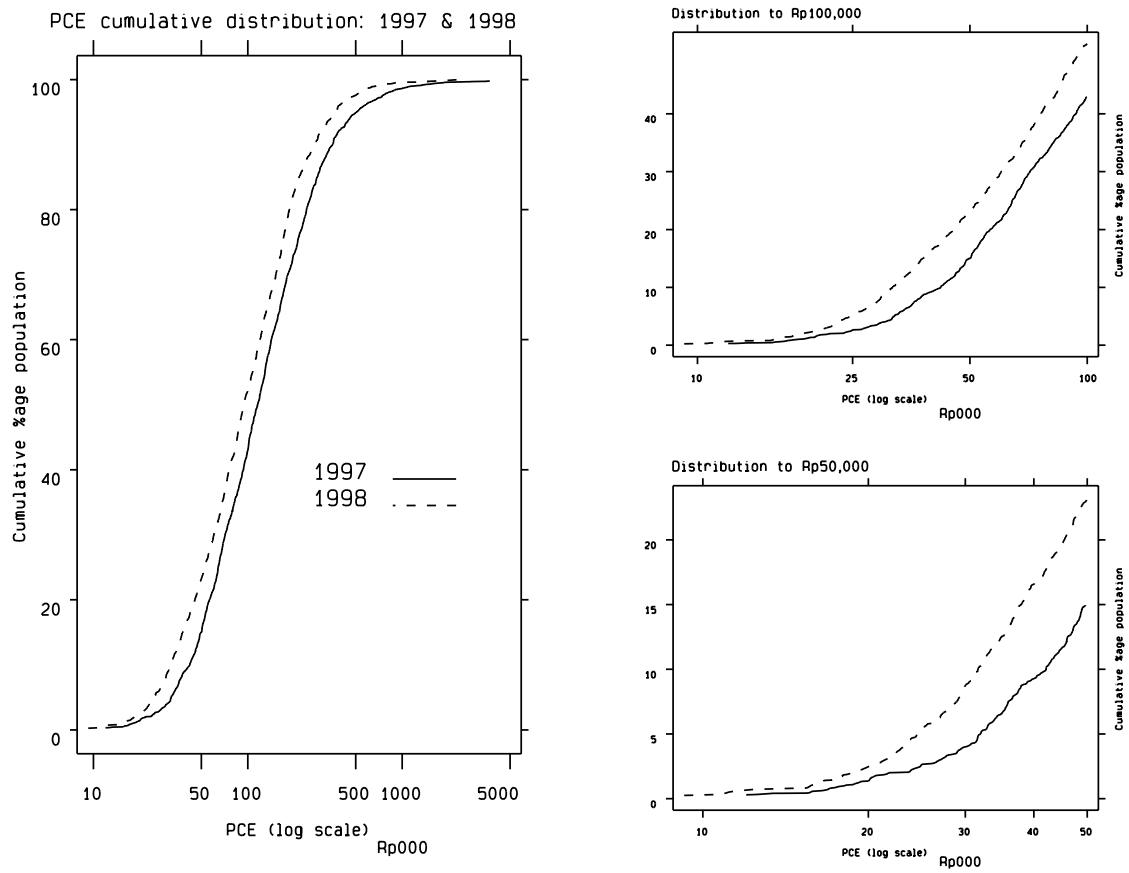
Figure 7: Distribution of PCE by sector

BPS inflation rate
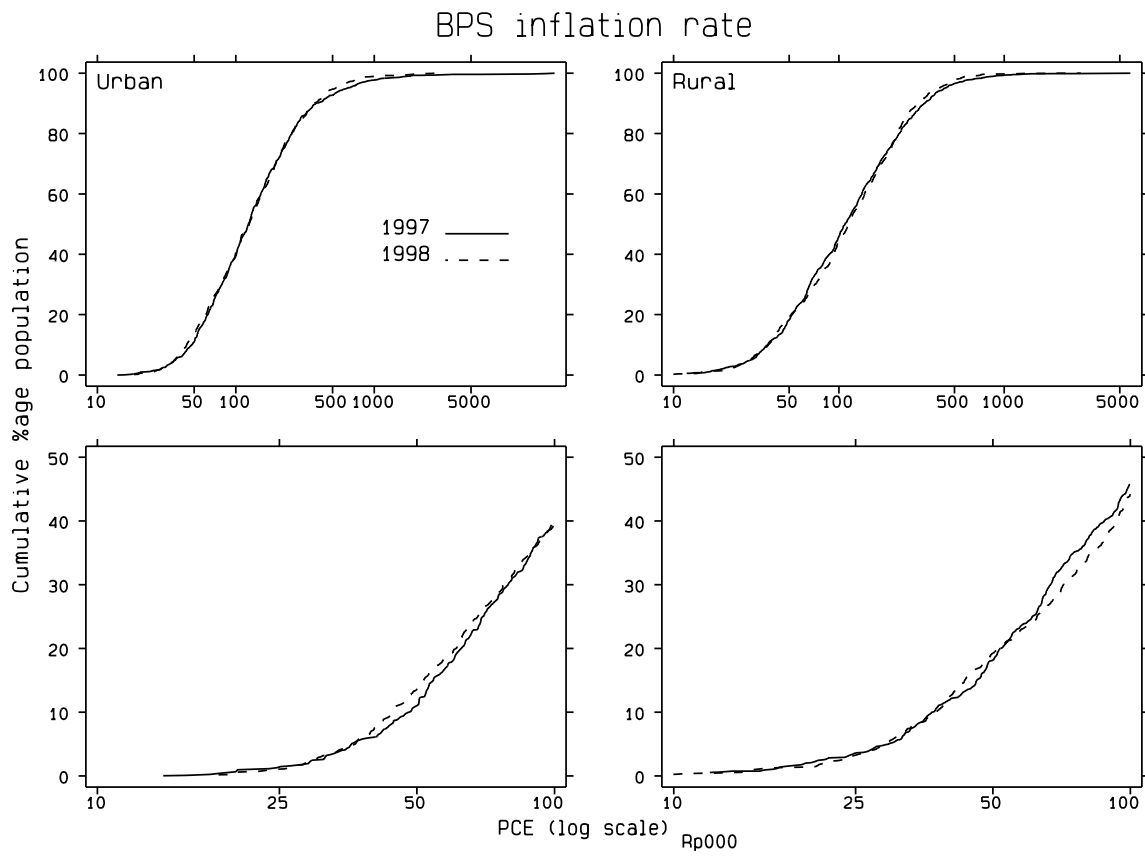
Figure 8: Distribution of PCE by sector

