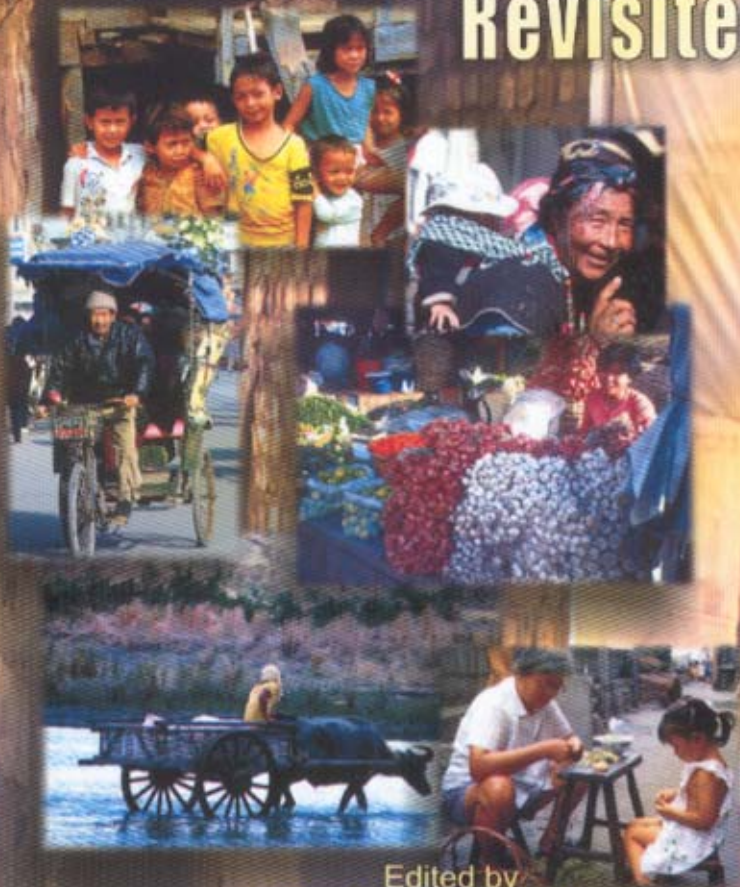


Impact Of the East Asian Financial Crisis Revisited



Edited by
Shahid Khandker



THE WORLD BANK INSTITUTE



PHILIPPINE INSTITUTE FOR DEVELOPMENT STUDIES
Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

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FOREWORD

Since the day that the devastating effects of the 1997 East Asian financial crisis wrought havoc to the erstwhile “wonder economies” of the region, so many analyses and insights have been written about the possible causes, impacts and consequences of the crisis. One is thus tempted to ask if there is anything more or anything new that can be said about it.

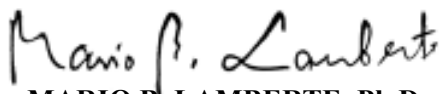
Apparently, there is, as proven by the studies in this volume of selected workshop papers on the impacts of the crisis on six affected Asian countries: Malaysia, Thailand, Indonesia, South Korea, China and the Philippines. As indicated in the introduction by Dr. Shahid Khandker of the World Bank Institute (WBI), for instance, the country paper on Malaysia is the first-ever that provides a detailed analysis on the effects on income distribution in that country and gives a frank account on how Malaysia’s maverick policies to mitigate the negative impacts of the crisis might have helped Malaysia get through it. The same is true with the five other papers which offer new insights on certain issues that were otherwise already looked into before.

One point, however, stands out in all of the papers. That analysis and decisions cannot be properly made nor programs appropriately designed without a sound information and data base. This was what the workshop where these papers were presented and the workshop previous to it were all about. Improving capacity-building in terms of data collection and analysis

in various countries to enable their researchers and analysts to come up with informed studies that would help bring about the right decisions.

And as the papers' analyses on the impacts of the financial crisis show here, the availability of such sound data and information indeed was instrumental in coming up with the rigorous examination and review contained in the studies. I therefore hope that this volume, albeit the fact that it is one among many studies on the crisis, will stand out for what it distinctly offers.

Finally, I thank the World Bank Institute and the World Bank East Asia Region for the opportunity given to the Philippine Institute for Development Studies (PIDS) to collaborate in the planning and organization of the workshops that led to these studies as well as in the publication of this volume. I also thank the paper writers, the discussants/commentators of the papers, and all the participants and institutions involved in the two workshops that led to the finalization of the papers.


MARIO B. LAMBERTE, Ph.D.
President, PIDS

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This book is a proceeding of a workshop on the impact of the financial crisis in the East Asian countries held in May 2001 in Manila, Philippines. The papers included in the book were selected on the basis of the scope and depth of the analysis on issues related to the crisis in the most affected countries in the region. The workshop was a follow-up of an earlier one held in May/June 2000, which was a hands-on training on the use of panel data to assess the impact of the financial crisis. Both workshops were organized by the Philippine Institute for Development Studies (PIDS) and funded by the World Bank's East Asia Region and the World Bank Institute (WBI). The papers included in this edited book benefited from the discussions of Tamar Manuelyan Atinc of the World Bank; Celia Reyes, Tomas Africa, Isidoro David, Romulo Virola, Ofelia Templo and Mario Lamberte of the Philippines; Chanapal Suchart, Isra Sarntisart and Jirawan Boonperm of Thailand; Li Zezhong of China; Kon-Hee Kim of Korea; Soedarti Surbakti and La Ode Syafuddin of Indonesia; Saidah Hashim, Abdul Rahman Hasan and Ali Hamsa of Malaysia; and other workshop participants.

The authors of the papers selected for this book worked really hard to make this book a reality. For some of them, the task of working on the papers was monumental, considering their busy work schedule. They deserve deep gratitude for their hard work and professional commitment to learning and local capacity enhancement for better policymaking. The pa-

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On behalf of the WBI and PIDS, I would like to express our deep gratitude to all of them for the help in publishing this book, to the resource persons and commentators for the comments and suggestions, and to the participants for their hard work. The views expressed in this volume are entirely the authors' and do not necessarily reflect those of the World Bank and other organizations they are affiliated with. The WBI and PIDS do not also take the responsibility on the accuracy of the data and their analysis and presentation. Any errors or omissions in data analysis and its presentation rest entirely with the authors.


SHAHID KHANDKER
Editor

Introduction

*Shahid Khandker**

U ntil 1997, the East Asian economies were enjoying unprecedented high economic growth and remarkable living standards with very low incidence of poverty. These achievements came to a halt with the onset of the financial crisis in Thailand in July 1997, which quickly spread to the entire East Asian region. The crisis reduced economic growth from a double-digit rate to a negative rate and affected the lives of several millions of people in the region, with the worst effects felt in Indonesia, Malaysia, Thailand, South Korea and the Philippines. What went wrong?

Analysts argue that the most critical factor that caused the downslide to poverty was the poorly regulated domestic financial systems. The region's success in terms of rapid economic growth, good economic management and low indebtedness attracted private investments. But the capital inflows, while they spurred growth, were channeled

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through poorly regulated financial systems. Indeed, the liberalization of financial markets in East Asia in the nineties was carried out without provisions for adequate prudential regulation and supervision. This allowed banks and financial institutions to expand credit beyond limits. The use of unhedged foreign capital in credit expansion had made these institutions naturally vulnerable to sudden currency fluctuations. On the other hand, the corporations, in the absence of fully developed bond and equity markets, borrowed heavily to finance rapid business expansion; in the process, they also became vulnerable to interest rate increases due to the sudden currency crisis (e.g., World Bank 1998; Kawai et al. 2001).

Although most analysts predicted in the beginning that the crisis would only last a few months, it turned out to be unprecedented in terms of the length, speed and severity of the contagion effect that spread to other countries in the region. It was the trade linkages that fostered the spread of the currency crisis in most East Asian economies. The asset values drastically fell to witness greater outflows of financial capital from the region, making the financial crisis even worse.

The financial crisis that originated in Thailand created serious havoc in East Asia and prompted the governments to pursue stringent fiscal and monetary measures as well as countercyclical devices to control the crisis. Research shows that the East Asian financial crisis has a long lasting effect on the growth prospects in the region. Barro (2001), for example, found no substantial recoveries in investments in 2000 to the region's pre-crisis period. Yet some studies show that countries that followed these policies eventually did well. The balance of payments improved and the inflation rates declined. Such conditions yielded favorable conditions for higher income growth. East Asia is once again the world's fastest growing region (e.g., World Bank 2000). However, sustaining economic recovery, broadening its outreach and extending its duration are some of the challenges the East Asian governments still face in order to reduce poverty further.

What were the social consequences of the financial crisis that we know so far? The economic crisis had four severe effects on households: falling labor demand, sharp price shifts, a public spending squeeze, and erosion of the social safety net. On top of these, some countries such as Indonesia and the Philippines had been simultaneously hit by

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drought.¹ In any case, the crisis created a decline in real wage, displacement of industrial labor, and a shift from wage to non-wage employment. The impacts of price changes on poverty, however, are found to be far more significant than the impacts of income changes on poverty during the crisis. The crisis exacerbated poverty over a long period even if it did not have an adverse effect on overall income distribution. The social consequences of the crisis, though, were uneven and the poor and the vulnerable in the urban areas suffered more than the urban rich and rural households (e.g., Gragnolati 2001; Betcherman and Islam 2001; Azis 2002).

How did the governments respond to contain such social consequences, especially the labor displacement? Many governments responded to labor market changes through active labor market interventions in terms of job creation, skills training, employment services, employment subsidies and income transfers. Unfortunately, some of the programs were poorly designed and implemented with poor targeting, making them ineffective in reaching the poor in several countries. Some policies were even counterproductive. For example, the Indonesian government could have avoided political instability had it not removed subsidies all at once (Lee and Rhee 1999).

The lessons learned in the East Asian financial crisis are that financial liberalization without appropriate prudent regulation and supervision is not conducive for growth and that even if financial systems are prudently regulated and supervised, better social policy formulation and implementation to contain or reduce the social consequences of such crisis hinge on better and readily available information. Indeed, an analysis of the possible impacts of the financial crisis based on household survey data was very much needed to guide policymakers to design better policies and programs to handle the crisis. Even if governments and donors alike were interested in tracking down the distributional impacts of the crisis and the likely consequences of the government policy actions, this was not possible because of the lack of appropriate information that could have facilitated such an exercise.

¹ This is why it is difficult to isolate the impact of the financial crisis on social conditions, including poverty in several countries.

Consequently, the East Asian financial crisis created a huge impetus for new data collection and analysis in East Asia. Many countries with donor assistance spent a lot of resources in collecting household survey data to support such an analysis for policymaking. While great efforts were already made to collect timely data and reduce data processing lags, limited local capacity to analyze the newly collected data was identified as a constraint that reduced the extent by which analysis could inform policymakers about the social impact of the crisis and influence the design of mitigating programs and policies.

In May 2000, the World Bank Institute (WBI), in partnership with the World Bank's East Asia Region (EASPR), delivered a two-week hands-on training workshop entitled "The Impact of the East Asian Crisis: Poverty Analysis Using Panel Data." This workshop was held in Manila, Philippines, in collaboration with the Philippine Institute for Development Studies (PIDS). The workshop was designed to help strengthen local analytical capacity on the use of panel household data to analyze the impact of the financial crisis on poverty and other indicators of household welfare. It provided hands-on training to about 35 participants from 9 countries on techniques using STATA application on household survey data. Some of the workshops participants were keen in applying what they learned to their country data sets.

Building up on this interest, the participants were later asked to analyze available data to assess the impact of the crisis, with help from designated resource persons for each country team. The papers they wrote became the centerpiece of the follow-up workshop entitled "Strengthening Poverty Data Collection and Analysis" that was held again in Manila on April 30-May 3, 2001. In this workshop, policy analysts joined the policymakers and government statisticians in presenting their country reports. The participants shared their views on the state of statistics and data collection in support of poverty analysis for better policymaking in their countries. Government policymakers discussed the implications of the data analysis and its use in policymaking for better monitoring and evaluation of poverty reduction strategies.

Some of the papers presented in this follow-up workshop are included in this volume—*Impact of the East Asian Financial Crisis Revisited*—which reflects the analysis carried out by local researchers and

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policy analysts. Some of their research findings are based on newly available data. The volume is a result of the partnership between WBI and PIDS in enhancing local capacity. The studies presented here are from China, Indonesia, Malaysia, the Philippines, South Korea and Thailand. The papers, written by the trainees of the first workshop, except for China and Korea, are products of the use of enhanced local capacity in the government, academe and private societies. The local analytical capacity building is a recognized tool for improving the performance of the governments in countries with weak capacity. This volume shows the potential validity of this argument and is expected to guide policymakers in the region to better handle crises in the future.

The findings of these papers corroborated some of the findings of earlier studies on the subject. The uneducated, inexperienced, young female workers, and the urban sector suffered most from the crisis. However, the pattern of social consequences of the crisis is not universal. For example, the rural and agriculture sectors suffered more than the urban sectors in countries such as Indonesia and the Philippines. In contrast, it was the urban sector and industrial workers who suffered most in countries such as Thailand, Malaysia and South Korea. The financial crisis was accompanied by El Niño (weather crisis) in some countries such as Indonesia and the Philippines, where the effects of the crisis were magnified as a result. Indonesia was also hit by political unrest. Thus, in some countries such as Indonesia, the impact of the crisis was longer than in other countries. In some countries, even if there was no political unrest or weather crisis, the poverty situation lasted long. For example, in South Korea, the economic growth rebounded within a year but the poverty situation did not improve as fast as the economic growth.

It is now recognized that the governments were not prepared to handle such an economy-wide crisis of unprecedented size. Thus, programs and policies were not properly designed and implemented. One lesson from this crisis is that the countries need a good safety net program in place to mitigate the negative consequences of a similar crisis in the future. Yet another lesson is that local capacity must be improved to collect and analyze information on a timely fashion to support policymaking.

The first paper of this edited volume is by Ragayah Mat Zin on the impact of the financial crisis on poverty and inequality in Malaysia. She

presented an interesting account of what had happened in Malaysia after the financial crisis that hit in 1997. Malaysia adopted countercyclical measures in early 1998 when it discovered that the IMF-prescribed tight monetary and fiscal devices were not helping much to revive the Malaysian economy. The economy rebounded in 1999 after Malaysia adopted these countercyclical measures. Based on household income survey data of the Government Statistics Department covering 1995, 1997 and 1999, she calculated the incidence of poverty for various groups for both the pre- and post-crisis periods. She used the poverty line income (PLI) to calculate poverty incidence. The PLI takes into account the minimum requirements for food, clothing and shelter, and other regular expenditures that are necessary for a household to maintain a decent standard of living.

Her findings confirm that rural households of Malaysia were less affected by the crisis than urban households. This was partly because of the resurgence of rural income brought about by currency devaluation. More interestingly, even if the urban poor were seriously affected, urban inequality actually improved during the crisis. Moreover, the distribution of income shown for 1995, 1997 and 1999 suggests that antipoverty and social safety net programs implemented during the crisis must have contributed to lifting the poorest from poverty.

The incidence of poverty was highest among the elderly over 65 years of age and those below 30 years old. The incidence of poverty also varied inversely with the number of income recipients. Finally, households with no children had higher levels of poverty incidence. During the crisis, households in Peninsular Malaysia increased their expenditure share in food, rent, fuel and power as well as in medical care, but the share decreased in other expenditure groups, especially transport and communication. Households adopted several coping mechanisms to deal with the crisis, including employment and income adjustments, and sending wives and children out to work. They also adjusted the consumption pattern by cutting back on expensive goods expenditure.

The value of Mat Zin's paper is that there has been very little known on the impact of the financial crisis on poverty incidence and income distribution in Malaysia. While some studies tried to address the social issues of the crisis in Malaysia based on small quick surveys, as Mat Zin indi-

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cated, her analysis is the first detailed analysis on this subject based on large household survey data on Malaysia.

She opined that the severity of the crisis impact was less in Malaysia than in other East Asian economies. She attributed this to three factors: (1) the government's relatively high social expenditures and its adoption of pro-poor programs during the crisis; (2) the already tight labor market, with foreign labor bearing the wrath of the crisis through reverse migration; and (3) the reversal of tight monetary policies that prevented many firms from closing down.

The second paper is on Thailand presented by Sunantha Natenuj. Her account of the crisis and its impact on Thai society shows us of what could happen if an economy slides down as a result of a financial crisis. In Thailand, all the trickled-down benefits of economic growth have been washed away within a few months, causing a severe blow to the system as unemployment rate rose substantially. Although things have improved since the crisis due to better policies and management of the financial system, high unemployment rate still persists. She found that the impact of the financial crisis was severe among the poor. Her impact analysis of the 1997 economic crisis also explored the impacts of policies and programs implemented by the government to mitigate the social consequences.

The data used in Netenuj's study were drawn from the Socio-Economic Surveys conducted by the National Statistical Office of Thailand. The analysis covered the years 1988, 1990, 1992, 1994, 1996, 1998 and 1999. The study followed the method developed by Kakwani and Krongkaew (1997) in measuring the incidence of poverty and isolating the effects of economic crisis. Since measuring the impact of the crisis by looking only at the period just before and after the crisis cannot isolate the impact, a crude method was employed that applies the average trend growth rate during the pre-crisis period to calculate the expected value and crisis index during crisis.

Using the headcount ratio, the poverty gap ratio and the severity of poverty index, Natenuj found that the poverty incidence had increased substantially during the crisis. By dividing the poor into ultra poor, marginal poor and near poor, she found that the impact of the crisis had been most severe for the ultra poor. Unlike Malaysia, she found that the income

inequality worsened during the crisis. However, like Malaysia, households headed by older people and young individuals of ages 15-24 suffered most during the economic downturn. Household income, in general, decreased because of the crisis and the most common coping strategy taken by the poor was changing eating pattern, which caused malnutrition. Dropping children out from school was rarely done. The author's analysis, however, shows that the benefits of government programs were enjoyed, in general, by non-poor households. Poor households had little or no access to the social welfare programs provided by the government. The informal safety nets of Thai societies were also under serious stress. Under these circumstances, government programs became the last resort for many poor. However, because of poor design and targeting, these programs had failed to reach the poor to reduce the severity of poverty.

The third paper is on South Korea presented by Neung-Hoo Park. Unlike other studies included in this volume, this study is a survey of past studies evaluating the social consequences of the crisis in Korea. Park's paper reviewed the poverty incidence measured by different researchers and emphasized the need to produce official data to aid in the accurate measurement of poverty in Korea. The paper then attempted to explore the impact of the 1997 economic crisis on the poor.

Most researchers in Korea adopt the minimum cost of living (MCL) as the poverty line since there is no official poverty line. The absolute poverty rate is commonly used. For example, Kakwani and Prescott (1999) computed the poverty rate, which is exclusively for urban households, and adopted the consumer price index (CPI)-adjusted 1994 MCL as the poverty line. They measured the quarterly poverty incidence rate from the first quarter of 1990 to the fourth quarter of 1998. Park et al. (1999) also measured the poverty rate for the pre- and post-crisis years using the same data. These studies arrived at different poverty estimates, making the poverty rate estimation controversial in Korea. To solve such incompatibility in poverty rates, the author suggests that an official poverty line needs to be established. But even if the figures are incompatible, the trend clearly shows that the poverty incidence has dramatically increased after the crisis in 1997.

The author also discussed the impact of the crisis on people's lives. Urban workers' households have been directly hit by the crisis. While

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Korea has almost recovered from the recession as of the fourth quarter of 2000, the income distribution has not yet returned to its previous level. Considering the vertical impact on income and consumption, the author found that the higher income workers benefited from the crisis whereas those in the lowermost group lost their earnings.

The fourth paper is on the impact of the economic crisis on poverty and inequality in Indonesia presented by Ali Said and Wenefrida D. Widyanti. The authors relied on data of the Indonesian National Socio-Economic Surveys (or *Susenas*). Although Indonesia is the most researched country on this issue, the authors used the newest version of the official methodology to re-estimate poverty lines, especially the food poverty lines for the February 1996 *Susenas*, December 1998 Mini-*Susenas*, February 1999 *Susenas* and August 1999 Mini-*Susenas* data against a reference population. Such exercise mitigates the drawback of setting the reference population by the conventional official method (BPS method) that usually leads to higher poverty lines especially for rural areas since inflation rate tends to reflect urban prices in the survey.

As indicated, Indonesia is the most researched country in the region in terms of impact assessments of the social consequences of the financial crisis. Yet Said and Wenefrida's paper addresses some interesting issues that have not been addressed well in earlier studies. These include issues such as whether or not poverty went down as a result of government policies and programs geared toward reducing the crisis' impacts, who are the most affected groups in the society, what coping mechanisms households adopted, and whether or not income inequality worsened after the crisis—all of which have important policy implications. The results of their study show that the poverty rate rose dramatically by nearly 70 percent, with the highest increase in the rural areas following the crisis. Such rapid increase in poverty was also followed by the deterioration of the living conditions of the poor. The gap between the living standard of the poor and the poverty line has widened while the expenditure distribution among the poor became more unequal. The main factor for the poverty increase was the skyrocketing prices of most commodities. The authors suggest that the rapid increase in poverty during the crisis is a transient phenomenon since the increase of poverty rates during the crisis noticeably followed the patterns of changes in inflation rates.

Said and Wenefrida also noted that households adopted various survival strategies to cope with the effects of the crisis and indicated that the Social Safety Net program and the government policy on price stabilization helped reduce the severity of the crisis' impacts. Contrary to the commonly held view, poverty was much higher in rural areas than in urban areas during the crisis. Factors that may be responsible for this finding include the scarce credit for farmers, the increase in the price of farm inputs and the El Niño phenomenon. Said and Widyanti observed that as poverty incidence increased during the crisis, the depth and severity of poverty also worsened. They found that urban areas bounced back faster from poverty than the rural areas.

The authors also assessed the impact of the crisis on poverty by province. The largest increase in overall poverty was in Java-Bali, where poverty rose by more than 8 percentage points between 1996 and 1999. While the impact of the crisis on poverty at the national level was much worse in rural areas, comparing the changes in poverty between urban and rural areas at the provincial level shows that the urban-rural differences varied among provinces. Using the Sen-Shorrocks-Thon (SST) index, the authors compared the poverty intensity among the provinces and found that the eastern part of Indonesia had higher poverty intensity than the west.

Inequality was measured on the basis of information on expenditure as collected in the *Susenas*. To measure the extent of inequality, the study utilized the Gini and Theil indices. The result shows that overall inequality both for urban and rural areas declined during the crisis. The expenditure inequality, however, among the populations below the poverty line increased both in the urban and rural areas. Evidence from the poverty profile indicates that poverty incidence was much higher among those with low levels of education, working in agriculture and working as self-employed. The most common coping strategies taken by the poor were prioritizing food consumption, getting additional jobs and working overtime.

Public policies (price stabilization and social safety net programs) adopted by the government to cope with the crisis helped in reducing the vulnerability of the poor and in reducing poverty after 1999. However, the programs and policies could have reduced poverty further if programs were more focused on the rural population in most regions in Java and were targeted more to the agriculture sector than other sectors in the rural areas.

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The fifth paper is on China's growth and poverty reduction between 1990 and 1999 presented by Shaohua Chen and Yan Wang of the World Bank. Their paper attempted to contribute to the current debate on China on whether or not growth has reduced poverty by, first, investigating the recent trends in poverty and inequality since 1990, distinguishing between the pre-crisis (1990-1996) and the post-crisis periods (1997-1999); second, decomposing poverty reduction due to growth and the changes in income distribution; third, finding out who have benefited most from China's remarkable economic growth; and fourth, examining the relationship among human capital, growth and poverty reduction, showing an assessment of the impact of various pro-growth factors. Chen and Wang used group income/consumption distribution data from rural and urban household surveys in 1990-1999 to generate parametric Lorenz function. They also estimated poverty measures and the Gini index for the same period using the same data.

To examine poverty trends, the authors calculated the headcount index over time. Consumption expenditure was used as the welfare indicator and all the poverty measures were consumption based. Due to the lack of time series data on consumption expenditure, they relied on the income distribution data to compare poverty over time. Following Chen and Ravallion (2000), the authors adjusted the Lorenz income curve by replacing the overall mean per capita income with the mean consumption from the same survey.

Changes in inequality were also investigated by using Gini index for both rural and urban areas. Poverty reduction was decomposed into two parts, one attributable to growth and the other attributable to inequality. Following the methods discussed in Ravallion (1992), they conducted the exercise using various poverty lines differentiated by rural and urban sectors and different time periods. One merit of this paper lies in its approach in measuring human capital. The authors used a simple growth accounting framework to incorporate human capital. Growth accounting essentially divides output growth into a component that can be explained by input growth and a 'residual' that captures changes in productivity.

Despite past progress, the crisis adversely affected China's poor. Using lower poverty lines, Chen and Wang found that the poverty headcount increased during the period 1997-1999 and the poverty gap in-

dex also worsened. The real average per capita consumption of the farmers declined, particularly for those living in the poor regions such as Gansu, Heilongjiang, Shanxi, and Xinjiang. During the period 1990-1999, there was a significant worsening of both rural and urban income distributions. This is in contrast with the findings from other Asian countries where income distribution remained relatively stable even during the crisis. The authors also observed that while economic growth contributed significantly to poverty reduction, rising income inequality increased poverty. More importantly, the poor benefited less than the rich from economic growth. Human capital accumulation slowed down during the reform period and contributed less to economic growth during the pre-reform period.

The last but not the least paper is on the Philippines by Ana Maria L. Tabunda and Jose Ramon G. Albert. They examined the impact on poverty of the Asian financial crisis and El Niño using panel household data from the 1997 Family Income and Expenditure Survey (FIES), the two rounds of Labor Force Surveys (LFS) over 1997-98 and the 1998 Annual Poverty Indicator Survey (APIS).

Households headed by men appear to have been affected more by the crises. Male headship is positively correlated with poverty in the Philippines. This is consistent with Datt and Hoogeveen (2000) and Kakwani (2000). The cross-sectional inspection of the regional estimates shows high regional disparities. The impact of the crisis has been uneven with some households suffering more than others, even among poor households. They observed that the financial crisis exerted much more pressure than the weather shock (El Niño) on labor displacement and poverty. However, the impact of the El Niño has been as great as that of the financial crisis.

Tabunda and Albert used a modified version of the method used by Datt and Hoogeveen (2000). Regression models were fitted to the panel household data for estimating the impact of the shocks on per capita consumption and per capita income. The models related per capita consumption and per capita income to household characteristics, attributes of their communities, their exposure to crisis-related economic shocks, and variables for interaction effects between the shocks and other attributes.

The analysis shows that the impact of the financial crisis and El Niño on household poverty appears to be largely related to family size and

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the occupation of the household head. While households with larger number of family members seemed to have had better coping mechanisms (e.g., increasing working hours and income transfers, or pulling their children out of school and putting them to work), it appears, however, that these households were generally the most vulnerable to shocks.

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CHAPTER TWO

The Impact of the Financial Crisis on Poverty and Inequality in Malaysia

*Ragayah Haji Mat Zin**

INTRODUCTION

In the four years prior to the devaluation of the baht in July 1997 that triggered the East Asian financial crisis, Malaysia was enjoying an enviable average growth rate of 9.7 percent per annum. In the beginning, most analysts predicted that the crisis could be contained within a few months. Yet it turned out to be unprecedented in terms of the speed and severity of the contagion effect that also spread to countries outside of East Asia. In Malaysia, as in other East Asian countries, the financial crisis quickly deteriorated into an economic and social crisis.

The objective of this paper is to evaluate the impact of the financial crisis on poverty incidence and income distribution in Malaysia by utilizing the data collected in the 1995, 1997 and 1999 Household Income Surveys by the Department of Statistics. Unlike in other countries affected by the crisis such as Indonesia, Thailand and Philippines, where much has been written and published about the impact of the financial crisis on pov-

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erty incidence and income distribution, very little work on the subject has been done for Malaysia other than the official documents released by the government. Among those who have written on the subject include Ariff et al. (1998), Ishak Shari and Abdul Rahman Embong (1998), and Ragayah (1999), as well as Zulridah et al. (2000) who examined the coping mechanisms of the poor. However, all these studies were based only on small quick surveys.

The paper begins by describing Malaysia's macroeconomic responses to the crisis. This is followed by an examination of the macroeconomic impact of the crisis. Then, it analyzes the incidence and trends of poverty as well as the trends in income inequality. The second to the last section describes the profiles of poverty, including the coping mechanisms of the poor. The last section summarizes the findings and provides the conclusion.

MACROECONOMIC POLICY RESPONSES

The Malaysian government's response to the crisis changed at various stages, reflecting the different assessments and policy orientations (see Ishak Shari and Abdul Rahman Embong 1998, p. 3-4). At the initial stages, the Central Bank tried to stabilize the ringgit by intervening in the foreign exchange markets, raising domestic interest rates, and introducing selective administrative measures to curb speculation in the currency and stock markets. However, these interventions proved to be costly. Propping the ringgit depleted the country's foreign exchange reserves and raising the domestic interest rates exacerbated the economic downturn and contributed to the drastic fall of the stock market and to more business closures.

When both the ringgit and share prices were pushed to successive lows in the progressively volatile external environment, it was recognized that stronger macroeconomic adjustments were required. Hence, a set of austerity measures was announced in early September to further reduce the level of aggregate demand and to contain the current account deficit. These measures included a two-percent across-the-board cut in government spending; rationalization of the purchase of imported goods by public agencies, including the armed forces; and deferment of several large privatized projects (Bank Negara Malaysia 1998). These measures were rein-

forced with further measures announced in the 1998 budget in October 1997, which included deferment of large projects (total cost amounting to RM65.6 billion) and setting up of a RM1 billion fund for small- and medium-scale industries (SMIs). When regional instability persisted into December, the government introduced a stronger and more comprehensive package of policies, which included a further sharp cutback on Federal Government expenditure by 18 percent in 1998; deferment of selected projects; intensive promotion of exports, tourism, and locally produced goods; and freezing of reverse investment that amounted to RM10.5 billion in 1996.

The government also instituted measures to further strengthen prudential standards of the banking system, such as the recognition of a loan as nonperforming when its servicing had been in arrears for three months instead of six and greater disclosure of information in financial statements. To reduce overall credit growth and exposure of financial institutions to the less productive sectors, they were made to voluntarily undertake efforts to lower overall credit growth to 25 percent by end of 1997, 20 percent by end of March 1998, and 15 percent by end of 1998. Moreover, in allocating credit, banking institutions prioritized borrowers engaged in productive and export-oriented activities.

By August 1998, however, the ringgit depreciated by 40 percent against the US dollar and the stock market declined by 72 percent. As the crisis deepened, countercyclical measures were introduced to head-off an impending recession. Fiscal policy was selectively relaxed beginning March 1998 and monetary policy was eased in early August 1998 when inflationary pressures became subdued. Fiscal measures that were implemented included the selective increase in infrastructure spending, setting up of funds for SMIs, higher allocation on social sector development, and reduction of taxes (Bank Negara Malaysia 1999). In late July, the National Economic Action Council (1998), which was set up to deal with the crisis, announced the National Economic Recovery Plan (NERP)—a comprehensive and action-oriented framework to expedite economic recovery. The NERP has six interrelated and complementary objectives, namely, stabilizing the ringgit, restoring market confidence, maintaining financial stability, strengthening economic fundamentals, continuing the equity and socioeconomic agenda, and restoring adversely affected sectors.

In an attempt to protect itself against international financial volatility, the government imposed selective exchange controls on 1 September 1998. The ringgit exchange rate was fixed at US\$1 to RM3.80 the next day. This move enabled authorities to reduce the interest rate. For example, the base lending rate (BLR) of commercial banks, which rose from 10.33 percent at the end of 1997 to 12.27 percent at the end of June 1998, was reduced to a maximum rate of 8.05 percent on 10 November 1998. This move benefited the banking institutions and the private sector from enhanced liquidity and lower interest rates (Ishak Shari and Abdul Rahman Embong 1998), thus stimulating an expansion in domestic demand.

As a continued effort to revive the economy, the 1999 budget presented in October 1998 persisted with an expansionary fiscal stance. Government development expenditure was raised to RM19,378 million or by about 23 percent, while operating expenditure was increased to RM46,563 million or by 4.2 percent. Of the additional allocation for development expenditure in 1998, RM1,000 million was directed for social safety net projects to address and ameliorate the effects of the economic crisis on the lower income groups.

In early 1999, the economy showed initial signs of recovery after one year of contraction. Macroeconomic policy management was thus focused on strengthening the recovery process and expediting measures to address structural issues, both in the economic and financial sectors. In terms of government spending, priority was given to projects addressing structural and socioeconomic issues (education and skills training, health services, low-cost housing, and agricultural and rural development), as well as revival of selected infrastructure projects to increase economic efficiency. The stimulus package was aimed at controlling resource leakage abroad to ensure no buildup of risks in the balance of payments (Bank Negara Malaysia 2000).

MACROECONOMIC IMPACT OF THE CRISIS

Malaysia had an impressive record of growth prior to the financial crisis of 1997-1998. The real (in 1987 prices) gross domestic product (GDP) grew at over 9 percent per annum during the first half of the 1990s

and peaked at 10 percent in 1996 (Table 1). The crisis only had a moderate impact on the Malaysian GDP in 1997 as the economy still managed to grow at 7.3 percent. However, the economic turmoil deepened and the country experienced the full impact of the crisis in 1998. For the first time since 1985, the economy contracted by 7.4 percent. Fortunately, however, the crisis for Malaysia was V-shaped because the economy still managed a sharp recovery in 1999, registering a growth of 5.8 percent. The Ministry of Finance estimated in October 2000 a 7.5 percent growth for the year 2000 but the Central Bank's preliminary figure as of the end of March 2001 was 8.5 percent. Per capita GDP, which peaked at RM9,065 (1987 prices) in 1997, fell to RM8,245 in 1998, but climbed to RM8,493 in 1999 and to RM8,899 in 2000.

The high growth rate of the economy preceding the crisis was characterized by the intensive growth of the manufacturing and construction sectors. As shown in Table 1, these two sectors, together with the nongovernment services sector, accelerated at double-digit levels. In contrast, the primary sector (agriculture, forestry and fishing) experienced negative growth in the years before the crisis except in 1996 and 1997. The share of the primary sector declined from 29.0 percent in 1970 to 9.2 percent in 1997. Meanwhile, the share of the secondary or industrial sector (mining and quarrying, manufacturing and construction) rose from 31.4 percent in 1970 to 42.0 percent in 1997. The share of the services sector had been exceeding 50 percent throughout the 1990s. The rapid growth of the manufacturing sector—amid the much slower growth rate of the primary sector over the past three decades—had resulted in a significant transformation of the Malaysian economy.

The sectoral growth rates indicate that the construction sector was the worst hit by the crisis. Its growth rate plunged to -23.0 percent in 1998 and to -5.6 percent in 1999 and climbed only to 3.1 percent in 2000. Consequently, its share of the GDP fell from 4.8 percent in 1997 to 4.0 percent in 1998, to 3.6 percent in 1999 and to 3.4 percent in 2000. Although the manufacturing sector registered a negative growth of 13.4 percent in 1998, it recovered quickly and managed to register a positive growth of 13.5 percent in 1999 and 17.0 percent in 2000. As such, the share of the manufacturing sector, which reached 29.9 percent in 1997, slightly fell to 27.9 percent in 1998, but rose to 30.0 percent in 1999 and to 32.6 percent in 2000.

Table 1. Composition and Growth Rate of Gross Domestic Product and Employment Share by Industry of Origin
(in 1987 Prices)

GDP Share (Employment Share)	1993	1994	1995	1996	1997	1998	1999	2000
Agriculture, Forestry and Fishing	12.9 (22.6)	11.6 (19.6)	10.3 (19.0)	9.8 (17.7)	9.2 (16.7)	9.6 (16.3)	9.4 (15.9)	8.8 (15.5)
Mining and Quarrying	7.5 (0.5)	7.3 (0.5)	8.2 (0.5)	7.7 (0.5)	7.3 (0.5)	7.9 (0.5)	7.2 (0.5)	6.8 (0.5)
Manufacturing	26.2 (23.4)	26.7 (25.1)	27.1 (25.7)	29.1 (26.5)	29.9 (26.9)	27.9 (26.5)	30.0 (27.2)	32.6 (27.5)
Construction	3.8 (7.3)	4.0 (7.9)	4.4 (8.9)	4.7 (9.4)	4.8 (9.9)	4.0 (9.4)	3.6 (9.2)	3.4 (9.3)
Services	50.6 (46.2)	51.1 (46.9)	51.2 (45.9)	50.7 (45.9)	51.9 (46.0)	55.7 (47.3)	54.4 (47.2)	53.0 (47.3)
Nongov't	42.7 (34.6)	43.4 (35.4)	44.1 (35.1)	44.2 (35.6)	45.3 (36.6)	48.4 (37.1)	47.0 (37.2)	45.9 (37.6)
Gov't	7.9 (11.6)	7.7 (11.5)	7.1 (10.8)	6.5 (10.3)	6.6 (9.9)	7.3 (10.2)	7.4 (10.0)	7.1 (7.9)
Import Duties – Imputed Bank Service Charges	-1.0	-0.7	-1.2	-2.0	-3.1	-5.1	-4.5	-4.6

Table 1. ...continued

Unemployment (%)	3.0	2.9	2.8	2.5	2.4	3.2	3.0	2.9
Per Capita GDP (RM)	7235	7548	8050	8646	9065	8245	8493	8899
Average Growth Rate (%)								
Agriculture, Forestry, Fishing	-3.1	-1.9	-2.5	4.5	0.7	-3.3	3.8	0.5
Mining and Quarrying	-4.0	6.0	22.9	2.9	1.9	0.8	-3.1	0.6
Manufacturing	14.6	11.4	11.4	18.2	10.1	-13.4	13.5	17
Construction	10.8	15.1	21.1	16.2	10.6	-23.0	-5.6	3.1
Nongovernment Services	16.0	11.1	11.9	10.2	10.5	-1.0	2.7	5.1
Government Services	7.2	5.4	1.4	1.7	8.6	1.8	6.9	3.9
Total	9.9	9.2	9.8	10.0	7.3	-7.4	5.8	7.5
Average Per Capita Growth Rate (%)	5.9	4.3	6.7	7.4	4.8	-9.0	3.0	4.8

¹ Estimate by the Ministry of Finance.

Source: Ministry of Finance, various issues.

IMPACT OF THE EAST ASIAN FINANCIAL CRISIS REVISITED

As also shown in Table 1, the share of employment in the primary and secondary sectors contracted in 1998, while that of the services sector went up. In 1999, the share of employment in the manufacturing sector went up again, indicating the rapid recovery of this sector.

The growth and structural transformation of the Malaysian economy have wide implications on the growth of employment opportunities, as well as on the distribution of labor force by sector. While the employment share in the primary sector had been decreasing throughout the last three decades, that of the industrial and services sector had been rising. Actually, Malaysia was experiencing full employment throughout the 1990s. Because of industrialization and the rise of employment opportunities, the unemployment rate was only 2.4 percent before the crisis. The labor market had been so tight then that some subsectors resorted to imported labor from abroad such as Indonesia, Bangladesh and the Philippines. When the crisis came, retrenchments ensued in certain subsectors, particularly in construction. Nevertheless, many were re-deployed to sectors experiencing labor shortages such as manufacturing, services and agriculture. Meanwhile, quite a number of foreign workers were repatriated back to their home countries.

A remarkable feature of the development process of Malaysia's economy has been the presence of relatively low inflation rates during periods of high growth rate. As shown in Table 2, inflation rates were stable except in 1973-1974 and 1980-1981, which could be attributed to the oil

Table 2. Consumer Price Index Annual Growth Rate, 1971-2000
(in percent)

Year	1971-1975	1976-1980	1981-1985	1986-1990	1991-1995	1996-2000
1	1.6	2.6	9.7	0.6	4.4	3.5
2	3.2	4.7	5.7	0.8	4.7	2.7
3	10.4	4.9	3.7	2.5	3.6	5.3
4	17.4	3.6	3.6	2.8	3.7	2.8
5	4.5	6.7	0.4	3.1	3.4	1.6*
Average	7.4	4.5	4.6	2.0	4.0	3.2

* Preliminary figure from Bank Negara Malaysia (2001).

Source: Ministry of Finance, various issues.

price shocks of 1973 and 1979. After that, the inflation rate went down, particularly during the mid-1980s recession. However, due to the tight labor and goods markets during the expansionary period of the 1990s in which the demand exceeded supply, inflation had risen again. Nevertheless, it was managed to be controlled at a relatively low level. The inflation rate in 1998 was 5.3 percent—lower than the initial official estimate of 7-8 percent and the private sector's estimate of 8-12 percent.

INCIDENCE AND TRENDS OF POVERTY

The income data used to estimate poverty incidence in Malaysia were derived from the Household Income Surveys (HIS) conducted by the Department of Statistics. Most data were not available to the public except the summary data officially published. Thus, it was not possible to test the statistical significance of the changes in the values of the measures.

The concept of income and the comparability of these income data from the various census/surveys had been discussed elsewhere (Zainal Aznam Yusof 1992; Ishak and Ragayah 1990; Bhalla and Kharas 1992). These surveys employed a comprehensive definition of income, including cash and non-cash incomes of households from employment, as well as transfer income and the value of owner-occupied houses. Three points must be emphasized here. First, these surveys employed a consistent and comparable income concept and approach. Second, the income concept used in the various estimates was the household income, not the individual income. (Anand [1983] said that the household income does not provide a good picture of inequality in the levels of living as it does not take into account the differences in household size and composition, and economies of scale in consumption.) Third, in terms of private households, individuals living in "institutional households," e.g., police and military barracks, hotels, hospitals and welfare homes, were not included in the surveys. Also, income that did not accrue to households such as retained earnings of companies was also left out.

Incidence of poverty in Malaysia is estimated on the basis of the poverty line income (PLI), which takes into account the minimum requirements for food, clothing and shelter, and other regular expenditures that are

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necessary for a household to maintain a decent standard of living. The PLIs for the period 1995-1999 are given in Table 3. For an average household size of 4.6 in Peninsular Malaysia, 4.9 in Sabah, and 4.8 in Sarawak, the PLIs were RM425, RM601 and RM516, respectively, for 1995. These were revised to RM460 per month for a household in Peninsular Malaysia, RM633 for a household in Sabah and RM543 for a household in Sarawak in 1997. In 1998, the PLIs were revised to RM493, RM667 and RM572, respectively, while the PLIs for 1999 were RM510, RM685 and RM584, respectively, for Peninsular Malaysia, Sabah and Sarawak.

Table 3. Poverty Line Income¹, 1996-1999 (RM per month per household)

Region	1995	1997	1998	1999
Peninsular Malaysia ²	425	460	493	510
Sabah ²	601	633	667	685
Sarawak ²	516	543	572	584

Notes:

¹ Estimated based on the minimum requirements of a household for three major components, namely, food, clothing and footwear, and other non-food items such as rent, fuel and power; furniture and household equipment; medical care and health expenses; transport and communications; and recreation, education and cultural services. For the food component, the minimum expenditure was based on a daily requirement of 9,910 calories for a family of five persons while the minimum requirements for clothing and footwear were based on standards set by the Department of Social Welfare to welfare homes. The other non-food items were based on the level of expenditure of the lower income households, as reported in the Household Expenditure Survey. The poverty line income is updated annually to reflect changes in the levels of prices by taking into account changes in the consumer price indices.

² Adjusted based on an average household size of 4.6 in Peninsular Malaysia, 4.9 in Sabah and 4.8 in Sarawak.

Source: Economic Planning Unit (2001).

As shown in Table 4, Malaysia has achieved remarkable progress in poverty eradication. At the national level, poverty incidence plunged from 52.4 percent in 1970 to 9.3 percent in 1995. Over the same period, both urban and rural poverty incidence shrank to 4.1 and 15.6 percent, respectively. The higher incidence of poverty in the rural areas suggests that poverty in Malaysia has continued to be a rural phenomenon. In 1995, the

Table 4. Incidence of Poverty and Number of Poor Households, 1995, 1997 and 1999

	1995 ¹			1997 ¹			1999		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Malaysian Citizens									
Incidence of Poverty (%)	8.7	3.6	14.9	6.1	2.1	10.9	7.5	3.4	12.4
Number of Poor Households ('000)	365.6	83.8	281.8	274.2	52.4	221.8	351.1	86.8	264.3
Incidence of Hardcore Poverty ² (%)	2.1	0.9	3.6	1.4	0.4	2.5	1.4	0.5	2.4
Number of Hardcore Poor Households ('000)	88.4	20.1	68.3	62.4	10.6	51.8	64.1	13.5	50.6
Total Households ('000)	4,212.3	2,315.8	1,896.5	4,488.1	2,449.8	2,038.3	4,681.5	2,548.0	2,133.5
Overall									
Incidence of Poverty (%)	9.3	4.1	15.6	6.8	2.4	11.8	8.1	3.8	13.2
Number of Poor Households ('000)	418.3	99.3	319.0	332.4	64.9	267.5	409.3	102.7	306.6
Incidence of Hardcore Poverty ² (%)	2.1	0.9	3.5	1.4	0.5	2.4	1.4	0.6	2.4
Number of Hardcore Poor Households ('000)	94.0	21.8	72.2	67.5	12.2	55.3	71.1	15.6	55.5
Total Households ('000)	4,497.7	2,449.7	2,048.0	4,924.0	2,660.1	2,263.9	5,047.0	2,725.9	2,321.1

¹ Revised based on the latest household population data.

² Estimated using half the poverty line income.

Source: Economic Planning Unit (2001).

overall incidence of poverty stood at 9.3 percent or a total of 418,000 households. Of this, 99,300 households (4.1 percent) were in the urban areas while 319,000 households (15.6 percent) were in the rural areas. The incidence of poverty was further reduced in 1997 to 6.8 percent (332,400 households) for the whole of Malaysia and, by area, to 2.4 percent (64,900 households) for the urban areas and 11.8 percent (267,500 households) for the rural areas. However, in 1999, the incidence of poverty rose to 8.1 percent (409,300 households) for the whole of Malaysia and, by area, to 3.8 percent (102,700 households) for the urban areas and 13.2 percent (306,600 households) for the rural areas.

The incidence of hardcore poverty (the situation in which household income is equal to or less than half the PLI) for the whole of Malaysia stood at 2.1 percent (comprising 94,000 households) in 1995, of which 0.9 percent (21,800 households) was found in the urban areas and 3.5 percent (72,200 households) in the rural areas. It continued to fall to 1.4 percent (332,400 households) in 1997, with 0.5 percent (12,200 households) in the urban areas and 2.4 percent (55,300 households) in the rural areas. In 1999, it remained at 1.4 percent, but the number of households dropped slightly to 71,100. By area, however, the incidence of hardcore poverty in the urban areas rose to 0.6 percent and the number of households increased to 15,600 whereas in the rural areas, it remained at 2.4 percent but the number of households rose slightly to 55,500.

Among Malaysian citizens, the trend in poverty reduction for the total poor and hardcore poor followed the same pattern. In 1995, poverty incidence among Malaysian citizens was only 8.7 percent or a total of 365,600 households, with 3.6 percent or 83,800 households in the urban areas and 14.9 percent or 281,800 households in the rural areas. It slightly went down to 6.1 percent in 1997, with 2.1 percent (52,400 households) in the urban and 10.9 percent (221,800 households) in the rural areas. Similarly, the incidence of hardcore poverty fell accordingly. In 1999, poverty incidence rose to 7.5 percent (351,000 households), with 3.4 percent (86,800 households) in the urban areas and 12.4 percent (264,300 households) in the rural areas. While the incidence of hardcore poverty remained nearly constant, there was a slight increase in the number of households.

In the absence of the poverty gap and squared poverty gap indices, the separate classification of poor households into poor and hardcore poor

may reveal something about the depth and severity of the problem. Since a much smaller proportion was categorized as hardcore poor, this meant that most of the poor were relatively near the PLI.

In 1990, non-citizens in Malaysia constituted about 7.0 percent of the whole population (Economic Planning Unit 1996). Based on the information in Table 4, the author calculated that they made up 12.6 and 17.5 percent of the total poor in 1995 and 1997, respectively, suggesting that foreigners were increasingly becoming part of the poverty group. However, since many of them were repatriated back to their home countries during the crisis, their share in the Malaysian poverty incidence moderated to 14.2 percent in 1999.

While Malaysia's overall achievement in poverty eradication could be considered exemplary, poverty incidence was still high in certain states as shown in Table 5. For example, poverty incidence among Malaysian citizens prior to the 1997-1998 crisis was 23.4 percent in Terengganu, 22.9 percent in Kelantan, 22.6 percent in Sabah, 12.2 percent in Kedah and 11.8 percent in Perlis. These were the same states with the lowest poverty reduction rates between 1995 and 1997. However, some interesting changes can be observed regarding the 1999 poverty incidence in these states as a result of the 1997-1998 crisis. Among them, poverty incidence in Kelantan and Terengganu went down but the reverse happened in Sabah, Kedah and Perlis. Similarly, Negeri Sembilan and Sarawak continued to experience a reduction in poverty incidence while the rest suffered a reversal.

The reduction in poverty in Kelantan, Terengganu and Sarawak could probably be due to the jump in the export price of palm oil, which shot up by 66.1 percent in 1998, or from RM1,424.9 per ton in 1997 to RM2,366.4 per ton in 1998, although the volume of production contracted slightly to 0.9 percent. In Sarawak, the rise in the price of pepper—a small-holder crop—might have contributed to alleviating poverty among the rural households in that state.

In view of the sharp contraction suffered in 1998, it was expected that both total and hardcore poverty incidence would be higher that year. Unfortunately, there were no data published for 1998. Still, a few studies conducted at that time could give some idea on the extent and severity of the impact of the crisis on the poor. A World Bank study in 1998 noted that

Table 5. Incidence of Poverty by State, 1995, 1997 and 1999 (in percent)

State	Malaysian Citizen's Poverty Incidence			Overall		
	1995	1997	1999 ¹	1995	1997	1999 ¹
Johor	3.1	1.6	2.5	3.2	1.6	2.6
Kedah	12.2	11.5	13.5	12.1	11.5	13.6
Kelantan	22.9	19.2	18.7	23.4	19.5	18.7
Melaka	5.3	3.5	5.7	5.2	3.6	6.3
Negeri Sembilan	4.9	4.7	2.5	4.8	4.5	2.4
Pahang	6.8	4.4	5.5	6.8	4.1	5.6
Perak	9.1	4.5	9.5	9.1	4.5	9.4
Perlis	11.8	10.7	13.3	12.7	10.6	13.5
Pulau Pinang	4.0	1.7	2.7	4.1	1.6	2.8
Sabah ²	22.6	16.5	20.1	26.2	22.1	25.0
Sarawak	10.0	7.3	6.7	10.0	7.5	6.6
Selangor	2.2	1.3	2.0	2.5	1.3	2.1
Terengganu	23.4	17.3	14.9	23.4	17.3	15.2
Wilayah Persekutuan						
Kuala Lumpur	0.5	0.1	2.3	0.7	0.1	2.3
Malaysia	8.9	6.1	7.5	9.6	6.8	8.1

¹ Data provided by the Economic Planning Unit.

² Includes Wilayah Persekutuan Labuan.

Source: Economic Planning Unit (1999).

the economic crisis had four severe effects on households, namely, falling labor demand, sharp price shifts, a public spending squeeze, and erosion of the social fabric. Moreover, some countries like Indonesia, the Philippines and Thailand were also hit by drought. Malaysia was fortunate enough not to have this problem that could have worsened the situation caused by the other four effects. Ishak Shari and Abdul Rahman Embong (1998) also noted two channels through which the crisis exerted adverse social impacts in Malaysia: decline in the value of assets and initial tight monetary policy.

The unemployment rate was initially expected to rise to 4.5-5.5 percent by end of 1998 (MIER 1998), higher than the 3.5 percent expected in March 1998 (Bank Negara Malaysia 1998) and up from 2.7 percent regis-

tered at the onset of the crisis. However, as shown in Table 1, the final official figure of unemployment was lower (3.2 percent). In terms of retrenchments, there was a 143 percent increase between 1996 and 1997, which jumped to 345 percent between 1997 and 1998 (Table 6). Officially, a total of 83,865 workers lost their jobs in 1998. Almost 54 percent of the total workers retrenched were from the manufacturing sector while 11.1 percent were from the construction sector. Another 12.4 percent were from the wholesale and retail trade, hotels and restaurants sector.

The data in Table 6 do not indicate the type of workers retrenched. However, a report of the Ministry of Human Resources published in *The New Straits Times* on 17 November 1998 (Ishak Shari and Abdul Rahman Embong 1998) indicated that 39,331 or 53.2 percent of those retrenched as

Table 6. Retrenchment of Workers According to Sector, 1996-1998

Year	Total	% Change
1996	7,773	
1997	18,863	143
1998	83,865	345
% of Total		
1998		
Agriculture	5,108	6.1
Mining	877	1.1
Manufacturing	45,151	53.8
Construction	9,334	11.1
Electricity, gas and water	1	0
Transport, storage and communications	2,007	2.4
Wholesale and retail trade, hotels and restaurants	10,434	12.4
Finance, insurance, real estate and business services	6,596	7.9
Social services	4,242	5.1
Others ¹	115	0.1
Total	83,865	100.0

¹ Includes unclassified sectors.

Source: Economic Planning Unit (1999).

of 7 November 1998 were production workers, 10,645 or 14.4 percent were professional and technical workers, and 8,575 or 11.6 percent were clerical workers. Another 5,460 or 7.4 percent were administrative and managerial workers, 3,977 or 5.4 percent were service workers, 2,728 or 3.7 percent were sales workers, and 2,135 or 2.9 percent were agricultural workers. The production, clerical, service and agricultural workers were most likely to be in the lower income brackets and could easily slip down the poverty line. However, 74,610 vacancies were registered in selected subsectors, which enabled the retrenched workers to be re-hired.

Ishak Shari and Abdul Rahman Embong (1998) contended that the official figures might not have fully reflected the seriousness of the problem partly because a significant number of retrenched workers were foreign workers and, many of them, especially those in the construction sector, were unregistered. Retrenchment of local workers also occurred in the informal sector and their number was most likely not captured in official statistics. The press reported that a substantial number of small businesses went bust as a result of falling demand and the rising cost of conducting business. The Small and Medium Industry Corporation (SMIDEC 1999) reported that the SMI sector lost 37 percent of jobs in 1998. The reduced number of income earners in the family caused more households to slip down the poverty line. A large number of low-income households and foreign workers belonged to this group. Moreover, there were also claims of considerable underemployment, which could not have been included in official statistics.

Reductions in private income became widespread as a result of retrenchments, lower wages and earnings, business failures (especially of small retailers), and reduced asset and transfer income. A 10-percent pay cut for ministers and a 5-percent pay cut for senior civil servants, as well as a freeze on salary increments for higher categories of civil servants, were put in place beginning January 1998. Larger wage cuts were experienced by many workers in the private sector, through reduction in basic salary, overtime pay, bonuses or other benefits. A large number of retrenched workers found re-employment at substantially lower wages. These developments resulted in less transfer payments from the wage earners to the rural areas and other recipient households, which caused the vulnerable groups to slip down the poverty line.