BPS-adjusted inflation rate
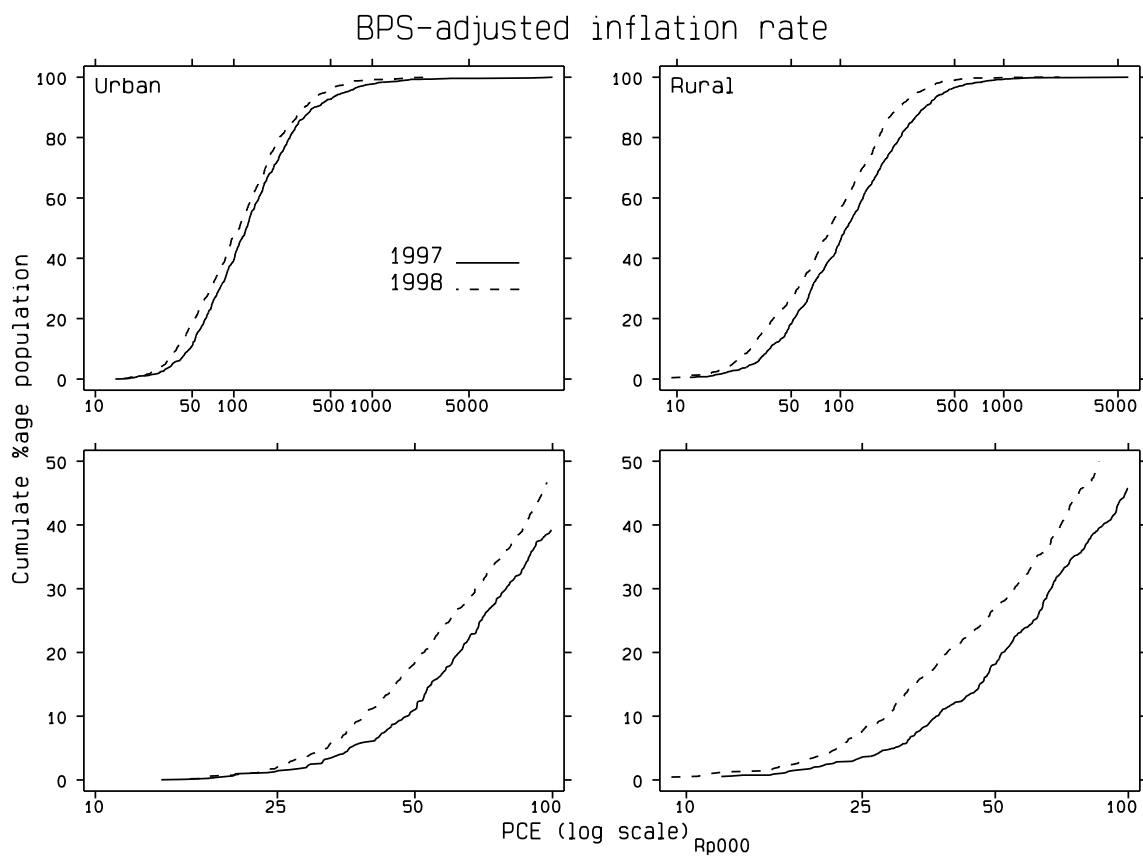
Table 1
IFLS2+: HH Attrition
A. HH completion rates: All IFLS HHs

Province	Target # HHs	# HHs Interviewed	% HHs interviewed All	Alive
Total	2066	1972	95.5	96.3
North Sumatra	240	228	95.0	95.8
South Sumatra	312	297	95.2	96.1
Jakarta	206	191	92.7	92.7
West Java	334	334	96.4	97.9
Central Java	464	449	96.8	98.3
NTB	306	298	97.4	98.0
South Kalimantan	204	187	91.7	91.7

B. HH completion rates: All IFLS2 HHs

Province	Target # HHs	# HHs Interviewed	% HHs interviewed All	Alive
Total	1934	1903	98.4	98.5
North Sumatra	213	208	97.7	97.7
South Sumatra	289	283	98.0	99.0
Jakarta	181	178	98.3	98.3
West Java	318	312	98.1	98.1
Central Java	452	445	98.5	98.9
NTB	295	295	100.0	100.0
South Kalimantan	186	182	97.9	97.9