To help the poor weather these adverse conditions, the government implemented the following measures under the NERP:

1. The 20-percent cut in the 1998 budget was compensated by allocating an additional amount of RM3.7 billion (about 18 percent of the total social sector budget). Said amount was used to assist affected vulnerable groups through the provision of funds for small farmers, micro-credit for small businesses, as well as extension of community and rural health facilities and development of skills training and higher education. The World Bank also approved a USD300 million loan for the same purpose and, in 1999, a USD404 million loan to fund social programs such as low cost housing. The Islamic Development Bank also approved a loan of USD99 million. Funding from bilateral sources such as the New Miyazawa Initiative was also obtained.
2. The government did not reduce the original budget allocation for poverty alleviation. Ministries involved in providing the social safety net, such as the Ministry of Health and the Ministry of National Unity, also had smaller budget cuts in the 1998 budget.
3. The government also took measures to increase opportunities for employment and self-employment by encouraging organized and systematic petty trading, farming, and setting up of small businesses. Measures to contain inflation, such as removal of imperfections and distortions in the marketing of essential commodities, and importing from cheaper sources, were executed. The Seventh Malaysia Plan (Economic Planning Unit 1996) also encouraged private sector firms to increase their involvement in poverty eradication by giving free skills training to the poor, in collaboration with various state-based poverty eradication foundations, and by providing financial help.

Another feature of the economic crisis is the dramatic asset deflation in the stock and property markets. Before the end of 1997, stock market capitalization had declined by more than half while property prices fell by up to 40 percent before the end of 1998. Households with substantial amount of income derived from such assets, including retired households,

experienced a sharp decline in income. However, the bursting of the property bubble provided a reprieve in the form of lower rentals and a halt to further property developments in the inner urban areas. This is because the rapid urbanization and economic growth of the previous decades led to intense competition over urban land, which resulted in the urban poor and lower-income groups being subject to eviction and high rentals. Since the profit margins were higher in the upper end of the property market, the developers were reluctant to build low cost houses. The government's plan to stimulate the current situation through the building of low cost houses could help many low-income households acquire their own dwellings.

Inflation was initially estimated at 7-8 percent in 1998 from its 1997 level of 2.7 percent. In March 1998, the consumer price index rose to 5.1 percent—an alarming rate to inflation-phobic Malaysia. These increases in the price of basic necessities had a serious impact on the lower income households, particularly the urban poor. Particularly disturbing was the disproportionate rise in the index for food at 6.6 percent, and for medical care and health expenses at 5 percent, mainly due to the 30-percent rise in the cost of imported drugs that accounted for over 60 percent of drugs used in the country. Private hospitals and clinics recorded a drop of 15-50 percent in the number of patients. In addition, the cut in the public healthcare budget minimized the level of healthcare available to the poorer sections of the population. In the absence of a state-run social safety net, affected households depended on their savings and on private income transfers.

It turned out that rural households were less affected by the crisis than urban households due to the resurgence of rural income, which was brought about by factors similar to those experienced during the mid-1980s recession. First, the world shortage in certain commodities like cooking oil and pepper propped up the price of these commodities. Given the increased demand and with the depreciation of the ringgit, farmers got much higher income since the commodities were quoted in USD price. Second, to reduce the food import bill that reached RM9 billion in 1996, the government encouraged local production of food commodities. In 1993, it established the Fund for Food scheme, with an initial allocation of RM300 million subsequently raised to RM1 billion to promote investment in the primary food industry. The depreciated ringgit gave urgency to this matter and

farmers increased their production. Third, rural households were able to diversify their income sources more easily than urban households by increasing self-employment.

Urban households, on the other hand, had no such protection so the impact of the crisis had been more severe on them. With reduced income from retrenchments or pay cuts, and price hikes in fixed cost necessities such as food and utilities, poor urban households suffered a noticeable decline in welfare. Nevertheless, many of the retrenched locals were able to get jobs in the agricultural sector or have registered in the Training Scheme for Retrenched Workers program offered by the Human Resources Development Council to upgrade workers' skills and improve their income-earning potential. The group most vulnerable to the crisis was the group of migrant workers. While official statistics indicate that 3,246 were retrenched in the first five months of 1998, an estimated 80 percent of the 768,400 employed in the construction sector were migrant workers. Given the dramatic decline in the level of construction activity, the reported figure significantly underestimated migrant worker retrenchments. Most retrenched migrants, due to loss of income, have also incurred debts that they could not pay due to their abrupt retrenchment and repatriation.

TRENDS IN INEQUALITY

The different impacts of the crisis on household income have important implications on the distribution of income. Nominal per capita income fell to RM11,835 (USD3018) in 1998 from RM12,051 (USD4,282) in 1997. As shown in Table 7, the mean income of a Malaysian household significantly and continuously increased between 1979 and 1997. From RM763 in 1979, it peaked at RM2606 in 1997. Malaysia also performed considerably well between 1979 and 1990 in reducing income inequality. The Gini ratio fell from its peak of 0.505 in 1979 to 0.446 in 1990. The state of income distribution both in the rural and the urban areas also exhibited similar trends. In terms of income shares, the share of the top 20 percent of households decreased from 55.8 percent in 1979 to 50.5 percent in 1990 while the share of the middle and bottom 40 percent increased from 32.4 and 11.9 percent to 35.3 and 14.3 percent, respectively.

Table 7. Distribution of Household Income by Strata, 1979 and 1999

Percentage of Households	Income Share (Percentage)							
	1979	1984	1987	1990	1993	1995	1997	1999
Overall								
Top 20%	55.8	53.2	51.2	50.4	n.a.	51.3	52.4	50.5
Mean Household Income (RM)	n.a.	n.a.	n.a.	n.a.	n.a.	5202	6854	6268
Middle 40%	32.4	34.0	35.0	35.3	n.a.	35.0	34.4	35.5
Mean Household Income (RM)	n.a.	n.a.	n.a.	n.a.	n.a.	1777	2250	2204
Bottom 40%	11.9	12.8	13.8	14.3	n.a.	13.7	13.2	14.0
Mean Household Income (RM)	n.a.	n.a.	n.a.	n.a.	n.a.	693	867	865
Gini Ratio	0.505	0.483	0.458	0.446	0.459	0.464	0.470	0.443
Mean Household Income (RM)	763	1095	1074	1163	1563	2020	2606	2472
Rural								
Top 20%	53.2	49.5	48.3	47.1	n.a.	47.4	48.2	47.9
Mean Household Income (RM)	n.a.	n.a.	n.a.	n.a.	n.a.	3153	4130	4124
Middle 40%	34.4	36.4	36.7	37.1	n.a.	37.1	36.6	36.5
Mean Household Income (RM)	n.a.	n.a.	n.a.	n.a.	n.a.	1235	1564	1577
Bottom 40%	12.4	14.1	15.0	15.8	n.a.	15.5	15.2	15.6

Table 7. ...continued

Mean Household Income (RM)	n.a.	n.a.	n.a.	n.a.	n.a.	515	649	670
Gini Ratio	0.482	0.444	0.427	0.409	n.a.	0.414	0.424	0.418
Mean Household Income (RM)	550	824	852	927	n.a.	1326	1704	1718
Urban								
Top 20%	55.6	52.1	50.8	50.6	n.a.	49.8	50.2	48.7
Mean Household Income (RM)	n.a.	n.a.	n.a.	n.a.	n.a.	6474	8470	7580
Middle 40%	32.1	34.5	35.0	35.1	n.a.	35.7	35.6	36.5
Mean Household Income (RM)	n.a.	n.a.	n.a.	n.a.	n.a.	2323	3000	2844
Bottom 40%	12.3	13.4	14.2	14.3	n.a.	14.5	14.2	14.8
Mean Household Income (RM)	n.a.	n.a.	n.a.	n.a.	n.a.	842	1193	1155
Gini Ratio	0.501	0.466	0.449	0.445	n.a.	0.431	0.427	0.416
Mean Household Income (RM)	975	1541	1467	1591	n.a.	2589	3357	3103
Disparity Ratio								
Urban: Rural	1.90	1.87	1.72	1.70	1.75	1.95	2.04	1.81

However, the Gini ratio exhibited a trend reversal beginning in the 1990s when it rose to 0.459 in 1993, 0.462 in 1995 and 0.470 in 1997. Similarly, the income shares of the top 20 percent of households increased to 51.3 percent in 1995 and 52.4 percent in 1997 from 50.4 percent in 1990. On the other hand, the shares of the middle and bottom 40 percent decreased to 35.0 and 13.7 percent, respectively, in 1995, from 35.3 and 14.3 percent, respectively, in 1990. Their shares went down further in 1997 to 34.4 percent for the middle 40 percent and 13.2 percent for the bottom 40 percent. This U-turn in income inequality almost wiped out all the gains that were achieved under the New Economic Policy (NEP) of 1971-1990.

Reduced business activities and retrenchments resulted in the moderation of the mean income of the top 20 percent of households, particularly those in the urban areas. The mean income of the top 20 percent of households increased from RM5,202 in 1995 to RM6,854 in 1997, but fell to RM6,268 in 1999 or by 8.6 percent (Table 7). In the urban areas, the mean income of this group of households rose from RM6,474 in 1995 to RM8,470 in 1997, but fell rather considerably to RM7,580 in 1999 or by 10.5 percent. In fact, it was the income contraction of this group that caused the overall mean income of the top 20 percent of households to fall. The mean income of this group in the rural areas remained constant during the crisis period, falling by RM6 only. On the other hand, the mean income of the middle and bottom 40 percent fell at much lower rates—by 2.0 and 0.2 percent, respectively. Their mean incomes dropped more moderately by 5.2 for the middle 40 percent and 3.2 percent for the bottom 40 percent, while the same groups in the rural areas experienced a rise in income at 0.8 and 3.2 percent, respectively. Such phenomenon could be attributed to the faster growth of agricultural income after 1997 due to the higher price of palm oil and increased production of food crops in response to the higher costs of imports. Moreover, rural households were able to diversify their income sources more easily than urban households and this helped to cushion the full impact of the recession.

As such, it is not surprising that the income disparity between the urban and rural areas, which rose from 1.95 in 1995 to 2.04 in 1997, moderated to 1.81 in 1999, thus putting a brake on the widening gap in the 1990s. The Gini also fell to 0.443 from 0.470 in 1997 for the whole of Malaysia. The Gini for the urban areas continuously improved throughout

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the second half of the 1990s, falling from 0.431 in 1995 to 0.427 in 1997 and 0.416 in 1999. However, rural income inequality worsened from 0.414 to 0.424 between 1995 and 1997, but improved slightly to 0.418 after the crisis. While the crisis put a break on the rising inequality in the 1990s, this improvement reduced the size of the economic pie.

The distribution of households by monthly gross household income for 1995, 1997 and 1999 is given in Table 8. As shown, the proportion of lower income households—defined in the Eighth Malaysia Plan (Economic Planning Unit 2001) as those earning less than RM1,500 per month— decreased from 54.4 to 43.2 percent in 1997 but rose slightly to 43.8 percent in 1999. The size of middle-class households—those earning between RM1,500 and RM3,500—increased from 32.3 percent in 1995 to 36.1 percent in 1997 and 37 percent in 1999. This partly implies that the anti-poverty and social safety net programs implemented during this period contributed to lifting the poorest from poverty. This took place particularly among those receiving less than RM500 per month. From 10.6 percent of

Table 8. Distribution of Households by Monthly Gross Household Income, 1995, 1997 and 1999

Income Class (RM)	Percentage		
	1995	1997	1999
499 and below	10.6	6.3	6.0
500 - 999	23.9	18.6	19.0
1,000 - 1,499	19.9	18.3	18.8
1,500 - 1,999	13.1	13.7	13.9
2,000 - 2,499	8.9	10.1	10.1
2,500 - 2,999	6.1	6.9	7.3
3,000 - 3,499	4.2	5.4	5.7
3,500 - 3,999	2.8	4.0	3.9
4,000 - 4,999	3.8	5.6	5.5
5,000 and above	6.7	11.1	9.8
Total	100.0	100.0	100.0

Sources: Economic Planning Unit (2001) for 1995 and 1999 data; Economic Planning Unit (unpublished) for 1997 data.

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households in 1995, this group of households was reduced to 6.3 percent in 1997 and 6.0 percent in 1999. Those receiving greater than RM3,500 totaled 13.3 percent in 1995 and shot up to 20.7 percent in 1997, but fell to 19.2 percent in 1999. The most affected were those earning above RM5,000 per month, which comprised 6.7 percent households in 1995, 11.1 percent in 1997 and 9.8 percent in 1999—another indication that the crisis affected the higher income classes more than the middle and lower income classes.

A more micro description of the impact of the crisis on income distribution is given in Table 9, which shows the mean monthly gross incomes of

Table 9. Mean Monthly Gross Household Income, Growth Rate and Gini Coefficient* by State, 1995, 1997 and 1999 (RM)

State	1995	1997	1999	Rate of Growth %	
				95/97	97/99
Johor	2,138 (0.399)	2,772 (0.397)	2,646 (0.386)	13.9	-2.3
Kedah	1,295 (0.406)	1,590 (0.429)	1,612 (0.409)	10.8	0.7
Kelantan	1,091 (0.442)	1,249 (0.442)	1,314 (0.424)	7.0	2.6
Melaka	1,843 (0.399)	2,276 (0.371)	2,260 (0.399)	11.1	-0.4
Negeri Sembilan	1,767 (0.384)	2,378 (0.408)	2,335 (0.392)	16.0	-0.9
Pahang	1,436 (0.373)	1,940 (0.359)	1,743 (0.332)	6.6	-4.7
Perak	1,436 (0.405)	1,507 (0.398)	1,431 (0.399)	16.2	-5.2
Perlis	1,158 (0.397)	1,507 (0.381)	1,431 (0.387)	14.1	-2.6
Penang	2,225 (0.379)	3,130 (0.412)	3,128 (0.394)	18.6	0
Selangor	3,162 (0.424)	4,006 (0.409)	3,702 (0.394)	12.6	-3.9
Terengganu	1,117 (0.4664)	1,497 (0.466)	1,599 (0.440)	15.8	3.4
Kuala Lumpur (FT)	3,371 (0.423)	4,768 (0.417)	2,539 (0.414)	18.9	-7.2
Peninsular Malaysia	2,066 (0.457)	2,687 (0.469)	2,539 (0.444)	13.7	-2.8
Sabah ¹	1,647 (0.448)	2,057 (0.454)	1,905 (0.448)	11.8	-3.8
Sarawak	1,886 (0.440)	2,242 (0.447)	2,276 (0.407)	9.0	0.8
Malaysia	2,020 (0.464)	2,606 (0.470)	2,472 (0.443)	13.5	-2.6

Notes:

* means in parentheses.

¹ Sabah includes the Labuan Federal Territory (FT).

Source: Economic Planning Unit.

households by state, their growth rates and the Gini coefficients for 1995, 1997 and 1999. States with already high mean incomes like the Federal Territory of Kuala Lumpur, Selangor, Penang and Johor generally had high rates of growth in mean monthly gross household income ranging from 12.6 percent for Selangor to 18.9 percent for Kuala Lumpur. Middle-income states like Negeri Sembilan and Perak also had high growth rates of 16 percent and above. On the other hand, poor states like Kelantan and Pahang had growth rates of only 7.0 and 6.6 percent, respectively. Terengganu had a 15.8 percent growth rate, probably brought about by the increase in oil revenue.

However, high-growth states such as Selangor, Kuala Lumpur, and Johor were also the most badly affected by the crisis. Kuala Lumpur's mean income growth rate dashed to -7.2 , Selangor's to -3.9 and Johor's to -2.3 percent. Only Penang's mean income remained constant. Perak's mean income contracted by 5.2 while Pahang lost 4.7 percent. One would have expected Pahang, with its wide acreage of oil palm plantations, to survive the crisis better. Apparently, large tracks of oil palm plantations in that state underwent a replanting program during that time; thus, Pahang was not able to take advantage of the sharp rise in the price of palm oil. Poor states like Kelantan, Terengganu and Kedah managed to register positive mean income growth during the crisis.

In terms of inequality, states with higher mean household incomes and higher growth rates had higher Gini ratios. There were exceptions, however, such as Terengganu, which was expected given the presence of an oil community there, and Kelantan, which was unexpected given the greater homogeneity of households in that state. All the states experienced a reduction in Gini coefficient except for Melaka, whose Gini ratio rose from 0.371 to 0.399, and Penang, whose Gini ratio remained constant between 1997 and 1999.

POVERTY PROFILES

Shown in Table 5 are the geographical locations of the poor that could help policymakers in identifying the target areas of their programs. However, to know who are the "real" poor, policymakers should know the

characteristics of the poor. In looking at the poverty profiles, this paper will discuss the characteristics of the poor, the changes in their consumption pattern, and their coping mechanisms during the crisis.

Characteristics of the Poor

According to Chamhuri (1994), the very poor and poor invariably have bigger average family size compared to the non-poor. On average, the very poor are older and have lower educational attainment, usually primary education only. Although majority of the households studied were occupying their own houses, a larger proportion of the very poor lived in rented premises. A large share of their expenditure, between 41.1 and 53.5 percent, went to food. Has there been any change in the characteristics of the poor? To answer this question, let us look at the poverty incidence by the characteristics of the household head.

Industry of employment

The highest incidence of poverty in Malaysia was in agriculture, forestry, livestock and fishing (the primary industry)—the same industry where most members of the rural sector were employed (Table 10a). In 1995, the poverty rate in this industry was 20.1 percent but it decreased to

Table 10a. Incidence of Poverty by Industry

Industry	1995	1997	1999*
Agriculture, Forestry, Livestock and Fishing	20.1	16.4	16.6
Mining and Quarrying	2.3	2.9	2.0
Electricity, Gas and Water	0.6	3.3	3.0
Manufacturing	5.3	0.8	0.5
Construction	4.0	2.2	2.1
Wholesale and Retail Trade, Restaurants and Hotel	4.8	2.4	2.9
Transport, Storage and Communications	1.9	1.0	1.6
Finance, Insurance, etc.	0.9	0.4	0.4
Community, Social and Personal Services	1.9	1.8	1.7
Total	9.3	6.8	7.5

* citizen

Source: Economic Planning Unit.

16.4 percent in 1997. The 1997 crisis slightly increased the poverty incidence to 16.6 percent in 1999. In 1995, the incidence of poverty was also significant in the manufacturing (5.3 percent), wholesale and retail trade, restaurants and hotels (4.8 percent), and construction (4.0 percent) sectors. However, in 1997, there was a big drop in the poverty incidence in all three industries. Apart from the primary industry, poverty incidence was also high in the electricity, gas and water industry (3.3 percent), rising from 0.6 percent in 1995 to 3.3 in 1997. In 1999, the poverty rates improved in all industries except for the primary industry; wholesale and retail trade, restaurants and hotels industry; and transport, storage and communications industry.

Age of household head

The highest incidence of poverty occurred among the elderly (those above 65 years of age) followed by those below 30 years old (Table 10b). The former group is considered a vulnerable group since a large number of the elderly could no longer be productively employed and are already dependent on others. The incidence of poverty within this group fell from 25.1 percent in 1995 to 21.7 percent in 1997, but rose to 22.7 percent in 1999. However, the incidence of hardcore poverty among this group fell continuously throughout the period from 9.7 in 1995 to 7.9 in 1997 and 6.0

Table 10b. Incidence of Poverty and Hardcore Poverty by Age of Household Head

Age	Poor			Hardcore Poor		
	1995	1997	1999*	1995	1997	1999*
<29	11.7	7.1	9.2	2.2	0.9	1.7
30 - 34	6.6	4.4	4.4	0.7	0.3	0.6
35 - 39	5.7	4.1	4.4	0.4	0.2	0.5
40 - 44	4.6	3.1	3.9	0.7	0.3	0.3
45 - 64	8.0	5.8	5.8	1.6	1.0	0.8
>65	25.1	21.7	22.7	9.7	7.9	6.0
Total	9.3	6.8	7.5	2.1	1.4	1.4

* citizen

Source: Economic Planning Unit.

in 1999. This could mean that the government programs have somehow been effective at targeting this vulnerable group. Meanwhile, the poverty rate for the other age group with high incidence of poverty fell to 7.1 in 1997 from 11.7 in 1995, but rose to 9.2 in 1999. This age group of below 30 years old includes subgroups like school dropouts, school leavers and unemployed graduates. A similar pattern of decreasing-increasing poverty incidence was observed among the hardcore poor of this age group. Poverty incidence fell from 2.2 in 1995 to 0.9 in 1997 and increased to 1.7 in 1999.

Highest level of education

For this determinant, it was observed that the lower the educational level of the household head, the higher was the household's poverty incidence. All the educational groups experienced a drop in poverty incidence in 1997 and a rise in 1999 (Table 10c). This was also generally true among the hardcore poor. The highest incidence of poverty was recorded among those with no schooling, which was 26.7 percent in 1995, 24.6 percent in 1997 and 25.2 percent in 1999. The same pattern of poverty incidence was observed among the hardcore poor, whose household heads were also likely to be elderly people since majority of the elderly had no schooling.

Table 10c. Incidence of Poverty and Hardcore Poverty by Highest Certificate

Highest Certificate	Poor			Hardcore Poor		
	1995	1997	1999*	1995	1997	1999*
No Schooling	26.7	24.6	25.2	8.8	7.3	6.9
No Certificate	9.4	6.9	7.7	1.2	0.8	0.8
LCE/LSAE	4.0	1.7	3.3	0.6	0.3	0.4
MCE/MCVE	2.6	1.3	2.7	0.6	0.2	0.4
HSC	2.3	1.1	2.8	0.5	0.2	0.3
Dip. / Deg	0.9	0.1	0.5	0.2	0.0	0.0
Total	9.3	6.8	7.5	2.1	1.4	1.4

* citizen

Source: Economic Planning Unit.

Number of income recipients

This determinant could also affect the total income of the family. Normally, the higher the number of income recipients in a household, the higher would be the household income, *ceteris paribus*. Similarly, the age-dependency ratio or the percentage of household members outside the labor force to those within the labor force (15-64 years old) would be lower. These notions were confirmed in Table 10d. Households with one income recipient had a higher incidence of poverty and hardcore poverty than households with two or more income recipients. Except in 1999, none of the households with more than four income recipients were classified as hardcore poor. Comparing the 1997 and 1999 figures, it could be seen that poverty incidence rose for all categories of households.

Table 10d. Incidence of Poverty and Hardcore Poverty by Number of Income Recipients

No. of Recipients	Poor			Hardcore Poor		
	1995	1997	1999*	1995	1997	1999*
1	16.3	12.4	13.7	4.0	2.7	2.7
2	3.7	2.3	2.7	0.4	0.2	0.2
3	1.0	0.4	0.8	0.1	0.1	0.1
4	0.3	0.3	0.3	0.1	0.2	0.1
5	0.3	0.0	0.9	0.0	0.0	0.1
6 and more	0.3	0.3	0.4	0.0	0.0	0.0
Total	9.3	6.8	7.5	2.1	1.4	1.4

*citizen

Source: Economic Planning Unit.

Number of children

Households with more children are more likely to be poorer than those with less children as this would imply a higher age-dependency ratio. However, this notion does not seem to be supported in Table 10e. Implicitly, this could mean that some children were also income recipients living with their parents or if residing separately were transferring income to their

Table 10e. Incidence of Poverty and Hardcore Poverty by Number of Children

No. of Children	Poor			Hardcore Poor		
	1995	1997	1999*	1995	1997	1999*
No Child	14.8	10.9	12.8	4.6	3.1	3.1
1	6.5	4.8	4.4	0.8	0.5	0.4
2	5.4	4.0	3.4	0.5	0.2	0.3
3	5.4	3.5	3.7	0.5	0.2	0.2
4	5.9	3.9	5.0	0.5	0.2	0.4
5	7.7	4.3	4.9	0.8	0.3	0.1
6	7.1	5.9	6.5	0.5	0.3	0.5
7 and more	7.5	5.5	8.3	0.6	0.2	0.6
Total	9.3	6.8	7.5	2.1	1.4	1.4

*citizen

Source: Economic Planning Unit.

parents. Households with no children also had higher levels of poverty and hardcore poverty probably because majority of these households were headed by the elderly who had no children to support them. At the other end would be those young untrained school leavers who have just started to work and living on their own. The incidence of poverty and hardcore poverty was also contracting before the crisis. The crisis increased the poverty incidence in all categories of households except the single-child category. Hardcore poverty incidence among households with five children also bucked the trend.

Changes in Consumption Pattern

Consumer theory states that as the income of a person or household increases, the share of income spent on food and other necessities decreases. However, in the study, it was not possible to show long-term data on the changes in consumption pattern in Malaysia because the data prior to 1993-1994 had a geographical coverage different from those collected in the later years.

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The changes in consumption pattern in Peninsular Malaysia between 1993-1994 and 1998-1999 representing the pre- and the post-crisis years are presented in Table 11. It can be seen that the share of income spent on food decreased from 23.4 in 1993-1994 to 22.2 percent in 1998-1999. This could mean that consumers had become more careful in their spending during the crisis, which could be an effect of the government's campaign on "zero inflation" and on the consumption of locally made goods. It could also be that the households had reduced their expenditure on food prepared outside their homes, particularly in upper-end restaurants. At the same time, the government's campaign on growing own food crops might have helped to keep household budget on food low.

Table 11. Changes in the Malaysian Consumption Pattern Between 1993-1994 and 1998-1999

Expenditure by Items (%)	1993-1994	1998-1999
Food	23.4	22.2
Beverages and Tobacco	2.6	2.2
Clothing and Footwear	3.6	3.4
Gross Rent, Fuel and Power	21.1	22.2
Furniture, Furnishings and Household Equipment and Operation	5.6	5.3
Medical Care and Health Expenses	1.9	1.9
Transport and Communication	17.9	19
Recreation, Entertainment, Education, and Cultural Services	5.7	5.9
Miscellaneous Goods and Services	18.2	17.9

Sources: Department of Statistics (1995, 2001).

A more detailed description of the changes in expenditure patterns by household expenditure class for Peninsular Malaysia (total, urban and rural) for 1993/94 and 1998/99 is given in Table 12a to 12f. For the 1993-1994 data, the poor can be approximated by the household expenditure class of below RM400 per month since the PLI for 1993 was RM400 per

Table 12f. Percentage Expenditure per Rural Household by Household Expenditure Class, Peninsular Malaysia, 1998-1999

Expenditure Group	Household Expenditure Class										
	Below 500	RM500- RM599	RM600- RM699	RM700- RM799	RM800- RM899	RM900- RM999	RM1000- RM1999	RM2000- RM2999	RM3000 - RM3999	RM4000 - RM4999	RM5000 and above
0 Food	39.0	39.6	35.8	36.3	35.9	34.7	30.1	23.7	15.6	14.0	16.4
1 Beverages and Tobacco	3.5	3.1	3.0	3.1	2.8	3.1	2.5	1.9	1.4	1.0	0.5
2 Clothing and Footwear	3.8	4.2	4.5	5.0	4.5	4.7	4.5	3.6	2.7	2.0	1.7
3 Gross Rent, Fuel and Power	26.3	22.6	22.0	20.7	20.8	19.9	18.3	19.1	17.7	15.7	13.5
4 Furniture, Furnishings and Household Equipment and Operation	3.4	4.5	3.9	4.6	4.5	4.8	5.3	5.5	5.8	8.3	5.5
5 Medical Care and Health Expenses	1.4	1.1	1.3	1.0	1.5	1.2	1.5	2.1	2.3	1.2	3.0
6 Transport and Communication	6.1	8.2	10.6	11.5	11.8	12.6	16.5	20.0	28.9	38.6	41.5
7 Recreation, Entertainment, Education and Cultural Services	1.7	2.3	2.7	3.0	3.8	3.6	4.8	5.8	6.0	6.3	6.6
8 Miscellaneous Goods and Services	14.8	14.3	16.1	14.9	14.3	15.8	16.5	18.3	19.7	12.1	11.1
Percentage Expenditure Per Household (0 – 8)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Report on Household Expenditure Survey. Department of Statistics (1995, 2001).

month for a household size of 4.8 in Peninsular Malaysia. Similarly, for the 1998-1999 data, the poor can be approximated by the household expenditure class of below RM500 per month since the PLI for 1999 was RM510 per month for a household size of 4.6 in Peninsular Malaysia.

For Peninsular Malaysia as a whole, the expenditure on food; beverages and tobacco; clothing and footwear; gross rent, fuel and power; and miscellaneous goods and services tends to go down as household expenditure increases for both periods. On the other hand, the expenditure on furniture, furnishings and household equipment and operation; medical care and health expenses; transport and communication; as well as recreation, entertainment, education and cultural services, tends to rise with household expenditure. The general trend of percentage expenditure for both urban and rural households is similar to the trend for Peninsular Malaysia. The exception is that the percentage expenditure on food for urban households tends to rise, instead of fall, until a certain level of expenditure is reached before it starts to fall again. This is true for both 1993-1994 and 1998-1999.

How did the crisis affect the expenditure pattern of the poor? For the whole of Peninsular Malaysia, households below the PLI increased their percentage expenditure on food from 30.9 in 1993-1994 to 34.5 in 1998-1999. They also increased their expenditure share in gross rent, fuel and power from 23.7 to 27.2, and in medical care from 0.9 to 1.3. Meanwhile, the expenditure shares in the other expenditure groups fell, particularly for transportation.

Comparing the patterns of expenditure of the urban poor between the two periods, it was found that the urban poor also increased their percentage expenditure on food (from 20.5 to 24.5 percent), gross rent, fuel and power (from 23.7 to 27.2 percent), and medical care (from 0.6 to 1.0). Their expenditure share in furniture, furnishings and household equipment also went up. Expenditure shares in beverages and tobacco; clothing and footwear; transport and communication; as well as recreation, entertainment, education and cultural services; and miscellaneous goods and services went down.

On the other hand, the rural poor also increased their percentage expenditure on food but by a smaller percentage (from 38.0 to 39.0 percent or by 1 percent only). The rise in their expenditure share in gross rent, fuel

and power (from 23.6 to 26.3 percent) were almost similar to that in the urban areas. Their expenditure share in medical care and health expenses also increased. Apart from these three items, the expenditure shares for the other groups fell among the rural poor. The only difference in the expenditure pattern between the urban poor and the rural poor is that the former's expenditure share in furniture, furnishings and household equipment went up while the latter's expenditure share went down.

Coping Mechanisms

In an environment where income is shrinking and prices are rising, households have to make adjustments in their lifestyles and spending habits. Ishak Shari and Abdul Rahman Embong (1998) cited press reports in Malaysia describing the coping mechanisms implemented by households to minimize their expenses. They found out that almost all households employed the same strategies given below.

- Planning ahead; buying foodstuffs and household items in bulk; buying perishable items once a week and non-perishable items once a month. (This helped to reduce food bills by about 30 percent).
- Reducing consumption of expensive commodities such as expensive types of meat, chicken and fish; eating more vegetables.
- Switching to cheaper brands of toiletry products (toothpaste, soap, detergents, etc.).
- Hunting for bargains at various wet markets, grocery stores and supermarkets; comparing prices and buying from cheaper shopping outlets (e.g., buying in Chinese stores where milk powder is often cheapest).
- Eating out less to cut down away-from-home expenditure; eating simple packed lunches such as sandwiches; having proper dinner at home.
- Planting vegetables in backyard to reduce food bill.

Meanwhile, Zulridah et al. (2000) undertook a study involving 760 household heads (91.5 males and 8.9 females) from the Klang Valley, Kuching, Sarawak and Kota Kinabalu, Sabah. These households were

mostly categorized as low-income households. The study focused on the different coping mechanisms employed by the poor, specifically the adjustments in employment, income, expenditure, education, asset ownership and migration. Following are the results:

- The first coping strategy was employment adjustment, which included working longer hours (31.7 percent), being involved in supplementary income-generating activities (23.8 percent), having other family members such as wives and children enter the job market (19.3 and 16.5 percent, respectively), and changing jobs (8 percent). The main negative effect of the employment adjustment was less time spent with the family (48.0 percent). Secondary effects were less social and voluntary activities (26.2 percent) and involving children in housework (20.5 percent).
- The second coping mechanism taken by households to overcome the increase in expenditure due to the rising prices of necessities was to increase their income (income adjustment) either by working longer hours (40.5 percent) or by increasing the number of working household members (22.5 percent). Some respondents (6.3 percent) coped by changing jobs while others rented out rooms in their houses (5.7 percent). Some 12.6 percent of the respondents had at least one member of their household increasing his/her working hours, from an average of 8 hours a day to 10 hours a day. About 3.6 percent of households had family members getting additional jobs, mainly in the informal sector like direct selling, sewing, grass cutting, giving extra classes, selling insurance and baby sitting. The small percentage of households entering into these kinds of work could be due to the fact that additional job opportunities were scarce during the crisis given the contraction of the economy.
- The third coping strategy was changing expenditure pattern. On average, households spent more than 40 percent of their monthly income on food and drinks. Thus, a rise in the price of these essentials resulted in an increase of household expenditure. Expenditures on food, clothing, education and shelter at the 5-percent significant level increased but the rise in total expenditure was

not significant at the same level since households also reduced their expenditure on less important items such as entertainment and leisure travel.

- The fourth coping strategy was using cheaper alternatives (substitution effect). Zulridah et al.'s analysis of the specific expenditures of households (e.g., food, medical and transportation expenses) revealed that the households practiced substitution or reduction. With respect to food expenditure, 63.0 percent reported that they purchased cheaper alternatives. Meanwhile, some 24.3 percent changed their diet, 23.6 percent reduced their food intake, and 19.1 percent grew their own vegetables. In terms of medical expenses, the main coping strategies taken by the households were increasing the use of government health facilities (68.3 percent), reducing the use of private clinics or hospitals (43.3 percent), and turning to traditional medicine (15.5 percent). To reduce transportation expenditure, most households reduced their travels, especially those related to tourism (47.9 percent), used public transport (33.7 percent), and changed their mode of transport to work (17.8 percent). Other coping strategies reported were postponing unnecessary purchases (84.2 percent) and buying locally made goods (47.8 percent).
- The fifth coping mechanism was related to education. Thirty-four percent reported that they reduced their expenditure on their children's education while 19.5 percent obtained scholarships or loans. Only 2.2 percent reported that they were forced to stop their children's schooling.
- The sixth and final coping mechanism reported by households was resorting to personal assets. Some 28.8 percent resorted to depleting their savings and trust investments, while 27.1 percent reduced their contributions to their parents or families. Some 18.7 percent turned to borrowing from their friends and family members and 8.2 percent from retailers/wholesalers, while 7.4 percent reported that they pawned their jewelry. Although some households coped by moving to another town or to cheaper housing areas, the percentage of respondents who reported such had been small.

CONCLUDING REMARKS

At the beginning of the crisis, the Malaysian government instituted tight fiscal and monetary policies in line with those executed by the International Monetary Fund for the other crisis-hit countries. However, when there was no sign of abatement at the beginning of 1998, the government reversed these policies and implemented countercyclical measures to revive the economy. Growth plunged by 7.4 percent in 1998 but rebounded in 1999. The construction and manufacturing sectors were the worst hit but the manufacturing sector recovered strongly in 1999 and 2000. Fortunately, Malaysia was experiencing a very tight labor market on the eve of the crisis with a 2.4-percent unemployment rate. So while a large number of workers were retrenched, many were able to find alternative jobs. Moreover, although inflation was initially expected to be higher, it was managed down to 5.3 percent.

The crisis blemished Malaysia's outstanding record in poverty eradication, which was falling throughout the past three decades. The urban poor were more badly hit because the crisis affected mostly the urban-based sectors, particularly industrial and financial. On the other hand, rural Malaysia had the luck of experiencing skyrocketing palm oil and pepper prices, particularly in ringgit prices. Furthermore, on average, rural households found it easier to diversify their income sources, such as by resorting to agriculture-based activities, which helped cushion the impact of price increases.

An emerging phenomenon in the Malaysian poverty scene is the rising proportion of foreigners in the poverty incidence. While the crisis reduced their share in 1999, it was still higher than in 1995. Moreover, despite its success in poverty eradication, poverty incidence is still high in certain states. Poverty in Sabah can be attributed to the presence of foreigners, lack of infrastructure and thus inaccessibility to the interior. The high poverty incidence in the northern states of Peninsular Malaysia can be attributed to the relative lack of productive activities.

Malaysia's NEP has been successful in promoting growth with equity. However, since the liberalization of the economy in the late 1980s, data have shown that there has been a reversal in the trend, with inequalities rising throughout in the 1990s prior to the crisis. Subsequently, as the

top 20 percent of income households had lost their share to the middle 40 percent and the bottom 40 percent income groups, this acted as a break on the trend of rising income inequality. The Gini for within-group distribution of urban and rural areas were very similar, but urban poverty was improving at a faster rate than rural poverty.

Before the crisis, states with high mean income had high growth rates in mean monthly household income while poor states, with the exception of Terengganu, had low growth rates. Most of these high-income states were badly hit by the crisis, registering negative growth, while poor states managed to register positive growth. Furthermore, states with higher mean household income and growth rate had greater inequality. Income inequalities in almost all states improved after the crisis.

With respect to the characteristics of the poor, most of them were found in the primary industry (agriculture, forestry and livestock). The crisis reduced the incidence of poverty for all industries except the primary industry; the wholesale and retail trade, restaurants and hotels industry; and the transport, storage and communications industry. The incidence of poverty was highest among the elderly, or those more than 65 years old, and those below 30 years old. Moreover, it was also prevalent among those without education, followed by those with primary education. The incidence of poverty also varied inversely with the number of income recipients. Finally, households with no children had higher levels of poverty incidence.

During the crisis, households in Peninsular Malaysia increased their expenditure share in food; gross rent, fuel and power, as well as medical care, but decreased their share in other expenditure groups, especially transport and communication. The urban poor increased their expenditure share in all these groups plus the share in furniture, furnishings and household equipment. While the rural poor also increased their expenditure share in food, the increase was relatively small. They also increased their expenditure share in gross rent, fuel and medical expenses but reduced their expenditure share for the rest.

A case study revealed that households adopted several coping mechanisms to deal with the crisis. These include employment and income adjustments, such as working longer hours, engaging in other income-generating activities, and sending wives and children out to work. Next, house-

holds adjusted their expenditure patterns by raising expenditure share of necessities but reducing that of luxuries. Most households also reported substituting expensive goods with cheaper alternatives, changing diet, decreasing food intake, and growing own food as coping mechanisms. Others also reported switching to government health facilities, reducing travels, increasing the use of public transportation, and postponing unnecessary purchases. Some decreased their expenditure on their children's education while others looked for alternative sources such as scholarship and loan. There were also households that ran down their savings, reduced their contributions (transfer income), and resorted to borrowing money from others or to pawning their valuables.

The intensity of the negative impact of the crisis in Malaysia was less severe when compared with the experience of other affected countries. This could be attributed, first, to the government's relatively high social expenditure and its pro-poor programs since the implementation of the NEP. The government ensured that the budget shares for social services, particularly health and education, in 1998 remained at their 1997 levels. It also maintained the public expenditure on major anti-poverty programs despite the reduction of its total development expenditures (see Bank Negara Malaysia 1999). Second, Malaysia was facing a very tight labor market prior to the crisis. With a 2.4-percent unemployment rate and the presence of almost two million foreign workers, the impact of the crisis on employment opportunities for Malaysians had been relatively moderate. The brunt of unemployment was mostly borne by the foreigners whose "reverse migration" in 1998 meant over 35,000 persons including dependents returning to Indonesia and other countries (Zainal Aznam 2001). And third, the reversal of the tight monetary policy kept many firms from closing down and thus put a brake on further retrenchment.

In a globalized world where the ability of a country to protect itself from external shocks has been minimized, there is an urgent need to put social safety nets in place. It is important to note two observations highlighted by Tabb (1998) concerning the recent crisis in Asia. First, the crisis reflects the tendencies of unregulated capitalist markets in which speculative excess is part of the very nature of the system. Second, such crises provide opportunity for stronger capitalists to profit from the problems of those unable to withstand the downturn. This implies that the creation of

the global economy, the advancement of technology and the concentration of power promote instability and insecurity. Therefore, the likelihood of the crisis reoccurring in the region cannot be ruled out. It is therefore important to devise comprehensive strategies so that the country is more prepared to face adverse consequences should a similar crisis occur again in the future. The need to develop cost-effective social safety net programs to help those adversely affected by the crisis becomes more urgent. For such cost-effective social safety programs to be successful, it is vital that the social partners be fully involved in this reform process. This effort will go a long way toward winning the understanding and support of the affected population and their organizations, which is a critical ingredient in ensuring the success of any reform plan.

Despite past achievements in poverty eradication, there are still tough challenges ahead. First, since many of those that could be more easily lifted out of poverty are already out, then those left behind are likely to be the ones with poverty traits that are tough to beat. This is probably one of the reasons why the Eighth Malaysia Plan is more target specific and focuses on the pockets of poverty. Moreover, it must be ascertained that those who are already out should continue on the upward ladder and would not drop back below the poverty line. Studies referred by the UNDP 2000 Poverty Report have revealed that the “sometimes poor” group is significantly greater than the “always poor” group. As such, it is also important to pay attention to the poor just above the poverty line, which is commonly referred to as the “vulnerable group.” Again, the Eighth Malaysia Plan is in the right direction when it states that “measures will be undertaken to raise the income and improve the quality of life of the bottom 30 percent of the population.”

Second, while contributing to the competitiveness of the Malaysian experts, the easily available foreign workers discourage employers from undertaking a more capital-intensive method of production or from providing skills training to their workers, thus keeping productivity and wages low. Their presence in large numbers stretches the amenities, particularly housing, to the limit. Thus, foreigners not only contribute to the locals being left in poverty, but also to the rise in poverty incidence. Data have shown that the proportion of foreigners in the poverty incidence has been increasing since 1990 from 7 percent to 12.6 percent in 1995 to 17.5 per-

cent in 1997 and has decreased slightly to 14.2 percent in 1999. The Eighth Malaysia Plan concentrates on policies of eradicating poverty among Malaysians. However, what are the policies regarding foreign workers? If they are not covered by the poverty eradication strategies, their presence might bring about other social problems.

As we have experienced, unequal income distribution is not conducive to promoting social cohesion and providing an acceptable level of quality of life for all Malaysians. It is also not consistent with our national development strategy of growth with equity. Moreover, although it has been argued in the past that there is a trade-off between growth and equity, Mr. Juan Somavia, Director General of the International Labour Office, in his presentation to UNCTAD X on 15 February 2000 in Bangkok, has claimed that more and more research is showing that inequality reduces growth, and thus our ability to improve the quality of life. In other words, redistribution is no longer a trade-off but is complimentary to growth. Minimizing the role of the state in facing the challenges of globalization and liberalization means certain sectors of society may have to sacrifice their living standards. While the role of the state has to be reduced in order to remove distortions and increase efficiency, it is still required to take care of the disadvantaged in society. Thus, research is needed to re-examine the role of the state and to determine the proper mix of this role to be played by the state, the market, and the civil society. The civil society contributes significantly in enhancing the Malaysian quality of life through nongovernment organizations such as the Amanah Ikhtiar Malaysia and the Yayasan Basmi Kemiskinan. The government must rejuvenate its efforts at income redistribution rather than relying on private enterprises and market mechanisms in its development approach, which prior to the crisis resulted in a reversal of the trend in inequality. Although the 1997 financial crisis resulted in a reduction of inequality in 1999, this achievement was attained based on a much-reduced size of the economic pie.

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Poverty and Inequality During the Crisis Period in Thailand

*Sunantha Natenuj**

INTRODUCTION

Thailand has often been cited as a country with impressive economic growth and virtually full employment. Its gross domestic product (GDP) grew at an annual rate of 8 percent between 1980 and 1990 and continued to increase during the 1990s. Despite the rising levels of inequality, the benefits of economic growth have effectively trickled down to the poor as shown by the dramatic decline in poverty incidence from the 1980s to the early 1990s. The economic growth has obviously been a powerful force in the reduction of poverty during that period.

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The economic prosperity came to a sudden halt when the economic crisis hit Thailand in mid-1997. It is widely known that the crisis had caused many economic and social problems. The unemployment rate substantially increased and the real earnings of the workers significantly declined. There is also evidence of a significant increase in poverty and inequality.

At present, the Thai economy is gradually recovering from the crisis. The GDP growth rate has been restored from -10.8 percent in 1998 to 4.2 percent in 1999 and is expected to reach 4.5 percent in 2000 and 4-4.5 percent in 2001. Exports (in US\$) have also shown a healthy growth. The inflation rate is low and the exchange rate has stabilized. However, despite these improvements in the economy, the adverse impact of the crisis continues to be felt. The problem of non-performing loans has not been resolved. High unemployment rate still exists. The problem of declining prices of agricultural products is still present, causing hardships to farmers, particularly those with small farms.

The impact of the crisis has been most severe among the poor. The slow pace of the economic recovery is not really helping them as they are unlikely to have enough savings or self-insurance to go through extremely long bad periods. The informal safety nets existing in the rural areas are under stress. Migrants going to the rural areas are unable to find work.

To reduce or mitigate the risks confronting the poor due to the unexpected crisis, the government implemented many short-term measures using its own budget and external borrowings from international financial institutions. Public work schemes and social welfare programs were implemented to support the poor. How did these programs fare? Were they effective in reaching the poor and the most vulnerable groups? Did they contribute to any reduction in poverty?

This study will provide a quantitative evaluation of the impact of the 1997 economic crisis on the people's standard of living. It will also assess the policies and programs implemented by the government to help the poor cope with the crisis. Specifically, the main objectives of the study are the following:

- Analyze poverty among several socioeconomic and demographic groups of households.
- Measure the impact of the economic crisis on poverty and inequality.

- Assess whether the economic growth in the past two decades has been pro-poor or anti-poor.
- Review the government policies during the crisis and determine whether these have benefited the genuine poor who were the most severely affected.
- Analyze the poor's accessibility to the government's social welfare in 1999, such as the low-income medical card, health insurance card, social pension for the elderly and free school lunch.

METHODOLOGY

Data Used

Socio-economic survey

The first Socio-Economic Survey in Thailand was conducted by the National Statistical Office (NSO) in 1957 and since then has been carried out every five years. Beginning 1987, it was conducted every two years. The 1999 Socio-Economic Survey was a special survey because it was held specifically to determine and analyze the impact of the 1997 economic crisis on households.

The analysis presented here is based on the survey data for the years 1988, 1990, 1992, 1994, 1996, 1998 and 1999. The survey covered all private, non-institutional households residing permanently in Thailand. The whole kingdom was divided into six regions. Each region was further divided into three subgroups according to type of local administration, namely, municipal areas, sanitary districts and villages. However, it excluded the part of the population living in transient hotels or rooming houses, boarding schools, military barracks, temples, hospitals, prisons and other such institutions.

Sample size in the survey before 1994 was less than 16,000 households. Beginning 1994, the sample size was increased to 32,000 households. However, the 1999 survey sampled only 10,000 households.

The Socio-Economic Survey is the only nationwide data source for measuring poverty in Thailand. However, it has three limitations. First, it is not a panel survey. Second, it does not collect data on the other dimensions of people's well-being such as health, education, nutrition, employment,

migration and housing. Therefore, it is quite difficult to relate people's poverty status with these other indicators of well-being. Third, the sample size of the survey is not large enough to measure the poverty incidence at the provincial level.

Calorie requirement

The calorie requirement of each age group subdivided by gender was obtained from the Department of Health, Ministry of Public Health (Table 1).

Table 1. Energy Requirement per Day by Age and Sex (in calories)

Age	Male	Female
1-3	1,200	1,200
4-6	1,450	1,450
7-9	1,600	1,600
10-12	1,850	1,700
13-15	2,300	2,000
16-19	2,400	1,850
20-29	2,787	2,017
30-59	2,767	2,075
60+	1,969	1,747

Source: Department of Health, Ministry of Public Health.

Consumer price index

Monthly consumer price index for food and non-food items in different regions and areas was obtained from the Department of Internal Trade, Ministry of Commerce.

Poverty Line Determination

In measuring poverty, the study used the methodology developed by Kakwani and Krongkaew (1997) for the Office of the National Economic and Social Development Board (NESDB) in 1997. Meanwhile, the poverty

lines were taken from the official poverty lines released by the NESDB. Starting 1998, the Cabinet of the Royal Thai Government adopted the poverty line proposed by NESDB as the official poverty line for Thailand. The decision to do so was embodied in two Cabinet resolutions that specifically called for (1) the use of poverty lines as criteria in allocating resources for the poor especially with respect to social welfare programs and health services, and (2) the use of poverty indicators by the NESDB in monitoring and evaluating the success or failure of anti-poverty policies and programs.

The poverty lines were determined using the absolute approach. The minimum requirements for food (calories) and basic non-food necessities of every individual living in a household and the price differences between regions and areas (urban and rural) were taken into account in formulating the poverty lines. Therefore, the poverty lines varied with household size and composition, which reflected the different needs of the household members. A household with income below the poverty threshold level was considered poor.

The study also used Kakwani and Krongkaew's model in isolating the effects of the economic crisis. To do this, the structural changes that occurred during the crisis period were measured; the magnitude of these changes could provide information on the impact of the economic crisis. According to the two authors, measuring the impact of the crisis by looking only at the period just before and after the crisis cannot isolate the impact especially given an insufficient number of time series observations. The study therefore used a crude method of applying the average trend growth rate during the pre-crisis period to calculate the expected value and crisis index during crisis period, i.e., 1998-1999 (see equation below). The percentage difference between the actual value and the expected value provided an index of crisis, which formed the basis for analyzing the impact of crisis.

$$\text{Expected Value 1998} = X[1+(r/100)]^n$$

X = Value in 1996 before crisis

r = Average [Annual percentage change from (1988-1990) to (1994-1996)]

n = No. of years from 1996 to 1998 = 2

$$\text{Crisis Index 1998} = (\text{Actual value 1998}/\text{Expected value 1998} - 1) * 100$$

RESULTS

Progress in Poverty Measurement in Thailand

As early as 1962, the Thai government has been studying the measurement of poverty. Subsequently, the poverty assessment technique has been continuously improved. Previously, the technique used could not yield adequate details due to data and technical limitations; nevertheless, it could obtain the poverty incidence for the whole kingdom. The early assessment revealed that poverty incidence was very high in 1962, with 57 percent of the total population living in poverty (Table 2).

Between 1988 and 1998, the poverty assessment method was further refined for the Office of the National Economic and Social Development

Table 2. Poverty Incidence in Thailand, 1962-1999 (in percent)

Years	Municipal Areas	Sanitary Districts	Rural Areas	Whole Kingdom
1962/63	38.0	-	61.0	57.0
1968/69	16.0	-	43.0	39.0
1975/76	14.0	-	35.0	31.0
1981	7.5	13.5	27.3	23.0
1986	5.9	18.6	25.8	29.5
1988	8.0	21.8	40.3	32.6
1990	6.9	18.2	33.8	27.2
1992	3.6	12.7	29.7	23.2
1994	2.4	9.6	21.2	16.3
1996	1.6	5.8	14.9	11.4
1998	1.4	7.5	17.3	13.0
1999	1.3	8.8	21.5	15.9

Source: 1962/1963 – 1975/1976, Dr. Euey Meesook, *Income Comparison and Poverty in Thailand*; 1962 / 1963 to 1975 / 76, 1981 and 1986, TDR Reports, 1988 – 1999, Development Evaluation Division, National Economic and Social Development Board.

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Board by Kakwani and Krongkaew, under technical assistance from the Asian Development Bank (ADB). This helped to correct the weaknesses of previous approaches used in measuring poverty incidence. With a boarder base of pertinent data and an elaborate technique, the poverty study could now come up with more detailed findings, thus could lead to a wider range of policy implications.

The improved poverty lines take into account the different needs of individuals in each household in different regions facing different sets of prices. The new methodology determines the poverty line for each household depending on its age and sex composition and its location. A household is classified as poor if its per capita income is less than the household-specific poverty line.

Increase in Poverty Line

The per capita poverty line in 1988 was 473 baht per month. It increased to 878 in 1998 and to 886 in 1999. The changes in average poverty line can be attributed to many factors, including increase in food and non-food prices and the population structure (Table 3).

Table 3. Average Poverty Line in Thailand

Years	Poverty Line (in baht per person per month)
1988	473
1990	522
1992	600
1994	636
1996	737
1998	878
1999	886

Source: Socio-Economic Survey, National Statistical Office, processed by Development Evaluation Division, National Economic and Social Development Board.

Changes in Poverty Incidence 1988-1999

The Thai economy's expansion in the 1980s created enormous employment opportunities for the people. Their average income rose, with the income of many at levels above the poverty line. The economic growth during that decade has helped much to eradicate poverty because it created jobs and generated income for the people. There was a marked decrease in poverty incidence between 1988 and 1996 until the economic crisis came in mid-1997.

The overall poverty situation for the entire kingdom from 1988 to 1999 is presented in Table 4. Three poverty measures are reported:

- (i) The headcount ratio, which depicts the percentage of the population below the poverty line. This ratio is the most popular measure of poverty although it does not reflect the fact that among the poor, they may be wide differences in income levels, with some people located just below the poverty line and others experiencing far greater shortfalls. Policymakers seeking to make the largest possible impact on the headcount measure might be tempted to direct their poverty alleviation resources to those closest to the poverty line or the less poor. The poverty gap ratio and the square of poverty gap ratio could be supplemental measures. These two indices take into account the distance of poor people from the poverty line and the degree of income inequality among poor people;
- (ii) The poverty gap ratio, which reveals the extent to which the actual income of the poor falls below the poverty threshold relative to the poverty line; and
- (iii) The square of poverty gap ratio or the severity of poverty index, which indicates how serious the existing poverty is by giving more weight to income movements among the poor. In general, the lower these indices are, the better in terms of poverty alleviation.

The results indicate that the percentage of poor dramatically fell from 32.6 percent (17.9 million) in 1988 to 11.4 percent (6.8 million) in

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Table 4. Incidence of Poverty in Thailand, 1988-1999

Period	Percentage of Poor	Poverty Gap Ratio	Severity of Poverty Index	No. of Poor (million)
1988	32.6	10.4	4.6	17.9
1990	27.2	8.0	3.3	15.3
1992	23.2	6.8	2.8	13.5
1994	16.3	4.3	1.7	9.7
1996	11.4	2.8	1.1	6.8
1998	13.0	3.3	1.3	7.9
1999	15.9	4.3	1.8	9.9
Annual Percentage Change				
1988-1990	-8.7	-12.3	-15.3	-7.5
1990-1992	-7.6	-7.8	-7.9	-6.1
1992-1994	-16.1	-20.6	-22.5	-15.4
1994-1996	-16.4	-19.2	-19.2	-16.1
1996-1998	6.8	8.6	8.7	7.6
1998-1999	10.6	14.2	16.0	11.9
Crisis Index '98	48.0	63.0	68.3	47.1
Expected Value '98	8.8	2.0	0.8	5.4
Crisis Index '99	106.2	149.8	170.4	107.6
Expected Value '99	7.7	1.7	0.6	4.7

1996, before rising to 13.0 percent (7.9 million) and 15.9 percent (9.9 million) in 1998 and 1999, respectively, as a result of the economic crisis. Poverty still remains deep and widespread. Noticeably, the poverty incidence in 1998 has not been as high as expected, possibly because the survey considered the households' income dating back 12 months from the survey period in which the household income has not been fully affected by the crisis. The survey covered the period from February 1998 to January 1999 and the period of the household income it observed was from February 1997 to January 1998. It was only until mid-1997 that the households began to feel the effects of the crisis on their income. For 1999, the survey

was conducted from June to September 1999 and, therefore, the period of the household income it observed was from June 1998 to September 1999, the period when the country had already fallen into the crisis for almost a year.