C. Characteristics of all HHs and re-interviewed HHS

	All HHs	Alive in 98	Ivwd in 98 All	In origin	New locn
Per capita expenditure (Rp000)	78.69 [2.99]	78.69 [3.02]	75.26 [2.68]	72.67 [2.68]	111.59 [12.8]
Food share	53.76 [0.38]	53.63 [0.38]	53.62 [0.38]	53.53 [0.38]	55.40 [1.62]
HH size	4.51 [0.05]	4.54 [0.05]	4.57 [0.05]	4.62 [0.05]	3.82 [0.19]
Age of HH head	45.95 [0.33]	45.75 [0.33]	45.81 [0.33]	46.07 [0.33]	41.76 [1.44]

Notes: Means and [standard errors] based on data collected in 1993 for HHs that were living in the IFLS2+ EAs at that time. Columns based on all HHs in IFLS1, all HHs known to be alive in 1998 and all HHs interviewed in 1998. Among those HHs, distinguish those found in the original EA in 1998 from those who were tracked to a new location by 1998.

Table 2: IFLS Household expenditure: 1997, 1998 and changes
All households and households stratified by sector of residence
Prices based on BPS 44 city price index

		Total household expenditure			Per capita expenditure			Poverty rate	
		1997 (1)	1998 (2)	Δ (3)	1997 (1)	1998 (2)	Δ (3)	1997 (1)	1998 (2)
All Indonesia									
	Mean	921	823	-98	246	186	-60	11.0	13.8
	Std.err.	[79]	[22]	[77]	[18]	[5]	[17]	[1.5]	[1.8]
	Median	544	557	18	131	129	-4		
	Std.IQR	[15]	[16]	[13]	[4]	[4]	[3]		
	# obs	1883							
Sector of residence									
Urban	Mean	1227	944	-283	319	211	-108	9.2	12.0
	Std.err.	[184]	[41]	[181]	[41]	[10]	[40]	[2.3]	[2.6]
	Median	620	593	-12	141	134	-8		
	Std.IQR	[26]	[28]	[21]	[7]	[6]	[5]		
	# obs	797							
Rural (Urban price index)	Mean	705	738	32	194	168	-26	12.4	15.2
	Std.err.	[33]	[25]	[28]	[8]	[5]	[7]	[2.1]	[2.4]
	Median	481	528	33	127	125	-0		
	Std.IQR	[19]	[20]	[17]	[5]	[5]	[4]		
	# obs	1096							
Rural (5% higher inflation than in urban areas)	Mean	705	703	-2	194	160	-34	12.4	16.2
	Std.err.	[33]	[24]	[27]	[8]	[5]	[7]	[2.1]	[2.5]
	Median	481	503	14	127	120	-5		
	Std.IQR	[19]	[19]	[16]	[5]	[4]	[4]		
	# obs	1096							

Notes: All expenditure estimates are converted to annual equivalents in Rp000. 1998 estimates are in real (December 1997) Rp using province-specific price indices based on the 44 city price indices published by BPS. The second panel of rural estimates assume inflation in rural areas is 5% higher than in urban areas as suggested by the IFLS community level data. Poverty rates are for the population.

Table 3: IFLS Household expenditure: 1997, 1998 and changes
IFLS estimates of inflation rate between 1997 and 1998

		Total household expenditure			Per capita expenditure			Poverty rate	
		1997 (1)	1998 (2)	Δ (3)	1997 (1)	1998 (2)	Δ (3)	1997 (1)	1998 (2)
All Indonesia									
	Mean	921	668	-253	246	151	-95	11.0	19.9
	Std.err.	[79]	[19]	[77]	[18]	[4]	[17]	[1.5]	[2.1]
	Median	544	446	-69	131	104	-23		
	Std.IQR	[15]	[13]	[12]	[4]	[3]	[3]		
	# obs	1883							
Sector of residence									
Urban	Mean	1227	822	-405	319	184	-135	9.2	15.8
	Std.err.	[184]	[35]	[181]	[41]	[9]	[40]	[2.3]	[3.0]
	Median	620	519	-81	141	116	-21		
	Std.IQR	[26]	[25]	[20]	[7]	[5]	[5]		
	# obs	797							
Rural	Mean	705	560	-146	194	128	-66	12.4	23.0
	Std.err.	[33]	[19]	[27]	[8]	[4]	[7]	[2.1]	[2.8]
	Median	481	399	-66	127	95	-24		
	Std.IQR	[19]	[15]	[15]	[5]	[4]	[4]		
	# obs	1096							

Notes: All expenditure estimates are converted to annual equivalents in Rp000. 1998 estimates are in real (December 1997) Rp using a combination of BPS and IFLS prices. IFLS estimates of inflation for all IFLS2+ provinces are about 15% higher than BPS estimates; IFLS also estimates that rural inflation is about 5% higher than urban inflation. The BPS 44 city price indices have been converted to province-specific price indices which have been inflated by an additional 14% in urban areas and 16% in rural areas to generate the IFLS estimates of inflation. Poverty rates are for the population.