More than 3 million people have been pushed into poverty between 1996 and 1999. The poverty gap ratio and the severity of poverty index indicate even greater severity of economic crisis. These figures do not indicate the entire impact of crisis, however.

The economic crisis contributed to an increase in the number of poor by 47.1 percent in 1998 and 107.6 percent in 1999, or in terms of actual number, by 2.5 million in 1998 and 5.2 million in 1999. If the crisis did not occur, the expected number of poor in 1998 and 1999 would have been 5.4 and 4.7 million and the actual number would have been 7.9 and 9.9 million, respectively, for 1998 and 1999.

Poverty Among Ultra Poor, Marginal Poor and Near Poor¹

The poor do not suffer the same degree of poverty. Some suffer more than the others. Thus, the study divided the poor into two categories: ultra poor and marginal poor. The crisis affected these two categories—not only their current living standard of living but also their ability to escape poverty. However, there are non-poor whose incomes are very close to the poverty line and thus, they can be categorized as near poor. These people can easily become poor any time when they are confronted with unexpected economic shocks such as ill health and natural disasters. They do not have not enough capability to manage risks.

The percentage and number of ultra poor, marginal poor and near poor are given in Tables 5 and 6.

In 1988, there were 12 million people categorized as ultra poor out of a total of 17.9 million poor people. The number of ultra poor dramatically declined to 3.7 million in 1996 but the 1997 crisis pushed the figures up to 4.4 million in 1998 and 5.8 million in 1999, or by 58.8 and 144.7 percent, respectively. The number of ultra poor and marginal poor increased by 15.4 and 5.5 percent, respectively, while the number of near poor decreased by 3.9 percent during the same period, indicating that the impact of the crisis

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Table 5. Percentage of Ultra Poor, Marginal Poor and Near Poor
1988-1999

Period	Ultra Poor	Marginal Poor	Near Poor
1988	21.8	10.8	9.1
1990	17.0	10.2	8.6
1992	14.2	9.0	8.3
1994	9.3	7.0	6.6
1996	6.1	5.3	6.1
1998	7.1	5.9	6.0
1999	9.4	6.5	6.5
Annual percentage change			
1988-1990	-11.7	-2.6	-3.1
1990-1992	-8.7	-6.2	-1.3
1992-1994	-18.9	-11.8	-11.2
1994-1996	-18.9	-13.2	-3.7
1996-1998	7.7	5.5	-0.9
1998-1999	32.4	10.7	8.3
Crisis index '98	58.9	32.8	8.3
Expected value '98	4.5	4.4	5.5
Crisis index '99	146.2	60.5	23.2
Expected value '99	3.8	4.0	5.3

had been most severe on the ultra poor. Had it not occurred, the ultra poor could have numbered only 2.7 million in 1998 and 2.4 million in 1999. The crisis, therefore, contributed to an increase in the ultra poor by 1.7 million in 1998 and 3.4 million in 1999. The economic crisis had definitely weakened the ability of poor people to escape poverty.

Poverty Incidence by Region and Area

The incidence of poverty fell in all regions between 1988 and 1996. The Northeast has always been the poorest region of the country with 19.4 percent of its population living in poverty in 1996. This figure rose to 24.0

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Table 6. Number of Ultra Poor, Marginal Poor and Near Poor, 1988-1999 (in millions)

Period	Ultra poor	Marginal poor	Near poor
1988	12.0	5.9	5.0
1990	9.5	5.7	4.8
1992	8.2	5.2	4.9
1994	5.5	4.1	3.9
1996	3.7	3.2	3.7
1998	4.4	3.6	3.7
1999	5.8	4.0	3.4
Annual percentage change			
1988-1990	-10.6	-1.4	-1.9
1990-1992	-7.1	-4.6	0.4
1992-1994	-18.2	-11.1	-10.4
1994-1996	-18.4	-12.6	-3.0
1996-1998	8.9	6.5	0.2
1998-1999	15.4	5.5	-3.9
Crisis index '98	58.8	32.4	8.2
Expected value '98	2.7	2.7	3.4
Crisis index '99	144.7	59.2	3.9
Expected value '99	2.4	2.5	3.3

percent and 30.8 percent in 1998 and 1999, respectively, as a result of the economic crisis (Table 7). While the increase in poverty incidence in the Northeast due to the crisis was quite severe, the situation was worse in the Central and Southern regions, which could be attributed to the loss of jobs in the construction sector in the Central region and the fall of the price of rubber in the South. The poverty incidence in Bangkok and its vicinity and in the Central region decreased in 1999, possibly because the crisis forced the unemployed people to return to their hometowns given the high cost of living in the capital city and its vicinity. Thus, the poverty incidence sharply increased in other regions, especially in the Northeast, South and North.

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The rural areas emerged with the highest poverty incidence (Table 8). It is interesting to note that villages, compared with other areas, had much larger reductions in poverty before the crisis, i.e., from 40.3 percent in 1988 to 14.9 in 1996. The crisis dramatically changed the situation. It contributed to a sharp increase in the incidence of poverty both in villages and sanitary districts. In villages, the crisis pushed the poverty incidence to 48.5 percent in 1998 and to 109.2 percent in 1999. Poverty incidence in the villages stood as high as 21.5 percent of the total population in rural areas, which could be partly attributed to the deepening of recession and the influx of temporary migrants from the cities and nearby towns who lost their jobs or could not find one. Only a continuous slight drop in poverty was seen in the municipal areas.

Table 7. Percentage of Poor by Region, 1988-1999

Period	Central	Northern	North Eastern	Southern	Bangkok and Vicinity
1988	26.6	32.0	48.4	32.5	6.1
1990	22.3	23.2	43.1	27.6	3.5
1992	13.3	22.6	39.9	19.7	1.9
1994	9.2	13.2	28.6	17.3	0.9
1996	6.3	11.2	19.4	11.5	0.6
1998	7.6	9.1	24.0	14.6	0.6
1999	7.5	10.6	30.8	15.7	0.2
Annual Percentage Change					
1988-1990	-8.5	-14.8	-5.6	-7.9	-24.4
1990-1992	-22.8	-1.3	-3.8	-15.5	-25.4
1992-1994	-16.5	-23.7	-15.3	-6.3	-32.7
1994-1996	-17.3	-7.7	-17.6	-18.4	-14.8
1996-1998	9.7	-9.9	11.1	12.6	-6.6
1998-1999	-0.5	7.9	13.3	3.7	-39.3
Crisis index '98	71.7	4.4	54.5	63.9	52.3
Expected value '98	4.4	8.7	15.5	8.9	0.4
Crisis index '99	103.0	37.9	121.7	100.5	-25.9
Expected value '99	3.7	7.7	13.9	7.8	0.3

Table 8. Percentage of Poor by Area, 1988-1999

Period	Municipal Areas	Sanitary Districts	Districts Villages
1988	8.0	21.8	40.3
1990	6.9	18.2	33.8
1992	3.6	12.7	29.7
1994	2.4	9.6	21.2
1996	1.6	5.8	14.9
1998	1.4	7.5	17.3
1999	1.3	8.8	21.5
Annual Percentage Change			
1988-1990	-7.1	-8.6	-8.4
1990-1992	-27.8	-16.5	-6.3
1992-1994	-18.4	-13.1	-15.5
1994-1996	-18.4	-22.3	-16.2
1996-1998	-6.5	13.7	7.8
1998-1999	-3.9	8.3	11.6
Crisis index '98	29.8	79.4	48.5
Expected value '98	1.1	4.2	11.6
Crisis index '99	46.2	148.0	109.2
Expected value '99	0.9	3.5	10.3

Income Inequality

Inequality in the study was measured with respect to the per capita household income appropriately weighted by a population weight given to each household. Thus, the inequality estimates presented here refer to the inequality of income experienced by the individuals.

The income inequality in Thailand had been very high and it increased during the crisis (Table 9) as shown by the Gini index. This was also evident in the quintile shares. The income share of the bottom 20 percent (Quintile 1) decreased from 4.2 percent in 1998 to 3.8 percent in 1999 while the share of the topmost quintile (Quintile 5) rose from 56.5 percent in 1998 to 58.5 percent in 1999.

Table 9. Inequality in Per Capita Household Income, 1988-1999

Period	Gini index	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
1988	48.5	4.6	8.1	12.5	20.7	54.2
1990	52.4	4.2	7.3	11.5	19.2	57.8
1992	53.6	3.9	7.0	11.1	19.0	59.0
1994	52.7	4.0	7.2	11.6	19.9	56.7
1996	51.5	4.2	7.5	11.8	19.9	56.7
1998	51.1	4.2	7.6	11.9	19.8	56.5
1999	53.3	3.8	7.1	11.3	19.3	58.5
Annual Percentage Change						
1988-1990	3.9	-4.4	-5.1	-4.1	-3.7	3.3
1990-1992	1.2	-3.6	-2.1	-1.8	-0.5	1.0
1992-1994	-0.9	1.3	1.4	2.2	2.3	-2.0
1994-1996	-1.1	2.5	2.1	0.9	0.0	0.0
1996-1998	-0.4	0.0	0.7	0.4	-0.3	-0.2
1998-1999	2.2	-4.6	-3.3	-2.4	-1.3	1.7
Crisis index '98	-2.2	2.2	3.2	2.2	0.4	-1.5
Expected value '98	52.3	4.1	7.4	11.6	19.7	57.4
Crisis index '99	1.3	-6.0	-2.6	-2.0	-1.7	1.3
Expected value '99	52.7	4.1	7.3	11.6	19.6	57.7

Effects of Inequality on Poverty

In general, the inequality in Thailand has not significantly improved. This implies that the poor did not benefit from the economic growth as much as the rich did. Kakwani's study on pro-poor growth found that while Thailand's economy grew markedly during the last two decades, poverty was also reduced, showing that the economic growth trickled down to the poor. However, poverty could be reduced faster if the growth would directly benefit the poor. In mid-1997, when the unexpected economic crisis came, the expansion rate of the national economy posted a negative growth in the following year. The poverty rate, which has been falling since 1996, started to ascend. From 11.4 percent in 1996, it registered at 13 percent in 1998, an indication that the crisis made more people poorer and the already poor ones more miserable.

Profile of Household Poverty

Household size

This is an important variable that has an impact on poverty. Poverty incidence usually varies directly with household size. Bigger households—especially those with children of different ages—are likely to be poorer than smaller households.

The percentage of poor households categorized into different household sizes, ranging from one to more than seven members, is presented in Table 10. The results show that the impact of the crisis has not been uniform across households particularly for 1996 and 1999. For example, in 1996, there were more poor households with six members than households with seven or more members. In 1999, however, the percentage of poor households was greater for those that were smaller (five members) than those that were bigger (six members). Thus a definitive conclusion could not be made about the relationship between household size and the impact of crisis.

Age of household head

As illustrated in Table 11, poverty was mostly concentrated among households headed by an elderly. Specifically, households with heads over

Table 10. Percentage of Poor by Household Size, 1988-1999

Period	Household Size						
	1	2	3	4	5	6	7 and over
1988	3.4	10.6	20.2	29.1	34.9	41.2	50.4
1990	3.7	9.2	16.1	23.0	28.3	34.3	43.2
1992	2.9	6.5	14.3	20.9	27.4	32.2	33.5
1994	1.0	3.2	8.6	16.4	19.4	23.7	27.9
1996	1.0	2.5	6.2	10.9	13.8	19.5	18.3
1998	1.0	3.0	6.6	11.0	17.1	20.7	21.7
1999	0.8	4.2	9.5	15.1	20.6	19.7	27.4
Annual Percentage Change							
1988-1990	4.3	-6.8	-10.7	-11.1	-10.0	-8.8	-14.3
1990-1992	-11.5	-15.9	-5.8	-4.7	-1.6	-3.1	-22.5
1992-1994	-41.3	-29.8	-22.5	-11.4	-15.9	-14.2	-16.7
1994-1996	0.0	-11.6	-15.1	-18.5	-15.7	-9.3	-34.4
1996-1998	0.0	8.8	3.2	0.5	11.2	3.0	18.6
1998-1999	-8.3	18.8	20.1	17.0	9.9	-2.3	26.1
Crisis index '98	29.4	68.0	42.4	28.6	55.2	27.7	25.5
Expected value '98	0.8	1.8	4.6	8.6	11.0	16.2	17.3
Crisis index '99	23.8	182.6	137.5	98.8	110.0	33.7	60.6
Expected value '99	0.7	1.5	4.0	7.6	9.8	14.8	17.0

70 years old suffered the greatest degree of poverty. However, the impact of economic crisis was most severe among household heads 50-59 years old. This near-retirement age group is generally most vulnerable to any downturn in the economy as people in this age group are easily to be laid off and hardly to start new jobs.

Land ownership of farm households

The incidence of poverty, particularly the proportion of ultra-poor households, was mostly concentrated among farm households. Those with landholdings of less than 5 rai² registered the highest incidence of poverty. Their small farms were, in many cases, uneconomical and not likely to yield improved returns even with additional investments. In contrast, farm households with landholdings of more than 20 rai was the most severely affected. These households possibly depended only on farm income. Given the frequent fluctuation of farm product prices especially in times of crisis, their income was usually uncertain as they were normally producing only a single (mono) crop. They were working full-time on-farm and less flexible to devote some of their time to non-farm activities.

Poverty Among Children and Elderly

The incidence of poverty among children aged 0-17 years was much higher than among adults. This reveals that the children in Thailand have been suffering from a greater degree of poverty.

Of the 7.9 and 9.9 million poor in the whole population in 1998 and 1999, respectively, 3.1 million of children in 1998 and 3.7 million of children in 1999 up to 17 years of age were poor. The children's contribution to the total number of poor was almost 40 and 37.3 percent in 1998 and 1999, respectively.

The crisis index shows that the impact of economic crisis has been most severe among individuals in the 15-17 and 18-24 age groups. The explanation for this phenomenon requires further analysis.

Impact of Economic Crisis on Household Income

The Socio-Economic Survey in 1999 provides information on household income reduction due to the economic crisis. The results show that the

Table 11. Percentage of Poor by Age of Household Heads, 1988-1999

Period	20-29	30-39	40-49	50-59	60-69	70 and over
1988	26.4	33.0	35.1	32.4	32.4	33.8
1990	23.0	27.4	28.3	26.9	26.6	30.6
1992	17.3	23.2	24.3	23.3	22.3	27.5
1994	12.0	16.7	16.0	16.6	14.7	22.9
1996	7.7	12.0	11.7	10.5	11.6	14.0
1998	8.3	12.8	12.7	14.0	12.7	15.6
1999	7.8	16.7	16.6	16.3	14.8	17.9
Annual Percentage Change						
1988-1990	-6.7	-8.9	-10.2	-8.9	-9.4	-4.9
1990-1992	-13.3	-8.0	-7.3	-6.9	-8.4	-5.2
1992-1994	-16.7	-15.2	-18.9	-15.6	-18.8	-8.7
1994-1996	-19.9	-15.2	-14.5	-20.5	-11.2	-21.8
1996-1998	3.8	3.3	4.2	15.5	4.8	5.6
1998-1999	-2.8	14.2	14.2	7.9	7.9	7.1
Crisis index '98	46.2	37.2	42.5	76.0	41.7	38.0
Expected value '98	5.7	9.3	8.9	8.0	9.0	11.3
Crisis index '99	60.9	102.8	112.8	135.5	87.4	76.2
Expected value '99	4.9	8.2	7.8	6.9	7.9	10.2

Table 12. Percentage of Poor Among Farm-owner Households by Size of Landholding, 1988-1999

Period	Less than 5 rai	5 to 19 rai	20 rai or more
1988	67.7	56.2	32.9
1990	52.9	52.1	26.9
1992	41.2	46.3	31.2
1994	28.9	36.0	21.0
1996	37.2	29.9	12.1
1998	38.9	30.8	14.5
1999	45.4	43.6	20.8
Annual Percentage Change			
1988-1990	-11.6	-3.7	-9.6
1990-1992	-11.7	-5.7	7.7
1992-1994	-16.2	-11.8	-18.0
1994-1996	13.5	-8.9	-24.1
1996-1998	2.3	1.5	9.6
1998-1999	8.0	19.0	19.7
Crisis index '98	19.7	20.4	51.7
Expected value '98	32.5	25.6	9.6
Crisis index '99	49.4	84.3	144.2
Expected value '99	30.4	23.6	8.5

Table 13. Percentage of Poor by Age of Individuals, 1988-1999

Period	0 to 4	5 to 10	12 to 14	15 to 17	18 to 24	25 to 59	60 to 69	70 and over
1988	37.0	40.0	37.7	34.0	30.3	29.6	26.7	28.9
1990	32.3	35.5	31.8	29.3	24.8	24.1	22.3	23.4
1992	27.1	30.7	28.1	23.6	21.2	20.6	18.6	21.8
1994	21.6	21.9	19.4	16.1	14.5	14.3	12.1	17.8
1996	14.4	16.0	15.1	12.1	9.3	10.0	9.4	11.0
1998	16.0	17.2	17.3	14.4	12.1	11.1	9.6	13.0
1999	21.8	20.4	20.5	16.6	15.0	14.1	12.4	14.0
Annual Percentage Change								
1988-1990	-6.5	-5.8	-8.0	-7.2	-9.5	-9.8	-16.6	-19.0
1990-1992	-8.4	-7.0	-6.1	-10.3	-7.6	-7.6	-16.6	-7.0
1992-1994	-10.7	-15.6	-16.9	-17.3	-17.3	-16.6	-34.9	-18.2
1994-1996	-18.5	-14.6	-11.8	-13.4	-20.0	-16.5	-22.1	-38.5
1996-1998	5.7	3.7	6.9	9.3	14.1	5.5	2.3	18.6
1998-1999	16.6	9.0	8.9	7.1	11.4	12.9	28.2	8.2
Crisis index '98	41.2	34.9	43.4	54.6	74.2	45.9	8.4	25.0
Expected value '98	11.4	12.7	12.0	9.3	6.9	7.6	8.9	10.4
Crisis index '99	115.7	79.5	90.4	101.6	150.2	112.8	41.1	37.2
Expected value '99	10.1	11.4	10.8	8.2	6.0	6.6	8.8	10.2

Table 14. Number of Poor by Age of Individuals (in millions), 1988-1999

Period	0 to 4	5 to 10	12 to 14	15 to 17	18 to 24	25 to 59	60 to 69	70 and over
1988	2.2	3.1	1.4	1.2	2.1	6.7	0.7	0.5
1990	1.8	2.6	1.3	0.9	1.8	5.8	0.6	0.4
1992	1.6	2.2	1.1	0.7	1.5	5.4	0.6	0.4
1994	1.3	1.5	0.7	0.5	1.0	3.9	0.5	0.4
1996	0.9	1.0	0.6	0.4	0.6	2.8	0.4	0.3
1998	0.8	1.3	0.6	0.5	0.8	3.2	0.4	0.4
1999	1.0	1.5	0.7	0.5	0.9	4.2	0.5	0.4
Annual Percentage Change								
1988-1990	-7.7	-7.7	-6.5	-12.1	-7.8	-6.9	-12.7	-14.0
1990-1992	-7.4	-8.0	-4.9	-11.5	-10.4	-4.0	-4.8	0.0
1992-1994	-10.4	-18.5	-19.6	-19.2	-19.3	-14.2	-23.7	-9.3
1994-1996	-16.9	-16.0	-13.2	-13.7	-20.5	-15.5	-17.8	-30.8
1996-1998	-4.3	10.8	5.5	15.0	12.9	7.0	5.3	31.6
1998-1999	14.0	10.2	9.3	3.5	10.2	14.3	34.4	15.6
Crisis index '98	14.7	60.6	40.8	79.5	74.4	41.8	9.4	36.2
Expected value '98	0.7	0.8	0.4	0.3	0.4	2.3	0.4	0.3
Crisis index '99	66.6	123.0	89.1	124.1	147.9	106.3	48.5	58.8
Expected value '99	0.6	0.7	0.4	0.2	0.4	2.0	0.4	0.3

crisis affected both poor and non-poor households. However, the non-poor may have possibly been far more devastated than the poor or the near poor even if they were not hurt disproportionately. An economic crisis could affect the living standards of people—particularly those already living in and close to poverty—in different ways. The most typical effects are wage reduction and job loss, which can drive down labor earnings. Non-labor incomes fall as economic activity slows down, and the price of goods and services produced or offered by poor people may fall relative to other prices. Private transfers, particularly from family members, are likely to shrink as living standards fall.

The fall of household income due to the crisis was evident in the 1999 Socio-Economic Survey. The average household income in 1999 increased by only 1.9 percent from the previous year's 12,492 to 12,729 baht. Forty-one percent (41%) of the total households, comprising 34.6 percent of non-poor households and 34.6 percent of poor households, experienced a decrease in income. This could be due to a number of factors, such as the decrease in farm income, which resulted from lower prices of farm products and higher farming cost, decrease in business income, the close down of businesses, decline in remittances from people outside households, wage reduction, and job loss.

Among non-poor households, the main causes of the decrease in household earnings were the decrease in farm and business incomes, wage earning and remittance from people outside households. For poor households, however, the decrease in household income was obviously caused by the decrease in farm income, remittance from people outside household and income from business as well as job loss and wage reduction. Farm income is the most important source of revenues especially among poor households. Almost half of the households in Thailand, or 41.4 percent, depend on farm income. They also rely on remittances from other members working outside their households.

Improving the prices of farm products, raising farm productivity and stabilizing the cost of farm production may relieve poverty. Currently, oil prices have significantly gone up while prices of farm products have still been very low. The flooding in the Northeast and the South has destroyed the farms and properties of both poor and non-poor households; this will definitely create additional pressure especially on poor households in the following years.

Table 15. Percentage of Households with Decreased Income Classified by Factors Contributing to Decrease of Household Income, Poor and Non-poor Households, 1999

Factors contributing to decreased household income Poor (more than one answer)	Non-poor households	All house households	Holds
Job loss	1.99	9.02	11.01
Reduced wages	1.92	13.81	15.73
Decreased farm income			
- Decreased product prices/Increased farming costs	12.88	36.96	49.84
- Drought/Flood	11.56	28.21	39.78
Income from business			
- Decreased income due to closing down of enterprises	2.02	29.99	32.01
Decreased remittance/assistance			
- From government	0.85	2.87	3.72
- From people outside household	3.06	13.20	16.26
Decreased property income	0.30	3.64	3.94
Others	1.54	8.99	10.53
Percentage of households with decreased income	6.83	34.61	41.44
Percentage of all households	13.03	86.97	100.00

Reaction of Households to the Crisis

In general, poor and non-poor households reacted in various, but almost similar, ways to the decrease in household income. They made some adjustments in order to keep their earned income and cut down on expenditures (Table 16). Among non-poor households, changing eating pattern was the most common—an adjustment which was not too costly. Also, getting loan from other people was more favorable for them than working harder. Self-prescription or using public health care when ill, withdrawing their savings, and getting support from people outside their households were other coping mechanisms reported by most non-poor households. Pawning/mortgaging was preferred than selling assets.

Among the poor, changing eating pattern was also the most common practice. Their squeezed eating could have possibly resulted in malnutrition among their members as poor households are already below the substantial level or minimum food requirements. Other reported coping mechanisms include working harder and migrating to other jobs. Loaning from other people was also practiced by poor households. When ill, they coped by practicing self-prescription or by using public hospitals. Relying on government support was rarely practiced by poor households.

Overall, both poor and non-poor households relied mainly on themselves during the crisis. They either withdrew their savings or worked harder. Relying on government support or participating in government programs was not widely adopted. Getting help from people outside their households was more practiced. Only a few households reported that they dropped their children from school, suggesting that both poor and non-poor households value education.

Government's Response to the Crisis in Relation to the Poor

During the high economic prosperity in the 1990s, the government expedited the provision of social services and the implementation of various social welfare programs to assist the vulnerable sectors of the population. Health care, education and pension for the elderly were the main focus.

Table 16. Percentage of Households with Decreased Income Classified by Means Employed to Cope with the Problem of Decreased Household Income, Poor and Non-poor Households, 1999

Means to cope with decreased income (more than one answer allowed)	Poor households	Non-poor households	All Households
Changing eating patterns	14.19	69.81	84.00
Self-prescription or using public hospital	4.03	25.84	29.87
Withdrawing children (dropout) from school	0.50	1.32	1.8
Transferring children to public school	0.49	1.56	2.05
Relying on support from			
- government	2.37	5.59	7.96
- people outside households	3.55	17.85	21.41
Getting loan			
- from people outside households	7.59	28.15	35.74
- from government fund	2.50	9.20	11.70
Migrating for a job	4.28	8.51	12.79
Working harder	7.63	27.98	35.61
Participating in government employment generation program	1.95	3.38	5.33
Withdrawing savings	2.62	21.64	24.26
Selling assets	1.70	6.01	7.71
Pawning/Mortgaging	1.75	9.46	11.21
Others	0.33	3.06	3.39
Percentage of households with decreased income	6.83	34.61	41.44
Percentage of all households	13.03	86.97	100.00

THAILAND

Over the years, Thailand has achieved considerable progress in health and education. Life expectancy at birth, infant mortality rates, maternal mortality rates and literacy rates have drastically improved. Nevertheless, the poor quality of health and education services remains a big problem.

The existing formal social services and social welfare programs help in improving the living conditions and in responding to people's basic needs but only to a certain degree. The social protection schemes are inadequate to provide assistance to the vulnerable groups that lack security and the ability to deal with adverse and unexpected economic shocks. For example, a little more than half of the 61 million total population are employed but only half of this percentage, who works in the formal sector, is covered by social insurance. The enterprises in the formal sector are mainly government and state enterprises, large industries and large service establishments with more than 10 employees. The remaining half of the labor force is in the informal sector, working as farmers, self-employed workers and unpaid family workers. They are rarely or not protected at all by any insurance system. Those who are not working are not protected as well.

The crisis has brought severe economic and social problems. Thus, the government was forced to resort to external borrowings to mitigate the effects of the crisis and bring the country firmly into economic recovery. It borrowed US\$300 million from the World Bank for a "social investment project" and US\$500 million "social sector program loan" from the Asian Development Bank (ADB). The objectives of the social sector program loan were to mitigate the short-term adverse impact of the current crisis on society, to help initiate structural reforms so as to enhance the competitiveness of the Thai economy, and to reduce inefficiencies in the provision of social services. Of the US\$500 million loan from ADB, US\$200 million was allocated for implementing social sector programs and projects while the remaining US\$300 million went to public sector reserves. The government also borrowed US\$1450 million from the Miyasawa Plan for the economic recovery in three programs, namely, employment schemes to stimulate the economy, restructuring the agriculture sector, and industrial credit. By utilizing these loans, it is expected that the reform measures introduced by the government will benefit the vulnerable groups.

It is important to note that even if excessively restrictive fiscal policies were implemented during the early stage of the crisis, the government has pressed more concern for the hardships of the poor. Thus, the important areas of social services and welfare—education, health care and assistance for the elderly—have been protected from budget cuts. Additional health care, subsidized education and pension for the elderly have been instituted in support of the vulnerable groups.

In 1998, the Ministry of Education started awarding scholarships to dropout students whose parents were affected by the crisis. An allocation of 1,000 million baht from the social sector program loan was made for this purpose. However, because of targeting problems and the required disbursement procedure, the actual scholarships disbursed for poor students had been only 835 million baht. (At the beginning, it was very difficult to identify poor students and very few poor students have been found. Thus, money could not be spent according to loan disbursement procedure).

To encourage children to attend school, the Student Loan Scheme was introduced in 1996 for students at the secondary and tertiary levels. In view of this, the government increased the budget for student loans from 9,000 million baht to 17,100 million baht in 1998. The government has likewise ensured that female students benefit equitably from the program and an appropriate urban-rural balance is achieved.

Ill health is the most frequent cause of the slide into deeper poverty. Poor people greatly fear large hospital fees and lack of income during sickness. To help the poor, basic health care was provided free of charge through health facilities available at the sub-district level. In addition, free medical cards for low-income people were issued specifically for children 0-12 years, the poor 13-59 years and the elderly over 60 years. The voluntary health insurance card—worth only 500 baht per year for a household with five members—was introduced to near-poor groups. The government subsidized the 500 baht but in excess of five members, the household shouldered the additional cost. During the crisis, the government expanded the voluntary health insurance card by allocating 1,200 million baht from an ADB loan to the Ministry of Public Health. This increased government subsidy to 1,000 baht per household but the cardholders should contribute 500 baht per year for the household members to be eligible for hospital care. The government also increased the budget allocation for the Public

Assistance Scheme through reallocation within the health budget. Social security coverage (medical care, maternity, disability and death benefits) was likewise extended to laid-off workers for at least six months after their retrenchment.

Lastly, the social pension for the elderly was enhanced to help poor elderly people cope with the problems during the crisis period. The government increased the Department of Social Welfare's per capita budget for this program from 200 baht per person per month before the crisis to 300 baht per person per month.

Accessibility to Social Services and Welfare

The 1999 Socio-Economic Survey could help in analyzing whether the government's social welfare programs were able to reach the groups severely affected by the crisis. By social welfare programs, these refer to the low-income medical card, health insurance card, social pension for the elderly, scholarship and loan for education, and free school lunch.

Low-income medical card

About 13 percent of households were identified as poor based on the poverty line. These households were eligible for the low-income medical card. Of this percentage, only 10 percent applied for a card: 5.8 percent were non-poor households, 1.3 percent were near-poor households, 1.6 percent were ultra-poor households, and 1.3 percent were poor households.

Health insurance card

A total of 34.7 percent of total households all over the country owned health insurance cards. Although the card was targeted to near-poor households (with small co-payment), the largest percentage (21.7 percent) of cardholders were non-poor households. Ultra poor and marginal poor cardholders made up only about 3.8 and 2.7 percent, respectively.

Government scholarship and loan

Only 2.3 percent out of the 59.5 percent of total households with school-age children obtained government scholarship. Of this percentage,

Table 17. Percentage of Ultra-poor, Marginal-poor, Near-poor and Non-poor Households Who Accessed the Social Welfare Programs Implemented by Government in 1999

Social Welfare	Ultra-poor	Marginal-poor	Near-poor	Non-poor	All Households
Low income medical card	1.6	1.3	1.3	5.8	10.0
Health insurance card	3.8	2.7	6.5	21.7	34.7
Social pension for elderly	0.2	0.4	0.4	2.2	3.2
Government scholarship	0.2	0.1	0.2	1.9	2.3
Government's loan for education	0.3	0.1	0.2	1.4	2.0
Free school lunch	2.1	1.4	1.2	6.9	11.6

less than 1 percent or only 0.2 and 0.1 percent of ultra poor and poor households, respectively, obtained scholarship. The benefit had gone most to near-poor (1.2 percent) and non-poor households (0.2 percent).

With respect to the government education loan, only 2 percent obtained loan: 0.3 percent, ultra poor; 0.1 percent, marginal poor; 0.2 percent, near poor; and 1.4 percent, non poor. This shows that the non-poor households benefited more from the program than the poor and near-poor households.

Social pension for elderly

About 32.4 percent of the total number of households in Thailand is headed by an elderly. Of this, only 3.2 percent of the elderly obtained social pension. Delineating the 3.2 percent into four groups shows that majority of those who availed of the program came from non-poor households (2.2 percent). Only a few from the ultra-poor, near-poor and poor households accessed the program.

Free school lunch

The fund for the Free School Lunch Program was established by the Primary Education Office, Ministry of Education. The benefit included free lunch to poor pupils in primary schools. Among households with children attending school, 11.6 percent of them received free school lunch. Broken down into groups, the figure translates to 6.9 percent non-poor households, 1.2 percent near-poor households, 1.4 percent poor households, and 2.1 percent ultra-poor households. This shows that, again, just like the other programs, the benefit was enjoyed mostly by non-poor households.

By region and area, availment of the low-income medical card and health insurance card was found to be highest in the Northeastern region. Meanwhile, the social pension for elderly was availed of mostly by households in the Southern region while the government and loan for education went mostly to households in the Northern region. The percentage of households receiving welfare was lowest in Bangkok and the vicinity (Table 18).

If classified into socioeconomic classes, every class seemed to have equal access to the welfare programs (Table 19). Farm workers, economically inactive people and those who owned land had more access to the low-income medical card than other groups. Social pension for elderly was

Table 18. Percentage of Households Receiving Welfare/Benefits and Amount of Money Received from the Government Programs in 1999, by Region and Area

Welfare and Benefit from the Government	All Households	Regions					Areas		
		Bangkok and Vicinity	Central	North	Northeast	South	Municipal Areas	Sanitary Districts	Village Areas
Total households (%)	100.0	17.6	19.4	19.5	31.1	12.4	8.6	9.6	64.2
Average household size (%)		3.7	3.3	3.6	3.4	4.0	4.0	3.3	3.5
3.9									
Low income medical card	9.9	0.1	7.3	12.8	15.4	7.2	3.0	10.6	12.8
Health insurance card	34.9	4.3	32.8	42.7	46.2	34.3	18.8	30.3	44.4
Social pension for elderly	3.2	0.6	4.3	2.0	4.0	4.5	0.9	3.6	4.0
Amount of money received per household (baht)									
2,517	2,284	2,358	2,471	2,664	2,482	2,033	2,440	2,547	
Government scholarship	2.5	1.8	2.6	3.8	2.1	2.7	1.4	2.6	2.8
Amount of money received per household (baht)									
3,135	2,111	5,457	1,816	2,737	4,334	5,521	2,351	3,252	
Government's loan for education	2.0	1.3	1.5	2.9	2.2	1.8	1.9	2.4	2.1
Amount of money received per household (baht)									
22,465	38,870	28,793	21,664	17,057	18,997	34,182	26,501	18,229	

Table 19. Percentage of Households Receiving Welfare /Benefits and Amount of Money Received from the Government Programs in 1999, by Socioeconomic Class

Welfare and Benefit from the Government	All Households	Farm Operators		Own-Account Workers, Non-Farm	Employees					Economically Inactive
		Owning Land	Renting Land		Professional, Technical and Admin Worker	Farm Worker	General Worker	Clerical, Sales and Services Worker	Production Worker	
Total households(%)	100.0	21.2	4.1	16.1	7.3	6.1	1.7	14.4	12.8	16.3
Average household size(%)	3.7	4.1	3.9	3.8	3.7	4.0	3.4	3.6	4.0	3.0
Low income medical card 15.8		9.9	14.0	9.4	5.7	1.0	16.4	8.0	4.2	9.4
Health insurance card	34.9	50.5	47.2	33.4	15.2	39.7	32.7	19.7	35.4	32.8
Social pension for elderly	3.2	3.2	3.5	1.4	0.2	5.2	6.8	2.0	2.6	6.7
Amount of money received per household (baht)	2,517	2,336	2,217	2,062	2,368	2,778	2,183	2,443	2,298	2,810
Government scholarship 2.4		2.5	2.6	2.4	2.5	2.6	3.0	3.1	1.9	3.0
Amount of money received per household (baht)	3,135	3,254	1,536	1,926	2,040	1,172	1,395	2,444	1,458	8,386
Government's loan for education	2.0	2.0	2.0	1.7	0.6	1.3	2.6	2.6	2.4	2.2
Amount of money received per household (baht)	22,465	15,615	10,961	18,502	10,851	21,146	9,528	31,631	23,21	29,608

mostly provided to general workers and economically inactive people. Bigger-size and single-headed households had more access and received more welfare than other types of household (Table 20).

Nevertheless, looking at the bigger picture, one can observe that the poor households had little or no access to the social welfare provided by government. This could be due to two possible reasons. One, the arrangement or methodology for the implementation of the programs may not have been effective and thus, the programs failed to target the genuine poor. If the welfare programs would be continuously enjoyed by the non-poor more than the poor for whom these program were intended, the latter would remain locked in the vicious circle of poverty.

Two, the targets used by the different agencies may not have been consistent, i.e., for a similar program, one agency could be targeting the near poor while another agency could be targeting the marginal and ultra poor. Their definitions and classifications of the different groups of poor people may have been dissimilar as well.

In reality, though, the second reason exists. The poverty targets as well as classification of poor people used by different government agencies in their respective poverty reduction programs are quite different from each other. For example, the poverty reduction program of the Community Development Department of the Ministry of Interior classifies poor households as those with income of less than 20,000 baht per person per year. Meanwhile, the student loan program defines poor students as those coming from low-income families (earning less than 300,000 baht a year). The low-income medical card for the poor of the Ministry of Public Health defines the poor as those with family income of less than 2,800 baht per month and 2,000 baht per month for single-member families. Meanwhile, the criteria for selecting poor pupils for the free school lunch are set by the teachers.

Such wide variation of poverty line estimates across government agencies exists because individual agencies have their own objectives, definitions, and poverty targets. In addition, most of the poverty programs are developed for specific sectors and undertaken separately by the different agencies. A comprehensive program on poverty alleviation is therefore needed. Poverty is not a single issue. It has many aspects and dimensions. This means that a holistic solution is needed rather than a segmented one.

Table 20. Percentage of Households Receiving Welfare/Benefits and Amount of Money Received from the Government Programs in 1999, by Household Size and Household Type

Welfare and Benefit from the Government	All Households	Household Size			Household Type		
		1	2 - 4	5 and over	Head and Spouse	Single Headed Household	Other
Total households(%)	100.0	8.2	64.1	27.7	69.1	7.0	23.9
Average household size(%)	3.7	1.0	3.1	5.9	4.0	2.7	3.1
Low income medical card	9.9	6.7	10.0	10.6	9.7	11.7	9.9
Health insurance card	34.9	17.2	32.5	45.4	37.7	30.6	28.0
Social pension for elderly	3.2	5.5	2.4	4.3	2.2	2.6	6.3
Amount of money received per household (baht)	2,517	2,346	2,729	2,303	2,728	2,201	2,339
Government scholarship	2.5	0.1	2.2	4.0	2.3	4.3	2.7
Amount of money received per household (baht)	3,136	18,034	2,039	4,411	2,341	2,573	5,328
Government's loan for education	2.0	2.1	1.6	2.9	1.7	4.0	2.3
Amount of money received per household (baht)	22,465	47,511	20,259	19,856	15,566	24,418	36,352

CONCLUSION AND POLICY IMPLICATIONS

The economic crisis that began in mid-1997 has affected the entire Thai economy across all socioeconomic and demographic groups. However, the impact has been highly uneven. Some people suffered more than the others; among those who did, the poor suffered the most. The poor are in a critical situation as they are vulnerable to adverse and unexpected shocks. They have no security. They are rarely protected by any social security system and could hardly access the social services and welfare provided by government. Therefore, they need to be protected. By utilizing the poverty profiles obtained in surveys, policymakers should be able to formulate programs and projects that could directly help the poor.

Given that government's resources are limited, efficient allocation is absolutely essential. Well-targeted direct interventions are important means to alleviate poverty. Thus, existing programs need to be adjusted and improved to target the genuine poor and to enhance equity. There is also a need for improved coordination and linkage among the different agencies involved in poverty reduction. This is to reduce overlapping and duplication of work and thus, achieve a more efficient and effective implementation of programs.

THAILAND

NOTES

1. “Ultra poor” represents the group of people earning income below 80 percent of the poverty line. “Marginal poor” represents those earning income between 80 and 100 percent of the poverty line, and the “Near poor” are those earning income between 100 and 120 percent of the poverty line.
2. One hectare = 6.25 rai.

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CHAPTER FOUR

The Poverty Rate in Korea and the Impact of the Economic Crisis

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INTRODUCTION

When the economic shock of 1997 hit Korea in November, social policy researchers became worried about its possible adverse effects on the lives of the people, especially the poor. Many researchers argued that the poverty rate increased rapidly and the income distribution got worse as a result of the crisis. However, determining the real impact of the economic crisis on Korea is difficult. The problem relates to the lack of annual data on national income and expenditure. The Korean government collects data every five years; thus, to come up with an annual poverty rate, a survey needs to be conducted every year, which is hardly possible given the huge cost that an annual national survey would entail.

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Despite this limitation, many researchers have attempted to prove their arguments and have tried to measure the poverty rate for the crisis and post-crisis years using complementary data sets and applying their own criteria and method. As a result, different researchers would arrive at various estimates of the poverty rate, which adds complexity to the understanding of the country's poverty situation.

The primary objective of this paper is to review the poverty rates measured by several researchers, with a corollary goal of emphasizing the need to produce an official data set that could aid in the accurate measurement of poverty in Korea. The secondary objective is to understand the impact of the 1997 economic crisis on Korea's poor. Although the crisis is over, it left a host of socioeconomic problems whose effects are still being felt by the people, especially the poor.

DATA SETS AND THEIR LIMITATIONS

There are two kinds of survey in Korea that produce useful data sets for measuring the poverty rate: the National Survey of Income and Expenditure and the Family Income and Expenditure Survey.

The National Survey of Income and Expenditure

The National Survey of Income and Expenditure (NSIE) is conducted every five years by the National Statistical Office (NSO). The first survey was conducted in 1991 and the second in 1996, just a year before Korea plunged deep into the economic crisis. The third one was conducted in 2001.

The NSIE investigates in detail the receipts, disbursements, yearly income, savings and liabilities, and durable goods of households at the national level to analyze patterns of household income and expenditure. The sample size is usually around 30,000 households. Because the data set of NSIE contains solid information on income and expenditure of every type of household, it is useful for measuring the national poverty rate.

The NSIE, however, has a number of limitations. First, it is conducted every five years; thus, it is not very useful especially to policy-makers who regularly need information (e.g., every quarter or every year)

on the poverty rate for their policy actions and decisions. Particularly when the economy fluctuates, the demand for measuring poverty rate in the shorter term gets high.

Second, by end of 2000, it seems that Korea has already crossed the dark tunnel of the crisis. This implies that the NSIE may not be able to accurately measure the quarterly and annual fluctuations of the poverty rate resulting from the economic crisis given that this type of survey is conducted every five years.

Third, because the NSIE contains too many items, it is costly to conduct—much more if it will be held every year. If policymakers want to know the poverty rate every month, a new survey with smaller sample size and less items should be designed.

Due to lack of a nationwide data set, the government of Korea is finding it difficult to measure the exact poverty rate during the economic crisis. Although the demand is high for a new data set containing national information on household income and expenditure, the government could not meet this demand primarily because of financial constraints.

The Family Income and Expenditure Survey

The agency responsible for the conduct of the Family Income and Expenditure Survey (FIES) is the NSO. Started in 1963, the purpose of the FIES is to collect up-to-date information on urban households' income and expenditure. It thus covers urban households in Korea, excluding households in rural areas, city-based households of farmers and fishermen, and single people. Because the FIES produces a monthly data set, it is very useful for regular measurement of short-term poverty rate. This is the main reason why most researchers use the FIES data set in measuring poverty rate.

Just like the NSIE, the FIES has its shortcomings. First, it does not provide information on non-workers' income, only information on their expenditures. Thus, if a researcher would like to measure the poverty rate of the entire urban households (i.e., both workers and non-workers) using the FIES data set, he can still do this but his estimates will be based on expenditure alone. Otherwise, he should first estimate the income of non-workers' households by indirect ways. This implies that the poverty rate may differ according to the method used to estimate the income of non-workers' households.

POVERTY INCIDENCE IN KOREA

Defining Poverty

Conventionally, poverty has been defined in two ways: absolute and relative. In the absolute view, poverty is simply defined as “an inadequate command over resources relative to needs” (Oster et al. 1978, p. 4). However, the practical definition of absolute poverty is contingent upon the meaning of “needs.” Two alternative techniques are used to calculate absolute poverty level. The first method is to survey actual expenditures of persons who are considered poor. The second method is to design a hypothetical market basket necessary for subsistence or for a decent standard of living.

In Korea, there is no official poverty line. Most researchers adopt the minimum cost of living (MCL) as the poverty line. The MCL is measured by the government every five years. A family is considered poor if its income or expenditure falls below the MCL. The first MCL was measured in 1989, the second in 1994, and the third in 1999. The problem here is how to adjust the MCL in the interval years. Using different ways to adjust the MCL for the interval years would result in different poverty rates.

The alternative concept of poverty—relative poverty—is defined as income less than “x” percent of the median income. Households with income less than 50 percent of the median family income is commonly classified as poor in this method (Fuchs 1965). In Korea, however, the notion of relative poverty is not widely used. Most researchers measure the poverty rate by the absolute level.

Poverty Rate of Urban Residents

Two researchers have attempted to measure the poverty rates for the years before, during and after the economic crisis to determine and analyze its impact on the lives of Korean people. Kakwani and Prescott (1999) used the FIES data set, meaning the poverty rates they calculated were exclusively for urban households, and adopted the 1994 MCL as the poverty line. To adjust the MCL for the interval years, they applied the consumer price index so that the poverty line maintains the same standard of living over time. They measured the quarterly poverty incidence, including the percentage of poor, poverty gap ratio, and severity of poverty index from the first quarter of 1990 to the fourth quarter of 1998. Their study thus yielded

KOREA

the consumption-based poverty rate and the income-based poverty rate. However, because they did not estimate the income of non-workers' households, the income-based poverty rate was only for workers' households.

The poverty rates from Kakwani and Prescott's research are given in Table 1. Because the consumption-based poverty rate is for the whole population of urban residents while the income-based poverty rate is just for the workers' households, the consumption-based poverty rate is always higher than the income-based poverty rate.

Table 1. Poverty Rates in Korea by Kakwani and Prescott (1999)

Time			Poverty rate	
			Consumption-based (A)	Income-based (B)
1 st	Quarter	1996	8.8	5.9
2 nd	Quarter	1996	11.6	5.0
3 rd	Quarter	1996	10.0	3.5
4 th	Quarter	1996	8.0	4.6
1 st	Quarter	1997	7.0	2.9
2 nd	Quarter	1997	9.2	2.7
3 rd	Quarter	1997	8.9	2.1
4 th	Quarter	1997	9.5	2.6
1 st	Quarter	1998	17.0	6.1
2 nd	Quarter	1998	21.2	6.7
3 rd	Quarter	1998	23.9	8.5
4 th	Quarter	1998	14.7	7.4

Kakwani and Prescott's research ignited the study of poverty in Korea. Other researchers such as Park et al. (1999) have likewise attempted to measure the poverty rate for the pre- and post-crisis years using the same FIES data set. The flourishing of this type of research, however, does not always mean that the people have come to understand poverty incidence more clearly. In fact, because different researchers would often arrive at incompatible estimates of the poverty rates despite their use of the same data set, estimating the poverty rate remains a controversial issue in Korea. This compatibility problem often leads to confusion in understanding the exact poverty situation in Korea.

IMPACT OF THE EAST ASIAN FINANCIAL CRISIS REVISITED

For instance, let us compare the poverty estimates of Kakwani and Prescott in Table 2 with those of Park et al. presented in Tables 2 and 3. The consumption-based poverty rates of Kakwani and Prescott given in Table 1 obviously do not match with the estimates of Park et al. for the same time periods given in Table 2. Note that the consumption-based poverty rate for the first quarter of 1997 is 7.0 percent in Table 1 while it is 12.4 percent in Table 2. Although the discrepancy between the two results is smaller in 1998, it is notably wide in 1997.

Table 2. Expenditure-Based Poverty Rates in Korea by Park et al. (1999)

Time	Total expenditure			Consumption expenditure			
	Whole	Worker	Non-worker	Whole	Worker	Non-worker	
1996	1 st Quarter	10.9	10.0	12.3	14.3	14.1	14.7
	2 nd Quarter	11.8	11.3	12.6	15.9	15.7	16.1
	3 rd Quarter	11.7	10.6	13.4	15.0	14.3	16.0
	4 th Quarter	8.8	7.6	10.9	11.9	11.1	13.3
1997	1 st Quarter	9.4	7.8	11.9	12.4	11.2	14.2
	2 nd Quarter	9.8	8.8	11.5	13.8	13.2	14.9
	3 rd Quarter	10.6	8.8	13.5	13.8	12.5	15.9
	4 th Quarter	9.0	7.6	11.3	12.7	11.6	14.3
1998	1 st Quarter	14.5	12.3	17.5	19.3	17.9	21.3
	2 nd Quarter	16.5	14.3	19.5	23.5	22.2	25.2
	3 rd Quarter	20.3	18.1	23.2	26.1	25.0	27.6
	4 th Quarter	11.3	9.5	13.7	15.9	14.5	17.7
1999	1 st Quarter	14.8	12.5	17.5	18.9	16.9	21.4
	2 nd Quarter	15.2	12.8	18.2	21.2	19.4	23.4
	3 rd Quarter	15.2	12.6	18.7	20.1	17.8	23.0

Two possible explanations for the discrepancy are: (1) Park et al. adopted a poverty line derived from the MCL for the interval years, different from the one Kakwani and Prescott used, hence the discrepancy seems inevitable to some extent; and (2) There could have been a technical mis-

Table 3. Income-Based Poverty Rates in Korea by Parker et. al. (1999)

Time		Receipts			Income		Current Income			
		Whole	Worker	Non-Worker	Whole	Worker	Non-Worker	Whole	Worker	Non-Worker
1996	1 st Quarter	2.6	0.8	5.5	8.2	4.1	14.9	10.3	5.2	19.1
	2 nd Quarter	2.3	0.6	5.2	7.7	3.4	15.0	9.4	4.1	18.6
	3 rd Quarter	2.3	0.6	5.2	7.2	2.8	14.4	8.6	3.8	16.9
	4 th Quarter	2.1	0.4	4.9	6.6	2.8	12.8	9.6	3.7	19.8
1997	1 st Quarter	2.9	0.5	7.0	8.1	3.4	15.9	10.4	4.5	20.1
	2 nd Quarter	2.6	0.5	6.1	7.0	2.8	13.7	8.9	3.5	18.1
	3 rd Quarter	2.5	0.4	6.0	7.2	2.3	14.9	8.7	3.0	18.2
	4 th Quarter	2.6	0.5	6.0	8.5	3.0	17.2	10.2	3.5	21.2
1998	1 st Quarter	3.8	0.9	8.2	13.8	5.7	25.9	14.7	6.5	27.5
	2 nd Quarter	4.7	1.3	9.5	15.2	6.2	28.0	15.5	6.8	28.4
	3 rd Quarter	4.5	1.5	8.8	15.4	6.7	27.5	15.9	7.3	28.1
	4 th Quarter	4.0	1.2	7.8	12.7	5.7	22.3	15.2	6.5	27.5
1999	1 st Quarter	4.8	1.6	8.8	17.1	7.8	28.9	19.5	9.0	33.6
	2 nd Quarter	4.9	1.8	9.1	14.9	7.3	24.7	18.0	8.3	31.3
	3 rd Quarter	4.4	1.4	8.4	14.2	6.2	24.7	16.3	7.0	29.5

take in the calculation, as the discrepancy does not show any consistency. If the poverty line taken by Kakwani and Prescott was lower than that used by Park et al., expectedly the poverty estimates of the former should be consistently lower than that of Park et al. However, the poverty rates of both authors do not show any consistency. While Kakwani and Prescott's estimates for 1997 are lower than Park et al.'s for the same year, they are nevertheless higher for 1998. This implies that either one of them made a mistake in the calculation. In my analysis, it was most probably Kakwani and Prescott who miscalculated the poverty rate for 1997.

Another research, this time by Bark et al. (2000a), adds more complexity to the statistics of poverty rate in Korea. Using the FIES data set, they calculated the poverty rates of urban workers' households but adopted five different poverty lines: (1) the 1994 MCL adjusted by consumer price index, (2) the 1999 MCL adjusted by consumer price index, (3) 50 percent of the median income of urban workers' households, (4) 50 percent of the average income of urban workers, and (5) consumption expenditure. Bark et al.'s estimates are presented in Table 4. Because they adopted five different poverty lines, there were also five different poverty rates for a given time period. Again, there is discrepancy in the results. For example, the poverty rate estimated by Park et al. for the first quarter of 1998 for whole households based on consumption expenditure is 19.3 percent (Table 2) but Bark et al.'s calculation is 16.6 percent (Table 4). Although both studies used the same data set, they produced different poverty rates for the same population because different poverty lines were used.

As noted earlier, the incompatibility of the results makes the understanding and analysis of poverty in Korea more complex, and the planning, implementation and evaluation of anti-poverty policies and programs more difficult. On the one hand, government officials are more inclined to use a poverty rate which is based on workers' household income because it is lower than consumption-based poverty rate. On the other hand, nongovernment organizations rely more on the poverty rate based on consumption expenditure, as it is higher than income-based poverty rate. If the government could establish an official poverty rate each year, it would be a big help in understanding poverty incidence more easily as well as in evaluating the effects of anti-poverty policies and programs.

Table 4. Poverty Rates by Bark et al. (2000a)

	1997 1 st Qtr	1997 2 nd Qtr	1997 3 rd Qtr	1997 4 th Qtr	1998 1 st Qtr	1998 2 nd Qtr	1998 3 rd Qtr	1998 4 th Qtr	1999 1 st Qtr	1999 2 nd Qtr	1999 3 rd Qtr	1999 4 th Qtr
Urban worker's Households												
A	3.4	2.8	2.3	2.9	6.1	6.4	6.7	5.6	7.4	7.4	5.8	5.4
B									8.2	7.8	6.5	6.0
C	8.2	6.2	7.6	6.6	10.5	8.7	9.9	9.2	10.7	8.7	10.1	9.2
D									13.5	13.1	11.2	10.3
Whole households:												
Consumption-based	10.5	12.2	11.8	10.9	18.5	22.4	25.5	14.3	16.6	19.3	17.5	

Note: A is the real value of the 1994 minimum cost of living; B is the estimated minimum cost of living for 1999; C is 50 percent of the median income of urban worker's households; and D is 50 percent of the average income of urban workers.

Table 5. National Poverty Rates by Bark et al. (2000a)

Poverty line	1996	1997	1997	1997	1997	1998	1998	1998	1998	1998	1999	1999	1999	1999	1999		
			1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr		1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr		1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	
A	4.3	7.4	8.8	7.2	6.0	7.5	16.5	16.3	17.0	17.8	14.9	17.6	20.2	20.0	15.6	14.5	
B													16.3	17.0	18.6	15.5	14.2
C	8.6	12.8	14.6	11.1	13.6	11.8	17.4	19.1	15.8	18.0	16.7	17.8	19.7	16.0	18.5	16.8	
D													18.8	21.2	20.1	17.6	16.1

Note: A is the real value of the 1994 minimum cost of living; B is the estimated minimum cost of living for 1999; C is 50 percent of the median income of urban worker's households; and D is 50 percent of the average income of urban workers.

National Poverty Rate

Although the national poverty rate in Korea could not be measured on a yearly basis due to the lack of a proper data set, some researchers have tried to measure it using complementary data sets.

For example, Bark et al. (2000a) measured the national poverty rate for 1996 using the NSIE data set. Assuming no change in the relationship of the national poverty rate to the poverty rate of urban workers' households for year 1996, these authors estimated the national poverty rate for post-1996. Similarly, they calculated the poverty rate of urban workers' households for each quarter using the FIES data set. Their estimates are given in Table 5.

While Bark et al.'s study could help in understanding the national poverty incidence, their values are just estimates. If the relationship between the poverty rate of rural households and the poverty rate of urban households changes, which is a common phenomenon, their estimates will prove wrong.