Table 4: Changes in ℓn(per capita expenditure) between 1997 and 1998: Correlates associated with Δℓn(PCE)

	Urban				Rural			
	Official infl (1)	Official infl (2)	Adjusted infl (3)	Community Fix-effs (4)	Official infl (5)	Official infl (6)	Adjusted infl (7)	Community Fix-effs (8)
Community characteristics								
mean lnPCE	.	-0.177	-0.143	.	.	-0.149	-0.095	.
		[1.79]	[1.41]			[0.90]	[0.60]	
std dev lnPCE	.	-0.308	-0.307	.	.	0.274	0.295	.
		[2.05]	[1.79]			[1.34]	[1.48]	
(1) main activity=agriculture	.	.	.	.	0.311	0.312	0.290	.
					[3.76]	[3.45]	[3.44]	
trading	0.061	0.128	0.079	.	0.408	0.44	0.438	.
	[0.73]	[1.46]	[0.82]		[2.08]	[2.13]	[2.22]	
services	-0.387	-0.289	-0.176	.	.	.	.	.
	[2.59]	[2.51]	[1.64]					
construction	0.054	0.069	0.101	.	0.029	0.025	0.070	.
	[0.58]	[0.92]	[1.28]		[0.5]	[0.42]	[1.23]	
military camp	0.105	0.168	0.071	.	-0.114	-0.102	-0.064	.
	[0.65]	[1.14]	[0.45]		[1.13]	[1.06]	[0.65]	
fraction of HHs own								
non farm business	-0.289	-0.362	-0.23	.	-0.278	-0.295	-0.301	.
	[1.15]	[1.63]	[0.96]		[1.37]	[1.38]	[1.31]	
farm business	0.525	0.464	0.459	.	0.152	0.126	0.126	.
	[2.36]	[2.11]	[2.09]		[1.15]	[0.97]	[1.00]	
(1) accessible by road all year	0.238	0.22	0.222	.	-0.482	-0.515	-0.496	.
	[1.7]	[1.61]	[1.59]		[4.00]	[4.02]	[4.34]	
(1) Kecamatan capital	-0.053	-0.083	-0.055	.	-0.201	-0.242	-0.240	.
	[0.55]	[0.97]	[0.57]		[2.81]	[2.7]	[2.9]	
Province								
(1) North Sumatra	0.237	0.067	-0.007	.	-0.419	-0.370	-0.405	.
	[1.73]	[0.43]	[0.04]		[3.68]	[3.26]	[3.78]	
(1) South Sumatra	0.281	0.194	0.225	.	0.226	0.173	0.247	.
	[1.61]	[1.36]	[1.41]		[2.02]	[1.35]	[1.97]	
(1) Jakarta	0.216	0.134	0.095	.	0.182	0.257	0.308	.
	[1.56]	[1.02]	[0.61]		[0.7]	[0.97]	[1.17]	
(1) Central Java	0.251	0.148	0.139	.	-0.103	-0.075	-0.082	.
	[1.68]	[1.15]	[0.91]		[0.87]	[0.68]	[0.75]	
(1) West Nusa Tenggara	0.175	0.065	-0.010	.	-0.150	-0.140	-0.059	.
	[1.06]	[0.41]	[0.05]		[1.23]	[1.09]	[0.44]	
(1) South Kalimantan	0.121	0.034	0.005	.	-0.232	-0.161	-0.160	.
	[0.85]	[0.27]	[0.03]		[1.73]	[0.95]	[1.09]	

Notes: Dependent variable is ℓnPCE98-ℓnPCE97. [t statistics] under regression estimates and [p values] below test statistics robust to heteroskedasticity and within EA correlations. West Java is excluded province.