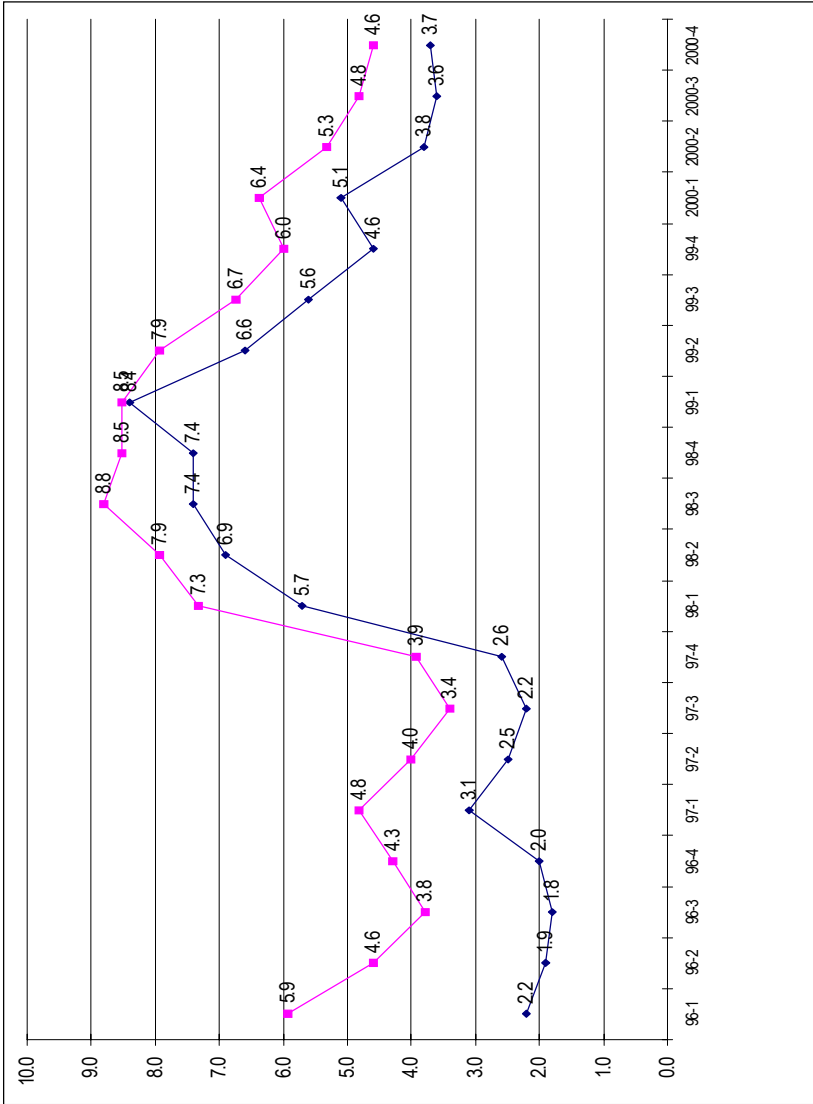
IMPACT OF THE ECONOMIC CRISIS

Macro Impact on People's Lives

The economic shock of 1997 deeply affected every aspect of life in Korea. The depressed economy pushed the unemployment and poverty rates up. Before the 1997 economic shock, the national unemployment rate was usually kept under 3 percent. Soon after the economic shock, it increased rapidly and peaked at 8.4 percent in the first quarter of 1999, began to decline and then plummeted to 3.7 percent in the fourth quarter of 2000. The poverty rate for urban workers' households followed the same trend. It peaked at 8.8 percent in the third quarter of 1998 and then began to fall.

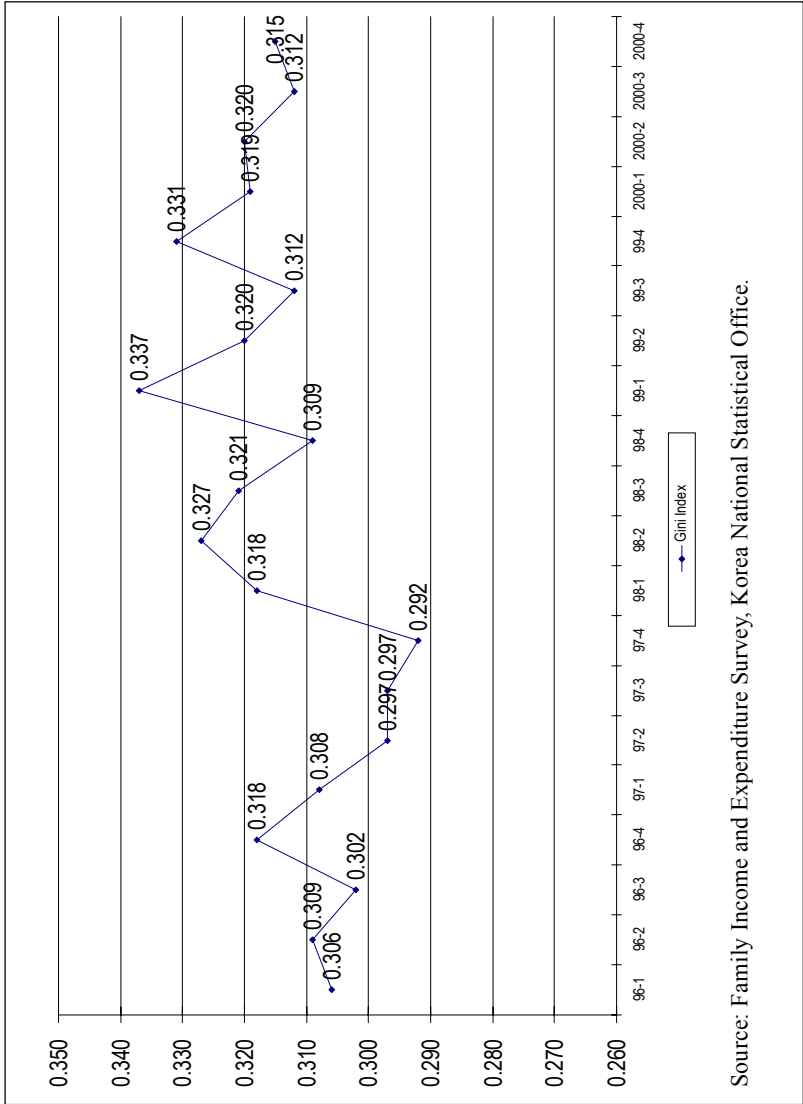
As shown in Figure 1, the poverty rate and unemployment rate are closely related, suggesting that the urban workers' households have been directly affected by the economic crisis. As of the fourth quarter of 2000, it seems that Korea's economy has almost recovered from the economic recession as shown in the lowering of both the poverty rate and unemployment rate. However, the problem of inequality is still present.

Figure 1. Poverty Rate and Unemployment Rate: First Quarter 1996-Fourth Quarter 2000



Although the poverty rate and unemployment rate for 1997 and the fourth quarter of 2000 are quite near, the state of income distribution has not yet returned to its previous level. Traditionally, Korea is known for its relatively good income distribution. As shown in Figure 2, the Gini index was 0.292 in the fourth quarter of 1997, but the economic shock worsened

Figure 2. Gini Index of Urban Workers' Households (Quarterly)



Source: Family Income and Expenditure Survey, Korea National Statistical Office.

the income distribution, pushing the Gini index up to 0.337 in the first quarter of 1999. Since then, the Gini index has been fluctuating but has remained above 0.31. Meanwhile, the poverty and unemployment rates are continuously falling down. This means that the problem of absolute poverty is being solved but the problem of relative poverty will most probably persist for some time.

Vertical Impact on Income and Consumption

As shown in Table 6, the higher income workers benefited from the economic crisis. The income share of the uppermost level (income interval >95 percent) increased from 13.2 percent in 1997 to 16.0 in 1999, or by 2.8 points. Meanwhile, the income share of the next upper level (90-95 percent) increased by only 0.1 point during the same period while the income share of the lowest level (<5 percent and 5-10 percent), as expected, decreased (from 3.3 percent in 1997 to 2.7 percent in 1999). The income share of other levels remained comparatively stable. This explains the in-

Table 6. Distribution of Urban Worker Households' Income (in percent)

Income Interval	Distribution							
	1996		1997		1998		1999	
	%	Accumulated %	%	Accumulated %	%	Accumulated %	%	Accumulated %
<5%	1.2	1.2	1.2	1.2	0.9	0.9	1.0	1.0
5-10%	1.9	3.2	2.1	3.3	1.8	2.7	1.7	2.7
10-15%	2.4	5.6	2.3	5.6	2.2	4.8	2.1	4.8
15-20%	2.7	8.3	2.7	8.3	2.5	7.4	2.5	7.3
20-25%	2.8	11.1	3.0	11.3	2.8	10.1	2.8	10.1
25-30%	3.2	14.3	3.3	14.5	3.1	13.2	3.0	13.1
30-35%	3.4	17.7	3.5	18.1	3.4	16.6	3.3	16.4
35-40%	3.7	21.4	3.8	21.8	3.6	20.2	3.5	20.0
40-45%	3.9	25.4	4.2	26.0	3.9	24.0	3.9	23.8
45-50%	4.2	29.6	4.1	30.1	4.1	28.1	4.0	27.8
50-55%	4.5	34.1	4.6	34.7	4.5	32.6	4.4	32.2
55-60%	4.8	38.9	4.9	39.6	4.7	37.3	4.7	36.9
60-65%	5.1	44.1	5.2	44.8	5.1	42.4	5.1	41.9
65-70%	5.5	49.6	5.6	50.3	5.5	47.8	5.4	47.4
70-75%	6.0	55.5	6.0	56.3	5.9	53.7	5.9	53.3
75-80%	6.5	62.0	6.5	62.8	6.4	60.1	6.4	59.7
80-85%	7.1	69.1	7.1	69.8	7.1	67.2	7.1	66.8
85-90%	8.0	77.1	7.9	77.7	7.9	75.1	8.0	74.7
90-95%	9.3	86.4	9.1	86.8	9.2	84.3	9.2	84.0
>95%	13.6	100.0	13.2	100.0	15.7	100.0	16.0	100.0
Total	100.0		100.0		100.0		100.0	

Source: Bark et al. (2000b).

IMPACT OF THE EAST ASIAN FINANCIAL CRISIS REVISITED

crease in the Gini index of urban worker households' income. In other words, the uppermost group earned more money during the period than before it, while the lowermost group lost their earnings during the crisis. The middle group, on the other hand, was able to keep their earnings during the same period.

However, the economic crisis was found to have less effect on household consumption. As shown in Table 7, the share of consumption of

Table 7. Distribution of Urban Worker Households' Consumption Expenditure (in percent)

Interval of Consumption Expenditure	Distribution							
	1996		1997		1998		1999	
	%	Accumulated%	%	Accumulated%	%	Accumulated%	%	Accumulated%
<5%	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2
5-10%	1.8	3.1	1.9	3.1	1.8	3.0	1.8	3.0
10-15%	2.2	5.3	2.2	5.4	2.2	5.1	2.1	5.1
15-20%	2.5	7.7	2.5	7.9	2.4	7.6	2.4	7.5
20-25%	2.7	10.4	2.8	10.7	2.7	10.3	2.7	10.2
25-30%	3.0	13.4	3.0	13.7	3.0	13.3	2.9	13.2
30-35%	3.2	16.6	3.3	16.9	3.2	16.5	3.2	16.3
35-40%	3.4	20.0	3.5	20.4	3.5	20.0	3.4	19.8
40-45%	3.7	23.7	3.7	24.2	3.7	23.7	3.7	23.5
45-50%	3.9	27.6	4.0	28.1	4.0	27.7	3.9	27.4
50-55%	4.2	31.8	4.2	32.4	4.3	32.0	4.2	31.6
55-60%	4.5	36.3	4.5	36.9	4.6	36.6	4.5	36.1
60-65%	4.8	41.1	4.8	41.7	4.9	41.5	4.8	40.9
65-70%	5.1	46.2	5.1	46.8	5.3	46.7	5.2	46.1
70-75%	5.6	51.7	5.6	52.4	5.7	52.4	5.6	51.7
75-80%	6.1	57.8	6.0	58.4	6.2	58.6	6.1	57.8
80-85%	6.7	64.5	6.7	65.1	6.8	65.4	6.7	64.6
85-90%	7.7	72.2	7.6	72.7	7.7	73.2	7.7	72.2
90-95%	9.4	81.6	9.3	82.1	9.5	82.6	9.4	81.6
>95%	18.4	100.0	17.9	100.0	17.4	100.0	18.4	100.0
Total	100.0		100.0		100.0		100.0	

Source: Bark et al. (2000b).

the uppermost level increased from 17.9 percent in 1997 to 18.4 percent in 1999, or by only 0.5 point. Meanwhile, the share of consumption of the lowest level decreased by only 0.1 point for the same period. A comparison of the rate of change in income and consumption shows that the uppermost group earned more money during the crisis and also increased its consumption level in the same period but not proportionately, that is, the increase in consumption was lower than the increase in income. As for the lowest income group, this group maintained its pre-crisis consumption level during the crisis.

CONCLUSION

The 1997 economic shock affected every aspect of life in Korea. The economic shock has been most severe for the most vulnerable income groups whose situation became worse during the crisis thus falling below the poverty line. In response, the Korean government implemented a wide range of anti-poverty policies to mitigate the negative effects of the economic depression. Calculating the poverty rate is essential for monitoring the number of people below the poverty line and for evaluating the effects of anti-poverty policies and programs.

Practical demand has urged researchers to measure the poverty rate in Korea in spite of the lack of a proper data set. Nevertheless, several studies have produced useful poverty rates although, in many cases, the results were incompatible, because of different poverty lines used. This is a problematic situation as the presence of many different poverty rates will just make the whole exercise of understanding the poverty incidence more confusing for the people. A solution to this problem is for government to release official data on poverty incidence every year. However, an important requisite toward this end is the establishment also by government of an official poverty line as well as the provision of a proper data set.

As of 2001, it seems the economic depression in Korea is coming to a close. The poverty rate is falling and the unemployment rate is nearing its level in 1997. However, the Gini index has been fluctuating and has remained at high levels. This implies that the problem of absolute poverty is losing ground but the problem of relative poverty is gaining momentum.

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CHAPTER FIVE

The Impact of Economic Crisis on Poverty and Inequality in Indonesia

*Ali Said and Wenefrida D. Widyanti**

INTRODUCTION

In the middle of 1997, Indonesia experienced an economic shock of unprecedented severity after almost a decade of uninterrupted high economic growth. The economic crisis slowed down economic performance. The growth of gross domestic product (GDP) dropped dramatically from over 7 percent per annum prior to the crisis to -13.2 percent in 1998. This aggregate income shift significantly reflected the impact of currency devaluation, which created an economic upheaval leading to a high inflation rate.

The conventional view is that the crisis began in July 1997 with the devaluation of the Thai baht. Investors and bankers then began to pay more attention to other countries in the region, and began to pull their money out of Indonesia, too. The net outflow of finance, along with the rapid fall in

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foreign direct investment, caused an immediate exchange rate crisis, which led to a rapid and large devaluation of the rupiah. While this should have boosted exports, in reality, local companies had trouble raising finance given a stretched and nervous banking system. Thus, most of the adjustment took place in the form of lower imports and reduced production. The crisis in the banking sector, together with rising interest rates, resulted in credit crunch and financial disruption, leading to difficulties for many companies in obtaining working capital and export letters of credit (Lee 1998).

In terms of social impact, the economic crisis hampered the massive improvement in human development (education and health) and the remarkable reduction in the incidence of poverty during the pre-crisis period. Coupled with a number of economic factors, the long drought and forest fires in 1997 followed by political instability in the transitional period also contributed to the worsening of socioeconomic conditions. These economic factors (i.e., skyrocketing prices, decline in agricultural production, shrinkage of the formal sector, the huge pressure on the overall labor market) caused a negative social impact especially on the most vulnerable groups of the population (Irawan and Suhaimi 1999). Another significant impact of the crisis was the substantial rise in the incidence of poverty. This reflected the sharp fall in consumption and average income of the population brought about by the crisis.

After about a year in crisis, the Indonesian economy was still far from recovering. The growth rate in 1999 was only 0.23 percent—very small when compared to Thailand's figure of 4.2 percent in the same period. The GDP of some major sectors such as mining and quarrying, trade, transport and communication, and financial and banking still showed a negative growth in 1999. The values of total export and import continued to decline after reaching a peak in 1997. Other sectors, however, such as manufacturing industry, construction and services, showed a significant progress in GDP in 1999.

To minimize the impact of the crisis especially on the most vulnerable group of the population, the government launched the Social Safety Net (SSN) program. The program was aimed at helping the poor cope with the crisis through four main sectors, namely, food security, education, health, and employment. The most significant program in the area of food

security was the provision of a rice price subsidy for the poor. In the education sector, the program provided scholarships to children from poor families and a block grant for selected schools. In the health sector, the government provided health cards to the poor, which enabled them to avail of free basic health services. To reduce the number of unemployed, the SSN created the 7a public works program.

This paper is not intended to evaluate the SSN program. Rather, it aims to provide answers to the following questions: Has the poverty situation improved after the introduction of new government programs and policies aimed at reducing the impact of the crisis and at increasing economic growth? Was the increased poverty during the crisis a transient phenomenon? Who were the groups most affected by the crisis? Which regions were most affected by the crisis in terms of changes in poverty? What were the coping mechanisms and survival strategies taken by the poor to cope with the crisis? Has income inequality worsened during the crisis?

Many studies (e.g., BPS and UNDP 1999; Frankenberg et al. 1999; Irawan and Romdiati 1999; Skoufias et al. 1999; Dhanani and Islam 2000; Pradhan et al. 2000) have been conducted to evaluate poverty in Indonesia. BPS and UNDP (1999) re-evaluated the poverty measurement using the 1998 revised bundle especially for non-food bundle based on the National Socio-Economic Survey data. Pradhan et al. (2000) estimated the poverty rate for 1996 and 1999 using the same data based on a new technique of measuring poverty.¹ Meanwhile, Frankenberg et al. (1999) used the Indonesian Family Life Survey to study the socioeconomic aspects of the impact of the crisis. Skoufias et al. (1999) made an evaluation of the crisis' impact on household welfare and poverty based on the 100 Village Survey.

This paper aims to provide a more prominent feature of the extent of the crisis' impact on poverty and inequality in Indonesia based on data from a series of National Socio-Economic Surveys (or *Susenas*²). In more specific terms, it aims:

- to monitor the trends in poverty incidence and evaluate the extent to which poverty and inequality have changed since 1996;
- to investigate self-reported coping mechanisms of the poor in response to the economic crisis;

- to analyze the socioeconomic and demographic characteristics of the poor including the socioeconomic and demographic profiles of chronic and transient poverty; and
- to provide some recommendations for programs and policies directed toward poverty alleviation.

The next section discusses the concept and measurement of poverty. It is followed by the third section which discusses how the crisis shaped inequality in Indonesia. The penultimate section presents the profiles of poverty and discusses the coping mechanisms and survival strategies of the poor. The last section summarizes the results of the study.

POVERTY RATES

The first step to measuring poverty rates is to define who are poor and who are not. Following a common practice, poverty is defined as the lack of command over basic consumption needs including food and non-food components. By definition, the poverty line is obtained by specifying a consumption bundle considered adequate for basic consumption needs and then estimating the costs of these basic needs. In other words, the poverty line is conceptualized as the minimum standard required by an individual to fulfill his or her basic food and non-food needs.

In this paper, poverty is measured in absolute terms, which means people living below the specified threshold are considered poor. Thus, setting the poverty line is the most important stage in measuring poverty. In setting the food poverty line, the study utilized the official method, i.e., the Cost of Basic Need (CBN) approach. However, in determining the non-food poverty line, the study utilized an alternative method based on Engel's curve of the relationship between food spending and total spending.

Setting the Poverty Line

Before we arrive at the construction of a food poverty line and a non-food poverty line, it is necessary to discuss briefly two major important points, which are often subject to criticism. First, the most important part of poverty measurement is the determination of a reference population.

Two researchers will have different estimates of poverty, albeit the use of the same method and data, if they use two different reference populations. Basically, the reference population is an arbitrary choice, but it is quite essential to poverty measurement since the patterns of consumption of this reference group become the anchor for the subsequent stages in constructing the poverty line.

As to the choice of reference population, many studies of poverty in Indonesia have defined “reference population” in many ways (e.g., see Bidani and Ravallion 1993; Ikhsan 1999; BPS and UNDP 1999; Pradhan et al. 2000). For example, Bidani and Ravallion (1993) specify a reference household deemed to be typical of the poor on the basis of the poorest 15 percent of the Indonesian population, when ranked according to the level of consumption per capita. BPS-Statistics Indonesia as the institution that produces the official poverty figures conventionally defines reference population as the group of people having an expenditure level just above the expected poverty line.³

Some criticisms can be said about the conventional official method (or the BPS method) of setting the reference population. First, although the official method attempts to capture the changes in living standard over time by taking into account the inflation rate, the calculation of inflation rate tends to reflect urban prices more heavily because the price data are based on the survey of prices covering 44 big cities in Indonesia. This can lead to a higher poverty line especially for rural areas. Second, the BPS method could be less dynamic over time due to changes in social strata⁴ as reflected in the changes of the reference population. To solve these drawbacks in setting the reference population, what can be done is to fix the reference group—e.g., the poorest 20 percent, the poorest 35 percent expenditure class in the second decile and the third decile, etc. Using a constant reference population, poverty assessment would be consistent over time.

However, it is worthwhile to note that as rejoinder to the results of the International Conference on Methodology of Poverty Measurement in December 1999 and May 2000, BPS and the World Bank made substantial revisions to the official methodology (BPS method) of setting the poverty line. The reference population used in the newest methodology is the group of people in the second and third deciles. This revised version has been

applied to calculate the poverty rates at the provincial level for the February 1996 and February 1999 *Susenas* data. This paper also uses the newest version of the official methodology to re-estimate poverty lines especially the food poverty lines for the February 1996 *Susenas*, December 1998 *Mini-Susenas*, February 1999 *Susenas*, and August 1999 *Mini-Susenas* data against a reference population. Details of the revised official methodology are given in Appendix 2.

The second important aspect relating to the setting of poverty line is the selection of reference bundle of both food and non-food commodities. The reference food bundle should reflect the typical consumption of the population and should also be consistent with the typical diet of those deemed poor. The issue here is that there are typical differences in “taste” between urban and rural areas and between regions. This, then, can lead to difficulties in choosing the food bundle representing local taste. However, this problem can be solved to some extent if we follow the recommendation of the National Workshop on Food and Nutrition in 1978. It says that the minimum standard for food adequately required by an individual to stay healthy is as much as 2,100 calories per day. Therefore, 2,100 calories can be used as the standard minimum diet in setting the food poverty line. A more serious problem, that of setting the non-food bundle, will be discussed later.

Setting the Food Poverty Line

Practically, the food poverty line is based on the expenditure per capita of food equivalent to the amount of rupiahs needed to achieve the standard of 2,100 calories energy requirement.⁵ Following the common practice, the choice of commodities in the bundle should be the typical set of commodities commonly consumed by the reference population.⁶ In addition to this, the commodity bundle should be the essential commodities with a reasonable budget share in the subgroup of commodities. The number of items selected in the food bundle was as much as 52 food items.

Regional issues emerge when poverty statistics are disaggregated by province. The official method adopts the view that the minimum standard for food should take into account locality aspects, hence the choice of food items may not necessary be the same among provinces. For example, the provinces of Irian Jaya and Maluku, where rice is not the only major staple

food, would be best represented under this approach.⁷ Comparability between provinces is obviously sacrificed if this approach is used. On the other hand, if one refers to a standard of how much it would cost the “reference” household to consume 2,100 calories, in that sense, comparability is maintained. This, of course, does not mean comparability across all households even within the same province because, for example, rich people obtain their calories from more expensive foods. Thus, their 2,100 calories cost more than the 2,100 calories of the poorer people. However, it is important to note that food prices across provinces reflect both cost and quality differences.

Having selected the food commodity basket actually consumed by a reference population within a province, the quantity and the price of each food item is calculated. The unit value of food prices is estimated by dividing expenditure by reported quantities. The main advantage of using unit price estimates is that they can be directly derived from the survey. In addition, the price and expenditure data correspond to the same reference period (Pradhan et al. 2000). This is especially important in a period of high inflation. A disadvantage is that products may not be homogenous within a commodity category (Suryahadi et al. 2000). Wealthier household can consume more luxurious varieties of a commodity and therefore pay higher unit prices. Formally, the food poverty line (FPL) for region-j is defined as:

$$(1) \quad FPL_j = [\sum q_{jk} P_{jk}] [2,100 / \sum q_{jk} c_{jk}]$$

where q_{jk} is the average quantities consumed of commodity k for region j; p_{jk} is unit price estimate of commodity k for region j; and c_{jk} is unit calorie value of commodity k in region j. This method is applied to the February 1996 and February 1999 *Susenas* data and December 1998 and August 1999 *Mini-Susenas* data to obtain the food poverty line in February 1996, December 1998, February 1999 and August 1999.

Setting the Non-food Poverty Line

The determination of non-food poverty line is basically the same as that for the food poverty line. If we have a reference bundle of basic non-food commodities, then we can cost the bundle directly to obtain the non-food poverty line. This has been the BPS method in setting the non-food

poverty line.⁸ However, in practical terms, setting the non-food poverty line is not that simple. The main problem relates to the quantity and the quality of each non-food item. Among similar goods, their prices could also vary significantly depending on the quality of each item. The problem becomes more difficult if we want to cost services.

While the food poverty line can be directly estimated by costing the chosen food bundle equivalent to 2,100 calories, there has not been an equivalent standard for the non-food consumption given the lack of information on the quantity of the “basic needs” amount of non-food consumption. In the absence of an objective non-food standard, it is difficult to arrive at thresholds that are equivalent and comparable across regions and across time. This is one of the drawbacks of the approach used in the official (BPS) method. Other criticisms are discussed in Sutanto et al. (1999).

With respect to such practical problems in costing the non-food bundle, an alternative method based on Engel’s law is adopted to estimate how much money is spent on non-food items among those whose expenditure is just at the food poverty line. This approach seems to be quite appealing since the variation in prices of commodities and the quality of commodities can be directly reflected in the equation. As argued by Ravallion (1994), the behavior of poor households that, on average, has just enough money to purchase as much as the food poverty line would show that they will not spend their entire budget on food components. It means that non-food items purchased by the poor households must be essential. Therefore, the determination of non-food poverty line on the basis of Engel’s curve (regression method) seems to be more robust as compared with the official method because this alternative method (Engel’s law method) is not affected by the changes in non-food consumption patterns.

Assume that there is a unique expenditure needed to reach nutritional requirement z^f expressing the food poverty line. Among households that can afford to reach their energy requirements, the lowest level of non-food expenditure, which displaces basic food expenditure, is given by the distance NF (see Figure 1). This distance NF is the minimum level of basic non-food expenditure. Thus the poverty line is given by z (z^f plus NF).

Given the food poverty lines that have been set in the previous stage, the non-food poverty lines can be determined by building a regression model from the relationship between food spending and total spending.

The model that we have used here is adopted from Ravallion and Bidani (1994) who derived it from the model of the Almost Ideal Demand System. The general regression model can be written as follows:

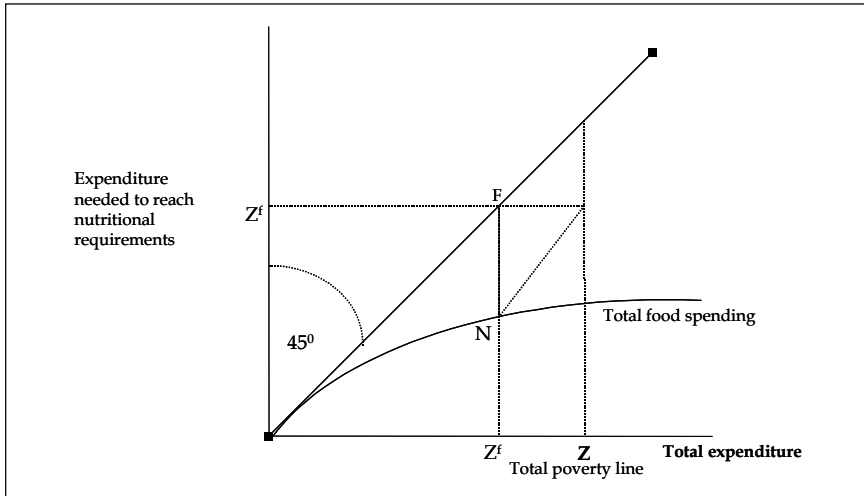
$$(2) \quad S_{ij} = \alpha + \beta_1 \ln(y_{ij}/z_j^f) + \beta_2 [\ln(y_{ij}/z_j^f)]^2 + \sum \phi_j D_{ij} + residual$$

where S_{ij} is the share of total expenditure, y_{ij} , devoted to food; z_j^f is the food poverty line; α , β_1 , β_2 and ϕ_j are parameters to be estimated; D_{ij} are dummy variables to indicate provinces and urban and rural areas; j are the index provinces; and i are the index individuals. The value of intercept α estimates the average food share of households who can just afford the reference bundle of food. From this model, total poverty line can be directly estimated. The total poverty line for region j , Z_j , is then given by the food component z_j^f , plus non-food spending at the poverty line $(1-\alpha_j)z_j^f$, or the total poverty line z_j can be written as follows:

$$(3) \quad Z_j = z_j^f + (1-\alpha_j)z_j^f = z_j^f (2 - \alpha_j)$$

where $\alpha_j = \alpha + \phi_j$. The estimated model for determining the non-food poverty line for respective year can be seen in Appendix 3. It is worthwhile to note that the authors' estimate of the intercept (average food share of households) is comparable with that of Bidani and Ravallion's estimate.

Figure 1. Relationship Between Food Spending and Total Spending



One may argue that the Engel curve approach is not robust because there is a serious problem: the Engel curve relating to food spending to total spending is also determined by other variables. For instance, if the price of food rises relative to other prices, then the Engel curve will typically shift upwards. In addition, it also probably systematically overstates the non-food component needed in urban areas, which sets the urban poverty line too high, and this in turn may give the impression of more urban poverty than what is in fact the case. However, comparing the poverty lines between regions and between urban and rural areas indicates that differences in cost of living may be indirectly reflected in the differences in the poverty lines. For instance, the poverty line was 110,353 in Jakarta in 1999, but only 71,486 in rural West Java (Appendix 4). This means that it will cost a poor person 50 percent more to survive in Jakarta than in the rural areas of West Java. To some degree, this is true because the cost of living in Jakarta is much higher than in rural areas of many other provinces. For example, consumer price index (CPI) for rural West Java was only 94.6 in August 1999 (1996=100) as compared with the CPI of Jakarta of 195.1 in the same period (BPS 1996, 1999).

Once the poverty line is chosen, it is straightforward to produce the percentage of people who are poor. This is usually referred to as the headcount index of poverty measurement. However, this measure has a limitation: it does not reflect shifts in degree of poverty among the poor. In other words, it does not tell how poor the poor are and even if a poor person becomes poorer, the headcount index will not change. To overcome the insensitivity of the headcount index, Foster et al. (1984) proposed several measures that are sensitive to depth and severity of poverty. One such measure is the FGT index. The general formula of the FGT index is

$$(4) \quad P_{\alpha} = (1/N) \sum [(z - Y_i)/z]^{\alpha}$$

where z is the poverty line, Y_i is the income or expenditure level of individual or household i below the poverty line and Y_i is 0 for those above the poverty line, N is total number of individual and α is a parameter that allow this index to vary its sensitivity to depth of poverty. If $\alpha=0$, this formula is simply the headcount index, which is absolutely insensitive to depth and severity of poverty. If the value of α is greater than zero, the index is sensi-

tive to the severity of poverty. The index becomes increasingly sensitive as the value of α increases. The standard values of α used in the literature are 0, 1 and 2. For $\alpha=1$, the formula would be a poverty gap index (poverty gap ratio) indicating the depth of poverty, while for $\alpha=2$ the formula is the square of poverty gap ratio measuring the degree of poverty severity or changes in income distribution among the poor.

TRENDS IN POVERTY INCIDENCE

Based on official figures, during the two decades prior to the economic crisis, the incidence of poverty remarkably declined from 40.1 percent in 1976 to 11.3 percent in 1996 (BPS and UNDP 1999). Estimates by the World Bank confirm this finding. Poverty level dropped from around 57 percent in 1971 to 11.5 percent in 1996 (World Bank 1994, 1999). Magana (1996) argues that such a dramatic fall in the incidence of poverty could be attributed to three fundamental factors: (1) the rapid economic growth that increased the demand for workers and thus led to higher income; (2) the relatively free labor market that allowed rural workers to easily migrate to jobs in urban areas; and (3) the increased accessibility of health, education, basic infrastructure and other human development services to the majority of the population that led to the improvement of the quality of life and to increased productivity.

The reduction in poverty incidence was followed by the improvement in the poverty gap and poverty severity indices (Sutanto and Avenzora 1999). Based on available official figures, poverty gap index dropped from 3.15 percent to 1.59 percent for urban areas and from 2.83 percent to 1.8 percent for rural areas during the period 1987-1996. In the same period, poverty severity index (square poverty gap) also declined—from 0.95 percent to 0.41 percent for urban areas and from 0.76 percent to 0.43 percent for rural areas.

Many scholars have studied the poverty trend during the crisis years in Indonesia (see BPS and UNDP 1999; Frankenberg et al. 1999; Skoufias et al. 1999; Pradhan et al. 2000; Suryahadi et al. 2000) yet the exact magnitude of poverty incidence during the crisis has not been established. Different estimates abound mainly because each researcher used different data

sources and/or methodology. In spite of the dissimilarities, a common trend was observed: poverty rose substantially during the crisis years. A comparison of poverty rates at the national level during 1996-1999 obtained using the BPS method and the alternative method is presented in Table 1. Based on the alternative method, poverty rate increased from 15.7 percent⁹ in 1996 to 26.4 percent in December 1998, or an increase from around 31 million poor people to nearly 54 million. In terms of the BPS method, poverty rates increased from 17.7 percent in 1996 to 24.2 percent in 1998 using the same data set. Skoufias et al.'s (1999) estimate, using the 100 Village Survey, is around 25.7 percent in 1998. The poverty lines obtained using the alternative method for the years covered in the study by province are given in Appendix 4.

The main factor responsible for the rapid increase in poverty was the skyrocketing of prices of most commodities (BPS and UNDP 1999), which was exacerbated by the massive decline in real wages (Frankenberg et al. 1999; Smith et al. 2000). Prices of most commodities reached the highest level in September-December 1998. Between February 1996 and December 1998, inflation rate for food commodities reached 149 percent (BPS 1999). BPS and UNDP (1999) noted that the real wages of employees declined by over 30 percent for both urban and rural areas during the period 1997-1998.

Lee (1998) underscored the effect of high inflation rate on the rapid increase of poverty incidence in Indonesia. He took note of two directly related factors that contributed to the sudden upsurge of poverty in the country—increased unemployment and high inflation induced by the crisis. In Thailand and the Republic of Korea, over 80 percent of the crisis-induced increase in poverty can be attributed to unemployment. In Indonesia, however, nearly 70 percent of the increase in poverty can be explained by inflation and only 30 percent by unemployment. To a large extent, the rise in poverty incidence in Indonesia was due more to inflation than to unemployment because the massive decline in purchasing power greatly affected the poor when the inflation rate for rice at 50 percent exceeded the general consumer price index (Sumarto et al. 1999). The effect of unemployment seemed to be less significant given that unemployment rate increased only by 0.8 percent between 1997 and 1998 (BPS and UNDP 1999).

Table 1. Estimates of Poverty Rate (Po) by the BPS Method and the Alternative Method: 1996, 1998 and 1999

Year	Urban (%)		Rural (%)		Total (%)	
	Alternative*	BPS **	Alternative*	BPS**	Alternative*	BPS**
Feb 1996	12.1	13.6	17.8	19.9	15.7	17.7
Dec 1998	18.7	21.9	31.4	25.7	26.4	24.2
Feb 1999	18.9	19.4	25.4	26.0	22.9	23.4
Aug 1999	13.1	15.0	22.6	20.0	18.8	18.0
% change Feb 1996-Dec 1998	53.87	61.03	76.93	29.15	67.85	36.72
% change Dec 1998-Feb 1999	1.23	-11.42	-19.08	1.17	-13.44	-3.31
% change Feb 1999-Aug 1999	-30.62	-22.68	-11.24	-23.08	-17.84	-23.08

Notes: *Authors' calculation from the *Susen* data.

**Based on a new standard (1998 standard) and applied to the *Susen* data.

We studied the changes in the poverty level during the crisis period using available data. Using the full sample of the February 1999 *Susen* data, we found that the poverty rate slightly declined to nearly 23 percent. This decline of around three percentage points between December 1998 and February 1999 is somewhat questionable, as the prices of most commodities have still increased during this period (BPS 1999). However, it may also be noted that the people, especially the poor, have taken some survival strategies to cope with the effects of the crisis.¹⁰ In addition, despite concerns over the impact and the targeting of the Social Safety Net program launched in 1998, said program might also have contributed to the decline in poverty. Dhanani and Islam (2000) also estimated that the subsidized rice program alone might have added around 10 percent to the income of poor rural households, which is equivalent to preventing 7-12 percent of households from falling below the poverty line, using the poverty elasticity estimate with respect to the poverty line.

In addition, the government policy on price stabilization has resulted in a massive decline in the price of most commodities especially in the last quarter of 1999. The consumer price index dropped from 207.0 in February 1999 to 199.8 in August 1999 (BPS 1999), reflecting an inflation rate of -3.5 percent during that period. Such decline in the prices of most commodities was followed by a reduction in the incidence of poverty. Based on the August 1999 *Mini-Susen* data, poverty rate dropped to around 19 percent (or about 39 million people living below the poverty line). The variable trend of poverty during the crisis suggests that poverty in that period could be more or less a transient phenomenon.

The hypothesis that has been most aggressively promoted by the experts is that the urban areas were hit much harder by the crisis than the rural areas.¹¹ However, estimates based on the alternative method indicate that the increase in poverty during the period 1996-1998 was much higher in rural areas than in urban areas (see Table 1). Poverty rates rose by 54 percent in urban areas and by 77 percent in rural areas. Relatedly, Frankenberg et al. (1999), based on the Indonesian Family Life Survey (IFLS), calculated that poverty rates increased by 71 percent in urban areas and 85 percent in rural areas during the period 1997-1998.¹² This trend of greater poverty in the rural areas during the crisis compared to the poverty situation before the crisis is also similar to the findings of Skoufias et al. (1999,

p. 6) who found that poverty rate in rural areas doubled during the period 1997-1998 based on the 100 Villages Survey. In contrast, based on the BPS method, the percentage change of poverty was higher in urban areas (61 percent) than in rural areas (29 percent).

One possible explanation for the rapid increase of poverty incidence in the rural areas is that in the early period of the crisis, the problems began in the urban/manufacturing sector then spread to the rural areas. Because of the crisis, credit became scarce for farmers, prices of farm inputs like fertilizer went up, and agricultural productivity went down. Related to these is the simultaneous shock to agriculture created by the El Niño, which occurred in the same period as the crisis and diminished local production. These factors caused the sharp increase in prices during the crisis period.

At this point, it is important to emphasize that the headcount index simply indicates the percentage of population living below the poverty line. It does not capture the degree of poverty. Two regions with the same proportion of population below poverty line may not have the same degree of poverty. Therefore, poverty gap and severity indices are needed as complementary measures.

The results show that as poverty incidence (measured by the headcount index) increased during the crisis, the depth and severity of poverty also worsened. As shown in Table 2, the poverty gap and square poverty gap indices rose substantially from 0.0277 and 0.0075 in 1996 to 0.0537 and 0.0162 in 1998, respectively, or in relative terms, by nearly 94 percent and 116 percent, respectively. This indicates that the average gap between the living standard of the poor and the poverty line in December 1998 has widened almost twice as compared to the conditions in 1996. During the same period, inequality among the poor as measured by the square poverty gap index has also worsened by more than double. Comparing between urban and rural areas shows that the increase in depth and severity of poverty was much worse in rural areas than in urban areas. More importantly, during the period of recovery, the decline in both depth and severity of poverty was more rapid in urban than in rural areas.

It is believed that the crisis affected regions unevenly in Indonesia. Some argued (e.g., Caile et. al 1999) that the regions with high linkage to the formal sector were the worst hit by the crisis. Assessing the impact of the crisis on poverty by province can only be done using the February 1996

Table 2. Poverty Gap Index (P_1) and Square Poverty Gap Index (P_2): 1996, 1998 and 1999

Year	Urban (%)		Rural (%)		Total (%)	
	P_1	P_2	P_1	P_2	P_1	P_2
Feb 1996	2.14	0.57	3.13	0.84	2.77	0.75
Dec 1998	3.51	0.98	6.57	2.03	5.37	1.62
Feb 1999	3.51	0.97	4.66	1.34	4.21	1.19
Aug 1999	2.21	0.60	4.47	1.37	3.57	1.06
% change						
Feb '96 - Dec '98	64.02	71.93	109.90	141.67	93.86	116.00
% change						
Dec '98 - Feb '99	0.00	-1.02	-29.07	-33.99	-21.60	-26.54
% change						
Feb '99 - Aug '99	-37.04	-38.14	-4.08	2.24	-15.20	-10.92

Source: Authors' calculation from the *Susenas* data

and February 1999 *Susenas* data due to insufficient sample size. But before evaluating the impact of the crisis on the changes in the incidence of poverty by region, it is also important to identify the most affected regions.

As shown in Table 3, the incidence of poverty was more pervasive in Irian Jaya, Maluku, and East Nusa Tenggara than in other provinces. The lowest incidence of poverty was recorded in Jakarta and Bali. However, in terms of the share of the number of poor people to the total national poor, West Java, Central Java, East Java, and Lampung contributed the biggest share. Among major regions, Java-Bali constituted over 50 percent of the total number of poor in Indonesia. This finding is important especially for policymakers in setting up program and policies directed to poverty alleviation.

Examining the impact of the crisis on the changes in poverty indicates that, as expected, the largest increase in overall poverty was in Java-Bali, the region with the highest linkage to the formal sector. Poverty rose by more than 8 percentage points—from 14.0 percent in 1996 to 22.5 percent in 1999. This result seems to support the belief previously mentioned, i.e., the negative impact of the crisis had been greater on regions highly linked to the formal sector. Among major regions, Sulawesi was the least

Table 3. Poverty Rate by Province, 1996-1999

Province	Urban			Rural			Urban + Rural			% share of poor to total poor	
	1996	1999	% change	1996	1999	% change	1996	1999	% change	1996	1999
Aceh	5.76	9.67	3.91	13.12	15.38	2.26	11.59	13.94	2.35	1.46	1.22
North Sumatera	11.17	15.81	4.64	11.85	15.81	3.96	11.57	15.81	4.24	4.21	3.98
West Sumatera	8.37	19.10	10.73	9.61	11.17	1.56	9.30	13.44	4.14	1.31	1.30
Riau	4.95	8.61	3.66	16.66	17.03	0.38	12.62	13.88	1.26	1.62	1.25
Jambi	20.32	23.57	3.25	11.56	28.73	17.17	13.97	27.12	13.15	1.09	1.4
South Sumatera	8.65	20.70	12.05	16.75	23.71	6.96	14.29	22.79	8.50	3.38	3.75
Bengkulu	21.56	21.80	0.24	13.93	19.50	5.57	15.91	20.17	4.26	0.74	0.66
Lampung	18.97	25.33	6.36	22.22	29.39	7.17	21.70	28.64	6.94	4.74	4.28
Sumatra	10.90	17.17	6.27	15.10	20.36	5.27	13.85	19.33	5.47	18.56	17.91
Jakarta	1.48	4.13	2.65	-	-	-	1.48	4.13	2.65	0.44	0.84
West Java	9.29	18.04	8.75	7.50	16.06	8.56	8.27	17.01	8.74	10.63	15.41
Central Java	18.71	28.84	10.13	20.08	27.73	7.65	19.64	28.12	8.48	19.04	18.47
Yogyakarta	20.24	26.82	6.58	14.53	32.74	18.21	17.36	28.77	11.41	1.65	1.86
East Java	20.24	26.34	6.10	19.24	31.82	12.58	19.56	29.88	10.32	21.65	22.27
Bali	7.38	10.34	2.96	6.27	7.30	1.03	6.66	8.52	1.86	0.63	0.55
Java-Bali	12.39	19.75	7.36	15.21	24.78	9.57	14.03	22.49	8.46	54.06	59.39
West Kalimantan	8.90	11.11	2.21	25.36	31.08	5.72	21.78	26.52	4.74	2.60	2.20

Table 3. ...continued

Province	Urban			Rural			Urban + Rural			% share of poor to total poor	
	1996	1999	% change	1996	1999	% change	1996	1999	% change	1996	1999
Central Kalimantan	5.01	5.79	0.78	14.45	19.06	4.61	12.30	15.47	3.17	0.66	0.57
South Kalimantan	8.74	10.90	2.16	7.59	16.01	8.42	7.94	14.41	6.47	0.75	0.94
East Kalimantan	3.15	8.82	5.67	16.87	34.54	17.67	9.97	21.45	11.48	0.76	1.16
Kalimantan	6.31	9.54	3.23	17.21	25.47	8.26	13.87	20.36	6.48	4.77	4.87
North Sulawesi	11.92	12.93	1.01	21.44	21.47	0.03	18.92	19.01	0.09	1.64	1.13
Central Sulawesi	13.80	26.26	12.46	24.84	30.46	5.62	22.40	29.36	6.96	1.43	1.31
South Sulawesi	13.43	19.81	6.38	19.41	19.76	0.35	17.71	19.78	2.07	4.39	3.37
Southeast Sulawesi	13.84	16.13	2.29	31.64	35.11	3.47	27.60	30.26	2.66	1.44	1.11
Sulawesi	13.22	18.96	5.74	22.11	23.58	1.48	19.75	22.24	2.49	8.89	6.91
West Nusa Tenggara	28.16	32.74	4.58	31.18	32.09	0.91	30.61	32.21	1.60	3.65	2.66
East Nusa Tenggara	21.35	28.68	7.33	38.57	47.08	8.51	36.16	44.65	8.49	4.23	3.63
Maluku	19.43	18.79	-0.64	53.23	56.45	3.22	44.85	45.94	1.09	3.07	2.16
Irian Jaya	8.51	10.25	1.74	55.01	71.17	16.16	43.05	55.21	12.16	2.76	2.47
Other Islands	20.09	23.36	3.26	41.34	47.69	6.34	37.17	42.72	5.54	13.72	10.92
INDONESIA	12.14	18.91	6.77	17.77	25.44	7.67	15.74	22.87	7.13	100.0	100.0

Source: Author's calculation from February 1996 and February 1999 *Susenas* data.

affected. Its poverty rate rose by just only over two percentage points (Table 3), which perhaps could be due to the greater food self-sufficiency in this region than elsewhere.

Looking at the changes in the incidence of poverty by province shows that nine provinces—Jambi, South Sumatra, East Nusa Tenggara, East Kalimantan, Irian Jaya and four in Java (West Java, Central Java, Yogyakarta and East Java)—recorded an increase in poverty of more than 8 percentage points. In terms of the increase in the number of poor people, four provinces (Jakarta, West Java, Jambi and East Kalimantan) experienced an increase of more than 100 percent in relative terms (Appendix 5).

While the impact of crisis on poverty at the national level was much worse in rural areas than in urban areas, comparing the changes in poverty between urban and rural areas at the provincial level shows that the urban-rural differences varied between provinces. In absolute terms, poverty was higher in urban than in rural areas in the provinces of Central Sulawesi, South Sumatra, West Sumatra and Central Java, while it rose more considerably in rural than in urban areas in Yogyakarta, East Kalimantan, Jambi, Irian Jaya and East Java (Table 3).

As poverty rates increased in all provinces during the period 1996-1999, the poverty gap and severity indices also rose substantially in most provinces. In urban areas, the largest increase in the depth poverty index occurred in East Kalimantan, South Sumatra, Jakarta and West Java. In rural areas, the biggest increase was recorded in Yogyakarta followed by Jambi, West Java, South Kalimantan and East Kalimantan (Table 4). While most provinces experienced an increase in the depth and severity of poverty, some regions such as urban West Kalimantan, urban Central Kalimantan, urban Southeast Sulawesi, urban Maluku, rural West Sumatra, rural Riau, rural North Sulawesi, and rural South Sulawesi experienced a decline.

Regional Poverty Intensity: The Sen-Shorrocks-Thon (SST) Approach

The SST index is one useful measure for summarizing the extent of poverty and comparing the poverty across regions (Osberg and Xu 1999). The SST index has two distinct advantages. First, it can be decomposed into three familiar poverty measures: the poverty rate, the average poverty gap ratio among the poor, and the Gini index of inequality of the poverty

Table 4. Poverty Gap Index and Square Poverty Gap Index by Province, 1996-1999

Province	Poverty Gap Index (P ₁)						Square Poverty Gap Index (P ₂)					
	Urban			Rural			Urban			Rural		
	1996	1999	% change	1996	1999	% change	1996	1999	% change	1996	1999	% change
Aceh	0.0101	0.0156	54.5	0.0182	0.0218	19.8	0.0025	0.0036	44.0	0.0041	0.0050	22.0
North Sumatera	0.0161	0.0237	47.2	0.0186	0.0237	27.4	0.0039	0.0054	38.5	0.0047	0.0058	23.4
West Sumatera	0.0157	0.0344	119.1	0.0132	0.0127	-3.8	0.0043	0.0083	93.0	0.0029	0.0024	-17.2
Riau	0.0068	0.0098	44.1	0.0327	0.0300	-8.3	0.0017	0.0016	-5.9	0.0088	0.0094	6.8
Jambi	0.0312	0.0461	47.8	0.0197	0.0527	167.5	0.0074	0.0132	78.4	0.0059	0.0133	125.4
South Sumatera	0.0102	0.0373	265.7	0.0226	0.0377	66.8	0.0018	0.0105	483.3	0.0050	0.0091	82.0
Bengkulu	0.0352	0.0428	21.6	0.0264	0.0285	8.0	0.0090	0.0117	30.0	0.0070	0.0055	-21.4
Lampung	0.0333	0.0460	38.1	0.0384	0.0586	52.6	0.0089	0.0121	36.0	0.0099	0.0171	72.7
Jakarta	0.0019	0.0062	226.3				0.0004	0.0015	275.0			
West Java	0.0177	0.0364	105.6	0.0092	0.0230	150.0	0.0049	0.0109	122.4	0.0018	0.0053	194.4
Central Java	0.0326	0.0550	68.7	0.0349	0.0458	31.2	0.0090	0.0155	72.2	0.0092	0.0119	29.3
Yogyakarta	0.0367	0.0524	42.8	0.0215	0.0635	195.3	0.0100	0.0151	51.0	0.0055	0.0177	221.8
East Java	0.0368	0.0483	31.3	0.0310	0.0603	94.5	0.0096	0.0131	36.5	0.0077	0.0170	120.8
Bali	0.0119	0.0156	31.1	0.0094	0.0113	20.2	0.0027	0.0036	33.3	0.0021	0.0028	33.3
West Nusa Tenggara	0.0609	0.0718	17.9	0.0547	0.0574	4.9	0.0180	0.0228	26.7	0.0144	0.0148	2.8

Table 4. ...continued

Province	Poverty Gap Index (P ₁)						Square Poverty Gap Index (P ₂)					
	Urban			Rural			Urban			Rural		
	1996	1999	% change	1996	1999	% change	1996	1999	% change	1996	1999	% change
East Nusa Tenggara	0.0435	0.0533	22.5	0.0775	0.1052	35.7	0.0126	0.0150	19.0	0.0232	0.0322	38.8
West Kalimantan	0.0178	0.0151	-15.2	0.0388	0.0563	45.1	0.0050	0.0033	-34.0	0.0085	0.0152	78.8
Central Kalimantan	0.0099	0.0094	-5.1	0.0203	0.0324	59.6	0.0029	0.0020	-31.0	0.0043	0.0088	104.7
South Kalimantan	0.0122	0.0171	40.2	0.0092	0.0224	143.5	0.0027	0.0040	48.1	0.0018	0.0048	166.7
East Kalimantan	0.0041	0.0153	273.2	0.0287	0.0694	141.8	0.0009	0.0043	377.8	0.0080	0.0210	162.5
North Sulawesi	0.0238	0.0248	4.2	0.0478	0.0398	-16.7	0.0068	0.0064	-5.9	0.0143	0.0126	-11.9
Central Sulawesi	0.0250	0.0565	126.0	0.0491	0.0664	35.2	0.0067	0.0183	173.1	0.0140	0.0227	62.1
South Sulawesi	0.0217	0.0305	40.6	0.0470	0.0303	-35.5	0.0053	0.0072	35.8	0.0132	0.0073	-44.7
Southeast Sulawesi	0.0413	0.0338	-18.2	0.0643	0.0747	16.2	0.0182	0.0102	-44.0	0.0184	0.0227	23.4
Maluku	0.0345	0.0322	-6.7	0.1312	0.1432	9.1	0.0095	0.0081	-14.7	0.0458	0.0485	5.9
Irian Jaya	0.0121	0.0169	39.7	0.1555	0.2496	60.5	0.0025	0.0044	76.0	0.0597	0.1186	98.7

Source: Authors' calculation from February 1996 and February 1999 *Susenas* data.

gap ratio. Therefore, changes in poverty intensity over time can be traced to their contributing factors. The second advantage is that the index has a clear and convenient graphical representation, thus it is easy to compare the poverty intensity between regions. A theoretical review of the SST index is given in Appendix 6.