Table 4 (continued): Changes in ℓn(per capita expenditure) between 1997 and 1998

	Urban				Rural			
	Official infl (1)	Official infl (2)	Adjusted infl (3)	Community Fix-effs (4)	Official infl (5)	Official infl (6)	Adjusted infl (7)	Community Fix-effs (8)
Household composition: number of gender age(yrs)								
males 0- 4	0.046	0.032	0.003	0.078	0.108	0.106	0.118	0.106
	[0.67]	[0.48]	[0.04]	[1.03]	[1.58]	[1.55]	[1.67]	[1.54]
females 0- 4	0.139	0.119	0.158	0.129	0.062	0.059	-0.001	-0.007
	[1.92]	[1.60]	[2.11]	[1.69]	[0.79]	[0.76]	[0.02]	[0.10]
males 5- 9	0.026	0.023	0.009	0.019	0.137	0.135	0.124	0.122
	[0.36]	[0.33]	[0.13]	[0.26]	[2.6]	[2.61]	[2.61]	[2.09]
females 5- 9	0.029	0.025	0.012	0.024	0.019	0.022	0.019	0.008
	[0.35]	[0.32]	[0.15]	[0.33]	[0.31]	[0.34]	[0.28]	[0.13]
males 10-14	-0.043	-0.05	-0.104	-0.025	0.002	-0.005	0.013	0.000
	[0.55]	[0.64]	[1.35]	[0.39]	[0.05]	[0.12]	[0.28]	[0.00]
females 10-14	-0.011	-0.019	-0.002	-0.021	0.053	0.049	0.044	0.021
	[0.17]	[0.28]	[0.03]	[0.35]	[1.09]	[1.01]	[0.89]	[0.34]
males 15-24	0.025	0.023	0.021	0.066	0.033	0.033	0.03	0.056
	[0.45]	[0.43]	[0.42]	[1.63]	[1.01]	[1.03]	[0.89]	[1.17]
females 15-24	0.152	0.146	0.118	0.147	0.098	0.098	0.113	0.072
	[3.04]	[2.89]	[2.33]	[3.1]	[1.60]	[1.60]	[1.89]	[1.39]
males 25-64	0.048	0.048	0.048	0.09	0.044	0.043	0.02	0.042
	[0.89]	[0.93]	[0.82]	[1.35]	[0.49]	[0.48]	[0.23]	[0.54]
females 25-64	0.183	0.172	0.158	0.136	0.204	0.202	0.226	0.251
	[2.85]	[2.54]	[2.25]	[2.44]	[2.57]	[2.56]	[2.99]	[3.84]
males >=65	0.047	0.046	0.115	0.03	0.021	0.021	0.026	0.051
	[0.33]	[0.32]	[0.77]	[0.21]	[0.16]	[0.16]	[0.20]	[0.40]
females >=65	0.073	0.072	0.206	0.033	0.102	0.099	0.086	0.065
	[0.75]	[0.72]	[1.94]	[0.32]	[0.98]	[0.94]	[0.83]	[0.65]
Household characteristics								
Age of head	-0.001	0.001	-0.002	-0.002	0.001	0.001	0.001	0.001
	[0.12]	[0.15]	[0.42]	[0.52]	[0.38]	[0.42]	[0.38]	[0.35]
(1) head is male	-0.015	-0.038	-0.037	-0.037	-0.059	-0.051	-0.053	-0.063
	[0.12]	[0.31]	[0.28]	[0.33]	[0.45]	[0.39]	[0.42]	[0.57]
Education of head	-0.01	-0.004	-0.006	-0.011	-0.008	-0.007	-0.01	-0.006
	[1.14]	[0.38]	[0.61]	[1.2]	[0.78]	[0.67]	[0.95]	[0.63]
Intercept	-0.824	0.394	0.19	-0.324	-0.151	0.369	-0.238	-0.418
	[2.61]	[0.78]	[0.37]	[1.57]	[0.59]	[0.5]	[0.34]	[2.36]
F(Community fixed effects)	.	.	.	1.761	.	.	.	1.818
				[0.00]				[0.00]
F(all covariates)	7.33	11.98	6.09	2.21	12.43	12.24	19.67	2.35
	[0.00]	[0.00]	[0.00]	[0.01]	[0.00]	[0.00]	[0.00]	[0.00]
R2	0.081	0.093	0.082	0.058	0.074	0.077	0.085	0.022
R2-within community	.	.	.	0.043	.	.	.	0.034
R2-between community	.	.	.	0.373	.	.	.	0.091
Number of observations			756				1072	

Table 5: IFLS Expenditure shares: Urban and rural sector

	Urban HHs				Rural HHs			
	1997 (1)	1998 (2)	Change (3)	%Δ (4)	1997 (1)	1998 (2)	Change (3)	%Δ (4)
Food	58.96	63.95	4.99 [0.86]	8	76.17	80.84	4.68 [0.62]	6
Staples	12.99	20.61	7.62 [0.77]	59	30.58	39.39	8.81 [0.90]	29
Meat	12.69	10.40	-2.29 [0.58]	-18	12.46	9.74	-2.72 [0.58]	-22
Dairy	3.66	3.74	0.08 [0.32]	2	2.67	2.64	-0.02 [0.22]	-1
Oil	1.93	2.89	0.96 [0.14]	50	2.70	2.48	-0.22 [0.20]	-8
Vegetables	8.91	8.51	-0.39 [0.45]	-4	11.47	12.94	1.48 [0.52]	13
Alcohol/tobacco	4.08	5.74	1.66 [0.80]	41	4.43	4.04	-0.39 [0.30]	-9
HH goods	8.17	6.80	-1.37 [0.31]	-17	3.59	3.17	-0.41 [0.16]	-12
Transport	3.15	3.20	0.04 [0.28]	1	1.80	1.51	-0.29 [0.18]	-16
Clothing	2.94	2.48	-0.46 [0.11]	-16	2.20	1.50	-0.69 [0.09]	-32
Housing	10.77	9.14	-1.63 [0.59]	-15	6.14	4.82	-1.32 [0.36]	-21
Recreation	2.58	2.05	-0.53 [0.22]	-21	1.83	1.70	-0.12 [0.16]	-7
Health	1.73	1.49	-0.24 [0.20]	-14	1.16	0.69	-0.47 [0.12]	-40
Education	4.91	4.51	-0.40 [0.27]	-8	2.38	1.81	-0.56 [0.13]	-24
# observations		797				1096		

Notes: Change is share in 1998 - share in 1997; standard error below change; %Δ is change as percentage of 1997 share.