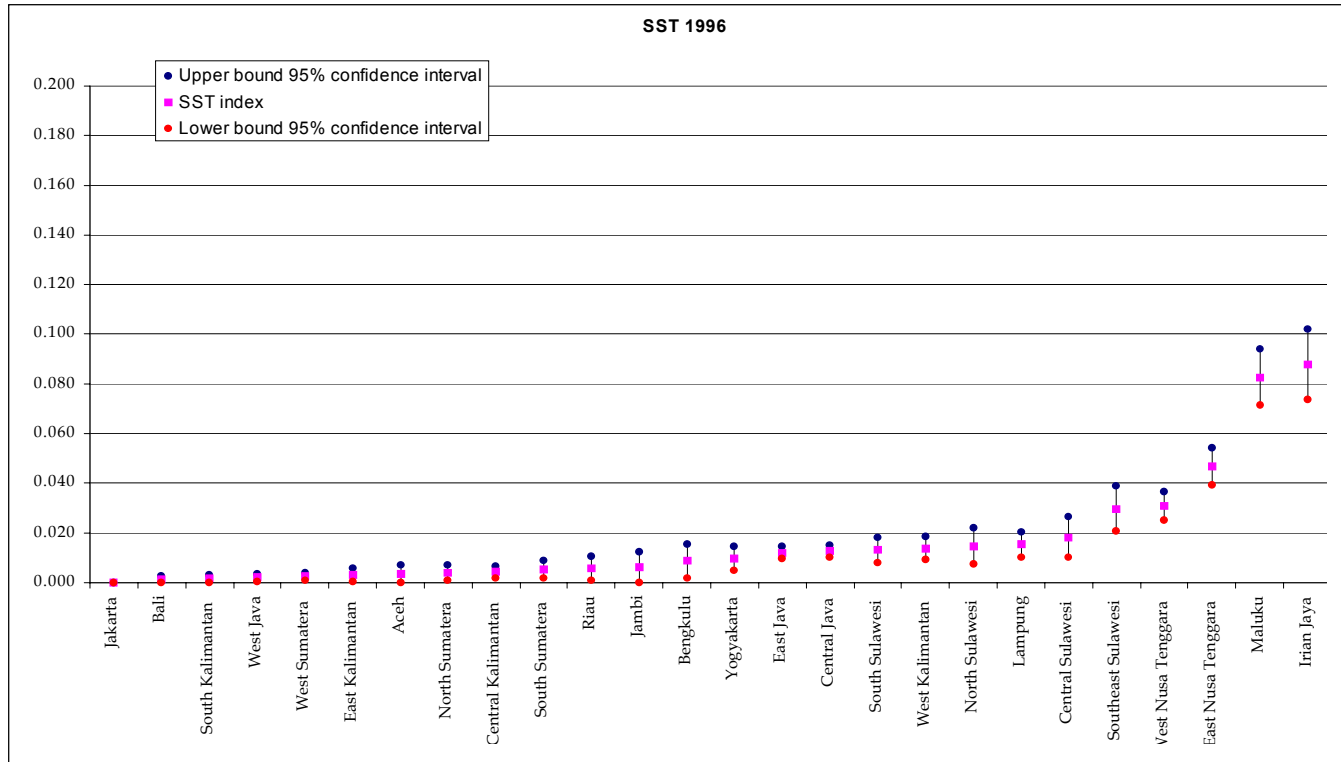
Presented in Figures 2 and 3 are the provincial rankings of poverty intensity based on the February 1996 and February 1999 *Susenas* data. Using the SST index, we can compare the poverty intensity among the provinces. How do Indonesian provinces differ in poverty intensity? By constructing confidence intervals around point estimates of poverty intensity, we can easily distinguish between those differentials in poverty intensity that are significant and those that are not.

As shown, most provinces in the western region were clustered at low levels of poverty intensity, while provinces in the eastern part of Indonesia dominated the low ranking, indicating high levels of poverty intensity. Irian Jaya, Maluku and East Nusa Tenggara recorded the highest poverty intensity, while Jakarta and Bali recorded the lowest. The inequality in regional development between the eastern part and the western part of Indonesia had, to some extent, contributed to the big gap in poverty intensity between the provinces situated in these regions.

Figures 2 and 3 also suggest that there is too much statistical uncertainty in terms of the degree of poverty intensity between the provinces. For example, in 1996, West Sumatra, East Kalimantan, Aceh, North Sumatra, Central Kalimantan and South Sumatra have different point estimates of the SST index, but the statistical uncertainty surrounding the estimates of these provinces indicates the possibility of no statistical difference in the magnitude of poverty intensity. It is also clear that differences in poverty intensity between eastern provinces and western provinces are statistically significant.

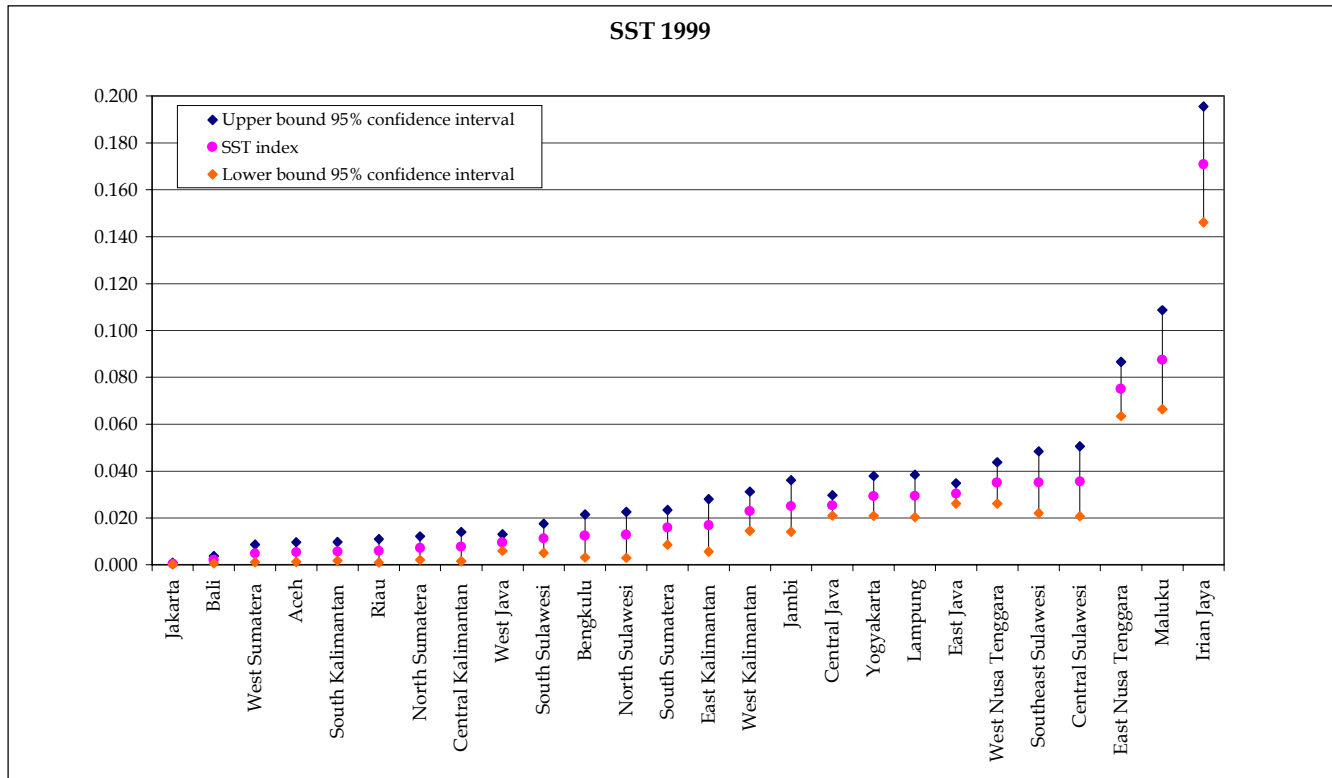
The SST index, its decomposition and change by province during the period 1996-1999 are given in Table 5. As shown, there was an increase in poverty intensity during the crisis in all provinces except in South Sulawesi and North Sulawesi where a decline in the SST index was observed. This finding is important because poverty analysis, which relies much on the headcount index (percentage of poor people), can provide a misleading result. Based on the analysis of the changes in poverty using the headcount

Figure 2. Provincial Ranking by SST Poverty Index, 1996



Note: Confidence interval is equal to mean \pm standard deviation.

Figure 3. Provincial Ranking by SST Poverty Index, 1999



Note: Confidence interval is equal to mean \pm standard deviation.

Table 5. Decomposition of SST Index and Changes in SST Index, 1996-1999

Province	1996				1999				Absolute	%
	SST Index	P ₀	P ₁	1 + G(X)	SST Index	P ₀	P ₁	1 + G(X)	Change in SST	Change in SST
Jakarta	0.00006	0.01480	0.00192	1.99188	0.00051	0.04132	0.00622	1.97604	0.00045	797.23
Bali	0.00134	0.06660	0.01025	1.95971	0.00217	0.08524	0.01302	1.95122	0.00083	61.87
West Sumatera	0.00250	0.09300	0.01383	1.94533	0.00488	0.13445	0.01891	1.91982	0.00238	95.08
Aceh	0.00370	0.11590	0.01648	1.93477	0.00541	0.13937	0.02021	1.92033	0.00171	46.36
South Kalimantan	0.00157	0.07940	0.01012	1.95462	0.00573	0.14414	0.02075	1.91436	0.00415	264.54
Riau	0.00576	0.12620	0.02380	1.91716	0.00599	0.13881	0.02244	1.92347	0.00023	4.05
North Sumatera	0.00393	0.11570	0.01756	1.93449	0.00715	0.15814	0.02367	1.90910	0.00322	81.82
Central Kalimantan	0.00425	0.12300	0.01792	1.92640	0.00773	0.15471	0.02615	1.91009	0.00348	81.99
West Java	0.00207	0.08270	0.01284	1.95042	0.00950	0.17006	0.02939	1.90053	0.00743	358.65
South Sulawesi	0.01316	0.17710	0.03976	1.86901	0.01133	0.19777	0.03040	1.88468	-0.00183	-13.90
Bengkulu	0.00869	0.15910	0.02871	1.90146	0.01228	0.20169	0.03262	1.86728	0.00360	41.44
North Sulawesi	0.01470	0.18920	0.04142	1.87538	0.01277	0.19010	0.03548	1.89333	-0.00193	-13.11
South Sumatera	0.00518	0.14290	0.01886	1.92017	0.01597	0.22791	0.03757	1.86539	0.01080	208.64
East Kalimantan	0.00316	0.09970	0.01631	1.94426	0.01682	0.21448	0.04187	1.87322	0.01366	432.08
West Kalimantan	0.01389	0.21780	0.03425	1.86254	0.02289	0.26518	0.04687	1.84142	0.00899	64.73

Table 5. ...continued

Province	1996				1999				Abs. Change in SST	% Change in SST
	SST Index	P ₀	P ₁	1 + G(X)	SST Index	P ₀	P ₁	1 + G(X)		
Jambi	0.00615	0.13970	0.02287	1.92349	0.02511	0.27123	0.05067	1.82684	0.01896	308.54
Central Java	0.01263	0.19640	0.03414	1.88397	0.02531	0.28122	0.04910	1.83315	0.01268	100.38
Yogyakarta	0.00958	0.17360	0.02903	1.90077	0.02939	0.28773	0.05602	1.82317	0.01981	206.78
Lampung	0.01523	0.21700	0.03755	1.86933	0.02942	0.28644	0.05632	1.82350	0.01419	93.13
East Java	0.01211	0.19560	0.03290	1.88222	0.03046	0.29880	0.05606	1.81823	0.01834	151.45
West Nusa Tenggara	0.03100	0.30610	0.05583	1.81382	0.03497	0.32215	0.06031	1.79976	0.00397	12.81
Southeast Sulawesi	0.02975	0.27600	0.05908	1.82472	0.03522	0.30261	0.06427	1.81109	0.00547	18.38
Central Sulawesi	0.01826	0.22400	0.04382	1.86043	0.03564	0.29362	0.06382	1.90175	0.01738	95.15
East Nusa Tenggara	0.04677	0.36160	0.07268	1.77966	0.07504	0.44651	0.09833	1.70911	0.02827	60.44
Maluku	0.08268	0.44850	0.10723	1.71923	0.08750	0.45945	0.11222	1.69708	0.00482	5.83
Irian Jaya	0.08778	0.43050	0.11865	1.71861	0.17085	0.55215	0.18873	1.63949	0.08306	94.62

Source: Authors' calculation from February 1996 and February 1999 *Susenas* data.

Note: Ranked on the basis of SST index in 1999.

index in the previous section, all provinces experienced an increase in poverty incidence during the period 1996-1999. However, the SST approach indicates that two provinces (South Sulawesi and North Sulawesi) experienced a reduction in poverty intensity. (This will be examined further in the discussion of decomposition of changes in SST index.) The figures also show that there was a huge deterioration in the poverty intensity in Irian Jaya. This massive increase was mostly driven by the huge rise in the headcount index during the period 1996-1999. One of the main factors that contributed to this phenomenon was the decrease in the share of total expenditures enjoyed by the lowest 40 percent of the population while in other provinces (except for Lampung), the share increased in the same period (BPS 2000b).

The lowest level of poverty intensity in 1999 was recorded in Jakarta followed by Bali and West Sumatra (Table 5). In absolute terms, the highest increase in poverty intensity was recorded in Irian Jaya, East Nusa Tenggara, Yogyakarta, Jambi, and East Java, while four provinces including Riau, Jakarta, Bali, Aceh and West Sumatra experienced the lowest increase. In relative terms, Jakarta seemed to be the hardest hit as indicated in the increase of SST index by more than five times. Provinces such as East Kalimantan, West Java, Jambi, South Kalimantan, South Sumatra, Yogyakarta and East Java recorded an increase in the SST index by more than double.

The decomposition of changes in poverty intensity by province is given in Table 6. As explained in Appendix 6 (Theoretical review of the SST index), the proportionate change in poverty intensity is the sum of the proportionate change in the poverty rate, average poverty gap ratio of the poor, and inequality of the poverty gap ratio among all people.

The increase in poverty intensity in most provinces was dominated by the increase in poverty rate and the increase in poverty gap ratio, while inequality in the poverty gap ratios among all people (that is, $1 + G(x)$) did not change so much (declined but not quite significant). The poverty gap ratio accounted for the highest contribution to the changes in poverty intensity in most provinces. Therefore, poverty intensity increased during the crisis because of two significant contributory factors: (1) more people becoming poor and (2) the increase in expenditure shortfall below the poverty line as measured by the poverty gap index.

With respect to the decline in poverty intensity in South Sulawesi and North Sulawesi, it is shown in Table 6 that these two provinces re-

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Table 6. Decomposition of Changes in Poverty Intensity, 1996-1999

Province	$\Delta \ln$ (SST index)	$\Delta \ln$ (P_0)	$\Delta \ln$ (P_1)	$\Delta \ln$ [1+G(X)]
(1)	(2)	(3)	(4)	(5)
Jakarta	2.1941	1.0267	1.1754	-0.0080
East Kalimantan	1.6716	0.7661	0.9428	-0.0372
West Java	1.5231	0.7209	0.8281	-0.0259
Jambi	1.4074	0.6635	0.7955	-0.0516
South Kalimantan	1.2935	0.5963	0.7180	-0.0208
South Sumatera	1.1270	0.4668	0.6892	-0.0289
Yogyakarta	1.1210	0.5053	0.6574	-0.0417
East Java	0.9221	0.4237	0.5329	-0.0346
Central Java	0.6950	0.3590	0.3634	-0.0273
Central Sulawesi	0.6686	0.2707	0.3760	0.0220
West Sumatera	0.6682	0.3686	0.3129	-0.0132
Irian Jaya	0.6659	0.2489	0.4641	-0.0471
Lampung	0.6582	0.2776	0.4054	-0.0248
Central Kalimantan	0.5988	0.2294	0.3779	-0.0085
North Sumatera	0.5978	0.3125	0.2986	-0.0132
West Kalimantan	0.4991	0.1968	0.3137	-0.0114
Bali	0.4816	0.2468	0.2392	-0.0043
East Nusa Tenggara	0.4727	0.2109	0.3023	-0.0404
Aceh	0.3809	0.1844	0.2040	-0.0075
Bengkulu	0.3467	0.2372	0.1277	-0.0181
Southeast Sulawesi	0.1687	0.0920	0.0842	-0.0075
West Nusa Tenggara	0.1205	0.0511	0.0772	-0.0078
Maluku	0.0566	0.0241	0.0455	-0.0130
Riau	0.0397	0.0952	-0.0588	0.0033
North Sulawesi	-0.1405	0.0047	-0.1548	0.0095
South Sulawesi	-0.1497	0.1104	-0.2684	0.0083

Source: Calculated from Table 5.

corded a substantial decline in the poverty gap ratio of the poor. The proportionate decline in the poverty gap ratio in these two provinces was larger than the proportionate increase in poverty rate and inequality of the poverty gap. Looking at the changes in the FGT indices by province (Table 4), one can see that these two provinces recorded a massive drop in the poverty gap ratio especially in rural areas. This evidence, to some extent, suggests that a poverty analysis largely dependent on the poverty rate (P_O) seems to be an inadequate measure of poverty. Other measures should be taken into account in the analysis. SST index as a single index of poverty seems to be an inadequate measure as well in summarizing the extent of poverty and in comparing poverty across regions, but unlike the headcount index, it is sensitive to changes in poverty intensity.

Chronic and Transient Poverty

With respect to the rapid increase in poverty during the crisis period, it is important to examine the extent of mobility of the poor in terms of their movements “in” and “out” of poverty. This information is important especially for the policymakers in setting up programs and policies focused on the population who are “permanently” poor. Discussion of short-term (transient or transitory) poverty (Jalan and Ravallion 1997) and long-term (chronic) poverty is important because transitory poverty may have characterized the changes in poverty in Indonesia during the crisis period.

The National Socio-Economic Survey conducted in December 1998 and August 1999, which covered a sample size of 10,000 households spreading in all provinces (well known as *Mini-Susenas*), is a panel survey. Despite a relatively short time lag of the survey, information on the magnitude of chronic and transient poverty can be crudely estimated. It is assumed that those who have moved into poverty in 1998 and then moved out of poverty in August 1999 are those who were not poor in 1996. People in this category can be classified as temporary poor. On the other hand, chronically poor are those who were poor in December 1998 and August 1999 by assuming that those who were poor in 1998 were also poor in 1996 (year before the crisis).

Out of the 26 percent of the population living below the poverty line in 1998, more than half were transitory or temporary poor,¹³ while the rest

or around 12 percent (24 million) were chronically poor (Table 7). Also, among the poor people in 1999, the percentage of those who moved out of poverty (14 percent) was more than double the percentage of those who moved into poverty (6 percent). The percentage of those who move out of poverty during the period December 1998-August 1999 in our study (14 percent) is comparable with the percentage of those who moved into poverty during the period 1997-1998 (16 percent) as found in the works of Skoufias et al. (1999).¹⁴

Table 7. Poverty Transition Matrix, December 1998-August 1999

Period, Categories		August 1999		
		Not Poor 91.66	Poor 8.34	Total 100.00
December 1998	Not poor	82.94	33.79	73.97
		67.81	6.17	73.97
		53.58	46.42	100.00
	Poor	17.06	66.21	26.03
		13.94	12.08	26.03
		81.75	18.25	100.00
Total	100.00	100.00	100.00	
	81.75	18.25	100.00	

Source: Authors' calculation from December 1998 and August 1999 Mini-Susenas data. Note : Differences in the estimates of poverty rate in December 1998 and August 1999 between Table 7 and Table 1 are due sample attrition. Percentage of matched households was nearly 80 percent.

INEQUALITY

The previous section discussed the crisis-induced increase in poverty revealing a higher degree of both depth and severity. This section will discuss how the Indonesian crisis shaped inequality. We focus on measuring expenditure inequality. An alternative would be to measure income or

asset inequality, both of which generally have much greater inequality than consumption (Asra 2000; Dhanani and Islam 2000). However, income and asset are considerably more difficult to measure and these data are unavailable in the *Susenas*. In addition, consumption in some sense may be a more appropriate measure of an individual's actual (consumed) standard of living. In addition to measures of consumption inequality for the entire population, we extend our measurement of overall inequality to look specifically at inequality *among* the poor. This will merge inequality measurement techniques with the identification of households deemed "poor," hence applying some of the discussion and methods from the previous section into this section.

Measuring Inequality

Inequality here is measured on the basis of information on expenditure as collected in the *Susenas*. To measure the extent of inequality in expenditure distribution, this paper utilizes two major measures: Gini index and Theil indices. Formally, the formula of Gini index is written as follows:

$$(5) \quad \text{GiniRatio (GR)} = 1 - \sum_{i=1}^N (X_i - X_{i-1})(Y_i + Y_{i-1})$$

where X_i is cumulative proportion of population in the i^{th} expenditure value, X_{i-1} is cumulative proportion of population in the $(i-1)^{\text{th}}$ expenditure value, Y_i is cumulative proportion of total expenditure in the i^{th} expenditure value, and Y_{i-1} is cumulative proportion of total expenditure in the $(i-1)^{\text{th}}$ expenditure value. X_i is arranged from the lowest to the highest value.

The second measure is on the basis of Theil measures including Theil's T and Theil's L indices. The formula for the two Theil measures are as follows.

$$(6) \quad T = \frac{\sum_{i=1}^n nY_i}{\sum_{i=1}^n NY} \ln\left(\frac{Y_i}{NY/n^2}\right)$$

$$(7) \quad L = (1/n) \sum_{i=1}^n \ln\left(\frac{NY}{Y_i n^2}\right)$$

where Y_i is expenditure level of individual i , n is the total number of individuals in the sample, Y is total expenditure overall all individuals in the sample, and N is the total number of population.

Trends in Inequality

Table 8 raises the general issue of how the distribution of household expenditure changed over time in Indonesia especially during the crisis period. Using common measures of inequality (Gini index and Theil indices), we find that overall inequality both for urban and rural areas declined during the crisis. The drop in inequality during the crisis was also consistent with other studies (e.g., Frankenberg et. al 1998)¹⁵. The decline in overall inequality during the crisis could probably be because the crisis had hit high-income households disproportionately hard and this contributed to equalizing the income distribution. During the period 1996-1998, income share of the poorest 40 percent rose by only less than 1 percentage point, while income share of the richest 20 percent of population dropped by over 3 percentage points (BPS and UNDP 1999).

Table 8. Trends in Inequality by Urban and Rural Areas, 1996-1999

	Urban			Rural			Urban+Rural		
	1996	1998	1999	1996	1998	1999	1996	1998	1999
Theil T index	0.264	0.217	0.23	0.15	0.127	0.144	0.261	0.204	0.226
Theil L-index	0.224	0.184	0.199	0.133	0.114	0.128	0.216	0.172	0.192
Gini ratio	0.362	0.332	0.344	0.274	0.256	0.264	0.356	0.319	0.334

Source: Authors' calculation from the *Susenas* data.

It is also interesting to investigate the changes in inequality among the populations below the poverty line. While the Gini index calculated for the entire population declined during the crisis, the Gini index of inequality calculated for the population living below the poverty line went up during the crisis (Table 9). This is true for both urban and rural areas, with the increase in inequality in rural areas being higher than in urban areas. A similar trend was also observed in the Theil indices. This finding is consistent with the increase in the depth and severity of poverty during the crisis as discussed in the previous section.

As to changes in inequality during the crisis, a very impressive finding was found in the works of Skoufias et al. (1999) who calculated the Gini index to household expenditure deflated to reflect actual consumption

Table 9. Gini Index and Theil Index Among Population Below the Poverty Line, 1996-1999

	Urban			Rural			Urban+Rural		
	1996	1998	1999	1996	1998	1999	1996	1998	1999
Gini ratio	0.0886	0.0909	0.0937	0.0856	0.1027	0.0918	0.0868	0.0983	0.0926
Theil T index	0.0134	0.0136	0.0145	0.0124	0.0177	0.0144	0.0128	0.0162	0.0144

Source: Authors' calculation from the *Susenas* data.

pattern based on the 100 Villages Survey. Inflation-adjusted inequality is particularly quite important to be taken into account in examining trends in inequality especially during the crisis years. Iyengar and Bhattacharyya (1965) argued that mathematically, if the consumer price index increases monotonically with expenditure, the Gini coefficient for the current price distribution would show a greater inequality than the corresponding constant price distribution. In contrast to nominal expenditure inequality as observed by many scholars, Skoufias et al. (1999) found that inflation-adjusted inequality went up from 0.283 to 0.304 during the crisis. Such increase was especially driven by the significant rise in inequality in the rural areas. Rural inequality increased from 0.265 to 0.289, while urban inequality slightly decreased from 0.299 to 0.289. The rise in rural inequality was mostly due to the increasing inequality in the bottom tail of distribution (or the poorest) (see also Table 9), suggesting that the poor were more affected by the rise in inflation than the rich.¹⁶ To some extent, this evidence supports the previous finding that the rural population was harder hit by the crisis than the rich.

Table 10 presents a prominent feature of regional inequality before and after the crisis. In both indicators of inequality, expenditure inequality was highest in Java-Bali among the major regions in 1996—a Gini index of 0.38 and a Theil index of 0.26. In contrast, the lowest inequality was recorded in Kalimantan—a Gini index of 0.28 and a Theil index 0.16. Table 10 also shows that, as expected, the crisis had an impact on the decline in overall inequality in all major regions. The Gini measure of inequality indicates that a massive drop in inequality occurred in Java-Bali while Sulawesi recorded the lowest decline in inequality. The lowest decline in

Table 10. Gini Index and Theil Index by Urban and Rural Areas, 1996-1999

1. Gini Coefficient						
Region	February 1996			February 1999		
	Urban	Rural	U+R	Urban	Rural	U+R
Java – Bali	0.3895	0.2887	0.3835	0.3461	0.2493	0.3344
Sumatra	0.3074	0.2604	0.3048	0.2829	0.2436	0.2738
Kalimantan	0.3020	0.2666	0.2774	0.2723	0.2347	0.2629
Sulawesi	0.3239	0.2928	0.3010	0.3020	0.2754	0.2989
Other Islands	0.3357	0.2590	0.3207	0.2944	0.2594	0.2856

2. Theil-T Index						
Region	February 1996			February 1999		
	Urban	Rural	U+R	Urban	Rural	U+R
Java – Bali	0.2925	0.1628	0.2601	0.2250	0.1189	0.2182
Sumatra	0.1724	0.1301	0.1618	0.1391	0.1036	0.1332
Kalimantan	0.1640	0.1312	0.1558	0.1318	0.0958	0.1228
Sulawesi	0.1858	0.1621	0.1799	0.1642	0.1405	0.1642
Other Islands	0.1946	0.1204	0.1927	0.1493	0.1180	0.1415

Source: Authors' calculation from the *Susenas* data.

inequality in Sulawesi was also in line with the lowest increase in poverty. This result is also consistent with the changes in depth and severity of poverty in the region.

In terms of the expenditure distribution among the populations below the poverty line, we find an impressive finding on the changes in inequality especially in the comparison between urban inequality and rural inequality. Table 11 presents evidence of changes in inequality by region among the populations living below the poverty line during the crisis. The table indicates that in urban areas, the rise in inequality with respect to expenditure distribution among the populations living below the poverty line occurred only in the Java-Bali and Sumatra regions. In contrast, urban

Table 11. Changes in Gini Index of Expenditure Distribution Among Population Below the Poverty Line by Region, 1996-1999

Region	Urban		% change 1996-1999	Rural		% change 1996-1999
	1996	1999		1996	1999	
Java – Bali	0.0768	0.0788	2.63	0.0819	0.0865	5.66
Sumatra	0.0887	0.0967	9.08	0.0784	0.0848	8.11
Kalimantan	0.0795	0.0789	-0.79	0.0694	0.0864	24.46
Sulawesi	0.0918	0.0824	-10.27	0.0933	0.0931	-0.19
Other Islands	0.1015	0.1009	-0.55	0.1077	0.1228	13.95

Source: Authors' calculation from the *Susenas* data.

inequality among the poor declined in other regions. The decline in inequality in urban Kalimantan and urban Sulawesi, to some extent, was in line with the drop in poverty severity index in some provinces in the regions. Rural inequality, on the other hand, increased in all regions except in Sulawesi where there was only a slight decline. This is consistent with the previous finding that rural areas were hit harder by the crisis than urban areas. The decline in inequality among the populations below the poverty line in Sulawesi again supports the evidence that this region was the least affected by the crisis.

PROFILES OF POVERTY

Looking at the magnitude of poverty incidence by region will help identify the geographical location of the poor. This can also help policymakers in targeting poverty. To identify who are poor, the characteristics of the poor need to be examined. This section will provide some profiles of poor households. In addition, socioeconomic characteristics of chronically and transitorily poor are also presented.

It is believed that the crisis has forced the population especially the low- and middle-income groups to adjust to the sudden shock brought about by the crisis. In this regard, it would also be interesting to look at the behavior of the poor during the crisis. Thus two major aspects of the behavior of the poor as induced by the crisis will be examined: the changes in consumption pattern and self-reported coping mechanisms.

Characteristics of the Poor

Based on Table 12, poverty incidence was highest in the agriculture sector and lowest in the finance sector. The contribution of the agriculture sector to the total poor accounted for more than 50 percent, which implies that those who have been working in the agriculture sector have always been relatively poorer than those in other sectors. With respect to the crisis, all sectors of occupation were affected. The increase in poverty in almost all sectors was more than double. In relative terms, the finance, insurance and leasing sector recorded the highest increase in poverty incidence—nearly by three times—from 1.9 to 5.5 percent. Pradhan et al. (2000) argued that the substantial increase in poverty incidence in the finance sector could be a reflection of the financial nature of the crisis' origin. In absolute terms, the finance sector was well below the national average. The mining, manufacturing, construction and transportation sectors were the most affected. Comparison between regions shows that Java-Bali, which has the largest proportion of its population working in mining, manufacturing, construction and transportation recorded the highest increase of poverty rates in these sectors (see Appendix 7).

Table 12 also indicates that the incidence of poverty was relatively higher among households headed by the self-employed¹⁷ than those in other occupational statuses. This result is not surprising. A relatively higher incidence of poverty among the self-employed is related to the informal sector in Indonesia. Self-employed is popularly used to identify the informal sector in Indonesia. During the crisis period (1997-1998), total employment in the informal sector increased by 4.8 percent, while formal sector employment dropped by 5.5 percent (BPS and UNDP 1999). This suggests that the informal sector might have absorbed a large number of laid-off workers from the formal sector and probably those who were not in the labor force as well. BPS and UNDP (1999) found that the crisis has forced a large number of 'homemakers'¹⁸ to seek work and they were usually absorbed in informal sector jobs that pay low wages. Ahmed (1999) found that around four millions job seekers during the period 1997-1998 were absorbed by the informal sector. According to ILO and UNDP (1998), the crisis brought about a sharp rise in the proportion of self employed and family workers from around 64 percent in 1997 to 70 percent in 1998. In addition, Frankenberg et al. (1999) also found that the percentage of the employed

Table 12. Poverty by Characteristics of Household Head, 1996-1999

Household Characteristics	February 1996			February 1999		
	% poor	% share of poor to total poor	% of population	% poor	% share of poor to total poor	% of population
Sector of household's income source						
Agriculture	25.31	63.74	41.04	31.65	55.55	39.71
Mining and quarrying	14.90	0.95	1.03	23.32	0.94	0.91
Manufacturing Industry	12.26	6.32	8.40	19.90	8.05	9.16
Electricity, gas and water	7.86	0.20	0.42	13.58	0.19	0.32
Construction	14.85	5.54	6.08	25.26	5.78	5.18
Trade, hotel and restaurant	9.38	9.21	16.00	15.86	12.04	17.18
Transportation and communication	11.11	4.02	5.90	21.82	6.09	6.32
Finance, insurance and leasing	1.94	0.10	0.83	5.52	0.29	1.19
Civil, social and private services	7.87	7.60	15.73	11.81	7.92	15.18
Others	16.80	0.12	0.12	29.02	0.30	0.23
Receiving transfer	8.05	2.20	4.45	13.94	2.85	4.62
Occupational status of household head						
Self-employed without help	17.13	24.38	23.20	24.04	25.57	24.07
Self-employed with unpaid workers	20.78	44.93	35.22	25.59	35.59	31.30
Wage employee	11.17	21.82	31.81	19.83	30.03	34.27
Unpaid workers or not working	14.81	8.88	9.76	19.67	9.00	10.36

Table 12. ...continued

Household Characteristics	February 1996			February 1999		
	% poor	% share of poor to total population	% of population	% poor	% share of poor to total population	% of population
Sex of household head						
Male	16.29	91.64	91.65	22.71	91.17	90.90
Female	16.31	8.36	8.35	21.90	8.83	9.10
Widowhood status of household head						
Non-widow	16.22	93.78	94.24	22.67	93.57	93.42
Widow	17.58	6.22	5.76	22.12	6.43	6.58
Educational level of household head						
Not completed primary and illiterate	30.22	25.86	13.94	38.25	18.74	11.09
Not completed primary but literate	21.32	33.40	25.53	29.95	31.21	23.59
Completed primary	15.92	30.84	31.56	24.58	35.19	32.40
Completed junior secondary	9.44	6.21	10.72	16.02	8.68	12.27
Completed senior secondary	3.96	3.43	14.13	8.24	5.80	15.94
Completed tertiary	1.00	0.25	4.11	1.78	0.37	4.72

Source: Authors' calculation from February 1996 and 1999 *Susenas* data.

moving from market work to self-employment was higher than those moving from self-employment to market work for both men and women.

In Indonesia, there were less than 10 percent of households headed by both women and widows. In other countries such as Vietnam, there was a significant difference in the poverty incidence by gender but this was not the case in Indonesia. As shown in Table 12, poverty rates did not differ between households headed by women and those headed by men. The incidence of poor households headed by women and those headed by men in 1996 was 16 percent for both types of household. A similar finding was also found in widowhood status of household head, which indicates no significant difference in poverty rates.

Education is believed to be strongly associated with individual and household welfare. As one would expect, the incidence of poverty was highest among those with the lowest level of education (Table 12). The impact of the crisis on the increase in poverty incidence occurred in all levels of education. In relative terms, however, households headed by those who completed higher levels of education, especially senior secondary and tertiary levels, experienced the highest increase in poverty. This is consistent with the notion that those linked to the formal sector (who have higher levels of education) were also the most affected by the crisis.

Characteristics of Chronic and Transient Poverty

As mentioned previously, the rapid increase in poverty during the crisis could be a transient phenomenon. This section attempts to make a comparison between poor households classified as chronically poor and poor households classified as transitorily poor in terms of socioeconomic characteristics. Some insights about the differences between chronic and transient poverty could be gleaned from Table 13.

In terms of level of education, the percentage of transitorily poor with higher level of education was much larger than that of the chronically poor. This evidence suggests that acute poverty is closely related to low levels of education. Over 93 percent of all chronically poor households had primary education or even lower. Looking at the movement “in” and “out” of poverty shows that the percentage of those with high levels of education (junior secondary or higher) was much higher for those who moved out of poverty than those who fell into poverty during the period 1998-1999.

Table 13. Characteristics of Households by Poverty Transition

Region	Never Poor (%)	Fell out of Poverty (%)	Fell into Poverty (%)	Poor in both (%)
Education Level				
No schooling/not completed primary	29.90	44.30	55.82	57.85
Primary	29.88	37.83	34.49	35.48
Junior Secondary	12.40	8.51	5.87	4.52
Senior Secondary	21.64	8.89	3.82	2.15
Tertiary Level	6.18	0.47	-	-
Has ever been laid-off within the last period?				
Yes	3.46	3.24	5.11	2.77
Type of Occupation				
White collar	13.71	5.88	0.87	1.47
Sales/services	25.32	16.26	16.73	11.55
Production	34.00	50.26	50.18	65.96
Farming	25.27	25.85	29.43	17.78
Others	1.69	1.76	2.79	3.23
Sector of Occupation				
Agriculture	34.43	50.44	54.74	70.27
Mining and quarrying	1.46	0.83	0.83	0.14
Manufacturing Industry	11.13	8.34	10.57	6.99
Electricity, gas and water	0.47	0.17	0.00	0.00
Construction	5.37	7.10	6.72	2.84
Trade, hotel and restaurant	18.97	13.69	10.92	7.17
Transportation and communication	7.20	7.12	6.28	4.35
Finance, insurance and leasing	1.09	0.29	0.00	0.17
Civil, social and private services	18.89	10.54	7.22	4.93
Others	0.99	1.46	2.72	3.14
Average working hours	40.97	40.08	36.07	37.76

Source: Authors' calculation from December 1998 and August 1999 Mini-Susenas data.

A similar comparison can be seen in the type of occupation, sector of occupation and average working hours. Transient poverty was seen more in poor households with heads assuming white collar, sales and services occupations. In terms of sector of occupation, there was a significant dif-

ference in the proportion of those working in the agriculture sector between chronically poor households (70.3 percent) and transitorily poor households (50.4 percent). A difference was also found in the construction, trade, transportation and service sectors wherein a much higher percentage of transitorily poor households was found. The table also shows that the average working hours of chronically poor households was lower than that of transitorily poor households (those who moved out of poverty). The fairly high percentage of movement “in” and “out” of poverty occurring in the agriculture sector is also worth noting. This indicates that the most vulnerable group of the population is highly concentrated in this sector.

Changes in Consumption Patterns

Improvement in welfare status of the population can be crudely measured on the basis of the changes in food and non-food consumption patterns. According to Engel’s law, the higher an individual’s income (or expenditure), the lower the percentage of consumption devoted to food. Therefore, the decline in consumption of food or the increase in expenditure for non-food can be used to indicate the average progress in welfare of the society.

The economic crisis is believed to have affected household consumption pattern especially that of the low-income group. Changes in the consumption pattern could be attributed to the dramatic decline in the standard of living—brought about price increases and lower wages—forcing households to prioritize certain food items for consumption. The changes in consumption pattern during the period prior to the crisis and the period of the ongoing crisis are presented in Table 14. During the period prior to the crisis, there had been a massive improvement in welfare of the population as reflected in the remarkable rise in the proportion of expenditure for non-food component from around 39.6 percent in 1990 to 44.7 percent in 1996. However, the economic crisis that hit the country in the middle of 1997 altered this progress. The proportion of expenditure for non-food component dropped to 37.1 percent in 1999. The higher share of food expenditure in 1999 could be attributed mainly to the higher price of food. As mentioned previously, inflation for food component was much higher than for non-food component.

Table 14. Share of Food and Non-food Expenditure per Capita, 1990-1999

Year	Food	Non-food	Total
1990	60.4	39.6	100.0
1993	56.9	43.1	100.0
1996	55.3	44.7	100.0
1999	62.9	37.1	100.0

Source: BPS (2000) from the *Susenas* data.

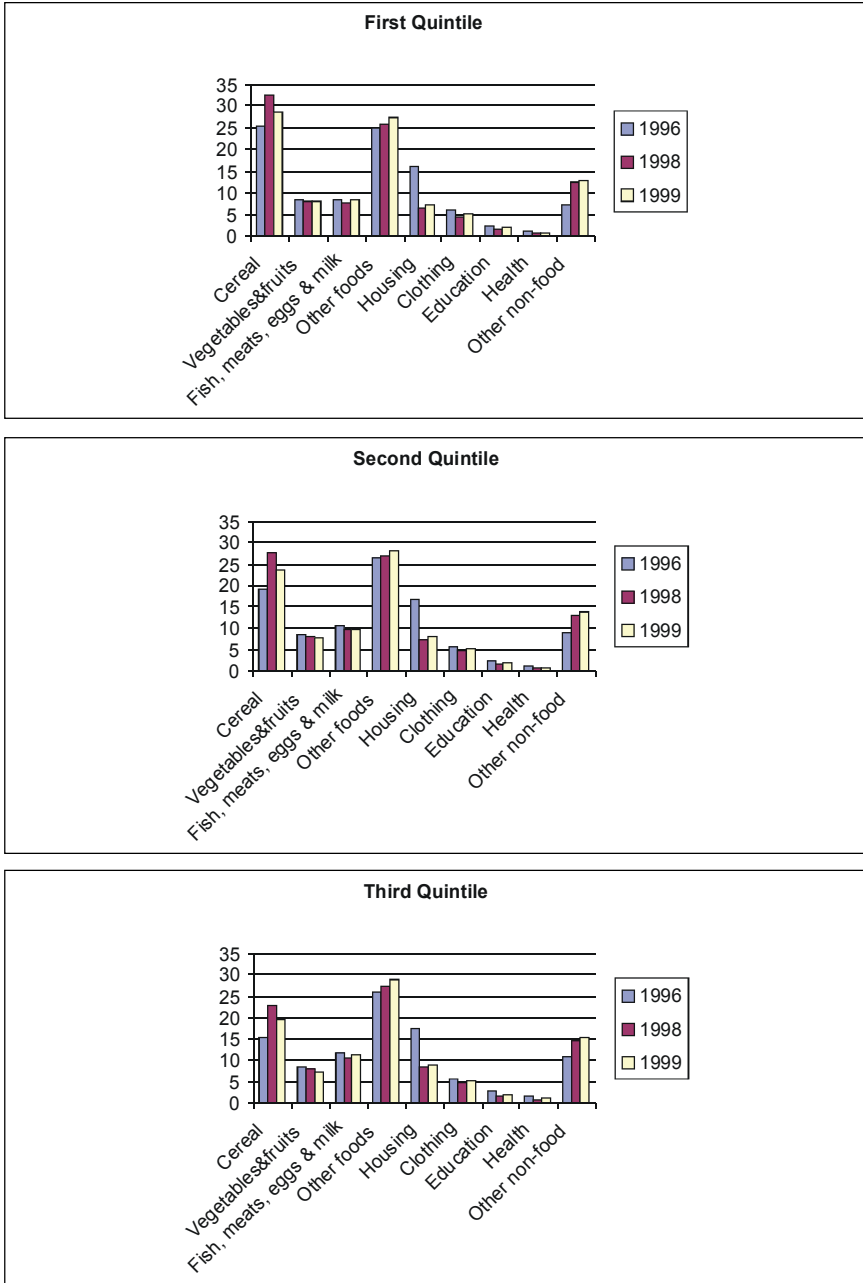
Presented in Figure 4 are the changes in the composition of expenditure disaggregated into five groups (five quintiles) of expenditure level. As shown, all groups of expenditure level were substantially affected by the crisis. It can also be seen in the figure that the overall change in consumption patterns especially during the period 1996-1998 was mostly driven by the enormous shift in cereal consumption, which was more pronounced among populations in the lower quintiles than in the higher quintiles. In the non-food component, a significant decline was seen on the expenditure for housing and, to some extent, education and health. The decrease in education and health budget shares has important implications for the future, as these expenditure items generally include important investments in children.

Coping Mechanisms

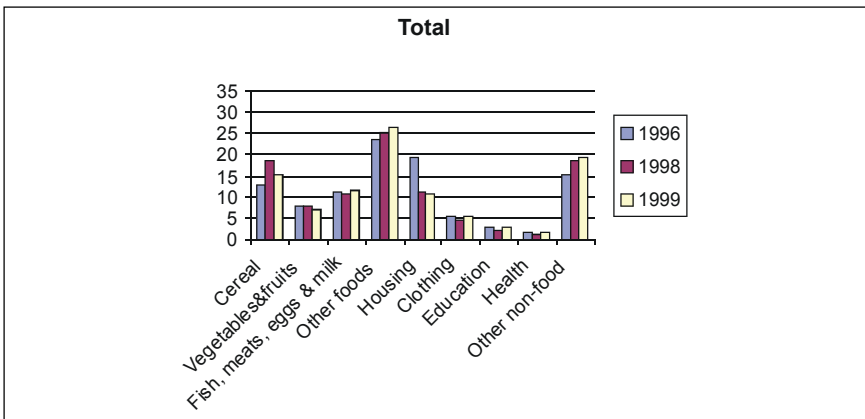
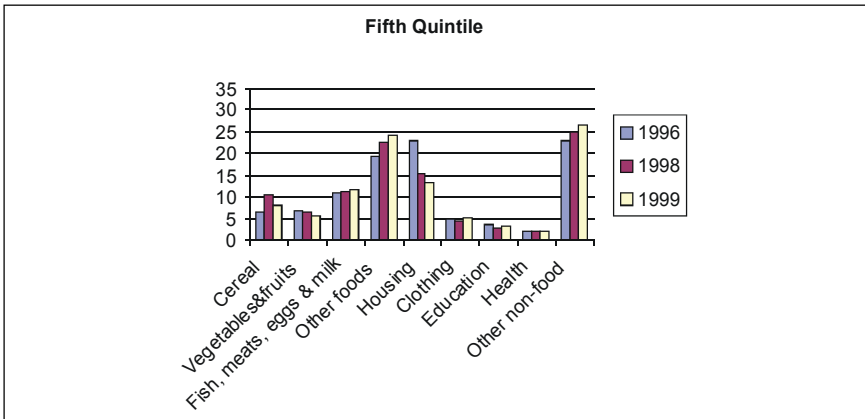
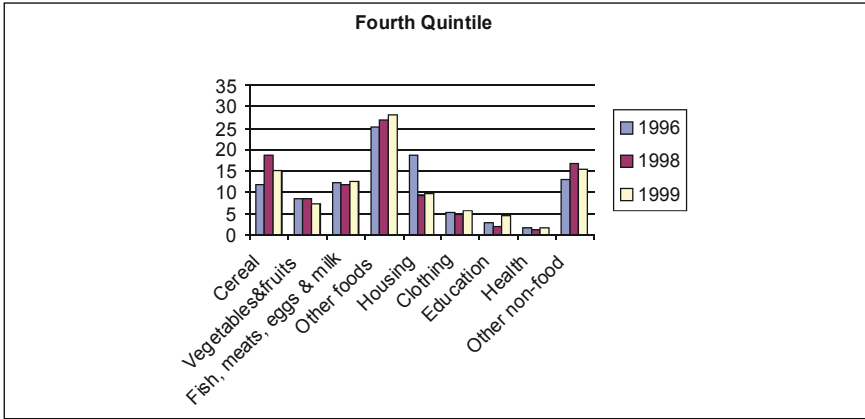
Evidence of the increased food spending indicates that households have placed a priority on staple food since 1997. In general, this indicates a declining purchasing power due to the rapid increase of prices and the shrinking income sources. BPS and UNDP (1999) found that the percentage of poor households that experienced a decline in income in 1998 accounted for around 45 percent and for non-poor households around 40 percent.

The types of coping mechanisms taken by both poor and non-poor households for the last six months prior to the date of survey are presented in Table 15. Since each type of coping mechanism is not mutually exclusive, a household could provide more than one choice in answering this question. It can be gleaned from the results that both poor and non-poor households had used similar strategies to cope with the economic crisis. The most preferred coping mechanisms by both poor and non-poor house-

Figure 4. Shifts in Consumption Pattern, 1996-1999



IMPACT OF THE EAST ASIAN FINANCIAL CRISIS REVISITED



Source: December 1998 and August 1999 Mini-Susenias.

Table 15. Percentage of Poor and Non-poor Households by Type of Coping Mechanism, December 1998 and August 1999

Type of coping mechanism	December 1998						August 1999					
	Poor			Non-poor			Poor			Non-poor		
	Urban	Rural	U+R	Urban	Rural	U+R	Urban	Rural	U+R	Urban	Rural	U+R
Reducing quantity of food	38.4	38.3	38.3	22.4	22.0	22.2	28.0	28.3	28.0	20.0	16.8	18.1
Reducing quality of food	58.7	48.2	51.9	42.2	35.3	38.1	43.3	41.9	42.4	30.2	28.9	29.4
Reducing expense for recreation	61.3	48.6	53.1	64.0	43.6	51.9	55.0	44.6	48.0	55.8	47.8	51.1
Reducing expense for clothing	72.8	66.8	68.9	68.3	58.1	62.2	68.7	63.1	65.0	61.6	60.6	61.0
Reducing expense for transportation	50.1	46.8	48.0	41.1	41.4	41.3	48.1	46.4	47.0	35.1	41.5	38.8
Withdrawing saving	9.6	6.4	7.5	17.6	9.1	12.5	8.2	6.9	7.3	15.9	9.9	12.4
Selling valuable goods	14.1	9.1	10.8	10.6	7.6	8.8	12.7	11.7	12.0	8.4	8.6	8.5
Borrowing money from others	38.0	30.7	33.3	22.1	26.1	24.5	38.1	35.3	36.2	21.6	27.7	25.2
Consuming own food production	18.9	50.3	39.2	16.4	37.1	28.7	24.5	51.3	42.5	16.5	38.5	29.3
Pawning valuable goods	7.3	3.5	4.9	4.9	2.4	3.4	5.6	4.1	4.6	3.4	2.9	3.1

Source: December 1998 Mini-Susenas and August 1999 Mini-Susenas.

holds in urban and rural areas were reducing the quality of food and the expenses for recreation, clothing and transportation. Reducing quantity of food and borrowing money from others were also reported. It is also worthwhile to note that among poor households in rural areas, the proportion of households consuming their own produce as coping mechanism was also quite high. The result of a subdistrict (*kecamatan*) survey also found that more than 75 percent of 4,025 districts in Java reported sale of assets as principal coping mechanism. Meanwhile, the number of *kecamatans* in the Outer Island that reported this ranged from 35 to 57 percent (Poptele et al. 1999).

In line with the coping mechanisms undertaken by the poor in facing the crisis, it is worthwhile to examine the efforts of households to increase their income. It is believed that under pressing situation, individual households, especially poor ones, will take some action to increase their income. The most likely efforts include doing additional jobs, working overtime and having additional family members enter into work.

Presented in Table 16 are the survival strategies undertaken by poor households in 1998 and 1999 to increase household income. Over 44 percent of poor households in 1998 had taken additional jobs to increase their income, while those who worked overtime accounted for almost 40 percent. The proportion of poor households who asked their children to work was relatively high (20 percent). Households who asked their other members to work comprised more than 15 percent.

CONCLUDING REMARKS

The study outlines the changes in poverty and inequality from 1996 to 1999, the years encompassing the macroeconomic crisis. The results indicate that the crisis slowed down progress in poverty reduction achieved in the earlier years. The poverty rate rose dramatically by nearly 70 percent with the increase in poverty relatively higher in rural areas. Poverty rates increased in all provinces but Java-Bali seemed to be the most affected region. It contributed around 70 percent of the increase in the number of total poor in Indonesia, while its poverty rate rose by well over 8 percentage points, the highest among the major regions. Such rapid increase in

Table 16. Percentage of Poor and Non-poor Households by Type of Strategy to Increase Household Income, December 1998 and August 1999

Type of Survival Strategy	December 1998						August 1999					
	Poor			Non-poor			Poor			Non-poor		
	Urban	Rural	U+R	Urban	Rural	U+R	Urban	Rural	U+R	Urban	Rural	U+R
Doing additional jobs	36.7	48.7	44.5	26.5	43.5	36.6	40.1	54.6	49.8	27.1	45.2	37.7
Increasing working capital	15.2	10.6	12.3	15.8	17.7	16.9	10.5	8.5	9.2	16.0	17.1	16.6
Working overtime	34.2	42.0	39.2	25.9	38.4	33.3	41.5	48.4	46.1	32.0	41.4	37.5
Asking children to work	17.5	21.6	20.1	9.4	13.1	11.6	18.2	19.2	18.9	11.2	12.6	12.0
Asking other household member to work	13.3	18.4	16.6	8.6	10.9	10.0	12.4	17.0	15.5	8.0	12.4	10.5

Source: December 1998 Mini-Susenas and August 1999 Mini-Susenas.

poverty was followed by the deterioration of the conditions of the poor. During the crisis, they became poorer as indicated by the substantial increase in the gap and severity of poverty indices based on per capita expenditure. In other words, the gap between the living standard of the poor and the poverty line became wider, while the expenditure distribution among the poor became more unequal, as a result of the crisis.

However, the rapid increase in poverty during the crisis may just be a transient phenomenon. The evolution of poverty rates during the crisis noticeably followed the patterns of changes in inflation rate. When the inflation reached the highest level in 1998, the poverty rate was also at its peak. When the prices of most commodities declined in 1999, the poverty rate also continued to decline. It should be noted that the inflation was in food and non-food prices, while wages did not inflate.

Two possible explanations for the decline in poverty rates from 1998 to 1999 are the government policies in price stabilization and the SSN programs. The SSN has become a key component of the government's social protection policy. A field study conducted by the Social Monitoring and Early Response Unit (SMERU) in 21 urban areas and 19 rural areas in five provinces concluded that the targeted rice subsidy program known as the Special Market Operation (*Operasi Pasar Khusus* or OPK) has reached the needy, although not all of them received the OPK (Sri Kusumastuti et al. 1998).

With respect to the increase in the severity of poverty and the transient phenomenon of changes in poverty during the crisis, it can be explained as follows. In the early part of the crisis, the price of food rose much faster than the price of goods and services in general. This, however, did not create any serious problem for farmers who were self-sufficient in food. But for the poorest of the poor who were landless or whose farms were too small to provide enough food, the rise in the relative price of rice created serious problems. Therefore, those at the very bottom of the distribution were severely hit by the crisis. But in some areas with greater food self-sufficiency, poverty did not increase as much. When the relative price of food returned to its previous normal level, poverty also decreased. This explains why much of the increase in poverty has been only temporary.

Comparing trends in poverty incidence by urban and rural areas during the crisis indicates that urban areas bounced back much faster from

poverty than the rural areas. By August 1999, the urban poverty rate had almost returned to its pre-crisis level, but the rural poverty rate had not. There are some possible explanations for this asymmetry. A study conducted by BPS and UNDP (1999) shows that the crisis resulted in job loss in all sectors in the rural areas except for the agriculture sector during August 1997-August 1998; in contrast, there were only four sectors in the urban areas that were hit by the crisis during the same period: manufacturing, electricity, construction and finance.¹⁹ In the next four months, there was a sign of recovery in terms of employment absorption in the urban areas but none in the rural areas (BPS and UNDP 1999). The average farmer's term of trade, an indicator of farmer's welfare, still exhibited a decline in most provinces from the first quarter to the second and third quarters of 1999 (BPS 2000c). To some extent, these explain why rural poverty has declined more slowly than urban poverty. Finally, the growth of average nominal per capita income of households during the period 1998-1999 was much lower in the rural areas. For instance, the growth of average per capita income of non-agricultural lower-level households was about 12 percent in rural areas in contrast with 38 percent in urban areas (BPS 2000c).

The second major aim of the study is to address the impact of the crisis on inequality. The result shows that overall inequality declined during the crisis. However, expenditure inequality among the populations below the poverty line increased both in the urban and rural areas. This finding confirms the close relationship between severity of poverty and inequality. In terms of the changes in inequality between major regions, results show that inequality also declined in all regions. However, looking at the changes in inequality among the populations living below the poverty line, both urban and rural poverty increased in Java-Bali and Sumatra. Sulawesi was the only region that experienced a decline in inequality among those below the poverty line both in the urban and rural areas.

The third aspect addressed in the paper is the poverty profile of the poor, including their coping mechanisms and survival strategies. Evidence from the poverty profile indicates that poverty incidence was highest among households headed by those with low levels of education and working in agriculture, and relatively higher among those who are self-employed in terms of occupational status. Comparing chronic and transient poverty shows that there

was a significant difference in socioeconomic characteristics, with a higher percentage of the temporary poor having a higher level of education, working in the non-agriculture sector, and spending longer working hours on the average.

The study also shows that as expenditure level dropped dramatically during the crisis, coupled with the substantial increase in the price of most commodities, households especially the poor prioritized food consumption. The largest increase in the proportion of expenditure for food was in cereal consumption. For non-food expenditure, the biggest drop was on the expenditure for housing. Getting additional jobs and working overtime were the two most preferred strategies taken by households to cope with the crisis.

There are at least two major points that can be drawn from the study. First, in terms of targeting poverty, the government is in a dilemma: will it reduce the rates of poverty in regions with the highest poverty rates or will it lower the poverty rates for the country as whole? On the one hand, if the priority goal of the government is to reduce poverty in regions with high rates, then its poverty alleviation programs should focus on the regions in the eastern part such as West Nusa Tenggara, East Nusa Tenggara, Maluku, Irian Jaya and some regions in Sulawesi and Sumatra. However, these regions contain only around 10 percent of the total population, thus reducing poverty rates will have only a modest impact on national poverty. On the other hand, if the government's priority is to achieve a maximum impact on national poverty, it should focus on three regions in Java, namely, West Java, Central Java and East Java, which constitute more than 50 percent of the population and sharing well over 50 percent of the population in national poverty.