Table 6a: Changes in budget shares: Urban households

	Food (1)	FOOD Staples (2)	Meat (3)	Alcohol& Tobacco (4)	Clothing (5)	NON-FOOD Health (6)	Education (7)
ℓn(PCE) (spline)							
-- below median	-5.512	0.782	-4.278	2.643	1.038	-0.51	-0.483
	[2.24]	[0.36]	[2.6]	[1.37]	[3.13]	[0.9]	[0.62]
-- above median	-0.075	-3.728	3.533	0.062	0.579	-0.353	1
	[0.05]	[2.68]	[3.4]	[0.05]	[2.76]	[0.99]	[2.02]
HH composition: # of							
males 0- 4	-1.429	-0.692	-0.809	-1.33	0.069	-0.766	0.907
	[0.71]	[0.39]	[0.6]	[0.85]	[0.26]	[1.67]	[1.42]
females 0- 4	3.419	1.061	0.859	0.015	-0.184	-0.624	0.393
	[1.68]	[0.58]	[0.63]	[0.01]	[0.67]	[1.34]	[0.61]
males 5- 9	1.772	-2.503	0.026	0.332	0.092	-0.237	-0.28
	[0.91]	[1.44]	[0.02]	[0.22]	[0.35]	[0.53]	[0.45]
females 5- 9	1.04	1.091	-1.262	-1.265	0.161	0.356	0.259
	[0.53]	[0.62]	[0.95]	[0.82]	[0.6]	[0.79]	[0.41]
males 10-14	-2.054	-1.359	-1.518	0.673	0.555	0.672	-0.317
	[1.22]	[0.9]	[1.35]	[0.51]	[2.44]	[1.74]	[0.59]
females 10-14	1.601	0.21	0.151	-0.742	-0.37	0.042	-1.049
	[1.02]	[0.15]	[0.14]	[0.6]	[1.75]	[0.12]	[2.11]
males 15-19	-0.738	-0.616	0.784	-0.358	0.15	-0.332	2.466
	[0.56]	[0.53]	[0.89]	[0.35]	[0.85]	[1.11]	[5.91]
females 15-19	0.173	0.372	0.645	-0.686	0.627	-0.192	-0.773
	[0.11]	[0.27]	[0.62]	[0.56]	[2.97]	[0.54]	[1.55]
males 20-24	-1.481	1.927	-2.868	-0.394	-0.107	0.018	-0.398
	[0.73]	[1.06]	[2.11]	[0.25]	[0.39]	[0.04]	[0.62]
females 20-24	0.79	-3.238	1.826	-1.116	0.53	0.102	-0.803
	[0.39]	[1.79]	[1.35]	[0.71]	[1.95]	[0.22]	[1.25]
males 25-39	-2.008	-1.729	-2.292	-1.737	0.233	0.134	-0.492
	[1.19]	[1.15]	[2.03]	[1.31]	[1.02]	[0.35]	[0.92]
females 25-39	-0.826	0.107	1.322	-0.539	-0.173	0.139	-0.111
	[0.48]	[0.07]	[1.14]	[0.4]	[0.74]	[0.35]	[0.2]
males 40-54	1.058	0.751	-0.111	1.092	-0.107	0.175	-0.611
	[0.42]	[0.33]	[0.07]	[0.55]	[0.31]	[0.3]	[0.76]
females 40-54	0.155	-1.394	0.68	-3.385	0.166	0.188	-0.639
	[0.07]	[0.71]	[0.46]	[1.97]	[0.56]	[0.37]	[0.92]
males 55-64	-3.916	-0.091	-0.342	1.103	-0.599	1.121	-0.802
	[1.06]	[0.03]	[0.14]	[0.38]	[1.21]	[1.33]	[0.69]
females 55-64	1.605	0.576	-0.423	-0.929	0.067	0.275	-0.249
	[0.57]	[0.23]	[0.23]	[0.42]	[0.18]	[0.43]	[0.28]
males >=65	1.398	0.66	-1.714	-3.506	-0.181	-0.322	1.071
	[0.34]	[0.18]	[0.63]	[1.1]	[0.33]	[0.34]	[0.83]
females >=65	-4.119	-0.464	0.447	-1.149	0.207	0.53	0.667
	[1.55]	[0.2]	[0.25]	[0.55]	[0.58]	[0.87]	[0.79]

Table 6a (continued): Changes in budget shares: Urban households

	Food (1)	FOOD Staples (2)	Meat (3)	Alcohol& Tobacco (4)	Clothing (5)	NON-FOOD Health (6)	Education (7)
Age of head	0.103	-0.065	0.005	0.061	-0.002	-0.048	-0.046
	[0.99]	[0.70]	[0.07]	[0.75]	[0.11]	[2.03]	[1.40]
(1) head is male	-1.786	-1.544	2.889	0.023	0.834	-0.646	-0.603
	[0.58]	[0.56]	[1.40]	[0.01]	[2.00]	[0.91]	[0.61]
Education of head	0.347	0.424	-0.252	0.011	-0.059	-0.006	0.000
	[1.49]	[2.04]	[1.62]	[0.06]	[1.89]	[0.11]	[0.00]
Intercept	26.881	7.998	15.196	-10.543	-6.088	4.631	4.303
	[2.17]	[0.72]	[1.84]	[1.09]	[3.65]	[1.63]	[1.09]
Joint tests							
F(Community fixed effects)	1.826	1.794	0.928	0.881	1.058	0.512	1.961
	[0.00]	[0.00]	[0.63]	[0.73]	[0.36]	[1.00]	[0.00]
F(all covariates)	1.12	0.92	1.48	0.78	2.38	0.98	2.71
	[0.32]	[0.57]	[0.07]	[0.76]	[0.00]	[0.49]	[0.00]
F(equal effects across gender)							
0-4 year olds	3.15	0.52	0.84	0.40	0.48	0.05	0.35
	[0.08]	[0.47]	[0.36]	[0.53]	[0.49]	[0.82]	[0.55]
5-9 year olds	0.07	2.15	0.49	0.55	0.04	0.89	0.38
	[0.79]	[0.14]	[0.48]	[0.46]	[0.85]	[0.35]	[0.54]
10-14 year olds	2.74	0.63	1.28	0.67	9.67	1.56	1.09
	[0.10]	[0.43]	[0.26]	[0.41]	[0.00]	[0.21]	[0.30]
15-19 year olds	0.21	0.32	0.01	0.05	3.25	0.10	26.91
	[0.64]	[0.57]	[0.92]	[0.83]	[0.07]	[0.76]	[0.00]
20-24 year olds	0.56	3.63	5.35	0.09	2.43	0.01	0.18
	[0.45]	[0.06]	[0.02]	[0.76]	[0.12]	[0.90]	[0.67]
R^2	0.029	0.028	0.04	0.019	0.066	0.03	0.069
R^2-within community	0.035	0.029	0.046	0.025	0.071	0.031	0.081
R^2-between community	0.022	0.131	0.002	0.006	0.123	0.00	0.267

Notes: Dependent variable=share$_{98}$-share$_{97}$. [t statistics] under regression estimates & [p values] below test statistics robust to heteroskedasticity and within EA correlations. West Java is excluded province.