Corollary to the above discussion, it is important for government to maintain a balance between equity of targeting (lowering the poverty rates in regions with the highest poverty rates, but which will make a small contribution to national poverty) and efficiency of targeting (lowering the poverty rates for the country as whole by targeting regions with the greatest number of poor people, but with lower rates of poverty) (Gertler et al. 1994). For equity of targeting, the government should focus on the rural population located in the most eastern regions. For efficiency of targeting, it should focus on the rural population in most regions in Java.

Second, anti-poverty programs should target the agriculture sector where the poor are concentrated. Increasing working capital—one of the coping mechanisms reported by the poor in the survey—is a possible element of a rural poverty alleviation scheme. This can be done through the provision of credit to the rural population whose source of livelihood is mainly agriculture. Such kind of a credit program has been conducted by the government (as implemented by the Family Planning Coordinating Board or BKKBN) but its implementation needs to be evaluated to assess its impact and effectiveness.

In the long run, the government should focus on improving the level of education in order to cut the vicious cycle of poverty. Increasing the level of education is believed to be the key to poverty reduction, since education is closely associated with the other socioeconomic dimensions such as income level, participation and empowerment.

APPENDICES

Appendix 1. Data Sources

Data used in this study were mostly gathered from the National Socio-Economic Surveys (or *Susenas*). To look at the trends of poverty before and during the crisis, the February 1996 *Susenas*, December 1998 mini-*Susenas* (*Susenas*-type), February 1999 *Susenas* and August 1999 mini-*Susenas* were used in the analysis. The main data sources to examine the regional comparison on poverty were the February 1996 and February 1999 *Susenas* data. Based on these data series, the movement or evolution of poverty level during the crisis could be traced.

Regular *Susenas* is conducted every year in February. Questionnaires in the *Susenas* can be distinguished into two types. First, the core questionnaire is intended to capture some major socioeconomic and demographic indicators covering a bigger sample size of around 200,000 households. The core data are collected every year. The second type of questionnaire is the module questionnaire. The module questionnaire is intended to gather more detailed data in order to fulfill the information needs for analyzing social problems and for monitoring welfare problems

where the changes are expected to occur less frequently so there is less need for yearly monitoring. The modules have been set up to follow a relatively constant pattern in the sense that they are divided into three groups: module 1 containing expenditure and income questions, module 2 containing questions on criminality, socioculture, welfare and domestic tourism, and module 3 consisting of questions on health, nutrition, education costs, and home environment. Each of the module groups is being used together with the core questionnaire once in three years. Modules for the 1984, 1987, 1990, 1993, 1996 and 1999 *Susenas* were on consumption (module 1), while the modules for 1985, 1988, 1991, 1994 and 1997 *Susenas* were supposed to be module 2. Module 3 was conducted for the 1986, 1989, 1992, 1995 and 1998 *Susenas*. The module questionnaire had a sample size of 65,000 households.

In response to the economic crisis, BPS, with financial support from the UNDP, conducted a mini-*Susenas* in December 1998 with a sample size of 10,000 households in all regions in Indonesia. The survey was replicated in August 1999 and funded by the government. The mini-*Susenas* in particular was intended to evaluate the impact of the economic crisis on poverty and other socioeconomic dimensions. While the regular *Susenas* (conducted every year in February) enables one to estimate the provincial figures, the mini-*Susenas* is useful for estimating figures at the national level and, to some extent, at five major regions (Java-Bali, Sumatra, Kalimantan, Sulawesi and other islands). Unlike the regular *Susenas*, the mini-*Susenas* conducted in December 1998 and August 1999 asked the question about the coping mechanism and survival strategies undertaken by the households to cope with the crisis.

Appendix 2. Summary of Procedure for Constructing Poverty Line

1. Start with national distribution of expenditure (nominal), and identify the class belonging to the second and third deciles (d2 and d3).
2. Based on (1), identify the National Bundle of 52 commodities. This step will give a list of 52 commodities including their consumption share:

Bundles:	q ₁	α ₁
	q ₂	α ₂
	.	.
	.	.
	q _k	α _k

k = 1, 2, ..., 52

α = consumption share within the 52 commodity bundle

- Go by province: construct the province deflator
Use nominal distribution in (1) and identify the sample belonging to each province. Use these data to construct the price deflator:

$$P_j = \sum P_{jk} \alpha_k$$

where P_{jk} is the price of commodity in the bundle (rice for $k=1$) actually paid by the reference population mentioned above (d2 and d3), and α_k is the fixed share as shown in the national bundle.

- Construct expenditure distribution (National) in real terms or convert the distribution in (1) into a real expenditure distribution. To do this, divide the nominal average per capita expenditure by its respective province deflator found in (3):

$$R_{ej} = E_j / P_j \text{ for each household}$$

where E_j is expenditure of household j .

- Construct provincial bundle of commodity based on the population within d2-d3 class of real expenditure. To do this, identify the sample for each province from the distribution found in (4), and then identify the 52-commodity bundle.
- Scale up quantity to reach the 2,100 calories of food. Having done this, we have obtained, in a sense, the food poverty line (FPL), which satisfies the following formula:

$$FPL_j = \sum P_{jk} q_{jk}, \text{ given (d2-d3) of the national real expenditure.}$$

where q_{jk} is quantity of commodity k (rice for $k=1$) consumed by the sample of reference population mentioned above.

- Construct the non-food poverty line using the share equation (Engel relationship).

Appendix 3. Identifying Share of Non-food: Regressions

Table A3a. Regression Model for Constructing Provincial Poverty Line, 1996-1999
(Dependent variable: Food share to total expenditure)

	February 1996		February 1999	
	Par. Est.	Prob > T	Par. Est.	Prob > T
Constant	0.7031	0.0001	0.7561	0.0001
Log (expenditure per capita/FPL)	-0.0600	0.0001	-0.0485	0.0001
Square of Log (expenditure per capita/FPL)	-0.0304	0.0001	-0.0371	0.0001
Dummy Region: Urban=1	-0.0651	0.0001	-0.0634	0.0001
Dummy Provinces: Region not in the equation is Irian Jaya				
Aceh	0.0679	0.0001	0.0575	0.0001
North Sumatera	0.0685	0.0001	0.0503	0.0001
West Sumatera	0.0527	0.0001	0.0438	0.0001
Riau	0.0556	0.0001	0.0451	0.0001
Jambi	0.0558	0.0001	0.0424	0.0001
South Sumatera	0.0675	0.0001	0.0463	0.0001
Bengkulu	0.0332	0.0001	0.0174	0.0002
Lampung	0.0321	0.0001	0.0286	0.0001
Jakarta	-0.0205	0.0001	-0.0492	0.0001
West Java	0.0261	0.0001	-0.0038	0.2990
Central Java	0.0067	0.0809	-0.0083	0.0241
Yogyakarta	-0.0173	0.0001	-0.0294	0.0001
East Java	-0.0095	0.0125	0.0007	0.8440
Bali	-0.0128	0.0036	-0.0127	0.0023
West Nusa Tenggara	0.0566	0.0001	0.0402	0.0001
East Nusa Tenggara	0.0519	0.0001	0.0135	0.0014
West Kalimantan	0.0856	0.0001	0.0530	0.0001
Central Kalimantan	0.0977	0.0001	0.0716	0.0001
South Kalimantan	0.0813	0.0001	0.0522	0.0001
East Kalimantan	0.0115	0.0162	-0.0028	0.5457

Table A3a. ...continued

	February 1996		February 1999	
	Par. Est.	Prob > T	Par. Est.	Prob > T
North Sulawesi	0.0208	0.0001	0.0186	0.0001
Central Sulawesi	0.0321	0.0001	0.0118	0.0097
South Sulawesi	0.0266	0.0001	0.0232	0.0001
Southeast Sulawesi	0.0295	0.0001	0.0049	0.2789
Maluku	-0.0230	0.0001	-0.0431	0.0001
Adjusted R-square	0.4409		0.4189	

Source: Calculated from February 1996 and 1999 *Susenas* data.

Table A3b. Regression Model for Constructing Poverty Line,
December 1996-August 1999

	December 1998		August 1999	
	Par. Est.	Prob > T	Par. Est.	Prob > T
Constant	0.6158	0.0001	0.6177	0.0001
Log (expenditure per capita/FPL)	-0.0557	0.0001	-0.0700	0.0001
Square of Log (expenditure per capita/FPL)	-0.0431	0.0001	-0.0230	0.0001
Dummy Region: Urban=1	0.0840	0.0001	0.0773	0.0001
Adjusted R-square	0.3893		0.3743	

Source: Calculated from December 1998 and August 1999 *Mini-Susenas* data.

Appendix 4. National and Provincial Poverty Lines

Table A4a. National Poverty Line, 1996-1999 (rupiahs)

	Urban			Rural		
	Food	Non-food	Total	Food	Non-food	Total
February 1996	30,454	11,122	41,576	23,844	6,774	30,618
December 1998	71,058	21,007	92,065	56,745	21,208	77,953
February 1999	70,959	23,261	94,220	59,822	14,233	74,055
August 1999	66,149	20,175	86,324	51,998	19,877	71,875

Source: Authors' calculation

Table A4b. Poverty Line by Province, 1996-1999 (rupiahs)

Province	1996						1999					
	Urban			Rural			Urban			Rural		
	Food	Non-food	Total	Food	Non-food	Total	Food	Non-food	Total	Food	Non-food	Total
Aceh	27465	8077	35542	24701	5656	30357	66800	16687	83487	58745	10950	69694
North Sumatera	32106	9424	41530	24455	5586	30040	71895	18483	90378	59565	11536	71101
West Sumatera	36509	11293	47802	27887	6810	34697	82713	21794	104508	66323	13271	79594
Riau	32479	9951	42429	32888	7935	40822	74434	19519	93953	75886	15088	90975
Jambi	34187	10469	44656	28028	6758	34786	77090	20425	97516	66680	13439	80119
South Sumatera	31071	9149	40220	25571	5865	31437	73501	19189	92691	64312	12713	77025
Bengkulu	34413	11313	45726	25045	6603	31648	82352	23876	106228	59128	13394	72522
Lampung	30529	10072	40601	23652	6263	29916	75009	20911	95920	57478	12379	69857
Jakarta	33426	12786	46212	-	-	-	81346	29007	110353	-	-	-
West Java	30405	10211	40617	22767	6164	28931	68951	21192	90142	57468	14019	71486
Central Java	28998	10303	39301	23020	6834	29854	68411	21593	90003	57115	14406	71521
Yogyakarta	30468	11557	42024	23339	7333	30673	73164	24639	97803	61701	16867	78568
East Java	29883	11101	40984	22103	6771	28874	70826	21768	92594	58810	14346	73156
Bali	30311	11359	41670	24653	7633	32286	73545	23538	97082	63517	16301	79819

Table A4b. ...continued

Province	1996						1999					
	Urban			Rural			Urban			Rural		
	Food	Non-food	Total	Food	Non-food	Total	Food	Non-food	Total	Food	Non-food	Total
West Nusa Tenggara	30083	9188	39270	23920	5748	29668	71665	19148	90813	61313	12495	73808
East Nusa Tenggara	27958	8670	36628	22311	5466	27778	63859	18763	82622	52623	12125	64748
West Kalimantan	35303	9757	45060	28106	5938	34044	83517	21244	104760	68203	13024	81227
Central Kalimantan	35717	9441	45158	31528	6281	37808	84170	19840	104009	78882	13592	92474
South Kalimantan	32026	8989	41015	25441	5484	30926	75408	19240	94648	60137	11531	71668
East Kalimantan	33005	11566	44572	29720	8480	38201	73099	22467	95566	74209	18103	92312
North Sulawesi	31587	10777	42364	23825	6578	30403	72064	20809	92873	62640	14116	76755
Central Sulawesi	29807	9832	39638	26081	6905	32986	72877	21536	94412	60799	14112	74911
South Sulawesi	28491	9557	38048	23375	6319	29693	68033	19330	87363	57312	12650	69962
Southeast Sulawesi	28566	9496	38062	24406	6525	30931	70268	21596	91865	59610	14541	74151
Maluku	35154	13532	48686	31763	10159	41922	76188	26703	102891	74502	21389	95891
Irian Jaya	32286	11687	43973	30672	9106	39778	75018	23056	98074	76154	18577	94731

Source: Calculated by the authors from February 1996 and 1999 *Susenas* data.

Appendix 5. Number of Poor People by Province, 1996-1999

Province	Urban			Rural			Urban		
	1996	1999	% change 1996-1999	1996	1999	% change 1996-1999	1996	1999	% change 1996-1999
Aceh	46362	99781	115.2	401404	469370	16.9	447766	569085	27.1
North Sumatera	515984	837767	62.4	774699	1025273	32.3	1290683	1863218	44.4
West Sumatera	91327	248761	172.4	311355	361855	16.2	402682	610655	51.6
Riau	67276	135562	101.5	429621	449247	4.6	496897	584767	17.7
Jambi	133349	186561	39.9	200289	502681	151.0	333638	689214	106.6
South Sumatera	190265	488635	156.8	845196	1268244	50.1	1035461	1756815	69.7
Bengkulu	79338	96765	22.0	146447	211361	44.3	225785	308123	36.5
Lampung	201855	323765	60.4	1250244	1681147	34.5	1452099	2004659	38.1
Jakarta	135837	392893	189.2	-	-	-	135837	393097	189.4
West Java	1576516	3648250	131.4	1681102	3566155	112.1	3257618	7215405	121.5
Central Java	1786277	3144589	76.0	4046941	5505774	36.0	5833218	8650616	48.3
Yogyakarta	292710	543718	85.8	213868	325824	52.3	506578	869743	71.7
East Java	2215826	3251910	46.8	4417294	7176175	62.5	6633120	10427977	57.2
Bali	74353	125634	69.0	118995	131861	10.8	193348	257527	33.2

Appendix 5. ...continued

Province	Urban			Rural			Urban		
	1996	1999	% change 1996-1999	1996	1999	% change 1996-1999	1996	1999	% change 1996-1999
West Nusa Tenggara	194217	255587	31.6	925319	992683	7.3	1119536	1248154	11.5
East Nusa Tenggara	107538	143679	33.6	1189607	1556344	30.8	1297145	1699708	31.0
West Kalimantan	70743	98537	39.3	726141	931426	28.3	796884	1029781	29.2
Central Kalimantan	18678	27163	45.4	183369	241830	31.9	202047	268946	33.1
South Kalimantan	76734	104158	35.7	153585	337432	119.7	230319	441559	91.7
East Kalimantan	37116	113307	205.3	196236	428412	118.3	233352	541671	132.1
North Sulawesi	83839	103247	23.1	418368	424269	1.4	502207	527464	5.0
Central Sulawesi	59476	143247	140.8	377780	470363	24.5	437256	613566	40.3
South Sulawesi	289970	484989	67.3	1054532	1092929	3.6	1344502	1577895	17.4
Southeast Sulawesi	50022	70385	40.7	390372	447425	14.6	440394	517734	17.6
Maluku	101123	115130	13.9	839286	894557	6.6	940409	1009523	7.3
Papua	42982	56245	30.9	802737	1102412	37.3	845719	1158410	37.0
Indonesia	8539713	15240263	78.5	22094787	31595048	43.0	30634500	46835311	52.9

Source: Author's calculation.

Appendix 6. Theoretical Review of the SST Index

Theoretically, the Sen-Shorrocks-Thon (SST) index as called by Osberg and Xu (1999) is a summary of major poverty measures. The index was initially suggested by Sen (1976), modified by Shorrocks (1995), and is identical to the Thon (1979) index.

In general, the SST index of poverty intensity is defined as follows (see Osberg and Xu 1999):

$$P(Y; z) = (1/N^2) \sum^q (2N - 2i + 1) * (z - Y_i)/z$$

where N is the size of population; Y_i is individual income or expenditure; z is the poverty line; and $(z - Y_i)/z$ is the poverty gap ratio. The above equation can also be decomposed into the following equation:

$$P(Y; z) = \mu(X_i) * [1 + G(X_i)]$$

where $\mu(X_i)$ and $G(X_i)$ are the average poverty gap ratio and the Gini coefficient of poverty gap ratios; and $X_i = (z - Y_i)/z$ for $i=1,2,f \dots N$ with the non-poor population's X_i being set to zero. Here, the population data set X for $\mu(X)$ and $G(X)$ refers to the poverty gap ratios calculated for all members of the population. Therefore, $\mu(X)$ is simply the weighted average of the average poverty gap ratio among the poor and the poverty gap ratio among the non-poor (namely, zero).

If P_0 represents the poverty rate,

$$P_0 = Q/N$$

and P_1^G is the average poverty gap ratio among the poor,

$$P_1^G = (1/Q) \sum X_i \quad (i=1,2, \dots N),$$

then $\mu(X)$ can be expressed as follows

$$\mu(X) = P_0 * P_1^G$$

and the SST index can be further decomposed into

$$P(Y; z) = P_0 * P_1^G * [1 + G(X)]$$

Taking the logarithm of the above equation gives the following form:

$$\ln(P(Y; z)) = \ln(P_0) + \ln(P_1^G) + \ln[1+G(X)]$$

and then taking the difference of this equation provides the following form:

$$\Delta \ln P(Y; z) = \Delta \ln(P_0) + \Delta \ln(P_1^G) + \Delta \ln[1+G(X)]$$

This equation shows that the overall percentage rate of change in poverty intensity can be expressed as the sum of the percentage changes in the poverty rate, average poverty gap ratio among the poor, and the Gini index of inequality in the poverty gap ratios (among all individuals). The last equation suggests the various possible origins of changes in poverty intensity. Poverty intensity may be increasing because more people are becoming poor, or because the average income shortfall below the poverty line is increasing, or because income shortfall have become more unequal, or a combination of these factors.

Appendix 7. Characteristics of the Poor by Major Regions, 1996-1999

Java - Bali

Description	February 1996			February 1999		
	% poor to total households	% poor to total poor	% of population	% poor to total households	% poor to total poor	% of population
Sector of household's income source						
Agriculture	23.04	55.25	33.32	32.37	47.25	32.56
Mining and quarrying	20.39	1.16	0.80	34.59	1.08	0.69
Manufacturing Industry	10.99	8.58	10.93	20.56	10.8	11.71
Electricity, gas and water	5.60	0.19	0.47	14.80	0.25	0.38
Construction	14.38	7.52	7.32	25.95	6.84	5.88
Trade, hotel and restaurant	8.71	11.45	18.40	16.80	14.69	19.51
Transportation and communication	9.96	4.80	6.75	21.15	6.73	7.10
Finance, insurance and leasing	1.50	0.11	1.03	5.01	0.36	1.60
Civil, social and private services	6.91	7.76	15.72	12.28	8.46	15.38
Others	19.30	0.13	0.09	31.17	0.33	0.23
Receiving transfer	8.71	3.05	5.17	14.43	3.22	4.96
Occupation status of household head						
Self employed without help	14.32	21.85	21.37	23.84	24.67	23.08
Self employed with unpaid workers	17.25	39.15	31.78	23.50	28.94	27.47
Wage employee	11.23	29.21	36.41	21.19	36.20	38.11
Unpaid workers or not working	13.14	9.79	10.43	20.04	10.19	11.34

Appendix 7. ...continued
Java - Bali

Description	February 1996			February 1999		
	% poor to total households	% poor to total poor	% of population	% poor to total households	% poor to total poor	% of population
Gender of household head						
Male	13.95	90.97	91.34	22.22	90.26	90.61
Female	14.60	9.03	8.66	23.09	9.74	9.39
Widowhood status of household head						
Non-widow	13.85	92.83	93.89	22.23	92.81	93.12
Widow	16.30	7.17	6.11	23.27	7.19	6.88
Education level of household head						
Not completed primary and illiterate	25.57	27.91	15.28	37.75	20.55	12.14
Not completed primary but literate	19.09	33.49	24.57	29.52	30.20	22.82
Completed primary	13.60	31.85	32.80	24.54	37.15	33.76
Completed junior secondary	6.33	4.34	9.60	14.23	7.31	11.46
Completed senior secondary	2.45	2.36	13.48	6.82	4.56	14.93
Completed tertiary	0.18	0.05	4.27	1.06	0.23	4.88

Appendix 7. ...continued

Sumatra

Description	February 1996			February 1999		
	% poor to total households	% poor to total poor	% of population	% poor to total households	% poor to total poor	% of population
Sector of household's income source						
Agriculture	19.10	70.97	52.16	23.55	61.81	50.45
Mining and quarrying	3.28	0.32	1.35	12.64	0.75	1.14
Manufacturing Industry	13.16	4.03	4.30	14.85	3.92	5.07
Electricity, gas and water	0.00	0.00	0.35	6.46	0.08	0.25
Construction	13.05	4.13	4.44	24.85	5.68	4.40
Trade, hotel and restaurant	8.44	7.96	13.23	12.42	9.63	14.90
Transportation and communication	10.96	4.01	5.13	24.66	7.35	5.73
Finance, insurance and leasing	2.49	0.09	0.53	9.99	0.27	0.52
Civil, social and private services	7.17	7.33	14.35	10.84	7.64	13.55
Others	9.13	0.13	0.21	35.37	0.41	0.22
Receiving transfer	3.66	1.03	3.95	12.54	2.46	3.77
Occupation status of household head						
Self employed without help	15.25	29.14	26.83	19.80	26.36	25.59
Self employed with unpaid workers	17.29	48.50	39.37	21.56	40.58	36.17
Wage employee	8.75	15.80	25.35	16.83	25.98	29.67
Unpaid workers or not working	10.88	6.56	8.46	15.89	7.09	8.58

Appendix 7. ...continued
Sumatra

Description	February 1996			February 1999		
	% poor to total households	% poor to total poor	% of population	% poor to total households	% poor to total poor	% of population
Gender of household head						
Male	14.10	92.54	92.10	19.55	93.10	91.53
Female	13.25	7.46	7.90	15.64	6.90	8.47
Widowhood status of household head						
Non-widow	14.08	94.91	94.60	19.44	94.63	93.57
Widow	13.24	5.09	5.40	16.05	5.37	6.43
Education level of household head						
Not completed primary and illiterate	24.92	12.57	7.08	25.05	6.85	5.26
Not completed primary but literate	19.08	36.97	27.20	25.90	32.19	23.89
Completed primary	15.37	34.91	31.88	21.43	37.69	33.81
Completed junior secondary	10.21	10.62	14.59	16.93	13.74	15.60
Completed senior secondary	4.08	4.60	15.82	10.08	9.20	17.55
Completed tertiary	1.37	0.34	3.44	1.63	0.33	3.90

Appendix 7. ...continued

Kalimantan

Description	February 1996			February 1999		
	% poor to total households	% poor to total poor	% of population	% poor to total households	% poor to total poor	% of population
Sector of household's income source						
Agriculture	20.74	70.72	47.32	31.30	71.44	45.39
Mining and quarrying	12.88	2.30	2.48	12.34	1.68	2.71
Manufacturing Industry	9.64	5.53	7.95	17.28	6.52	7.50
Electricity, gas and water	7.57	0.18	0.33	6.76	0.07	0.21
Construction	13.72	5.34	5.40	12.78	2.93	4.56
Trade, hotel and restaurant	6.70	5.70	11.81	9.49	6.60	13.83
Transportation and communication	8.53	2.93	4.77	12.35	3.27	5.26
Finance, insurance and leasing	6.29	0.38	0.83	5.90	0.21	0.71
Civil, social and private services	4.66	5.38	16.03	6.58	5.39	16.29
Others	16.71	0.13	0.10	26.67	0.51	0.38
Receiving transfer	6.59	1.41	2.98	8.67	1.38	3.17
Occupation status of household head						
Self employed without help	13.41	23.84	24.65	21.03	28.91	27.32
Self employed with unpaid workers	18.60	53.19	39.67	27.85	49.55	35.36
Wage employee	7.43	15.06	28.13	10.79	16.09	29.64
Unpaid workers or not working	14.54	7.92	7.55	14.13	5.45	7.67

Appendix 7. ...continued
Kalimantan

Description	February 1996			February 1999		
	% poor to total households	% poor to total poor	% of population	% poor to total households	% poor to total poor	% of population
Gender of household head						
Male	13.90	92.54	93.75	20.27	94.97	93.10
Female	13.46	7.46	6.25	14.49	5.03	6.90
Widowhood status of household head						
Non-widow	13.84	95.80	96.06	20.15	96.63	95.29
Widow	14.76	4.20	3.94	14.24	3.37	4.71
Education level of household head						
Not completed primary and illiterate	25.10	19.33	10.68	32.38	13.11	8.05
Not completed primary but literate	18.89	43.54	31.98	28.00	41.21	29.25
Completed primary	12.99	27.22	29.07	21.04	30.07	28.41
Completed junior secondary	8.96	6.78	10.49	18.05	11.50	12.66
Completed senior secondary	2.58	2.65	14.25	4.53	3.92	17.17
Completed tertiary	1.88	0.48	3.53	0.84	0.19	4.46

Appendix 7. ...continued

Sulawesi

Description	February 1996			February 1999		
	% poor to total households	% poor to total poor	% of population	% poor to total households	% poor to total poor	% of population
Sector of household's income source						
Agriculture	33.15	73.79	49.49	29.96	67.76	50.65
Mining and quarrying	13.29	0.72	1.21	15.50	0.65	0.94
Manufacturing Industry	23.08	4.13	3.98	16.50	3.20	4.34
Electricity, gas and water	13.41	0.22	0.37	19.66	0.13	0.15
Construction	18.18	3.03	3.70	31.54	4.65	3.30
Trade, hotel and restaurant	11.89	6.89	12.88	17.73	9.52	12.03
Transportation and communication	19.26	3.91	4.51	27.86	5.33	4.28
Finance, insurance and leasing	0.00	0	0.43	4.61	0.10	0.50
Civil, social and private services	6.47	5.44	18.69	7.49	5.87	17.55
Others	32.62	0.26	0.18	3.29	0.04	0.27
Receiving transfer	7.92	1.92	4.56	10.22	2.74	6.00
Occupation status of household head						
Self employed without help	26.13	34.81	29.62	27.96	34.69	27.82
Self employed with unpaid workers	28.64	47.10	36.58	25.94	41.96	36.27
Wage employee	9.32	9.83	23.47	13.85	15.38	24.91
Unpaid workers or not working	17.76	8.26	10.34	16.23	7.97	11.01

Appendix 7. ...continued
Sulawesi

Description	February 1996			February 1999		
	% poor to total households	% poor to total poor	% of population	% poor to total households	% poor to total poor	% of population
Gender of household head						
Male	22.25	90.87	90.83	22.68	90.66	89.64
Female	22.13	9.13	9.17	20.20	9.34	10.36
Widowhood status of household head						
Non-widow	21.97	93.12	94.24	22.64	94.28	93.35
Widow	26.54	6.88	5.76	19.29	5.72	6.65
Education level of household head						
Not completed primary and illiterate	38.01	26.44	14.42	35.60	20.70	13.04
Not completed primary but literate	28.31	31.01	24.36	32.50	36.26	25.02
Completed primary	23.92	29.65	27.56	23.36	25.96	24.92
Completed junior secondary	14.51	7.25	11.11	16.97	8.60	11.36
Completed senior secondary	7.11	5.12	16.00	9.04	7.92	19.62
Completed tertiary	2.14	0.53	6.54	2.10	0.57	6.04

Appendix 7. ...continued

Other Islands

Description	February 1996			February 1999		
	% poor to total households	% poor to total poor	% of population	% poor to total households	% poor to total poor	% of population
Sector of household's income source						
Agriculture	47.26	76.72	60.31	56.42	77.89	58.82
Mining and quarrying	34.97	0.81	0.86	20.80	0.29	0.59
Manufacturing Industry	41.63	3.67	3.27	32.21	3.13	4.14
Electricity, gas and water	39.36	0.29	0.27	20.61	0.14	0.28
Construction	30.38	2.39	2.93	22.63	1.81	3.41
Trade, hotel and restaurant	24.13	6.29	9.68	21.43	4.89	9.72
Transportation and communication	25.03	1.98	2.94	23.69	1.94	3.49
Finance, insurance and leasing	4.24	0.03	0.25	6.67	0.08	0.50
Civil, social and private services	14.49	6.36	16.30	21.59	7.74	0.15
Others	0.00	0.00	0.00	0.00	0.00	0.00
Receiving transfer	17.13	1.46	3.18	24.08	2.10	18.89
Occupation status of household head						
Self employed without help	40.52	22.36	20.51	43.80	21.90	21.31
Self employed with unpaid workers	42.56	55.66	48.60	50.51	53.35	45.01
Wage employee	20.43	11.89	21.63	28.41	17.05	25.58
Unpaid workers or not working	40.49	10.09	9.26	40.44	7.69	8.11

Appendix 7. ...continued
Other Islands

Description	February 1996			February 1999		
	% poor to total households	% poor to total poor	% of population	% poor to total households	% poor to total poor	% of population
Gender of household head						
Male	37.21	92.12	91.99	42.98	91.75	90.96
Female	36.57	7.88	8.01	38.90	8.25	9.04
Widowhood status of household head						
Non-widow	37.17	95.23	95.21	42.46	94.34	94.67
Widow	37.03	4.77	4.79	45.26	5.66	5.33
Education level of household head						
Not completed primary and illiterate	51.49	31.70	22.88	27.27	30.29	22.54
Not completed primary but literate	43.52	30.23	25.90	49.57	27.45	23.60
Completed primary	38.64	27.28	26.23	47.28	27.78	25.03
Completed junior secondary	28.54	6.51	8.47	30.91	6.63	9.14
Completed senior secondary	11.17	3.80	12.63	18.66	6.62	15.12
Completed tertiary	3.61	0.38	3.88	11.36	1.22	4.56

NOTES

1. Pradhan et al. (2000) proposed an iterative method for determining the reference population based on the initial reference population obtained from the conventional BPS method.
2. For further explanation of the *Susenas*, see Appendix 1.
3. In determining the reference population, the official (BPS) method estimates the expected threshold by adjusting the previous poverty line with inflation rates. For example, in urban areas with a poverty line of Rp 38,246 in 1996 and an inflation rate of almost 100 percent during 1996-1999, the expected poverty line in 1999 was around Rp 77,000. Using this expected poverty line, the reference population is then set by looking at the group or population with real expenditure per capita just above that “expected” poverty line laid between 80,000 and 100,000 (Sutanto and Avenzora 1999).
4. Social strata is represented by class of expenditure, when ranked from the lowest to the highest.
5. By calculating expenditure per capita computed from household expenditures and the number of household members, we are explicitly weighting each member equally. That is, we are not accounting for the different consumption needs based on age and sex. While it is feasible to apply equivalency scales, there is no consensus on how to weight household members. In addition, we have no information on the calorie requirements according to age and sex of Indonesian population.
6. Reference population in this paper pertains to the groups belonging in the second and third income deciles as mentioned in Appendix 2.
7. It may be worth noting that despite differences in the bundle across regions, there are only two or a maximum of three items among 52 items selected in the food bundle that differ across regions. In addition, the difference in the food bundle occurs only in some regions, while most regions have similar bundle.
8. In determining the non-food poverty line, the BPS method applies the cost of basic need (CBN) approach by selecting 27 commodities for urban areas and 26 commodities for rural areas. The data used for determining the non-food commodities were based on a special survey called *Survei Paket Komoditi Kebutuhan Dasar 1995 (the 1995 Survey of the Basic Needs Commodity Basket)* conducted in 27 provinces and covering 5,000 households. The criteria used for selecting the commodities in the non-food bundle are, among others, the expenditure share in each subgroup of non-food items and the number of households consuming the commodity (Sutanto and Avenzora 1999).
9. This estimate is exactly the same as the estimate of Pradhan et al. (2000) but with a difference between urban and rural figures.
10. Such coping mechanisms and survival strategies of the poor will be discussed further in the next section.
11. Evidence of poverty correlates from the *Kecamatan* survey supported the opposite finding (see Sumarto et al. 1999). Sumarto et al. (1999) found that only 6.5 percent of the urban *kecamatan*s rated unemployment as a priority problem, while over 20 percent of the rural *kecamatan*s have ranked it as a priority problem. Similarly, 3.5 percent of the respondents from urban *kecamatan*s have ranked food security as a priority problem as compared to 17 percent of the respondents in rural areas. Finally, they reported that one-fifth of the rural *kecamatan*s respondents rank the loss of income as a priority problem, while only 4.5 percent of the urban *kecamatan*s considered it so.

12. Frankenberg et al. (1999) provide three estimates of poverty rate using three different inflation rates in determining the poverty line. The figures used in this comparison are based on BPS inflation rates adjusted for IFLS prices.
13. The increase of transient poverty may be more than 14 percent in the aggregate because by August 1999, the country was still in crisis.
14. The results of these two studies cannot be fully compared due to different data sources and different methods. This comparison is based on the assumption that the change in poverty rate was a transient phenomenon. Near-poor, near non-poor and non-poor categories in the works of Skoufias et al. are grouped into the non-poor category.
15. Looking at the trends in inequality and poverty during the period before the crisis (see Irawan et al. 2000) shows that changes in inequality and poverty were in opposite directions, i.e., when poverty is falling, inequality is rising. This pattern was also seen in Vietnam between 1993 and 1998 (Haughton 2000).
16. In one study, Levinsohn et al. (1999) estimated that on the basis of regular *Susenas* data, the bottom 10 percent of households experienced a higher inflation rate than the top 10 percent of households during the crisis. Based on the *Susenas* data, food prices rose faster than the overall inflation rate. There was a substantial rise in the price of rice by 180 percent, while non-food items rose by 80 percent between February 1996 and February 1999. Given that the poor are net buyers of food, then it makes sense that the poor experienced a higher inflation rate than the rich.
17. Includes farmers.
18. Refers to persons (not in the labor force) who were engaged in household duties in their own homes or persons who helped in managing household chores without pay; e.g., housewives and their children who are doing household chores. But a servant who is paid to do household work is considered as working.
19. This evidence also suggests that the rural areas were more affected than their urban counterpart.

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CHAPTER SIX

China's Growth and Poverty Reduction: Recent Trends Between 1990 and 1999

*Shaohua Chen and Yan Wang**

INTRODUCTION

China's record of economic growth and poverty reduction has been extraordinary in the 1980s and 1990s. In the two decades since the advent of the economic reform, the economy has grown more than fivefold, the average income per capita has quadrupled, and 270 million Chinese have been lifted out of absolute poverty.¹ Elsewhere, in contrast, the record of poverty reduction has been disappointing. Using World Bank's one-dollar-a-day poverty line (in 1993 purchasing power parity [PPP] term) and excluding China, at least 100 million more people are living in poverty today than a decade ago. Including China, the total number of poor people remained about the same in 1998 as in 1987, although the proportion of poor in the population decreased from 28 to 24 percent.²

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What makes the huge difference between China's record and the rest of the world? What are the sources of China's growth and the accompanying reduction in absolute poverty? To what extent has China's growth benefited the poor, and under what conditions? These questions have been the focus of many studies and the subject of many debates. This paper attempts to contribute to the current debate by: first, investigating the recent trends in poverty and inequality since 1990, distinguishing between the pre-crisis and the post-crisis periods; second, decomposing poverty reduction due to growth and the changes in income distribution; third, finding out who has benefited most from China's remarkable economic growth; and fourth, examining the relationship among human capital, growth and poverty reduction based on our past studies thereby assessing the impact of various pro-growth factors.

There is an ongoing debate on what type of growth is pro-poor, to what extent do the poor benefit from economic growth and under what conditions.³ On the one hand, some studies have found that there is an almost one-to-one relationship between average growth and the income growth of the poorest 20 percentile, assuming constant inequality (Dollar and Kraay 2000). On the other hand, countries with similar incomes and growth over the past three decades have achieved widely differing outcomes in education and health improvement as well as in environmental protection (Easterly 1999; Thomas et al. 2000).

The impact of growth on poverty has also varied enormously. Among India's 15 major states, Ravallion and Datt (1999) found that poverty reduction due to growth was three to four times more in some states than in others. Using data between 1960 and 1994, they found that the poverty-reducing impact of growth varied according to initial conditions, i.e., growth contributed less to poverty reduction in states with initially lower literacy rates, farm productivity and rural standard of living relative to urban areas.

To contribute to this important debate, we will decompose China's poverty reduction into two parts in this paper: a part due to economic growth and another part due to changes in inequality. Then, we will investigate whether everyone benefits at the same rate from the economic growth. Later, we will look at the determinants of China's growth using a

simple growth accounting framework that links factors such as human capital and its contribution to poverty reduction. Given our lack of access to household-level data, we can only do a preliminary analysis of the issue at hand, i.e., the condition in which growth is pro-poor. We will continue this effort in the following years.

In the next section, we will investigate the trends in poverty and inequality in China, distinguishing between the pre-crisis (1990-1996) and post-crisis (1997-1999) periods. Although China weathered the financial storm well, there is evidence that the crisis severely affected the poor. Then, we will decompose poverty reduction into two parts and will look at income growth rates by various income groups. In the penultimate section, we will examine the relationship among human capital, growth and poverty reduction, drawing from our recent papers on the sources of growth and incorporating a new measure of human capital (Wang and Yao 2001). By constructing a measure of human capital stock and by looking into the distribution of human capital, we will see if there are any regional disparities. We will summarize our findings in the last section.

RECENT TRENDS IN POVERTY AND INEQUALITY

Previous studies have examined China's progress in poverty and income distribution.⁴ In almost all of these studies, there is a consensus that although about 270 million people have been lifted out of poverty since the reforms started in 1978, the benefits of growth are still unevenly distributed. Inequality in income and consumption has worsened especially in recent years. The Gini coefficient, a low 28.8 in 1981, reached 41.5 in 1995, a level similar to that of the United States. The rural-urban divide is increasing, regional disparities are widening, and access to opportunities is becoming less equal (World Bank 1997b).

In this section, we will employ the standard methodology of examining trends in poverty and income distribution in China as described in Ravallion (1992). China's urban and rural household surveys cover more than 100,000 households. Unfortunately, we do not have access to the latest data at the household level. Hence, we will use group income/consump-

tion distribution data from rural and urban household surveys in 1990-1999 to generate parametric Lorenz functions. Then we will estimate the poverty measures and Gini index. (See Chen et al. 1991 and Datt 1991 for methodology.)

Poverty Trends

We will first calculate the headcount index over time. The headcount index of poverty is given by the proportion of the population for whom consumption (or another suitable measure of living standard) y is less than the poverty line z . We use consumption expenditure as the welfare indicator and all the poverty measures given are consumption based. However, since we do not have the complete time series data of consumption expenditure distribution for both rural and urban areas from 1990 to 1999, we have to rely on the income distribution data to compare poverty over time. As discussed in Chen and Ravallion (2000), we should adjust the income Lorenz curve by replacing the overall mean per capita income with the mean consumption from the same survey. In general, an income distribution has higher inequality than a consumption distribution; in China, however, it is the opposite: the consumption Gini is higher than the income Gini (see Table A4 in Appendix 1). This is because China's household survey records housing and other durable goods expenditure as one-time consumption rather than as long-term consumption. Correcting the recording method would cause the Gini index to fall (see Chen and Ravallion 1996). One could find from Table A3 in Appendix 1 that there is no basis for this adjustment on the poverty trend.

Looking at the rural, urban and national headcount indexes from 1990 to 1999 using various poverty lines (Table 1; see Table A1 for the headcount index in available years based on the consumption expenditures.), we found the following:

- First, poverty incidence dropped significantly during 1990-1999. Using a lower poverty line of \$0.75 per day (a little higher than the official poverty line), the headcount index decreased from 17.1 to 8.9 percent. Using the World Bank international poverty line of \$1 per day, the headcount index decreased from 31.5 to 17.4 percent, meaning 142 million people were lifted out of poverty.

- Second, between 1990 and 1993, poverty changes were insignificant if using lower poverty lines, and more significant if using higher poverty lines. This is consistent with the significant increase in inequality during the same period (see next section on Gini index).
- Third, poverty reduction was more significant during 1993-1996, especially in the rural areas, which could be attributed to the increase in the price of agricultural products by 75 percent especially grains as imposed by the Chinese government. The official purchasing prices of grains have doubled during 1993-1996. As one study has shown (World Bank 1997a), the share of grains income declined from the poor to the rich so any increase in the price of grains benefited mostly the poor and the near-poor (around \$0.75 to \$1 per day poverty lines) and the middle-income group.
- Fourth, poverty incidence rose quite significantly in 1998 and 1999 after the full impact of the Asian financial crisis was felt. Although China was able to weather the financial storm, the economic slowdown hurt the poor. Using a lower poverty line (\$0.75 per day), the incidence of poverty rose from 8.4 to 8.9 percent. Using a higher poverty line, poverty incidence rose from 17.0 to 17.4 percent. Poverty did not increase when a poverty line higher than \$1.5 per day was used, indicating that the economic slowdown indeed affected the most vulnerable people at the bottom of the income distribution.

As is well known, the poverty headcount index is insensitive to differences in the depth of poverty. If the poor have suddenly become poorer during a crisis, the headcount index will not change. Therefore, we have to go further by examining the poverty gap measure. The poverty gap, which is based on the aggregate poverty deficit of the poor relative to the poverty line, can provide a good picture of the depth of poverty since it reflects the average distance of the poor's income from the poverty line (Ravallion 1992).

As with the headcount index, we found that the poverty gap index improved from 1990 to 1999.

Table 1. Trend in Poverty Headcount: Rural, Urban and National 1990-1999

Rural headcount index (based on income distribution)									
Poverty									
Line	1990	1992	1993	1994	1995	1996	1997	1998	1999
z/day									
0.50	7.1	7.1	7.7	7.4	6.2	3.4	4.1	3.7	4.0
0.75	23.3	23.3	22.9	20.6	17.6	11.9	12.4	12.0	12.7
1.00	42.5	40.6	40.6	34.6	30.8	24.1	24.0	24.1	24.9
1.25	60.3	57.6	56.4	50.2	44.7	37.1	36.6	37.2	37.7
1.50	73.4	70.8	68.9	63.9	57.4	49.2	48.4	49.4	49.6
1.75	82.1	79.8	78.0	74.3	67.8	59.9	59.0	60.1	60.0
2.00	87.6	85.7	84.4	80.3	75.8	68.7	67.9	69.0	68.7
2.25	91.1	89.6	88.7	85.6	81.6	75.9	75.2	76.2	75.7
2.50	93.5	92.2	91.7	89.4	85.8	81.5	80.9	82.0	81.2
Urban headcount index (based on income distribution)									
z/day	1990	1992	1993	1994	1995	1996	1997	1998	1999
0.50	0	0	0	0	0	0	0	0	0
0.75	0	0	0.3	0.3	0.3	0.2	0.2	0.0	0.2
1.00	1.0	0.8	0.7	0.9	0.6	0.5	0.5	1.0	0.5
1.25	4.3	1.8	1.8	2.1	1.4	1.1	1.2	1.9	1.1
1.50	8.6	3.9	4.2	4.6	3.0	2.6	2.7	3.4	2.2
1.75	14.0	7.6	8.2	8.5	5.8	5.4	5.4	5.8	4.1
2.00	20.7	13.2	13.8	13.5	9.7	9.3	9.1	9.0	6.8
2.25	28.7	20.3	20.2	19.1	14.6	14.2	13.7	12.9	10.3
2.50	37.8	28.4	27.1	25.1	20.1	19.6	18.8	17.4	14.3
National headcount index (based on income distribution)									
z/day	1990	1992	1993	1994	1995	1996	1997	1998	1999
0.50	5.2	5.1	5.5	5.3	4.4	2.4	2.9	2.6	2.8
0.75	17.2	16.8	16.6	14.8	12.6	8.4	8.7	8.4	8.9
1.00	31.5	29.6	29.4	25.0	22.0	17.2	17.0	17.1	17.4
1.25	45.5	42.2	41.1	36.4	32.1	26.5	26.0	26.4	26.4
1.50	56.3	52.3	50.7	47.0	41.6	35.5	34.8	35.4	35.0
1.75	64.1	59.9	58.4	55.5	49.8	43.8	42.9	43.6	42.7
2.00	69.9	65.7	64.5	61.2	56.6	51.3	50.3	50.7	49.6
2.25	74.7	70.5	69.4	66.6	62.1	57.8	56.8	56.9	55.5
2.50	78.8	74.5	73.5	71.0	66.7	63.3	62.3	62.3	60.5

Source: Authors' calculation.

Note: Since the World Bank's international poverty line is about \$1.08 a day in 1993 PPP term, \$1/day here is actually \$1.08/day; \$0.50/day is 0.5 *\$1.08/day and so on.

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- In terms of lower poverty lines (from \$0.75 to \$1 a day), the index rose slightly in 1990-1993, then declined sharply in 1993-1996, and rose again in 1996-1999. In terms of higher poverty lines, the poverty gap index declined in 1990-1993 as well as in 1993-1996.
- During the Asian financial crisis, the poverty gap index rose for all poverty lines between 1996 and 1999.
- Based on our estimates of the poverty gap, China will need RMB 101 billion yuan at 1999 prices to lift the poor above the absolute poverty line (\$0.75 per day). Similarly, it will cost RMB 854 billion yuan to lift the poor above the \$1-per-day poverty line.

See Appendix 1 for the tables on poverty gap.

Changes in Inequality

We will investigate the changes in income inequality in this subsection. The Gini index has been widely used to measure inequalities in income and wealth, including land. It can also be used to measure inequalities in educational attainment, a point which will be discussed later.

Income disparities in China come largely from two sources: income gaps between rural and urban sectors and income gaps between coastal and inland regions. We will first calculate the Gini indexes for both rural and urban areas. Then, we will calculate the national level Gini indexes using three different assumptions on the cost of living difference (CLD) between rural and urban areas: (1) CLD = 0 or there is no difference in the cost of living between rural and urban areas; (2) CLD = 10% or the cost of living in the urban areas is 10 percent higher than in the rural areas; and (3) CLD = 20% or the cost of living in the urban areas is 20 percent higher than in the rural areas.

Based on our calculations, we found that:

- First, during the period from 1990 to 1999, there was a significant worsening of both rural and urban income distributions. The rural Gini index rose by 4.04 percentage points, while the urban Gini rose by even more, i.e., over 6 percentage points.

- On the national level, assuming no difference between rural and urban cost of living (CLD = 0), the national income distribution worsened more significantly, with the Gini index rising from 34.84 to 41.64, or by 6.8 percentage points.
- Income inequality worsened significantly in the early 1990s. Between 1990 and 1994, it peaked at 43.34 percent in 1994 (CLD = 10%). It declined between 1995 and 1997 when the economy started to slow down. During the Asian financial crisis, inequality remained rather stable, with only a small rise in 1999. This trend is consistent with what happened in other East Asian countries.
- Assuming a significant difference in the cost of living between urban and rural areas (CLD = 20%), the changes in national income distribution were less dramatic, from 32.14 to 38.59 percent, or a rise of 6.45 percentage points. Nonetheless, there was still a significant worsening in income distribution.
- In summary, the trend in the change of inequality remains the same no matter what assumption we make in the CLD. However, the calculated level of inequality is lower by 1 to 2 percentage points when we incorporate a higher CLD. Furthermore, had we considered the CLD between coastal/inland regions, that would have brought the Gini index down further. For details, see Chen and Ravallion (1996). See Table 2 for Gini indexes for income distribution and Table A4 of Appendix 1 for consumption distribution.

Impact of Asian crisis on consumption

To see the impact of the Asian financial crisis on China's poor, we will examine the pattern of consumption expenditure over time. Since the crisis hit China in 1997, the consumption expenditures in the rural areas have slightly declined. The real average per capita consumption expenditure for the farmers dropped by 1 percent in 1998—the first negative growth in consumption since the economic reform.

The changes in rural per capita consumption during 1996-1999 at the provincial level are given in Table A5 of Appendix 2 while the poverty incidences for 1996 by province are presented in Table A6. Comparing these two tables, one could easily find that rural per capita consumption dropped significantly for some provinces with high poverty incidence such

Table 2. Gini Index of Income Distribution: Rural, Urban and National, 1990-1999

Gini index (%) of income distributions					
	Rural Gini	Urban Gini	National Gini		
			CLD=0	CLD=10%	CLD=20%
1990	29.87	23.42	34.84	33.34	32.14
1992	32.03	24.18	38.98	37.23	35.81
1993	33.70	27.18	41.96	40.18	38.71
1994	34.00	29.22	43.34	41.46	39.90
1995	33.98	28.27	41.51	39.84	38.46
1996	32.98	28.52	39.80	38.16	36.84
1997	33.12	29.35	39.79	38.21	36.92
1998	33.07	29.94	40.30	38.70	37.39
1999	33.91	29.71	41.64	39.97	38.59

Note: CLD is cost of living difference between rural and urban areas.

Source: Authors' calculation based on group data from household surveys. See Table A4 in Appendix 1 for Gini index of consumption expenditure.

as Gansu, Heilongjiang, Shanxi and Xinjiang. As a consequence, rural poverty also increased during the same period.

Township-village-enterprises (TVEs) in rural China have been growing dramatically since 1978. In 1996, their export accounted for more than a third of China's total export. However, when the financial crisis hit East Asia and consequently reduced the demand for China's export, TVEs were hurt the most. By end of 1997, the total number of TVEs was reduced by more than half and the total number of employees dropped by more than 40 percent. As a direct result, rural consumption declined in the following years.

In summary, the financial crisis in East Asia led to a slowdown in China's export and economic growth between 1997 and 1999, which in turn adversely affected the poor. There was an increase in the poverty headcount using lower poverty lines and a worsening of poverty gap index. The real average per capita consumption of the farmers especially those in the poor regions declined. Income inequality, however, remained relatively stable during the crisis. In contrast, it worsened more significantly in the early 1990s.

DECOMPOSING POVERTY REDUCTION

So far, we have seen the changes in poverty and inequality over time. The question, therefore, that remains unanswered is: how much did the poor benefit from the economic growth? To examine this issue, we will decompose poverty reduction into two parts: one due to growth and another due to changes in income distribution. Following the methods discussed in Ravallion (1992), we will denote poverty headcount as a function of mean income and distribution at time t , $P(z/\mu_t, L_t)$, where μ is mean consumption given poverty line z and L is the Lorenz curve or income/expenditure distribution at time t . The decomposition equation can be written as,

$$P(z/\mu_2, L_2) - P(z/\mu_1, L_1) = [P(z/\mu_2, L_1) - P(z/\mu_1, L_1)] + [P(z/\mu_1, L_2) - P(z/\mu_1, L_1)] + r$$

The left side of the equation is the poverty reduction between periods 1 and 2. The right side of the equation, meanwhile, has three parts. The first part is the growth component, assuming income distribution L_1 remains constant; the second part is the redistribution component keeping mean consumption μ_1 constant; and the third part is the residual (r).

Based on the results of our poverty decomposition exercise using various poverty lines and differentiating by rural and urban sectors and different time periods (Table 3), we found that:

- First, growth played a positive and significant role in poverty reduction. This is true for both rural and urban sectors, and for all poverty lines and periods.
- The worsening of inequality in income distribution adversely affected the poor for the entire period, increasing poverty level by 3.36 percent in the rural areas based on a \$1-per-day poverty line. Dividing the entire period into three subperiods, we found that:

- * Between 1990 and 1993, there was a significant worsening of income distribution that led to a bigger contribution of the redistribution component: poverty increased by 5.45 percent across all poverty lines.

Table 3. Decomposition of Poverty Reduction by Different Poverty Lines, 1990-1999

		Actual poverty reduction	Growth component \$1/day	Redistribution component	Actual poverty reduction	Growth component \$1.5/day	Redistribution component	Actual poverty reduction	Growth component \$2/day	Redistribution component
1990-93	Rural	-1.87	-5.84	5.45	-4.57	-5.32	4.83	-3.24	-3	3.02
	Urban	-0.24	-0.15	1.06	-4.41	-4.95	6.51	-6.96	-9.98	13.13
1993-96	Rural	-16.52	-16.59	-0.74	-19.64	-18.48	-1.48	-15.62	-14.16	-0.82
	Urban	-0.25	-0.3	0.13	-1.54	-2.14	1.23	-4.44	-6.26	2.28
1996-99	Rural	0.8	-0.22	1.02	0.4	-0.29	0.69	0	-0.27	0.26
	Urban	0.03	-0.19	0.35	-0.48	-1.33	1.39	-2.5	-4.38	2.2
1990-99	Rural	-17.59	-22.39	3.36	-23.81	-26.52	-0.94	-18.86	-18.3	-0.96
	Urban	-0.46	-0.95	2.61	-6.43	-7.54	6.46	-13.9	-17.43	9.77

Note: A negative number indicates poverty reduction; a positive number indicates poverty increase.

Source: Authors' calculation.

- * The period between 1993 and 1996 was the best period for poverty reduction as well as distribution. For rural areas, the redistribution contributed positively to poverty reduction (as indicated by the negative sign) for all poverty lines.
- * Between 1996 and 1999, there was an increase in the poverty headcount in both rural and urban areas. During the Asian crisis, growth slowed down and its contribution to poverty reduction was weak. The redistribution component contributed to an increase in poverty for all poverty lines.
- For urban areas, the redistribution component led to an increase in poverty across all periods and different poverty lines. For rural areas, the effect varied from one period to another: positive in period 1, negative in period 2, and positive in period 3.

Who Benefited Most From China's Economic Growth?

If we have data at the household level, it will be very easy to calculate the income growth rates across different income groups. Nevertheless, it is still possible to do that using grouped distributions. Let $L()$ represent the ordinary Lorenz curve, thus $L(p)$ gives the income share of the poorest p percent of the population. Thus the average per capita income for the poorest $p\%$ is expressed as:

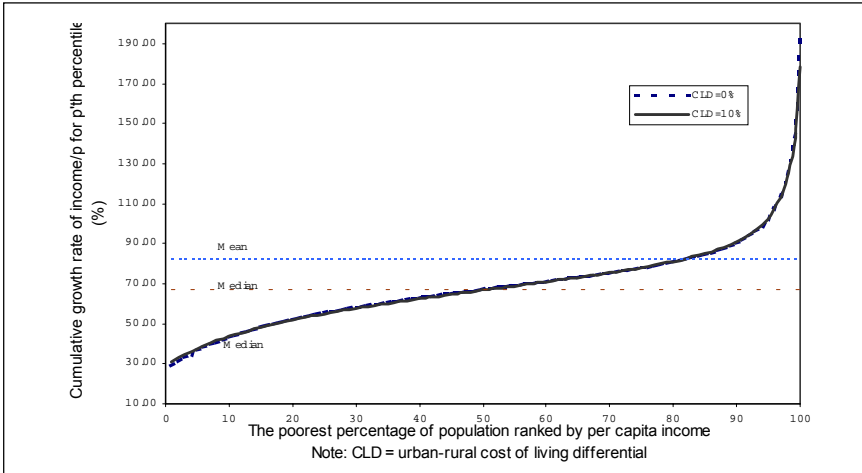
$$\text{Mean}(p) = L(p)/p * \text{overall mean}$$

From 1990 to 1999, the growth rate for the poorest p 'th percentile is given as:

$$r_p = [L_{1999}(p)/p * \text{overall mean in 1999}] / [L_{1990}(p)/p * \text{overall mean in 1990}] - 1$$

Here the overall means for 1990 and 1999 are in constant prices. As shown in Figure 1, the income of the rich grew much faster than the income of the poor during 1990-1999. The average annual income growth rate for the bottom 1 percent of the population was only 3 percent while it was 12 percent for the top 1 percent of the population. The income of the top 20 percent of the population grew annually at 6.9 percent while the income of

Figure 1. Income Growth Rates For Each Income Percentile, 1990-1999



Note: To calculate the growth rate for the p'th percentile, we first estimated the slope of the ordinary Lorenz curve by taking the first derivative of the Villaseñor-Arnold “General Elliptical” Lorenz function (Datt 1991) calibrated to 1990 and 1999 income distribution data. This satisfied the theoretical conditions for a valid Lorenz curve and the fit was exceptionally good. We estimated the slope at 99 points, to obtain growth rates by percentile. We did two versions here, one assuming no difference in the cost of living between rural and urban areas (CLD = 0) and another assuming a 10 percent difference (CLD = 10%). The graph has been smoothed based on 99 points.