Table 6b: Changes in budget shares: Rural households

	Food (1)	FOOD Staples (2)	Meat (3)	Alcohol& Tobacco (4)	Clothing (5)	NON-FOOD Health (6)	Education (7)
ℓn(PCE) (spline)							
-- below median	-7.266	-9.695	-3.233	3.452	1.178	0.769	1.546
	[5.49]	[4.92]	[2.52]	[5.50]	[6.90]	[2.90]	[5.90]
-- above median	-1.802	-2.299	0.025	0.927	0.765	-0.232	0.627
	[1.26]	[1.08]	[0.02]	[1.36]	[4.14]	[0.81]	[2.21]
HH composition: # of							
males 0- 4	-1.095	-1.974	-0.479	1.186	-0.03	0.07	0.233
	[0.76]	[0.92]	[0.35]	[1.74]	[0.16]	[0.24]	[0.82]
females 0- 4	-3.281	-1.673	-1.791	0.895	0.197	0.161	0.327
	[2.25]	[0.77]	[1.27]	[1.29]	[1.05]	[0.55]	[1.13]
males 5- 9	0.225	0.748	-1.536	0.873	0.096	0.077	-0.070
	[0.19]	[0.43]	[1.34]	[1.56]	[0.63]	[0.32]	[0.30]
females 5- 9	-1.121	0.159	-1.939	-0.386	0.127	-0.106	0.305
	[0.88]	[0.08]	[1.57]	[0.64]	[0.77]	[0.41]	[1.21]
males 10-14	0.19	-0.739	1.203	0.758	-0.097	0.189	-0.400
	[0.16]	[0.41]	[1.03]	[1.32]	[0.62]	[0.78]	[1.67]
females 10-14	0.124	-0.28	0.894	0.888	0.183	-0.073	-0.056
	[0.1]	[0.15]	[0.76]	[1.53]	[1.16]	[0.3]	[0.23]
males 15-19	0.413	-0.147	1.665	0.723	0.171	0.281	-0.615
	[0.32]	[0.08]	[1.35]	[1.19]	[1.04]	[1.10]	[2.43]
females 15-19	0.585	-0.935	0.103	-0.216	0.129	0.157	-0.175
	[0.48]	[0.51]	[0.09]	[0.37]	[0.81]	[0.64]	[0.72]
males 20-24	-1.236	-0.3	-2.472	-0.397	-0.473	-0.585	-0.076
	[0.73]	[0.12]	[1.50]	[0.49]	[2.16]	[1.72]	[0.23]
females 20-24	-1.98	-1.127	0.48	0.998	0.273	0.205	0.118
	[1.14]	[0.43]	[0.28]	[1.21]	[1.21]	[0.59]	[0.34]
males 25-39	-0.759	-1.063	-0.658	-0.472	-0.124	-0.008	0.169
	[0.43]	[0.4]	[0.38]	[0.56]	[0.54]	[0.02]	[0.48]
females 25-39	-1.483	-2.656	0.904	0.03	-0.145	-0.053	-0.318
	[0.9]	[1.08]	[0.56]	[0.04]	[0.68]	[0.16]	[0.97]
males 40-54	2.203	1.731	1.006	-1.126	-0.325	-0.449	-0.406
	[0.97]	[0.51]	[0.46]	[1.05]	[1.11]	[0.99]	[0.90]
females 40-54	-2.574	-2.007	1.547	0.615	0.221	0.287	0.135
	[1.43]	[0.75]	[0.89]	[0.72]	[0.95]	[0.80]	[0.38]
males 55-64	1.884	3.124	-2.253	-0.628	-0.062	-0.568	-0.410
	[0.66]	[0.73]	[0.81]	[0.46]	[0.17]	[0.98]	[0.72]
females 55-64	0.917	-3.746	2.682	-0.770	-0.160	0.249	0.562
	[0.43]	[1.17]	[1.29]	[0.76]	[0.58]	[0.58]	[1.32]
males >=65	-0.253	3.888	-1.13	0.333	0.159	-0.301	0.551
	[0.08]	[0.84]	[0.38]	[0.23]	[0.40]	[0.48]	[0.90]
females >=65	-5.909	-6.045	-1.275	-0.137	0.571	-0.213	0.631
	[2.71]	[1.86]	[0.6]	[0.13]	[2.03]	[0.49]	[1.46]