Source: Authors’ calculation.

the bottom half of the population grew at only 4.9 percent per year. The allowance for urban-rural cost of living difference (CLD = 0 or 10%) made little difference.

Human Capital, Growth and Poverty Reduction⁵

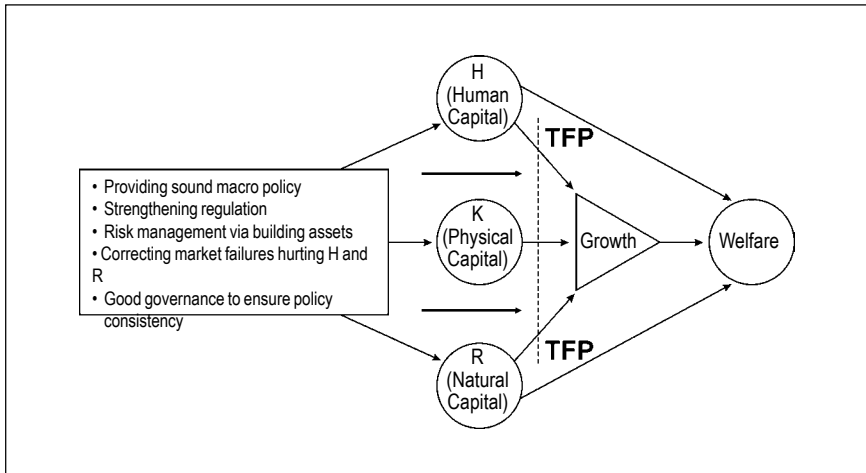
Human capital is the poor’s main asset. Investing in the poor’s human capital is a powerful way to augment their assets, redress asset inequality and reduce poverty. Therefore, in this section, we will examine the relationship among human capital, growth, and poverty reduction. We will focus our discussion on human capital accumulation and its distribution, as well as its relation to economic growth and poverty reduction.

A simple framework for policy discussion is presented in Figure 2. Broadly speaking, a country has at least three types of assets that are important for production and welfare: physical capital, human capital, and natural capital. The technological progress and the policy environment affecting the use of these assets are likewise important. For accelerating growth rates, traditionally, more attention is being given to physical capital accumulation. However, for poverty reduction, the other key assets—human (and social) capital and natural (and environmental) capital—also deserve attention.

Physical capital contributes to welfare through economic growth. Human (and social) capital and natural (and environmental) capital not only contribute to growth; they are also direct components of welfare. Human capital and natural capital also help in increasing investment returns, thereby attracting more foreign capital and making investment more productive. In addition, investments in physical, human and natural capital, together with policy reforms, contribute to technological progress and to the growth of total factor productivity (TFP), which boosts economic growth.

For the purpose of poverty reduction, augmenting the poor’s human capital is crucial because it is the poor’s main asset. However, there are

Figure 2. A Framework for Equitable and Sustainable Growth



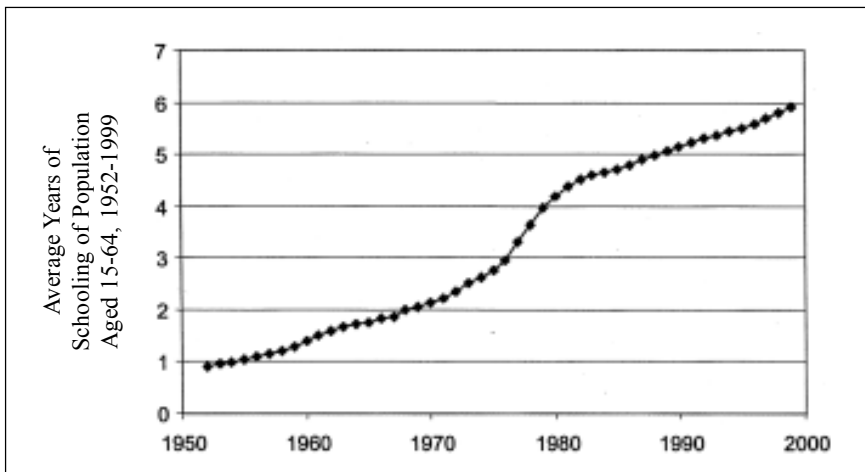
Source: Revised based on Thomas et al. (2000).

confounding data on the unequal distribution of human capital among developing countries. Thomas et al. (2001) estimated the education Gini index for 85 countries and found significant differences in the distribution of schooling, with the Gini index ranging from 90 percent in Mali to 15 percent in Korea. Korea had the fastest expansion in education coverage and the fastest decline in the education Gini index, from 51 to 15 percent in 25 years. India's education Gini declined only moderately, from 80 percent in 1970 to 69 percent in 1990.

What has been the trend for China's human capital accumulation and its distribution? And how does it relate to economic growth and poverty reduction? Past studies have used enrollment rates to measure China's human capital but that approach is problematic. In many growth accounting exercises on China, human capital was completely ignored. Recently, we constructed a unique measure of China's human capital, and used it in a new growth accounting exercise. The following results emerged from our analysis.

First, using the perpetual inventory method of Barro and Lee (1997), we constructed the average years of schooling attained by population aged 15 to 64.⁶ The human capital stock series we constructed over the period 1952-1999 is shown in Figure 3. We found a rapid accumulation of human

Figure 3. Accumulation of Human Capital in China, 1952-1999



Source: Wang and Yao (2001).

capital in the working population. The sharp increase of the human capital stock for the period 1976-1980 perhaps reflects the recovery to a normal education system from a distorted one during 1966-1976 caused by the Cultural Revolution. However, human capital accumulation slowed down in the reform period since 1978, i.e., annual growth rates declined from 5.3 percent before the reform to 2.7 percent after the reform.

Second, using a simple growth accounting framework incorporating human capital (see methodology in Appendix 3), we found that human capital contributed positively and significantly to economic growth, in both the pre-reform and reform periods. Keeping other factors constant, human capital accumulation accounted for 32.8 percent of the growth in the pre-reform period, and 13.8 percent of the growth in the reform period

Table 4. Sources of Economic Growth (in percent)

	Pre-reform Period (1953-1977) Labor Share=0.40	Reform Period (1978-1999) Labor Share=0.50
<i>Average Annual Growth Rate (%)</i>		
Output	6.46	9.72
Physical Capital Stock	6.11	9.39
Labor Quantity	2.63	2.73
Human Capital Stock	5.30	2.69
TFP	-0.57	2.32
<i>Contribution to GDP growth by factor</i>		
Contribution of physical capital ^a	56.8	48.3
Contribution of labor quantity ^a	16.3	14.0
Contribution of human capital ^a	32.8	13.8
Contribution of productivity growth ^b	-5.9	23.9

Note: This table reports the growth decomposition corresponding to the equation on page 10.

a. Ratio of input growth weighted by the corresponding factor income share, to GDP growth.

b. Ratio of TFP growth to GDP growth.

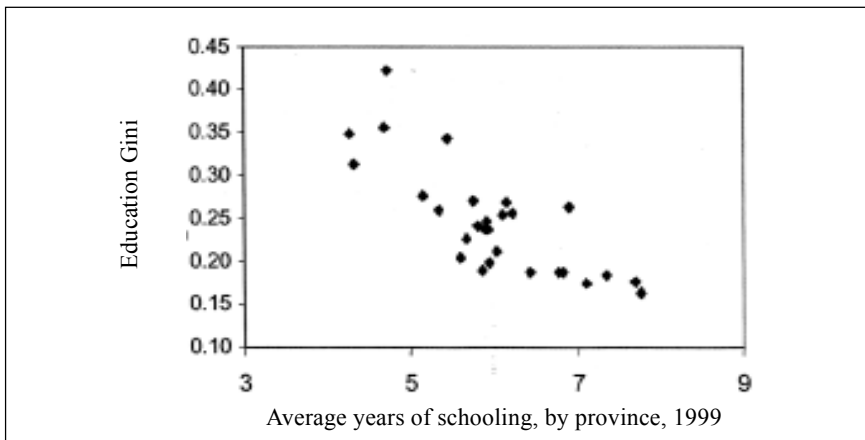
Source: Wang and Yao (2001).

(Table 4). This implies that during the pre-reform period when the economy was closed and policies were distorted, the accumulation of human capital (and physical capital) played a more important role in boosting economic growth than the growth in TFP. In contrast, during the reform period, the growth in TFP played a more important role than the accumulation of human capital.

Third, TFP grew rapidly only in the reform period. In the pre-reform period, TFP growth was negative, confirming the fact that the growth was entirely due to factor accumulation with no productivity improvement. After the reform, the institutional changes in the rural and urban sectors, the opening of the economy to international trade and foreign capital flows led to efficiency gains due to improved incentives, rational prices, new technological progress, and the less distorted policy environment. These factors had been conducive to growth as well as to poverty reduction.

Fourth, there is a huge regional disparity in human capital stock, and the distribution of education is increasingly skewed. This is a matter of concern that needs further investigation. As shown in Figure 4, the average years of schooling among Chinese provinces range from 3.5 year to 8 or 9 years, and the distribution of education measured by the Gini index ranges from a very equal 0.15 to a less equal 0.45. This figure excludes a few provinces such as Hainan and Tibet due to lack of data. The dispersion

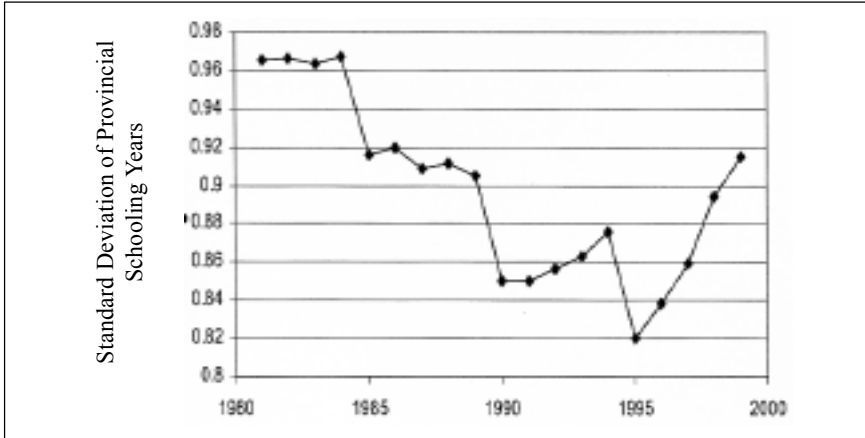
Figure 4. Regional Disparities in Education and Its Distribution



Source: Wang and Yao (2001)

would be larger if these provinces were included. In the standard deviation on the average years of schooling across provinces given in Figure 5, we can see that the standard deviation increased sharply after 1995, and continued to increase in the next years. This suggests that regional disparity is not being reduced but continues to widen.

Figure 5. Dispersion of Human Capital by Province



The unequal distribution of human capital represents a huge loss in social welfare. Assuming normal distribution of ability, this suggests that the distribution of educational opportunities is more skewed than the distribution of ability. Society suffers from an undeveloped human capital and an underutilized potential human capital. This would have a direct negative impact on growth and social welfare. According to econometric analysis using household survey data, real income per capita is positively and significantly related to all levels of education. Thus, a lower level of school attainment will hurt the poor and will negatively impact on their opportunity to be lifted out of poverty (Ravallion and Chen 1998).

Probable reasons for the widening regional inequality in educational opportunities range from lower income and lower demand for schooling (demand side factors) to insufficient fiscal transfers to the poor regions (supply side factors). Whatever the reason is, this issue should be addressed immediately if China wants to reduce poverty and inequality.

CONCLUSION

We investigated in this paper the recent trends in poverty and income distribution in China since the 1990s, distinguishing between the pre-crisis and post-crisis periods. To contribute to the recent debate, we also attempted to decompose poverty reduction into two parts, one attributable to growth and the other attributable to inequality. Then, we investigated the issue of how much the poor benefited from economic growth.

First, we found that despite past progress, the financial crisis in East Asia adversely affected China's poor. Using lower poverty lines, we found that the poverty headcount increased during the period 1997-1999 and the poverty gap index also worsened. The real average per capita consumption of the farmers declined, particularly for those living in the poor regions such as Gansu, Heilongjiang, Shanxi, and Xinjiang. Such phenomenon seems to be associated with the decline of employment in the TVEs due to the weak demand for China's export.

Second, during the period 1990-1999, there was a significant worsening of both rural and urban income distributions. During the Asian financial crisis, however, it has remained relatively stable.

Third, after decomposing poverty reduction into two parts, we found that economic growth contributed significantly to poverty reduction, while the rising inequality increased poverty, except in one period. Moreover, the poor benefited from the economic growth much less than the rich did.

Finally, we examined the relationship among human capital, growth, and poverty. We found that the accumulation of human capital slowed down during the reform period and contributed less to economic growth during the pre-reform period. There was a huge regional disparity in human capital stock, and the distribution of education was increasingly skewed. This is a matter of concern that should be further investigated, as human capital is the poor's main asset, and education is positively and significantly related to growth and poverty reduction. This issue should be immediately addressed if China wants to succeed in its efforts to reduce poverty and inequality.

APPENDICES

Appendix 1. Methodology and Poverty Gap

Table A1. Headcount Index Based on Consumption Expenditure, Available Years

Headcount index (based on expenditure distribution)												
Poverty Lines z/day	Rural					Urban				National		
	1990	1992	1996	1998	1999	1996	1997	1998	1999	1996	1998	1999
0.50	6.9	4.0	1.07	1.3	1.7	0.0	0.0	0.0	0.0	0.8	1.2	1.2
0.75	28.1	20.5	10.58	12.1	12.8	0.2	0.2	0.0	0.2	7.5	8.9	8.9
1.00	51.7	41.4	24.8	26.2	27.0	0.4	0.4	1.0	0.5	17.6	18.9	18.8
1.25	70.4	61.5	39.55	40.9	41.4	1.1	1.1	2.0	1.1	28.2	29.2	29.0
1.50	81.8	75.7	52.98	54.0	54.2	2.6	2.7	3.7	2.4	38.2	38.5	38.2
1.75	88.2	84.4	64.02	64.7	64.6	5.5	5.6	6.4	4.6	46.8	46.4	46.1
2.00	91.9	89.5	72.49	72.9	72.6	9.7	9.7	9.9	7.7	54.0	52.9	52.6
2.25	94.2	92.6	78.77	79.0	78.6	14.7	14.5	14.2	11.6	60.0	58.2	57.9
2.50	95.7	94.6	83.38	83.4	83.1	20.3	19.8	19.0	16.0	64.9	62.7	62.3

Table A2. Poverty Gap Index Based on Consumption Expenditure, Available Years

Poverty Gap index (based on expenditure distribution)

Poverty Lines z/day	Rural					Urban				National		
	1990	1992	1996	1998	1999	1996	1997	1998	1999	1996	1998	1999
0.50	1.1	0.6	0.146	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.2
0.75	6.433	4.315	1.746	2.073	2.327	0.1	0.1	0.0	0.1	1.2	1.4	1.6
1.00	14.8	10.9	5.444	5.9	6.3	0.1	0.1	0.4	0.1	3.9	4.2	4.4
1.25	24.2	19.1	10.799	11.5	11.9	0.2	0.2	0.6	0.3	7.7	8.2	8.3
1.50	32.9	27.4	16.738	17.5	17.9	0.5	0.5	1.0	0.5	12.0	12.5	12.6
1.75	40.4	35.0	22.735	23.5	23.9	1.0	1.0	1.5	0.9	16.3	16.8	16.8
2.00	46.6	41.5	28.45	29.2	29.5	1.8	1.8	2.3	1.6	20.6	21.0	20.9
2.25	51.8	47.0	33.71	34.4	34.7	2.9	3.0	3.4	2.5	24.7	25.0	24.7
2.50	56.1	51.7	38.458	39.1	39.3	4.4	4.4	4.7	3.6	28.5	28.7	28.3

Table A3. Poverty Gap Index Based on Income, 1990-1999

Rural poverty gap index (based on income distribution)									
z/day	1990	1992	1993	1994	1995	1996	1997	1998	1999
0.50	1.4	1.6	2.1	2.2	1.7	0.9	1.3	1.1	1.2
0.75	5.7	6.0	6.4	6.0	5.0	3.0	3.5	3.2	3.5
1.00	12.4	12.3	12.7	11.4	9.5	6.7	7.1	6.9	7.3
1.25	20.3	19.7	19.9	17.6	15.1	11.5	11.8	11.6	12.1
1.50	28.1	27.2	27.1	24.2	21.1	16.8	16.9	16.9	17.4
1.75	35.3	34.1	33.8	30.7	27.1	22.2	22.2	22.3	22.7
2.00	41.5	40.2	39.7	36.6	32.7	27.5	27.3	27.6	28.0
2.25	46.8	45.5	44.9	41.7	37.8	32.5	32.3	32.6	32.9
2.50	51.4	50.1	49.5	46.3	42.4	37.1	36.9	37.5	37.5
Urban poverty gap index (based on income distribution)									
z/day	1990	1992	1993	1994	1995	1996	1997	1998	1999
0.50	0	0	0	0	0	0	0	0	0
0.75	0	0	0.1	0.1	0.1	0.1	0.1	0.0	0.1
1.00	0.0	0.3	0.2	0.2	0.2	0.1	0.2	0.4	0.2
1.25	0.5	0.5	0.4	0.5	0.3	0.3	0.3	0.6	0.3
1.50	1.5	0.9	0.8	0.9	0.6	0.5	0.6	0.9	0.5
1.75	2.9	1.5	1.6	1.7	1.2	1.0	1.0	1.4	0.9
2.00	4.7	2.6	2.7	2.9	2.0	1.8	1.8	2.2	1.4
2.25	6.9	4.2	4.3	4.4	3.1	2.9	2.9	3.1	2.2
2.50	9.5	6.2	6.2	6.1	4.5	4.3	4.2	4.3	3.2

Table A3. ...continued

National poverty gap index (based on income distribution)									
z/day	1990	1992	1993	1994	1995	1996	1997	1998	1999
0.50	1.0	1.2	1.5	1.6	1.2	0.7	0.9	0.8	0.8
0.75	4.2	4.3	4.6	4.3	3.6	2.2	2.5	2.2	2.4
1.00	9.2	9.0	9.2	8.2	6.8	4.8	5.0	4.9	5.1
1.25	15.1	14.4	14.4	12.7	10.8	8.2	8.3	8.3	8.4
1.50	21.1	19.9	19.7	17.5	15.2	12.0	12.0	12.1	12.1
1.75	26.7	25.1	24.7	22.4	19.6	16.0	15.9	16.0	16.0
2.00	31.8	29.8	29.3	26.9	23.8	19.9	19.7	19.9	19.8
2.25	36.3	34.1	33.5	31.0	27.7	23.8	23.5	23.7	23.4
2.50	40.3	37.9	37.3	34.8	31.4	27.5	27.1	27.4	26.9

Source: Authors' calculation

Table A4. Gini Index Based on Consumption Distributions,
Available Years

Gini index (%) of consumption distributions					
	Rural	Urban	National		
			CLD=0	CLD=10%	CLD=20%
1990	30.57				
1992	32.13				
1993					
1994					
1995					
1996	33.62	29.09			
1997		30.03			
1998	34.48	31.52	42.85	41.26	39.93
1999	35.39	31.55	44.50	42.87	41.49

Source: Authors' calculation. Blanks mean data not available.

Appendix 2. Rural Consumption and Poverty Incidence

Table A5. Changes in Per Capita Living Expenditure for Rural Households, 1996-1999

	1996-1999 (%)	1996-1997 (%)	1997-1998 (%)	1998-1999 (%)
Beijing	12.23	-0.29	4.21	8.02
Tianjin	-4.06	-6.73	5.54	-2.55
Hebei	-3.36	-3.57	-5.10	5.60
Shanxi	-10.76	-5.30	-6.36	0.63
Inner Mongolia	4.05	4.01	1.94	-1.87
Liaoning	-7.40	-0.58	-3.64	-3.35
Jilin	-12.00	3.48	-8.47	-7.10
Heilongjiang	-10.47	-2.92	-5.17	-2.75
Shanghai	-4.19	6.33	-0.50	-9.44
Jiangsu	-4.79	1.02	-5.12	-0.66
Zhejiang	4.02	2.92	2.54	-1.43
Anhui	0.90	1.37	-0.16	-0.30
Fujian	6.56	2.90	2.06	1.48
Jiangxi	3.22	-0.16	-2.94	6.52
Shandong	1.69	-3.89	-0.93	6.80

CHINA

Table A5. ...continued

	1996-1999 (%)	1996-1997 (%)	1997-1998 (%)	1998-1999 (%)
Henan	-1.51	1.36	0.54	-3.35
Hubei	-4.66	-2.08	3.40	-5.84
Hunan	5.37	2.00	3.94	-0.62
Guangdong	5.25	-0.20	4.49	0.93
Guangxi	8.72	-2.45	6.24	4.90
Hainan	3.77	-0.45	0.23	4.00
Chongqing	-0.10	n.a.	0.25	-0.36
Sichuan	2.14	1.63	0.52	-0.02
Guizhou	-2.45	-3.50	3.10	-1.95
Yunnan	-0.76	4.92	-1.52	-3.95
Tibet	-1.25			7.47
Shaanxi	4.10	6.48	-2.12	-0.12
Gansu	-10.66	-3.81	-2.69	-4.55
Qinghai	2.77	-1.02	1.97	1.82
Ningxia	1.40	-2.29	6.46	-2.51
Xinjiang	-6.06	-0.29	3.14	-8.65

Source: Calculated based on data from SSB: *China Statistical Yearbook, 1997-2000*.

Table A6. Rural Poverty Incidence by Province, 1996

(1993 PPP \$/day)	Mean exp. (Yuan)	Headcount						
		< 438Y \$0.505	< 580Y \$0.67	<657Y \$ 0.755	<700Y \$0.80	<788Y \$0.90	<876Y \$1	<1094Y \$1.255
(Gov. poverty line)								
Rural China	1572.00	3.51	8.59	12.24	14.52	19.37	24.11	36.67
Beijing	2564.51	0.63	1.38	2.05	2.54	3.79	5.39	10.76
Tianjin	1957.39	0.32	0.97	1.72	2.35	4.12	6.60	15.25
Hebei	1398.94	3.60	9.19	13.02	15.36	20.28	25.38	38.33
Shanxi	1174.29	4.52	13.03	18.11	21.32	28.34	35.97	55.30
Inner Mongolia	1437.62	4.28	8.94	11.98	13.90	18.16	22.99	37.16
Liaoning	1763.57	1.44	3.69	5.71	8.22	10.94	14.01	23.33
Jilin	1513.19	3.86	8.67	12.00	14.08	18.48	23.13	33.74
Heilongjiang	1537.30	6.04	10.14	12.74	14.36	17.90	21.86	33.40
Shanghai	3867.84	<.1	<.1	<.1	0.47	0.63	0.84	1.69
Jiangsu	2414.43	<.1	0.10	1.67	2.68	4.80	7.08	13.50
Zhejiang	2701.69	<.1	0.60	1.99	2.82	4.55	6.40	11.52
Anhui	1309.35	0.63	4.57	7.75	10.31	16.00	22.43	40.65
Fujian	1913.25	0.34	0.90	1.53	2.04	3.53	5.75	14.32
Jiangxi	1553.10	0.29	0.96	1.86	2.67	5.18	9.01	23.04
Shandong	1652.51	0.10	3.45	5.63	7.01	10.07	13.58	24.40

Table A6. ...continued

(1993 PPP \$/day)	Mean exp. (Yuan)	Headcount						
		< 438Y \$0.505	< 580Y \$0.67	<657Y \$ 0.755	<700Y \$0.80	<788Y \$0.90	<876Y \$1	<1094Y \$1.255
(Gov. poverty line)								
Henan	1206.43	2.45	7.71	12.42	15.61	21.24	28.34	49.01
Hubei	1636.41	0.71	2.73	4.90	6.50	10.32	14.77	26.06
Hunan	1736.71	0.22	0.89	2.87	3.97	5.13	8.64	18.54
Guangdong	2584.16	0.10	0.22	0.42	0.61	0.11	2.37	7.81
Guangxi	1399.07	2.68	8.36	12.67	15.37	21.09	25.24	40.08
Hainan	1288.98	5.79	13.91	18.99	21.99	28.06	33.16	48.39
Chongqin	1349.88	1.84	5.95	9.61	12.09	16.77	22.61	39.59
Sichuan	1349.88	1.72	5.81	9.48	11.95	17.11	22.91	39.46
Guizhou	1068.09	6.09	15.09	21.46	25.43	33.90	42.70	62.86
Yunnan	1209.16	8.94	18.25	23.69	26.88	33.35	39.80	54.83
Tibet	773.02	17.22	36.30	46.98	52.76	63.08	71.43	84.68
Shaanxi	1097.59	7.12	14.81	20.25	23.71	31.27	39.44	59.52
Gansu	986.34	11.33	21.94	28.87	33.12	42.00	50.87	69.62
Qinghai	1052.33	8.02	17.08	23.07	26.81	34.84	43.26	62.89
Ningxia	1235.67	9.83	18.45	23.43	26.35	32.27	38.20	52.28
Xinjiang	1346.57	13.22	21.23	25.67	28.23	33.34	38.37	50.24

Appendix 3. Methodology for the Growth Accounting Framework

Growth accounting essentially divides output growth into a component that can be explained by input growth, and a ‘residual’ that captures changes in productivity. Consider the following aggregate production function for the Chinese economy:

$$Y_t = A_t K_t^{1-\alpha} (L_t H_t)^\alpha \quad (1)$$

where Y_t is real GDP, A_t is total factor productivity, K_t is the real capital stock, L_t is total employment, H_t is average schooling years of population age 14-65 and represents human capital stock. Hence $L_t H_t$ is a skill-adjusted measure of labor input. Taking logs and differentiating totally both sides of equation (1) yields

$$a_t = g_t - (1-\alpha)\hat{k}_t - \alpha(\hat{l}_t + \hat{h}_t) \quad (2)$$

where a_t is growth in total factor productivity (TFP), g_t is the growth rate of real GDP, the lowercase variables with a “hat” correspond to the growth rate of the uppercase variables described in equation (1). Equation (2) decomposes the growth rate of output into growth of TFP, and a weighted average of the growth rates of physical capital stock and skill-augmented labor. Under the assumption of constant returns to scale, these weights are given by the shares of these two inputs in aggregate output. TFP is called “measure of our ignorance” by some economist, as it covers many components: innovation-based technology progress, imitation-led technology progress, institutional change, efficiency change, omitted variables and measurement errors. TFP should not be equated with innovation-based technology change, although it often is. It is important to note that the decomposition of equation (2) remains valid under more general functional forms of the production function such as translog production function used by Hu and Khan (1997) and Young (2000). The interpretation of the weights on physical capital and skill-augmented labor as their share in aggregate output requires only the assumption of constant returns to scale. The Cobb-Douglas production function is chosen for simplicity.

Our results of growth accounting are shown in Table 4.

NOTES

1. *The Economist*, March 10, 2001, p.23.
2. Based on an international poverty line by the World Bank, i.e., population living below \$1.08 per day at 1993 PPP (purchasing power parity) dollar. See Chen and Ravallion (2000) for details.
3. See, for example, Easterly (1999), Ravallion and Datt (1999), Dollar and Kraay (2000), Thomas et al. (2000) and World Bank (2000, 2001).
4. See, for example, Ahmad and Wang (1991), Khan et al. (1993), Knight and Song (1993), Hussain (1994), Chen and Ravallion (1996), Jalan and Ravallion (1997), Ravallion and Chen (1998), Howes and Hussain (1994), Hussain (2000) and World Bank (1997b, 2000), among many others.
5. This section draws heavily from Yan Wang's chapter in the publication "The Quality of Growth," and her paper with Yudong Yao entitled "Sources of China's Economic Growth 1952-1999: Incorporating Human Capital Accumulation," 2001.
6. We used data on the distribution of educational attainment at different levels, combined with information on the national duration of school at each level, to generate the number of years of schooling achieved by the average person at the various levels and at all levels of schooling combined. See Wang and Yao (2001) for details.

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Philippine Poverty in the Wake of the Asian Financial Crisis and El Niño*

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INTRODUCTION

In 1997, the Philippines faced not only the Asian financial crisis (which began in July 1997) but also an episode of the El Niño (a weather phenomenon that began in September 1997 and which brought in its wake a severe drought). By year's end, even though the full force of the El Niño had not even been felt yet, the economy was suffering from the devaluation of the peso, which depreciated to P37.20/\$ from its June rate of P27.40/\$. In an attempt to defend the peso, the government increased interest rates, which in turn put a squeeze on domestic credit. Macroeconomic indicators at the end of the year did not reflect the impact of the twin crises, thereby creating the impression that the financial crisis did not severely affect the Philippines as much as it affected other

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East Asian countries (see, for example, World Bank 1999). Real GDP, for instance, grew by 5.1 percent. Other studies, however, such as de Dios (1999) and Lim (2000), imply that the crisis may have had a much greater effect than what was believed. De Dios (1999) concludes that the effect of the crisis “may be seen in rising unemployment and underemployment and in the deteriorating quality of jobs.”

In considering the effects of both crises, one may want to consider firstly looking into a number of quarterly macroeconomic indicators. Figure 1 provides the seasonally adjusted values of national accounts, labor and monetary indicators from 1991 up to 1999. Monetary indicators considered were foreign exchange, i.e. the nominal peso-dollar rate at the end of the quarter, and domestic liquidity in billion pesos comprising money supply, quasi-money and deposit substitutes. Seasonal adjustment on the original time series (generated by the Philippine Statistical System) was implemented through EUROSTAT’s Demetra software using the TRAMO-SEATS approach to deseasonalization (see Gomez and Maravall 1996).

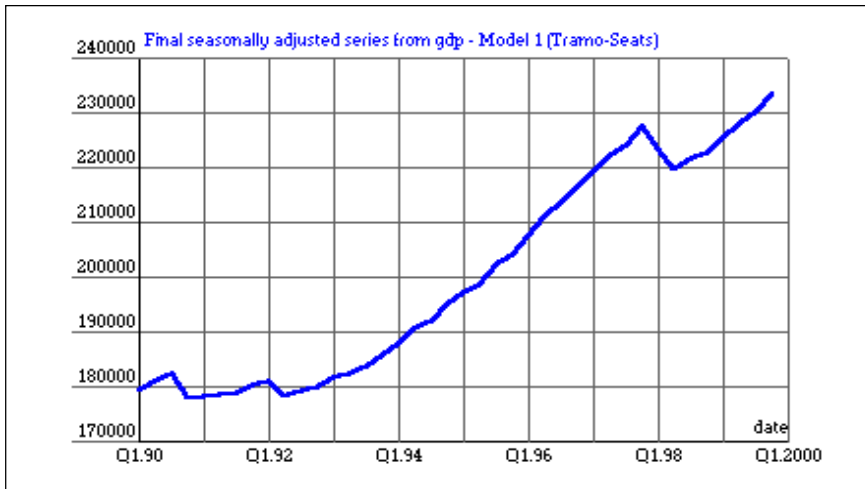
Looking through some of the time series in Figure 1, we observe a number of booms and busts in the Philippine economy. For example, upticks in the unemployment indicators during the early nineties may have been the result of the large-scale power outages experienced in the Philippines. If we were to assume that the financial crisis and the El Niño were the only shocks experienced by the Philippine economy in late 1997 and 1998, we can largely attribute the volatility of the foreign exchange rate to the financial crisis while the changes in trends on gross domestic product in this period are due to a combination of these two crises.

The disaggregated figures for the employment indicators in Figures 1e to 1f also tend to show that during the period of these two crises, shocks were experienced less by females who may have had better ways of coping than their male counterparts. Since the decline between 1997 and 1998 gross national product was not as steep as that for gross domestic product, dollar remittances from overseas Filipinos must have effectively cushioned the impact of the crises on the economy. Economic output indicators began to reflect the effects of both crises only by 1998. Agricultural output fell in the first quarter of the year; industrial output contracted by the second quarter. By the end of 1998, agricultural output had contracted by 6.6 percent and industrial output by 1.9 percent.

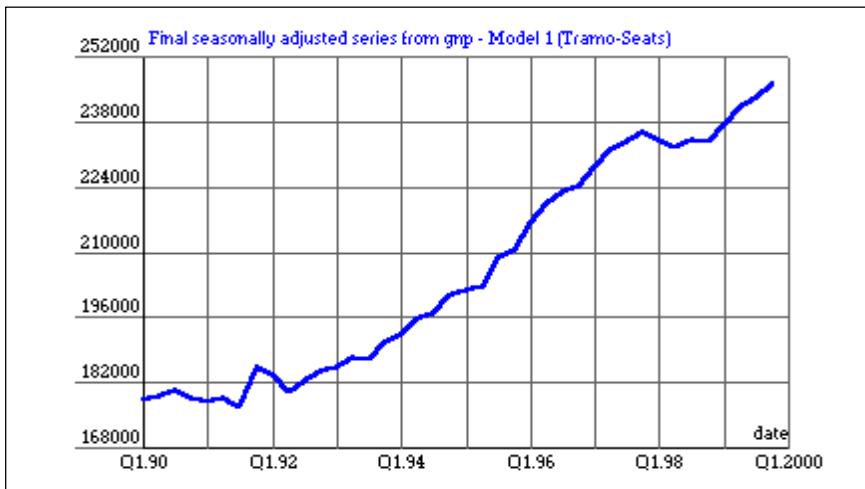
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Figure 1. Quarterly Deseasonalized Values of : (a) Gross Domestic Product at Constant Prices (in million pesos); (b) Gross National Product at Constant Prices (in million pesos); (c) Foreign Exchange (nominal peso-dollar) Rate at the End of the Quarter; (d) Domestic Liquidity (in billion pesos); (e) Labor Force Participation Rate (middle=total, lower=female, upper=male); and (f) Unemployment Rate (middle=total, upper=female, lower=male).

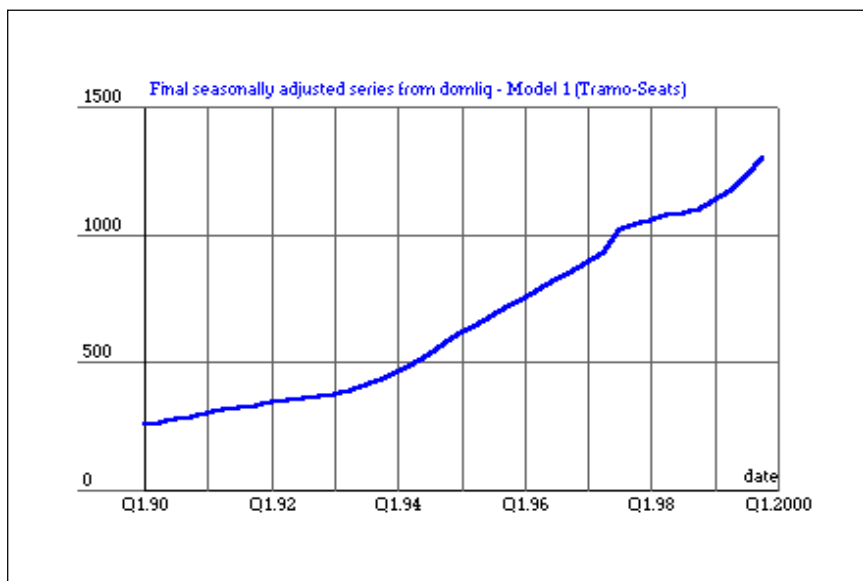
(a) Gross Domestic Product



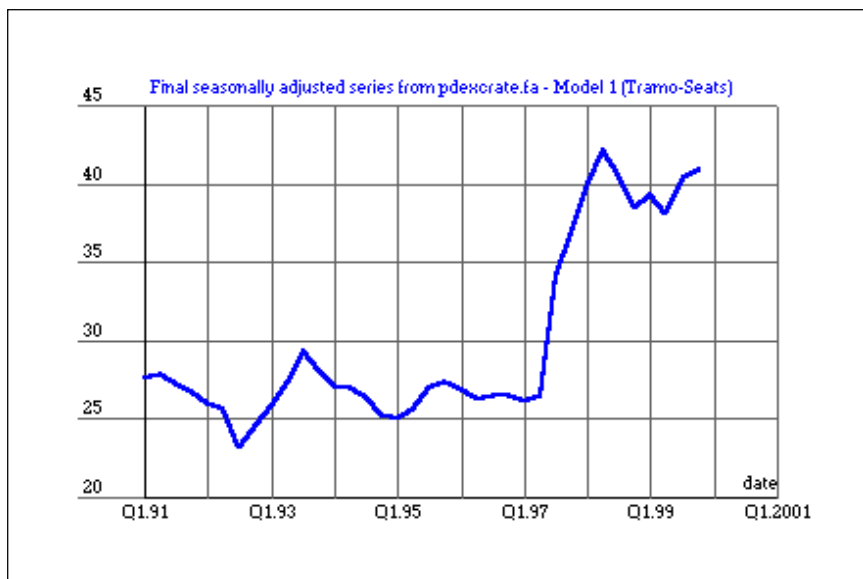
(b) Gross National Product



(c) Domestic Liquidity

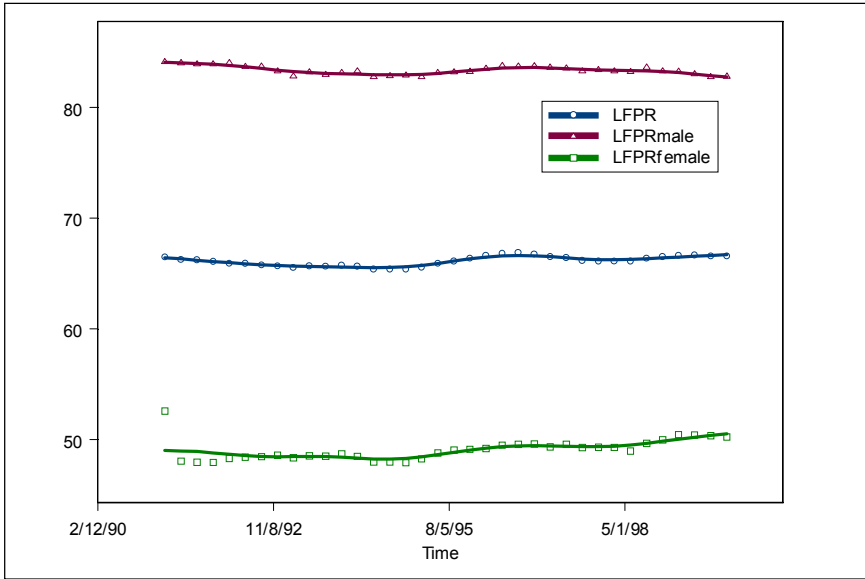


(d) Foreign Exchange

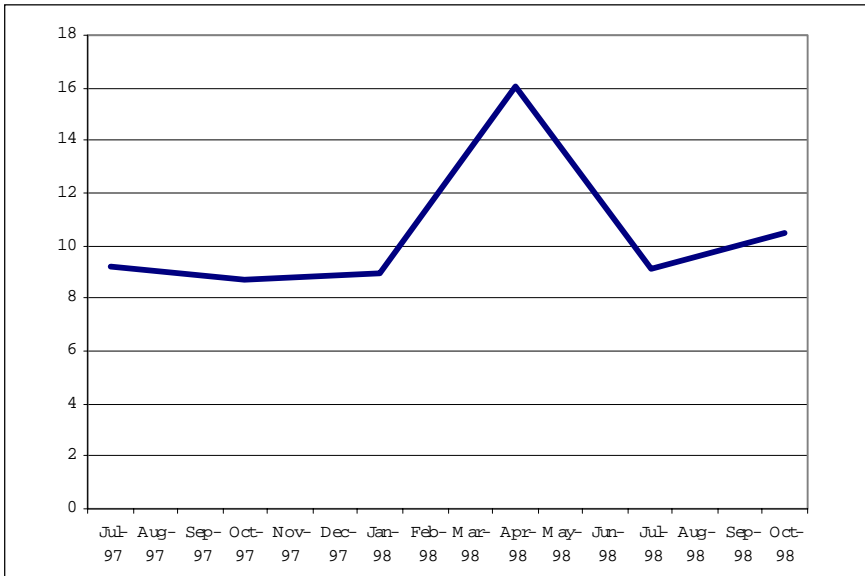


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(e) Labor Force Participation



(f) Unemployment Rate



An examination of employment trends between October 1997 and October 1998 suggest that the crises had a considerable impact on labor. Tracing the effects on employment induced by the crises, de Dios (1999) attributes increases in industrial unemployment and visible unemployment particularly in July and October 1998 to the financial crisis. Decomposing the 1997-1998 increase in unemployment by sector and type of worker, he showed that underemployment mostly affected wage and salary workers (cf. Table 1). Underemployment had thus come to affect even the formal sector.

Table 1. Decomposition of 1997-1998 Increase in October Unemployment by Sector and Type of Worker*

	Agriculture	Industry	Services	Total
Wage and salary workers	10.7	11.4	36.1	58.3
Own account workers	9.6	5.4	16.6	31.5
Unpaid family workers	7.0	-0.9	4.0	10.2
Total	27.4	15.9	56.7	100.0
Number in 000	245	142	507	894

*Reproduced from de Dios (1999).

By 1999, the agricultural sector had almost recovered lost ground; real agricultural output, at P183.4 billion, nearly attained the pre-crisis level of P185 billion registered in 1997. However, the effects of the crises on labor persisted. While the unemployment rate decreased from 10.1 percent to 9.7 percent, visible unemployment increased (from 10.9 percent in 1997 to 11.8 percent in 1998 to 12.0 percent in 1999). Like its neighbors—Indonesia, Korea, Malaysia and Thailand—it appears that the main crisis in the Philippine labor market was not one of increased unemployment but of reduced wages (see Fallon and Lucas 2000).

As regards the poverty scene, Reyes (2000) and Kakwani (2000) independently point out that the combined effects due to the crisis and the El Niño phenomenon led to an increase in the poverty incidence from the 1997 official estimates. These studies analyzed information provided by

the 1997 Family Income and Expenditure Survey (FIES) and the 1998 Annual Poverty Indicator Survey (APIS). Another study, that of Datt and Hoogeveen (2000), pointed to the impossibility of completely separating the effects of the crises from each other and from any measurement error that was not or could not be specifically addressed. Employment transitions and price shock estimates, for example, would still reflect the effects of the El Niño phenomenon. Datt and Hoogeveen (2000) also presented an approach that, to some extent, decomposes the impact of the shocks caused by the El Niño and the Asian financial crisis. They concluded that, in terms of poverty impact, the crisis in the Philippines was due more to the El Niño than to the Asian financial crisis.

In this paper, we will re-examine the impact of the Asian financial crisis and the El Niño on poverty in the Philippines by performing an analysis of a panel from the 1997 FIES, the October 1997 to July 1998 Labor Force Surveys (LFS) rounds and the 1998 APIS. In the next section, we will provide estimates of poverty statistics. Then, we will consider in the context of classification and regression trees the structural descriptions of the panel households that moved in income quintile and poverty status. Following that section, we will discuss the conceptually appealing methodology of Datt and Hoogeveen (2000) and will present our proposed modification of this methodology that employs more direct evidence of labor market shock in lieu of, or in conjunction with, a self-reported labor shock indicator. We will also attempt to factor in the price shock reported by nearly 90 percent of the APIS sample.

POVERTY STATISTICS

There are quite a number of poverty measures that are officially released in the Philippines, and a number of others that could be generated from the official poverty statistics. The simplest poverty measure, household poverty incidence, is defined as the number of poor households relative to the total number of households. A household is considered poor if its per capita income is less than some threshold for the area. That is, if Z represents the per capita poverty threshold, n represents the total number of households, X_i represents the per capita income of household i , then house-

hold poverty incidence is the fraction of households with per capita income below the threshold. More formally, it is:

$$\frac{1}{N} \sum_{i=1}^n I(X_i < Z)$$

where $I(\cdot)$ is an indicator function that takes on a value of 1 if the bracketed expressions is true, and 0 otherwise. Thus, if per capita income X_i is less than the poverty line Z , then $I(\cdot)$ equals 1 and thus the household is counted as poor. If a household is poor, then all persons living in that household are poor. Consequently, weighting the household poverty incidence by the size m_i of the i th household yields the poverty headcount measure, i.e.,

$$\frac{1}{N} \sum_{i=1}^n m_i I(X_i < Z) \text{ where } N = \sum_{i=1}^n m_i, \text{ the number of individuals.}$$

The household poverty incidence and headcount measures are straightforward, readily understandable and thus, the most commonly used poverty statistics. Their simplicity, however, fails to take into account the degree of poverty suffered by the poor, i.e., the extent to which the poor fall below the poverty threshold. Furthermore, these statistics are insensitive to changes in the income distribution of the poor and to changes in the absolute deprivation level. The poverty gap ratio, defined as the aggregate shortfall of incomes of the poor relative to the poverty threshold, i.e.,

$$\frac{1}{N} \sum_{i=1}^n m_i \left(\frac{Z - X_i}{Z} \right) I(X_i < Z)$$

addresses the limitations of the poverty headcount. In practice, the computations for the poverty statistics include weights or raising factors arising from the survey design. The raising factor is the number of households that the sampled household represents.

Official poverty statistics in the Philippines are computed from the FIES, a survey having urban and rural areas of provinces and chartered cities for its domains. Since the National Statistics Office (NSO) conducts the FIES every three years, official poverty statistics are released once every three years. An inter-agency committee of the National Statistical Coordination Board (NSCB) determines the regional poverty line or threshold

based on calculating minimal food and non-food requirements of a household. Representative food menus for urban and rural areas of each region are constructed with the menus considering local consumption patterns and satisfying a minimum nutritional requirement of 2,000 calories of energy and 50 g of protein per person per day, as well as 80 percent sufficiency in daily intake of other nutrients and vitamins. Local prices are then used to cost the menus, resulting in regional food poverty thresholds. The expenditure patterns of households within a plus or minus 10-percentile band of the food regional threshold are then used to estimate nonfood requirements. These are then added to the food regional threshold to yield the regional poverty threshold.

The official methodology for poverty measurement is currently under review. Alternatives to the official methodology have been suggested, e.g., Balisacan (1999) and Kakwani (2000) that employ consumption data. While there appears to be some preference for the use of consumption-over income-based estimates, as it is believed that measurement errors are larger for income than consumption data, we will examine the impact of the crises solely on income-based poverty estimates in this paper. The reason for this choice will be explained in a later discussion regarding the data sources.

The poverty thresholds used to classify the households according to their poverty status are given in Table 2. The 1997 figures are the official regional poverty thresholds, while the 1998 figures are the 1997 figures inflated by the corresponding regional consumer price index.

The 1997 official poverty statistics are based on a sample of 39,520 households of the 1997 FIES. While the 1997 FIES provides a wealth of information on income and expenditure of the households, these data, on their own, do not provide any clues to the impact of the Asian financial crisis on the Philippine economy. The 1997 FIES covered merely the first few months of the financial crisis, which started in the third quarter of 1997.

In response to the need for more frequent and reliable information especially on non-income-based poverty correlates during the years when the FIES is not conducted, the NSO designed the longitudinal APIS. The APIS was first conducted in 1998 on a sample of 38,709 households. The 1998 APIS is unique in that it includes questions pertaining to the Asian financial crisis such as whether or not the household was affected by price

Table 2. Regional Poverty Thresholds in 1997 and 1998

Major Island	Region	Poverty Threshold	
		1997	1998
Luzon	1 (Ilocos)	11975	13213
Luzon	2 (Cagayan)	9880	10813
Luzon	3 (Central Luzon)	11839	13029
Luzon	4 (Southern Luzon)	12452	13683
Luzon	5 (Bicol)	10378	11309
Visayas	6 (Western Visayas)	10560	11394
Visayas	7 (Central Visayas)	8718	9641
Visayas	8 (Eastern Visayas)	8727	9455
Mindanao	9 (Western Mindanao)	9732	10648
Mindanao	10 (Northern Mindanao)	10440	11512
Mindanao	11 (Southern Mindanao)	10503	11522
Mindanao	12 (Central Mindanao)	11119	12151
Luzon	13 (National Capital Region)	14299	15321
Luzon	14 (Cordillera Administrative Region)	12836	13821
Mindanao	15 (Autonomous Region of Muslim Mindanao)	11134	12293

increases, loss of domestic jobs, loss of overseas jobs, lessening of wages, and the El Niño. Among those affected by the financial crisis, questions were asked regarding the household response to the crisis.

Some of the households interviewed for the 1997 FIES were also included as respondents in the 1998 APIS, thus forming a panel data. Of the 38,709 households included in the 1998 APIS survey and the 39,520 households included in the 1997 FIES, we considered the use of some 11,723 households common to both surveys (which also formed a panel with the October 1997 to July 1998 rounds of the LFS, also conducted by the NSO). These panel data provided useful information on how lifestyles of households changed from one year to another, especially in relation to income and poverty status. This panel was chosen over other possible panels consisting of 27,321 households, 17,873 households and 17,900 households. The first and third panels are not linked to the July 1998 round of the LFS; only the panel of 11,723 households is linked to the January 1999 round.

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Table 3. (Nominal) Per Capita Income Estimates for 1997 and 1998
Using Panel Data

		1997	1998
(National)		24511	24111
Major Island	Luzon	29831	28993
	Visayas	17973	18124
	Mindanao	19264	19289
Urban-Rural Divide	Urban	34391	33350
	Rural	16263	16400
Sex of Household Head	Male	23420	22876
	Female	31235	31730

The 1997 and 1998 annual per capita incomes of the panel data disaggregated by major island, urban-rural divide and sex of household head are listed in Table 3. Disparities in income distribution can already be gleaned from there. Furthermore, since per capita income appears to have only slightly decreased, this may initially suggest that the impact of these shocks was indeed not quite severe in the Philippines. However, disaggregation shows a different story. Urban incomes appear to have been much more affected by the crises than rural incomes. Households headed by women again also appear not to have been affected as much as their male counterparts by the crises.

Strictly speaking, the FIES and the APIS are not really comparable both in their income and consumption data. The 1997 FIES income data has a full 1997 calendar year reference period (January to December 1997), while the 1998 APIS income data is limited to the second and third quarters of 1998. Consequently, estimated annual income from the APIS may be seriously underestimated due to the shorter reference period. In terms of the consumption data in the two surveys, the consumption module of the FIES is much more robust and detailed (going up to more than 20 pages of more than 400 expenditure lines) than the APIS (2 page) module (which consisted of 27 expenditure lines). With more questions about consumption patterns, one expects to record higher spending, as more questions will jog the memory of the respondent. Consequently, expenditure

data for the APIS is likely to be severely underestimated. Thus, the key variables were measured differently in the surveys, raising doubts as to whether the 1997 and 1998 income values are comparable to begin with, or whether the 1998 income and consumption values are biased (Balisacan 1999; Datt and Hoogeveen 2000). Decreases in income or consumption cannot be safely attributed to the crises if the values are downward biased because of measurement error. Despite these technical limitations, we nonetheless considered obtaining income-based estimates of poverty incidence and poverty gap from the panel data of these two surveys to get a sense of the variations in the welfare of the panel households during the crisis period.

The reason behind the preference to analyze income-based estimates over consumption is as follows. Datt and Hoogeveen (2000) point out that the use of a shorter consumption module, as was done in APIS, generally introduces a downward bias in measured consumption levels. They also point out that the use of a partial-year rather than a full-year reference period for income could likewise introduce unknown seasonal biases in income estimates. In the case of income estimates, however, the direction of the bias is unclear. The choice is thus between a response variable that could conceivably be generally downward biased and therefore also likely to produce downward-biased predicted consumption, or one with comparatively larger noise (if the bias is generally not unidirectional) that will likely lead to greater model error (poorer model fit). Both problems can be addressed to some extent by the model's incorporating information on the determinants of consumption or income as the case may be, but simulations suggest that some bias will persist in the case of a generally downward-biased response variable (Tabunda 1999). Thus, we considered the use of income-based estimates. Another advantage in using income-based estimates rather than consumption-based estimates is familiarity with trends in the income-based estimates. Familiarity with the historical trend of the estimates serves as a natural validation tool. Unusually high (or low) values are immediately recognized as such and prompt further probing or explaining.

Tables 4 and 5 list our estimates of household poverty incidence, poverty headcount poverty gap and Gini inequality index for total household incomes for the years 1997 and 1998 at national and subnational lev-

Table 4. Income-Based National Poverty Statistics for 1997 and 1998

National Level Poverty Statistics	Official Statistics	Panel Data Estimates	
	1997	1997	1998
Household Poverty Incidence	31.8	33.3	39.1
Poverty Headcount	36.8	38.0	43.9
Poverty Gap	10.0	12.7	16.4
Gini Index	0.487	0.470	0.494

els using the panel data and the design weights from the 1998 APIS, together with the poverty thresholds in Table 3. Estimates were not obtained for a new geo-political region called Caraga, there being hitherto no official regional poverty lines for this region. Furthermore, to make the income data for the two surveys comparable, the APIS (half year) household income data was firstly adjusted into an estimate of the total 1998 household income taking into account quarterly seasonal fluctuations in gross value added for the agricultural, services and industrial sectors in 1998.

Inspection of the generated poverty statistics and Gini inequality index (based on household income) in Table 4 shows that our 1997 estimates using the panel have some modest biases, perhaps due to attrition. Taking such a minimal bias into account, one may still roughly use the panel and observe that the financial and El Niño crises appear to have worsened the poverty situation with a rise in household poverty incidence, headcount ratio, poverty gap and the Gini inequality index for the panel. To ensure that these apparent increases in poverty statistics for the panel data are real increases and not merely due to noise, standard errors for the differences from the two years estimates should be calculated, say via the bootstrap (Efron and Tibshirani 1993). Such standard errors can then be used to construct Wald T-statistics for testing whether these apparent differences in estimates are real or not.