Table 6b(continued): Changes in budget shares: Rural households

| | | FOOD | | Alcohol& | | NON-FOOD | |
	Food (1)	Staples (2)	Meat (3)	Tobacco (4)	Clothing (5)	Health (6)	Education (7)
Age of head	0.012	-0.043	0.005	0.003	-0.009	0.003	-0.002
	[0.16]	[0.4]	[0.06]	[0.1]	[0.93]	[0.21]	[0.16]
(1) head is male	-2.226	-6.531	1.455	-0.967	0.365	0.514	0.224
	[0.88]	[1.72]	[0.59]	[0.8]	[1.11]	[1.01]	[0.44]
Education of head	0.458	0.706	0.076	-0.117	-0.049	-0.044	-0.018
	[2.35]	[2.43]	[0.40]	[1.26]	[1.94]	[1.12]	[0.46]
Intercept	40.797	60.338	9.85	-15.921	-6.097	-4.189	-7.751
	[5.74]	[5.7]	[1.43]	[4.72]	[6.65]	[2.94]	[5.51]
Joint tests							
F(Community fixed effects)	1.431	1.88	1.565	1.047	1.256	0.605	1.78
	[0.03]	[0.00]	[0.01]	[0.39]	[0.11]	[0.99]	[0.00]
F(all covariates)	2.98	2.02	1.09	2.67	5.87	0.79	4.45
	[0.00]	[0.00]	[0.35]	[0.00]	[0.00]	[0.74]	[0.00]
F(equal effects across gender)							
0-4 year olds	1.35	0.01	0.52	0.11	0.88	0.06	0.06
	[0.24]	[0.91]	[0.47]	[0.74]	[0.35]	[0.81]	[0.8]
5-9 year olds	0.72	0.06	0.07	2.80	0.02	0.33	1.42
	[0.4]	[0.8]	[0.79]	[0.09]	[0.88]	[0.57]	[0.23]
10-14 year olds	0.00	0.04	0.04	0.03	1.80	0.65	1.16
	[0.97]	[0.85]	[0.84]	[0.87]	[0.18]	[0.42]	[0.28]
15-19 year olds	0.01	0.08	0.76	1.14	0.03	0.11	1.43
	[0.93]	[0.78]	[0.38]	[0.29]	[0.86]	[0.74]	[0.23]
20-24 year olds	0.09	0.05	1.47	1.37	5.29	2.45	0.15
	[0.77]	[0.83]	[0.23]	[0.24]	[0.02]	[0.12]	[0.7]
R^2	0.058	0.028	0.019	0.052	0.115	0.016	0.083
R^2-within community	0.063	0.044	0.024	0.057	0.117	0.018	0.091
R^2-between community	0.004	0.141	0.014	0.099	0.103	0.009	0.175

Notes: Dependent variable=$share_{98}$-$share_{97}$. [t statistics] under regression estimates & [p values] below test statistics robust to heteroskedasticity and within EA correlations. West Java is excluded province.

Table 7: Changes in education shares
Interactions between household composition and ℓnPCE

Household composition: # of	Urban		Rural	
	Direct effect (1)	Intxn *ℓnPCE (2)	Direct effect (1)	Intxn *ℓnPCE (2)
Males 0- 4	-1.439	1.205	-0.347	0.177
	[0.75]	[1.39]	[0.31]	[0.50]
Females 0- 4	-0.143	0.307	0.53	-0.06
	[0.09]	[0.42]	[0.47]	[0.17]
Males 5- 9	-1.909	0.63	-1.059	0.345
	[1.03]	[0.80]	[1.16]	[1.20]
Females 5- 9	-0.681	0.617	0.83	-0.126
	[0.41]	[0.86]	[0.79]	[0.39]
Males 10-14	-4.824	2.036	-2.903	0.807
	[3.12]	[3.18]	[3.19]	[2.96]
Females 10-14	-3.894	1.387	-2.302	0.672
	[2.97]	[2.56]	[2.46]	[2.52]
Males 15-19	7.747	-2.376	-2.36	0.540
	[5.74]	[3.96]	[2.15]	[1.68]
Females 15-19	2.529	-1.551	-0.545	0.116
	[1.65]	[2.40]	[0.51]	[0.37]
Males 20-24	-2.887	1.059	0.16	-0.076
	[1.55]	[1.40]	[0.12]	[0.19]
Females 20-24	-4.157	1.446	0.66	-0.177
	[1.95]	[1.61]	[0.49]	[0.45]
Males 25-39	0.038	-0.05	0.373	-0.105
	[0.03]	[0.10]	[0.31]	[0.29]
Females 25-39	-0.952	0.331	-1.591	0.384
	[0.62]	[0.56]	[1.26]	[1.05]
Males 40-54	-0.643	0.24	-0.437	-0.027
	[0.33]	[0.31]	[0.33]	[0.07]
Females 40-54	-5.017	1.749	0.404	-0.084
	[2.77]	[2.54]	[0.30]	[0.22]
Males 55-64	0.628	-0.413	0.894	-0.388
	[0.25]	[0.43]	[0.58]	[0.90]
Females 55-64	-1.21	0.324	1.268	-0.222
	[0.62]	[0.43]	[0.86]	[0.53]
Males >=65	1.075	0.097	1.233	-0.233
	[0.40]	[0.11]	[0.81]	[0.55]
Females >=65	0.589	-0.145	1.767	-0.343
	[0.26]	[0.16]	[1.25]	[0.85]

Dependent variable is share on education$_{98}$-share on education$_{97}$. [t statistics] in parentheses robust to haeteroskedsasticity and within EA correlations. Direct effect is measured for HH at bottom of PCE distribution. mean(ℓnPCE)-min(ℓnPCE)=2.5 in urban sector, 3.4 in rural sector; max(ℓnPCE)-mean(ℓnPCE)=5 in urban sector, 3.8 in rural sector.