The disaggregated statistics in Table 5 indicate that poverty is more of a rural phenomenon. In fact, roughly three out of every four poor households were situated in rural areas. The increase in rural nominal per capita

Table 5. Poverty Statistics and Gini Estimates in 1997 and 1998
 Using Panel Data (a) by Major Island; (b) by Urban-Rural
 Classification; (c) by Sex of Household Head; and (d) by Region

	Household Poverty Incidence		Poverty Headcount		Poverty Gap		Gini	
	1997	1998	1997	1998	1997	1998	1997	1998
A. Island								
Luzon	25.3	31.5	29.2	36.0	9.11	12.5	0.448	0.457
Visayas	38.8	45.0	44.3	50.2	15.1	19.2	0.473	0.501
Mindanao	45.0	49.7	50.7	54.9	17.8	22.3	0.468	0.521
B. Urban-Rural Classification								
Urban	17.3	24.1	21.0	28.4	5.8	9.1	0.446	0.477
Rural	46.6	51.6	52.4	57.2	18.5	22.7	0.429	0.449
C. Sex of Household Head								
Male	35.0	41.3	39.6	45.9	13.3	17.3	0.470	0.493
Female	22.6	25.5	25.7	28.3	7.9	9.4	0.468	0.493
D. Region								
1 (Ilocos)	36.7	45.3	42.4	52.2	14.2	20.6	0.427	0.494
2 (Cagayan)	30.0	31.7	33.9	35.9	9.2	11.8	0.463	0.499
3 (C. Luzon)	19.0	27.2	21.0	30.9	5.7	9.5	0.380	0.395
4 (S. Luzon)	23.1	30.7	26.8	34.7	8.3	11.8	0.411	0.433
5 (Bicol)	52.1	55.5	59.2	62.0	21.7	24.3	0.476	0.474
6 (W. Visayas)	41.3	50.3	47.5	56.5	16.7	21.5	0.463	0.500
7 (C. Visayas)	35.7	41.8	39.0	45.2	13.0	17.3	0.484	0.506
8 (E. Visayas)	39.5	41.3	47.4	47.7	15.9	18.3	0.465	0.492
9 (W. Mindanao)	38.2	47.7	42.6	49.5	14.7	21.1	0.475	0.503
10 (N. Mindanao)	44.4	49.6	49.9	55.2	17.4	22.9	0.481	0.516
11 (S. Mindanao)	41.4	46.1	46.9	51.9	16.3	20.2	0.445	0.456
12 (C. Mindanao)	55.5	58.4	62.6	65.9	25.8	27.1	0.503	0.479
13 (NCR)	9.2	14.7	12.2	18.1	2.7	4.8	0.431	0.412
14 (CAR)	48.0	48.6	55.3	0.7	21.7	23.1	0.510	0.668
15 (ARMM)	53.9	54.1	58.5	58.5	15.9	22.7	0.370	0.379

income (in Table 4) was not enough to improve the poverty situation in rural areas. Poverty even worsened in the rural areas from 1997 to 1998. The ill effects of the crises on the poverty situation was not only limited to rural areas. The effects of the crises cut across major spatial locations. Luzon bore the brunt of the effects among all the major islands. While all regions appear to have worsened in poverty incidence and gap, some regions such as Ilocos, Central Luzon, Southern Tagalog, Western Visayas, and the major urban center Metro Manila appear to have suffered much more than other regions. In addition, households headed by men appear to have been affected more by the crises.

It can also be gleaned from Table 5 that male headship is a positive correlate of poverty in the Philippines, as was pointed out in Datt and Hoogeveen (2000) and in Kakwani (2000). Most analysts may consider this surprising since female household headship are usually widows, unwed mothers and the like. It has been observed in Africa that households headed by females are poorer than male-headed households. For developing countries, such as the Philippines, Thailand and Vietnam, however, male-headed households appear to be poorer. It may be possible that, female household heads are able to empower themselves and consequently, outperform their male counterparts. Alternatively, since the operational definition of household headship is unclear and left to the respondents, field personnel may often record males as heading the households unless very manifestly seen otherwise. This yields lower estimates of the number of female-headed households and possibly to higher estimates of poor male-headed households.

Further cross-sectional inspection of the regional estimates in Table 5 reveals high regional disparities—with the Autonomous Region of Muslim Mindanao (ARMM), Central Mindanao and Bicol having the highest household and individual poverty incidence. The contribution to total household and total individual poverty of ARMM and Central Mindanao is, however, rather small. The lowest poverty incidence for both 1997 and 1998 was in the premiere urban center, Metro Manila (called the National Capital Region or NCR), with surrounding areas also having low incidence rates. However, despite the small poverty incidence, we also see an increase in the estimated poverty statistics for NCR and surrounding areas from the period 1997 to 1998, and these increases appear to be rather sub-

stantial. On the basis of poverty gap, ARMM appears to be better off than Central Mindanao. This suggests that a considerable proportion of the poor in ARMM are close to the poverty threshold. However, the poverty gap appears to have widened from 1997 to 1998 in ARMM.

As was pointed out in Kakwani (2000), the disparities arising from the use of different poverty measures suggest the need to adopt different poverty reduction strategies for different regions. In regions where poverty incidence is high but the gap is not too high (as in ARMM), the goal must be to maximize the number of poor targeted. These are the regions where many are close to the threshold. In regions where poverty gap is high but incidence is not too high, the poorer or very poor households will have to be brought closer to the poverty line. Finally, in regions where poverty is really severe (both in incidence and in gap), strategies must both be in terms of maximizing the numbers assisted and minimizing the gap.

POVERTY STATUS AND INCOME MOVEMENTS

While before-and-after comparisons in the poverty situation are problematic (Reyes et al. 1999), one can still analyze the panel data and get a sense of the worsening of the poverty situation during the crises period. Such changes in the poverty situation can be further investigated by carefully inspecting movements in the income distribution of the panel from 1997 to 1998. Following the approach of Haughton et al. (2000), we explored a disaggregation of the panel households according to their national per capita income quintile status in 1997 and in 1998 (Table 6) to analyze income movements within this period. This disaggregation of households was further broken down into three categories: “shooting stars” or those households that moved up from their income quintile group by two or more ranks; “sinking stones” or those that moved down from their income quintile group by two or more ranks; and the rest of the households that did not dramatically change their income quintile status.

In Table 7, we list the responses of the shooting stars, sinking stones and the rest of the households to a crisis-related APIS question on whether or not the household was affected by price increases, loss of (domestic and overseas) jobs, reduced wages and the El Niño. These self-reported mea-

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Table 6. Panel Household Cross-Classified by National Per Capita Income Quintiles in 1997 and 1998*

1997 National PCI Quintiles	1998 National PCI Quintiles					Total
	Poorest	Mid-poor	Middle	Mid-upper	Upper	
Poorest	1313	570	218	42	12	2155
	(61.71)	(26.53)	(9.72)	(1.62)	(0.42)	
	(61.69)	(25.73)	(9.49)	(1.62)	(0.50)	
Mid-poor	611	934	616	180	30	2371
	(27.02)	(39.20)	(24.86)	(7.53)	(1.39)	
	(27.62)	(38.87)	(24.81)	(7.65)	(1.69)	
Middle	208	608	941	606	98	2461
	(7.88)	(25.57)	(38.01)	(24.32)	(4.21)	
	(8.00)	(25.18)	(37.66)	(24.56)	(5.06)	
Mid-upper	55	209	561	1149	514	2488
	(2.14)	(8.89)	(23.12)	(45.78)	(20.06)	
	(2.14)	(8.62)	(22.55)	(45.51)	(23.76)	
Upper	11	42	140	534	1520	2248
	(0.62)	(1.89)	(6.47)	(23.93)	(67.09)	
	(0.54)	(1.59)	(5.48)	(20.66)	(68.99)	
Total	2199	2363	2476	2511	2174	11723

*Cells represent number of households; weighted percentages to row total listed in parentheses; weighted percentages to column totals in bold and parentheses.

tures of shock indicate that practically everyone (across categories) felt price shocks and that relatively few, about one in 20, households experienced loss of migrant or overseas employment. The sinking stones appear to have experienced the greatest impact of the migrant and domestic labor market shock while the shooting stars felt the least impact for labor market shocks as well as the least impact for the shock due to a lessening of wages. The shooting stars, surprisingly, reported the greatest shock from the El Niño although sinking stones outnumbered them by a ratio of two to one.

Table 7. Self-Reported Impact of Crises on Panel Households

Households	Proportion to Total Households	Proportion (in Percent) of Households Affected by				
		Price Increases	Loss of Domestic Jobs	Loss of Overseas Jobs	Less Wages	El Niño
Sinking Stones	5.47	91.63	25.85	5.62	15.93	60.2
Shooting Stars	5.13	89.76	15.40	4.30	13.13	65.81
Others	89.4	90.01	18.97	4.41	16.16	59.72
Overall	100.0	90.09	19.16	4.47	15.99	60.06

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Table 8. Panel Households According to Poverty Status* in 1997 and 1998

1997 Poverty Status	1998 Poverty Status		Total
	NON-POOR	POOR	
NON-POOR	6567	1504	8071
	(80.21)	(19.79)	
	(87.87)	(33.76)	(66.72)
POOR	834	2818	3652
	(22.19)	(77.81)	
	(12.13)	(66.24)	(33.28)
Total	7401	4322	11723
	(60.9)	(39.10)	

*Cells represent number of households; weighted percentages to row total listed in parentheses; weighted percentages to column totals in bold and parentheses.

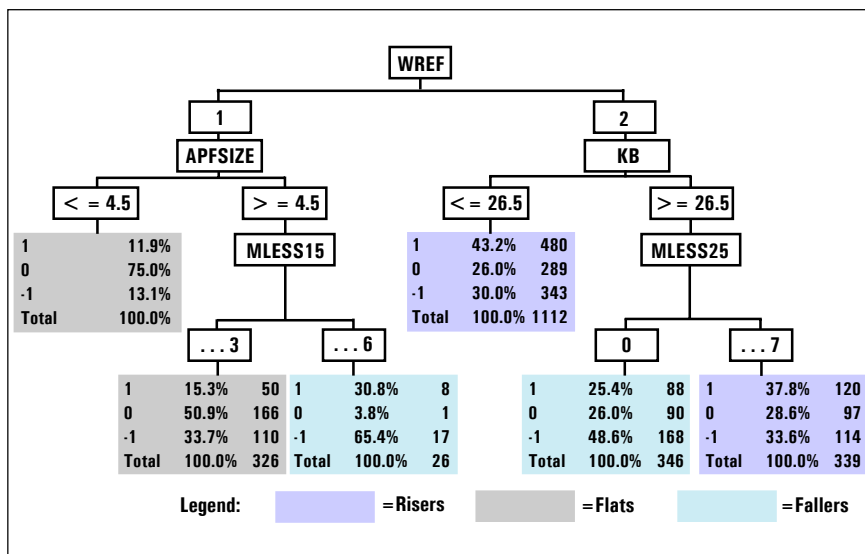
In place of the three-group classification from the movements in income quintile status, we also considered another cross-classification of our panel data, this time according to the household poverty status in the years 1997 and 1998 (cf. Table 8). We readily notice the shifting of a considerable number of panel households (1,504), which were non-poor in 1997, into poverty. This figure is rather astonishing and serves to show the impact of the crises on poverty. In fact, this figure is nearly double the figure of the number of poor households in 1997 that moved out of poverty. Notice also that although there was an increase in poverty incidence from 1997 to 1998 in the panel, the (weighted) proportion of (1997) non-poor households who moved into poverty is roughly the same as the (weighted) proportion of (1997) poor households who moved out of poverty.

It may be of particular interest to also determine the household characteristics that correlate with jumps into and out of poverty within the one-year period by constructing a classification and regression tree (Breiman et al., 1984), which provides a rudimentary way of representing the importance of a number of inputs to a particular output being investigated, and thus to determine the “correlates” that yield the output. The classification and regression tree diagram in Figure 2 was constructed by equal sized sampling on the three groups of households, namely, those that moved into

poverty, those that did not change their status, and those that moved out of poverty. Interestingly, Figure 2 shows that the most important factor among the household characteristics is whether or not the household owned a refrigerator in 1997 (and this appears to serve as a proxy variable for household income). The household's ownership of a refrigerator interacts with a number of 1997 household variables, namely, the number of household members below 15 and the number of household members between 15 and 25, together with some 1998 household variables, namely, family size and kind of business of the household head.

The classification and regression trees in Figure 2 not only show us the important inputs for arriving at an output but also provide us a useful way for deciding how to classify households according to the suggested inputs. To classify a particular household's movement in poverty status, the attributes of the household can be routed down the tree according to the values of the attributes of the household tested in successive nodes. When a leaf (or final node) is reached from the root, the household is then classi-

Figure 2. Classification and Regression Tree for Households Moving into Poverty, Moving out of Poverty, and Remaining in the Same Status Using a 10 Percent Stratified Sample



fied according to the class assigned the leaf. Among households with a refrigerator (in 1997) and with a rather large family size, those with four or more members in the households below the age of 15 are likely to have moved into poverty. Among households without refrigerators in 1997, those whose heads are employed in agriculture, fisheries, forestry, mining and quarrying are likely to have moved into or out of poverty with more of these households moving out of (rather than into) poverty. Among households without refrigerators in 1997, and whose heads are employed in businesses outside of agriculture, fisheries, forestry, mining and quarrying, nearly half of them who had no members between 15 and 25 moved into poverty.

EMPLOYMENT TRENDS AND LABOR MARKET SHOCKS

Statistics for the panel on income and expenditures indicate the presence of attrition bias; the panel includes proportionally fewer upper income families than either the 1997 FIES or the 1998 APIS (Table 9). The differences between the unweighted mean and unweighted median values of the panel households for per capita income and per capita expenditures are lower than the corresponding differences for the FIES and APIS samples. This indicates lower variation across panel households with respect to these variables.

Attrition bias is very common among panel surveys. It puts into question the representativeness of the sample in drawing inferences about the

Table 9. Comparison of Per Capita Income and Expenditures (in pesos) of Panel, FIES and APIS Samples

	1997		1998	
	FIES	Panel	APIS	Panel
Income				
Mean	27,541.0	25,366.4	27,451.7	24,737.7
Median	16,663.1	16,233.8	15,583.3	14,177.6
Expenditures				
Mean	21,857.5	20,412.4	21,433.6	19,533.0
Median	14,455.2	15,159.6	13,735.5	13,284.6

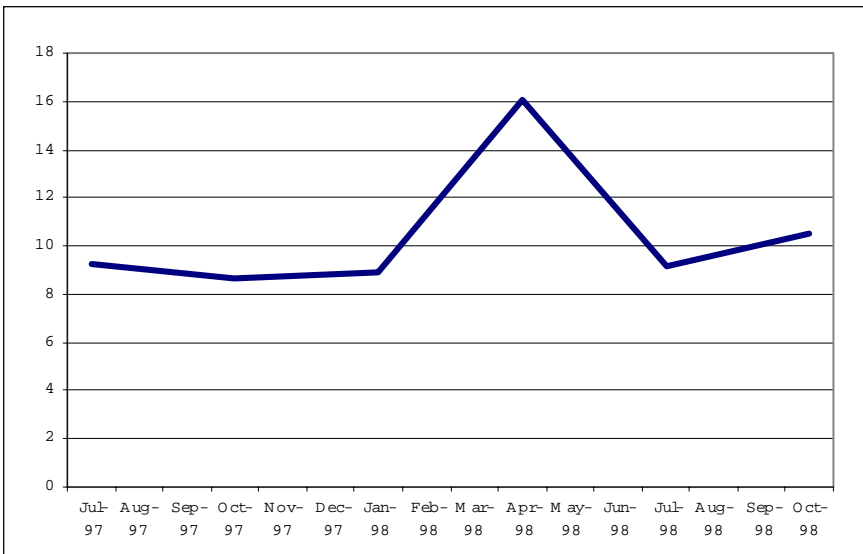
population. There are procedures for taking into account the mechanism that causes “nonignorable” self-selection in panels for simple nonresponse models (Baltagi 1995). But they are not easy to implement. In this paper, we bear in mind the differences between the panel and the target population and point out the implications of such differences.

The unemployment rates¹ for the panel are slightly higher than the national estimates, again underscoring possible attrition bias, but follow the same trend (Table 10). An increase in the April rate is due to the entry of fresh high school and college graduates into the labor force (Figure 3). In addition, agricultural employment is usually lowest at this time, the start of

Table 10. Unemployment Rates, Panel and National Estimates

Estimates	July 97	Oct 97	Jan 98	April 98	July 98	Oct 98
Panel (Unweighted)	9.2	8.7	8.9	16.0	9.2	10.5
National	8.7	7.9	8.4	13.3	8.9	9.6

Figure 3. Unemployment Rates for Panel Labor Force



the dry season. The particularly high unemployment rates in April 1998 (13.3 percent as against the national estimate of 10.4 percent in April 1997) probably also reflects the impact of the El Niño. Estimates for October 1998 are higher than the October 1997 levels by 1.8 and 1.7 percentage points for the panel and national figures, respectively.

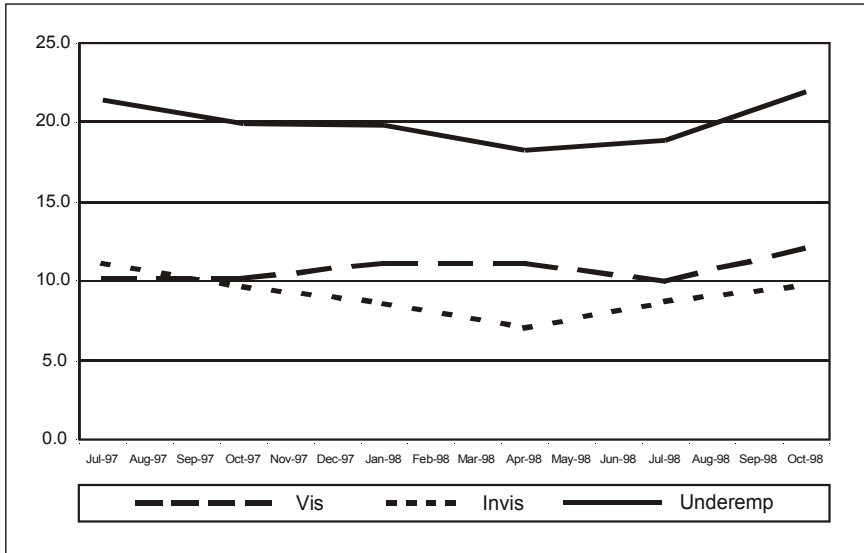
Both panel and national estimates of underemployment rates declined from July 1997 to July 1998 (Table 11). This, however, is not an indication of improvement. Visible underemployment increased in the intervening quarters for many industries, among them agriculture, construction, services and mining (Figure 2 and Appendix Figures 1a to 1j). Invisible underemployment tended to fall when visible underemployment rose, signifying scarcity of jobs.

The unemployment rates and underemployment rates (Tables 10 and 11 and Figures 3 and 4) show marked increases in the rates between July and October 1998. Underemployment rates at the national level were sustained at these levels in 1999. The average underemployment and visible underemployment rates in 1999 are 22.3 and 12.0 percent, respectively. It

Table 11. Underemployment Rates, Panel (unweighted) and National Estimates

Estimates	July 97	Oct 97	Jan 98	April 98	July 98	Oct 98
Underemployment						
Panel	21.4	19.9	19.8	18.3	18.8	22.0
National	23.1	20.8	21.6	21.0	20.8	23.7
Visible Underemployment						
Panel	10.2	10.2	11.2	11.2	10.0	12.1
National	10.4	10.5	11.9	12.0	10.9	12.6
Invisible Underemployment						
Panel	11.2	9.7	8.7	7.1	8.8	9.9
National	12.7	10.3	9.7	9.0	9.9	11.1

Figure 4. Underemployment Rates for Panel Labor Force



thus appears that the impact of the financial crisis and the El Niño phenomenon began to be felt in 1998. This partly explains the generally lower incomes and expenditures recorded for the panel between 1997, through FIES, and 1998, through APIS.

Employment levels of the panel labor force in the agriculture and services sectors declined slightly but increased slightly in the transportation and manufacturing industries (Appendix Table 1 and Figures 5a and 5b). Employment levels in construction and mining declined (Figure 5c). Employment in the finance industry and in wholesale and retail trade, in particular, increased in October 1998. Nevertheless, this and the other increases were not enough to offset the decline in employment in the other sectors and to absorb the expansion of the panel labor force in April 1998. Despite these increases, the unemployment rate also increased in October 1998.

We used the LFS panel to identify households whose employment profile, in terms of employment, visible underemployment and invisible underemployment, did not improve over the period covered to come up with labor shock indicators. A stringent definition was used to ensure that the

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Figure 5a. Employment of Panel Labor Force in Agriculture and Service Sectors

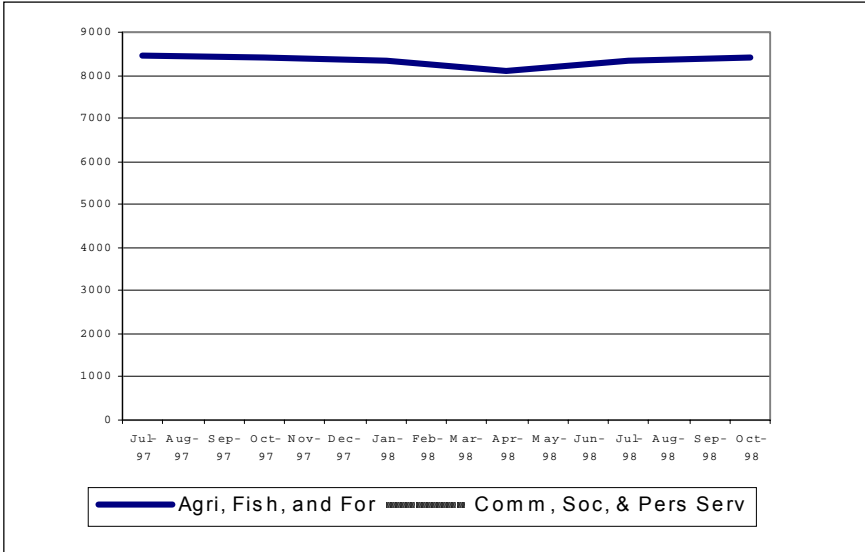
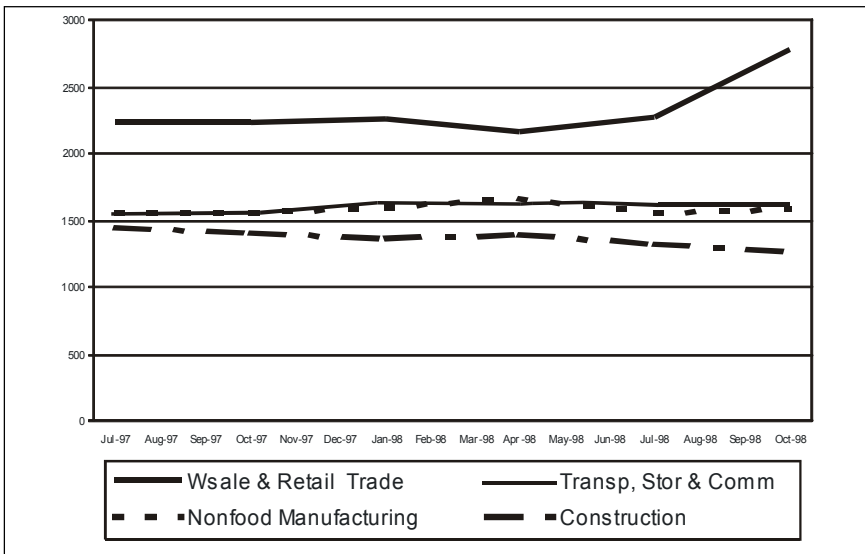


Figure 5b. Employment of Panel Labor Force in Construction, Non-Food Manufacturing, Trade, and Transportation Sectors

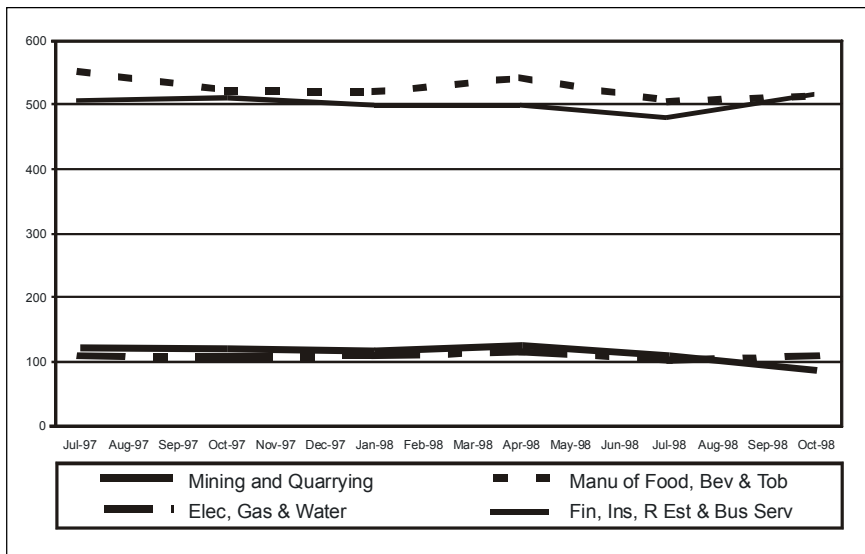


households thus identified were not suffering from temporary employment setbacks (e.g., due to seasonality of employment) but setbacks of a more prolonged nature.

The study identified households that had more employed members (denoted by EMPSDEC), less visibly underemployed (VUSINC) (Appendix Table 3) or less invisibly underemployed members (IUSINC) (Appendix Table 2), in July 1997 than in October 1998. These households whose employment profile in the intervening months was no better than its July 1997 profile were tagged. (See Appendix Table 4 for computational formulas.) Thus households tagged by these indicators had their best employment profile in July 1997 and their worst in October 1998. Alternatively, the July 1997 profile of these households was as good as those in the intervening quarters, and the worst profile occurred in October 1998.

Note that these indicators would cover households whose employment profile remained the same from July 1997 to July 1998 but changed in October 1998, in addition to households whose employment profile deteriorated earlier.

Figure 5c. Employment of Panel Labor Force in Food Manufacturing, Financial, Mining, and Utilities Sectors



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Results indicate that visible underemployment worsened for about 9.5 percent of the panel (Table 12). The figures produced by the indicators are rather large; they reflect the increase in underemployment to 23.7 percent at the national level in October 1998. Some 1,982 households, or about 16.9 percent of the panel, were classified into at least one of the first three categories in Table 12. Use of adjusted APIS weights on the panel yields a national estimate of 17.3 percent.

Table 12. Number and Percentage of Households with Employment Transitions (Strict Definition)

Indicator ¹	Panel		National Estimate	
	No. of HHs	% of HHs	Pct	S.E.
Deterioration in				
Employment	445	3.8	3.9	0.2
Visible Underemployment	1,049	8.9	9.5	0.5
Invisible Underemployment	992	8.6	8.3	0.4
Underemployment	1,171	10.0	10.2	0.6

¹July 1997 = best; Oct 1998 = worst.

Households whose employment profile improved over the period were also identified. These include households, which, in October 1998, had more employed members (EMPSINC), fewer visibly underemployed members (VUSDEC), or fewer invisibly underemployed members (IUSDEC) than in July 1997. Moreover, the employment profile of these households in the intervening months was no better than its October 1998 profile.

Few households had better employment profiles in October 1998 than in July 1997 (Table 13). Households with more employed members in October 1998 would include those with members who joined the labor force toward the latter part of the period under study and found immediate employment.

A less stringent definition was also used to come up with indicators that tag households whose employment profile in July 1997 was not neces-

Table 13. Number and Percentage of Households with Improved Labor Profile

Indicator	Panel		National Estimate	
	No. of HHs	% of HHs	Pct	S.E.
Improvement in				
Employment	1,027	8.8	8.6	0.4
Visible Underemployment	29	0.2	0.3	0.1
Invisible Underemployment	43	0.4	0.4	0.1
Underemployment	85	0.7	0.7	0.2

sarily the best but for which the employment profile in October 1998 was the worst. Formulas for the counterpart indicators resulting from this weaker definition are shown in Appendix Table 4. These values include the households for which the July 1997 employment situation was the best and October 1998 the worst. Some 2,320 households, or about 19.8 percent of the panel, were classified into at least one of the first three categories in Table 14. Use of adjusted APIS weights on the panel yields a national estimate of 20.2 percent.

Table 14. Number and Percentage of Households with Employment Transitions (Weak Definition)

Indicator ¹	Panel		National Estimate	
	No. of HHs	% of HHs	Pct	S.E.
Deterioration in				
Employment	675	5.8	5.8	0.3
Visible Underemployment	1,116	9.5	10.1	0.5
Invisible Underemployment	1,046	8.9	8.8	0.5
Underemployment	1,323	11.3	11.6	0.6

¹Best not necessarily = July 1997; Oct 1998 = worst

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Family income earned from salaries and wages in 1998 was lower than the corresponding figure for 1997 for 53.7 percent of the panel households (64.2 percent for national). However, only 15.2 percent of the panel households reported being affected by reduced wages during the April-September 1998 reference period of APIS. This discrepancy between the two percentages may be due to the difference in reference period and, possibly, measurement error both in the self-reported indicator and measured income.

Information on reduced wages and salaries was incorporated into the employment transition indicators as follows. A household whose recorded salaries and wages decreased and which reported being affected by reduced wages in the APIS survey (VLZWAGE) is tagged by the strict definition (STRLSHK) indicator. A household whose recorded salaries and wages also decreased but which did not report being affected by the problem in the APIS survey (ALZWAGE) is tagged under the weak definition (WLSHK) indicator.

The labor market indicators are thus defined as follows:

- STRLSHK = 1 if EMPSEDEC=1 or VUSINC=1 or IUSINC=1 or VLZWAGE=1
 = 0 otherwise
- WLSHK = 1 if EMPSEDEC=1 or VUINC=1 or IUINC=1 or ALZWAGE=1
 = 0 otherwise

Comparing the figures in Table 15 with those in Tables 12 and 14, it is evident that it is the decline in salaries and wages of the panel households that is inflating the numbers and percentages of households being tagged by the indicators. However, it is difficult to ascertain whether or to what extent measurement error in salaries and wages is influencing these figures. Ig-

Table 15. Number and Percentage of Households by Labor Market Shock

Labor Market Shock	Panel		National Estimate	
	No. of HHs	% of HHs	Pct	S.E.
Strict Definition				
(STRLSHK)	3,024	25.8	26.6	1.1
Weak Definition				
(WLSHK)	8,381	71.5	72.0	1.1

noring the information, on the other hand, could also result in biased parameter estimates from fitted logistic and regression models, and hence in biased estimates of the impact of the crises.

Preliminary investigations on the above indicators hint at their potential usefulness. Results of logistic regressions² indicate that the households tagged by the indicators are more likely to be employed in specific industries. Specifically, households with members employed in the following industries are more likely to have experienced more severe labor market shocks: non-food manufacturing; construction; finance; services; and transportation (Appendix Table 5). The results indicate that predominantly agriculture households are less likely to have been affected by severe labor market shocks. Similar results are obtained for the logistic regression of the weak definition indicators (Appendix Table 6).

In response to the question whether, during the past six months, the problem of loss of job within the country affected a person and her/his family, 18.4 percent of the 1998 APIS sample respondents answered in the affirmative. This yields a national estimate of 20.3 percent of families in the country being “affected by loss of jobs.” Given the high figure, most of the respondents were evidently not reporting actual, prolonged loss of jobs of immediate members of the family, the kind of dislocation that would result in large increases in national estimates of unemployment. Rather it appears they were reporting on the impact of job rotations, cut in work hours and the like, not necessarily loss of jobs. Whether they were reporting work dislocations of immediate family members or extended family members is also not clear.

The self-reported labor market shock estimate is close to the estimates obtained using shock indicators (weak definition) in Table 16. The indicators though are not necessarily tagging the same households (Appendix Table 7). The association between the two indicators is significant at the 5 percent level, however.

To further assess the constructed and self-reported indicators, we conduct logistic regressions relating change in poverty status to the indicators. Households were first categorized according to transition in poverty status. A household is classified in the “fall below the threshold” category if it was classified as non-poor in 1997 and as poor in 1998. A household is classified in the “rise above threshold” category if it was classified as poor

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Table 16. Estimated Odds Ratios of Logistic Regressions of Transition in Poverty Status on Labor Shock Indicator (attained level of significance in parentheses)

	Labor Market Shock		Self-Reported Shock
	Strict Def.	Weak Def.	
Employment Transition Indicator			
Fall below threshold	1.2	1.16	1.18
	(0.024)	(0.036)	(0.024)
Rise above threshold	0.93	0.96	0.80
	(0.556)	(0.748)	(0.046)
Indicator with wages and salaries			
Fall below threshold	1.14	0.93	1.1
	(0.106)	(0.350)	(0.270)
Rise above threshold	0.76	0.452	0.84
	(0.008)	(0.000)	(0.106)

in 1997 and as non-poor in 1998. About 14.4 percent of the panel households (14.9 percent for national) categorized as non-poor in 1997 reported incomes that brought them below the threshold in 1998; about 6 percent of the sample households (6.2 percent for national) classified as poor in 1997 reported incomes that brought them above the threshold in 1998.

The preliminary weighted logistic regressions indicate that incorporation in the indicators of change in wages and salaries between 1997 and 1998 introduces some noise into the indicator that weakens the signal between the status ‘fall below the threshold’ and the indicator. All the indicators based on employment transitions³ significantly explain the status ‘fall below the threshold’. But when wages and salaries are incorporated in the indicator⁴, only the strict definition of labor market shock remains significant at the 15 percent level. However, incorporation of change in wages and salaries in the indicator appears to significantly explain the poverty transition rise above the threshold for the constructed labor shock indicators. The self-reported indicator in this case is not as highly significant.

These results suggest that the indicator based on the strict definition incorporating wages and salaries (STRLSHK) is potentially more useful in the regressions of per capita income on its determinants. It may also be able to explain variation for those households with high or improved per capita incomes. It may be noted that the weak definition indicator (WLSHK) does not perform as well as the strict definition indicator in these preliminary regressions. The self-reported indicator based on employment transitions appears to perform well, but it does not perform as well as the strict definition indicator once information on wages and salaries are incorporated.

It is worth noting that the measured (as opposed to self-reported) labor shock indicator may itself be subject to measurement error. Bound et al. (1990), as cited in Baltagi (1995), in their study on the extent of measurement error in labor market variables, found that biases from measurement errors could be serious for hourly wages and unemployment spells but not severe for annual earnings. In using the Labor Force Survey (LFS) panel, we also encounter attrition bias, a problem that so commonly plagues panels (Baltagi 1995). As Fallon and Lucas (2000) put it: "...one can never be sure just how much turnover in employment status in any panel or recall data sample reflects errors in measurement. However, it is not so obvious that errors in measurement should be correlated with the state of the economy, so that comparisons of the churning in the downturn and upturn phases ... can be particularly informative." In like manner, we show that the indicators based on employment transitions are correlated with transitions in poverty.

EL NIÑO OR EL PESO?

Bearing in mind the results in the previous section and the aforementioned limitations, we still consider the methodology espoused in Datt and Hoogeveen (2000). The reason is because this methodology is conceptually appealing for measuring impact and might provide sharper results if some of the measurement issues could somehow be addressed.

Regression models are fitted to the panel for estimating the impact of the shocks on per capita consumption and per capita income. The models

relate per capita consumption and per capita income to household characteristics, attributes of their communities, their exposure to crisis-related economic shocks, and variables for interaction effects between the shocks and other attributes. The model for per capita consumption is given by

$$(1) \ln C_j = \beta T C_j + \gamma^L S_j^L + \gamma^E S_j^E + \gamma^{LE} S_j^{LE} + (\delta^L) T S_j^L Z_j + (\delta^E) T S_j^E Z_j + (\delta^{LE}) T S_j^{LE} Z_j + \epsilon_j,$$

where C_j is the average consumption per person in the household; C_j is a set of households characteristics and other determinants of households j 's per capita consumption; the $S_j^{(.)}$ are binary variables indicating if household j experienced a labor market shock (S^L), the El Niño shock (S^E), or both (S^{LE}); Z_j is a subset of C_j ; and ϵ_j is a random disturbance term. In this paper, S^{LE} is just $S^L \times S^E$.

The estimated coefficients γ^L and γ^E in (1) are expected to have negative signs (a household affected by a crisis would normally have lower consumption or lower income). The estimated δ 's can be positive according to whether the Z variable mitigates the effect of the shock.

The impact of a shock is then estimated as the difference between predicted consumption (income) conditional on not being affected by the shock and predicted consumption (income) based on the model. In symbols, the impact on per capita income of a crisis-related shock is given by

$$(2) \text{Impact} = \exp(\ln Y_j \mid S_j^{(.)} = 0) - \exp(\ln Y_j).$$

For households adversely affected by the shock, the impact is expected to be positive; the estimated impact represents the decline in income resulting from experiencing the shock. For households not affected by the shock, the impact is expected to be zero. Pre-crisis or counterfactual consumption (income) is then computed as actual consumption (income) adjusted for the impact of the shock. Counterfactual per capita income is thus computed as

$$(3) \quad Y_j^* = Y_j + \text{Impact},$$

where Y_j is per capita income in 1998. Thus for those adversely affected by a shock, counterfactual income should be higher than observed, actual income.

One difference between this paper and that of Datt and Hoogeveen (2000) is in the operationalization of labor market shock. The reference paper uses a self-reported indicator; we construct two labor market indicators using employment transitions of panel household and information on wages and salaries. One indicator uses a more stringent definition and classifies fewer households as having been affected by the shock. The other imposes weaker conditions and classifies more households as having been affected. Separate regression models are fitted to the two constructed indicators and counterfactual incomes are computed for both models.

No attempt was made to adjust estimated impact values that turned out to be negative. Even for models with good fit (high R^2), a few observations (the outliers) will have large negative residuals (i.e., $\ln Y_j$ exceeds $\ln Y_j$). It is thus possible for some of the estimated impacts to be negative as well, as a consequence of estimation. Too many negative estimated impacts would be an indication of model misspecification, however.

Following the approach in Datt and Hoogeveen (2000), we use poverty incidence based on counterfactual income and poverty incidence based on predicted income under different scenarios (no labor shock, no El Niño shock) to assess the impact of the crises. However, we handle the shock indicators somewhat differently in this paper. In the reference paper, S^L tags households that were affected by the labor shock alone, S^E tags those affected by the El Niño shock alone and S^{LE} tags those affected by both shocks (so that $S^{LE} = S^L \times S^E$). Thus Datt and Hoogeveen have three scenarios apart from counterfactual: no labor (L) shock, no El Niño (E) shock, and no LE shock.

In this paper, S^L tags all households that were affected by the labor shock, S^E tags all households that were affected by the El Niño and the product $S^{LE} = S^L \times S^E$ is used to tag all households affected by both ($S^{LE} = 1$) or not affected by both ($S^{LE} = 0$). We found this more convenient for interpretation of model results. Thus, in this paper, the condition of no labor shock ($S^L = 0$) and no El Niño shock ($S^E = 0$), in which case $S^{LE} = 0$, is treated the same as counterfactual.

To factor in the effect of the price shock, we estimate poverty incidence by first comparing counterfactual income with the 1997 poverty thresholds and then with the estimated 1998 poverty thresholds, which are the 1997 thresholds adjusted for inflation. The difference between the two

resulting percentages provides an estimate of the increase in poverty incidence that may be attributed to price increases.

We used essentially the same set of determinants employed in the reference paper with some modifications (e.g., number of employed male and female adult members as of July 1997, instead of simply number of adult male and female members) and some additions. The variables are as follows:

- a. *Households demographics*: Linear and quadratic terms in family size, and household composition variables including number of employed (as of July 1997) male and female adults (ages 15-60), number of children below seven years of age, and number of children in the age group 7-14.
- b. *Characteristics of household head*: Linear and quadratic terms in age of household head, female headship, and marital status (single, widowed or divorced).
- c. *Education*: Average completed years of schooling of adult household members and its square.
- d. *Occupational characteristics*: A variable representing employment diversity, which is defined as the number of distinct industry sectors in the household members, was employed. Binary variables representing occupational background of household members. The binary variable for a given industry takes the value 1 if more members of the household are employed in that industry. Ten sectors were distinguished: agriculture, fishery and forestry; mining and quarrying; manufacturing; electricity, gas and water; construction; wholesale or retail trade; transport, storage, communication; finance, real estate, business services; community, and social and personal services. Other occupations served as reference base. Manufacturing was further distinguished into manufacture of food, beverages and tobacco, and others (labeled as nonfood) in the hope of isolating the possible impact of El Niño on food manufacturing.

The industry classification of the household as recorded in FIES was used as basis for the classification so as to capture the impact of the crisis. It thus serves as a sort of “industry of origin” for

households that change industry classification over time.

A household with an equal number of employed members in two industries is classified in both industry categories. For example, a household with two members in agriculture and two members in the transportation industry is classified both as “predominantly agriculture” and “predominantly transportation.”

A binary variable indicating if the household produces food for own consumption was also included.

- e. *Land, electricity, social network, public assistance*: Binary variables for ownership of agricultural land; use of electricity; membership in a cooperative or NGO; recipient of government assistance such as scholarship or government extension services or being a beneficiary of housing or the land reform program.
- f. *Community or barangay characteristics*: Binary variable indicating if barangay is urban or rural. Indices based on barangay or community level data: infrastructure capital, community social capital, commercial capital. The infrastructure capital index is an average of binary variables representing the presence in the barangay of a phone, telegraph, postal services, a laid-out street pattern, and access to national roads. The community social capital index is an average of binary variables indicating the presence of a town hall, a community hall, a church, or a park in the barangay. The commercial capital index is the sum of the number of financial institutions, industrial establishments and stores, divided by 30, the maximum number possible given the variables’ coding.
- g. *Additional region indicators*
- h. *Additional labor variables*: Change in number of employed males and females between July 1997 and October 1998. Difference in FIES and APIS per capita wages and salaries.

The estimated models are shown in Appendix Tables 8 and 9. The second and third columns give the estimated coefficients and attained significance levels of the corresponding t-statistics for the full set of determi-

nant variables; the last two columns report the values for the final model where only significant variables are retained. The models have reasonably good fit, explaining from 58 to 59 percent of the variation in log per capita income. The signs of the estimated coefficients appear to be reasonable.

Results of the model using the strict labor market shock indicate that, *ceterus paribus*, the labor market shock had a negative impact, reducing per capita incomes by about 5.2 percent. The El Niño reduced per capita incomes by about 16.8 percent. Per capita income of households exposed to both shocks was lower by an estimated 11 percent (-5.2% - 16.8% + 10.9%). That a larger reduction in per capita income occurred for those hit by the El Niño alone as compared to those adversely affected by both the labor and El Niño shocks indicates differences in the composition of the two groups. Verification showed that about 58.9 percent of households exposed to the El Niño only are predominantly agricultural. A smaller though still considerable percentage, about 49.2 percent, of those exposed to both shocks are predominantly agricultural. It is probably the case that predominantly agricultural households suffered deeper cuts into their income than households employed in other industries.

The results thus indicate that the impact of the El Niño on per capita income is stronger than that of the financial crisis mediated by labor shocks.

The significant positive coefficient of the diversity of employment variables indicates that household whose members are employed in different industries are more likely to have larger per capita incomes. The fact that its interaction with the El Niño has a significant positive estimated coefficient indicates that employment diversity served to mitigate the effect of the El Niño. It cannot be concluded, however, that employment diversity likewise mitigated the effect of the labor market shock since the interaction of the two variables was not significant.

Membership in a cooperative or NGO appears to produce positive gains (about 16.7 percent) where per capita incomes are concerned. These gains appear to have been eroded, however, by exposure to either crisis shock (by 10.3 percent in the case of labor shock and 6.4 percent in the case of El Niño) and to both shocks (by 5.6 percent in the case of households exposed to both shocks).

The significant negative estimated coefficient for the El Niño and the number of employed female household members in 1997 indicates that households with more employed female household members in 1997 tended to have been affected more by the weather shock. Since the weather shock affected predominantly agricultural households, this supports the findings of Lim (2000) that, while women in the urban areas were not as severely affected as their male counterparts, women in the rural areas were.

The significant positive coefficient of the interaction of the El Niño shock with the commercial capital index indicates that households located in more developed areas and reporting to have been affected by the weather shock generally have higher per capita incomes. This interaction variable could be adjusting for some of the measurement error introduced in the use of a self-reported indicator for El Niño.

For the model based on the weak market shock, the variable on per capita wage/salary difference (PCSWD) initially entered the model (Appendix Table 9). But its coefficient was nearly equal in magnitude to and had the opposite sign of the coefficient of its interaction with the weak labor shock. Validation checks indicated that the two variables indeed were just counteracting each other; dropping one variable from the model resulted in the other's becoming nonsignificant.

The weak labor shock version of the model suggests that the impact of the labor market shock and the El Niño are about the same. The former apparently results in a reduction in per capita income of about 11.0 percent, the latter by about 11.8 percent. The interpretation of an estimated coefficient related to employment diversity leads to some difficulties, however.

As in the strong shock model, the main effect variable on employment diversity enters the final model equation. However, the negative estimated coefficient of its interaction with the weak labor shock would suggest that households with more employment diversity and exposed to labor market shock suffered greater loss in per capita income. This would suggest that employment diversity, rather than functioning as a risk-management strategy, is in fact making the households more vulnerable to labor market shocks. This runs counter to common knowledge.

The counterfactual incidence estimates as well as the incidence estimates for the two other scenarios are shown in Table 17. The counterfactual incidence estimates are computed using 1997 poverty

price shock. It may be recalled that the estimate from the (unperturbed or unshifted) per capita income distribution is about 4.2 percent. But the 4.5 percent figure may still be on the high side if we consider the attrition bias in the panel, and since our approach does not take into account possible consumption smoothing that the households may have resorted to. The effects of income smoothing (e.g., increase in labor force participation especially by women, which apparently occurred per the findings in Lim 2000) were very likely captured by the approach, however.

It may be noted that the difference in the 1998 and 1997 estimated counterfactual poverty incidence from the weak shock model is about the same as that yielded by the strong shock model, 4.7 percentage points. In the ensuing discussion, we consider the results from the strong shock model.

In the absence of a labor shock (in which case there is El Niño), the estimated poverty incidence is higher than the 1998 counterfactual by 3.9 percentage points. In the absence of El Niño shock, (in which case there is a labor shock), the estimated poverty incidence is 1.3 percentage points higher than the counterfactual estimate. The results thus support Datt and Hoogeveen's results to some extent in that the impact of the El Niño appears to have been greater than the impact of the crisis mediated through the labor shocks. But the impact of the price shock is higher than the El Niño's.

The impact of the crisis on headcount index and poverty gap index yielded by the strong shock model is shown in Table 18. The estimates of the poverty gap index are affected by quite a number of outlying observations that had large recorded incomes (relative to the rest of the panel) in 1998. But the crises appear to have contributed to furthering income inequality.

Multiple correspondence analysis (MCA) was performed on the panel households to obtain some insights as to the effects of the crises on the panel households. Panel households were classified as "victims" of price shock, labor market shock or El Niño if their relevant counterfactual income fell below the threshold primarily on account of the indicated shock. Using these constructed indicators, an interpretable pattern as to the effect of the crises on the regions was obtained (Figure 6); no similarly meaningful pattern could be obtained for the impact of the crises on the industries.

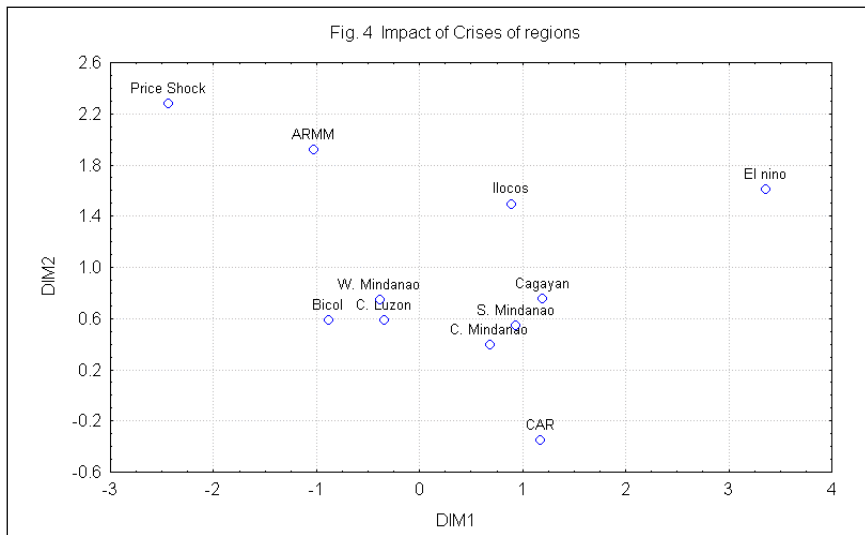
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Table 18. Impact of the Crisis on Poverty Incidence and Inequality (in percent)

1997 Official Est.	1998 Unwtd. Panel	Weighted Panel Estimates		Counterfactual (No shocks)		Counterfactual No Labor shock	Counterfactual No El Niño shock
		1997	1998	1997 Thresh.	1998 Thresh.		
Incidence of poor families							
31.8	39.7	33.4	42.0	33.7	38.5	42.4	39.8
		<i>1.93</i>	<i>2.02</i>	<i>1.83</i>	<i>1.94</i>	<i>2.04</i>	<i>1.91</i>
Headcount Index							
36.8	44.6	37.9	46.8	37.5	43.6	47.2	44.4
		<i>2.15</i>	<i>2.20</i>	<i>2.04</i>	<i>2.10</i>	<i>2.17</i>	<i>2.07</i>
Poverty Gap							
10.0	25.8*	10.6	30.5*	3.4	15.5	15.7	15.5
	<i>81.2</i>	<i>0.75</i>	<i>1.98</i>	<i>0.79</i>	<i>0.95</i>	<i>0.96</i>	<i>0.95</i>

Note: Italicized figures are the standard errors for the weighted estimates.
 * Due to presence of outliers with large 1998 per capita incomes.

Figure 6. Impact of the Crises on Regions



The supporting statistics for the MCA indicate that we have essentially a left-right dichotomy. Regions listed to the left of the origin were more affected by the price shock than the El Niño, while those on the right were more affected by the El Niño. Examination of the data indicates that in each of the regions, at least 5 percent of the panel households fell below the poverty threshold on account of the shock, thus falling close to the center of the map. In the case of the Ilocos region, at least 5 percent of its panel households fell below the thresholds on account of the price shock, and another 5 percent (at least) fell below the threshold on account of the El Niño. It is thus being drawn to the center of the map.

Our results show that the El Niño had a greater impact on poverty incidence in the north (Ilocos, Cagayan and CAR) and in the south (Central and Southern Mindanao).

To validate the MCA results and, hence, the results on the counterfactual estimates, we examined for each region the decline in gross value added (GVA) between 1997 and 1997 in the agriculture sector expressed as percentage of gross regional domestic product (GRDP). The resulting percentage points were then adjusted for estimated number of predominantly agricultural households in the region to obtain a per capita decline as it were.

The results, shown in Table 19, indicate that the MCA procedure tagged three of the five topmost regions with the largest per capita decline in GVA/GRDP between 1997 and 1998. These are Cagayan, CAR and Ilocos. ARMM, which had the largest decline, was classified as having been more affected by price shock. A possible explanation for this is that a region with high poverty incidence is very likely to be greatly affected by a shift in the threshold, whether upward or downward. ARMM and Bicol, the regions with the highest poverty incidence in 1997, were both identified by the MCA procedure as being greatly affected by the price shock.

CONCLUDING REMARKS

In view of the data and other limitations of the study, we need to exercise some caution in interpreting the results. The limitations notwith-

Table 19. Decline in Gross Value Added (GVA) in Agriculture, as Percentage of Gross Regional Domestic Product (GRDP), and 1997 Official Poverty Incidence Estimate, by Region

Region	Decline in per capita GVA/GRDP		Official Poverty Incidence	
	Value (x 10 ⁻⁵)	Rank	Pct	Rank
1 (Ilocos)	0.66	5	37.8	
2 (Cagayan)	1.44	2	32.1	
3 (Central Luzon)	0.22	10.5	15.4	
4 (Southern Luzon)	0.14		25.7	
5 (Bicol)	0.44		50.1	2
6 (Western Visayas)	0.22		39.9	
7 (Central Visayas)	0.64		34.4	
8 (Eastern Visayas)	0.51		40.8	
9 (Western Mindanao)	0.15		40.1	7
10 (Northern Mindanao)	1.19	3	47.0	4
11 (Southern Mindanao)	0.18		38.2	9
12 (Central Mindanao)	0.40		50.0	3
13 (National Capital Region)			6.4	
14 (Cordillera Administrative Region)	0.83	4	42.5	5
15 (Autonomous Region of Muslim Mindanao)	3.5	1	57.3	1

Source of basic data: *1999 Philippine Statistical Yearbook*, NSCB.

standing, we are inclined to believe that the financial crisis, through the peso devaluation and concomitant increase in prices, exerted a much greater impact on poverty incidence than the El Niño did. But the impact of the El Niño may have been nearly as great as that of the financial crisis.

It appears also that the impact of the financial crisis mediated through the labor shocks was not as great as either the price or the weather shock. It is remarkable that the attempt to measure the impact of the labor market shock with greater care should serve to highlight the impact of the El Niño. That this should occur could be due, in part, to the measurement error in the self-reported weather shock. Alternatively, the impact of reduced real wages on poverty has yet to register in the measures. It is possible it will register in 1999, judging from the findings of Lim (2000).

From a statistical standpoint, the relevant question is: how much faith can we put in these results considering the measurement errors and other limitations of the study? These included attrition bias in the panel, possible underreporting of salaries and wages in APIS, use of a self-reported weather shock, the need to use rural/urban regional poverty thresholds, and the need to adjust APIS income and consumption for possible seasonal effects. The wonder of it, statistically speaking, is that we were able to extract some signal, some patterns. The impact of the price shock and the El Niño were, to a certain extent, externally validated. That is to say, these were validated outside of the model using the (unshifted) 1997 per capita income distribution and the constructed change in “per capita” GVA/GRDP index. Given the very plausible findings of the study, it would seem that the general finding as to the relative impact of the three crises (price shock, labor market shock and El Niño) would continue to hold. What are more likely to change are the magnitudes of the impact, particularly for the labor and weather shocks. The El Niño impact, in particular, may have been overstated. With more careful consideration of measurement issues, the methodology should produce more reliable estimates of the impact of the shocks.

As to the question of whether self-reported measures should be used, in the absence of other immediately available information, we would. We would just have to take possible measurement error into account. These measures can also be used in conjunction with other measures based on more direct evidence.

A number of lessons can also be gleaned from the results in this paper from a policy perspective. Government development plans have espoused a policy thrust on sustaining economic growth with equity, i.e., programs and projects have been outlined so that various sectors complement each other toward raising economic growth, which in turn is expected to generate stable employment opportunities and reduce poverty. Since poverty in the Philippines is largely a rural phenomenon, poverty alleviation policies must continue to be directed toward rural areas through infrastructure development and agricultural modernization in conjunction with structural reforms.

The financial crisis and El Niño have further aggravated household poverty, which at their 1997 levels was already rather high. Self-reported evidence from the panel suggests that the government did not significantly assist households in coping with the crises. This paper suggests that the impact of the crisis has been uneven, with some households suffering more than others, even among poor households. Government ought to learn how to effectively target the victims of crises and help those who need help the most.

The impact of the financial crisis and El Niño on household poverty appears to be largely related to family size and occupation of the household heads, and this impact appears to have lingered. While some households with large family sizes may have had coping mechanisms, e.g., increased working hours and income transfers, or pulling their children out of school and putting them to work, it appears, however, that households with large family sizes were generally the ones most vulnerable to shocks. This suggests that government ought to display resolve in empowering households to have the family sizes they desire. The latest official statistics indicate that, at the national level, actual and desired fertility rates differ by one child. This gap ought to be bridged as a form of safety net against the effects of future crises. Attempts to alleviate poverty may only be continuously hampered by a population size whose growth exceeds the growth of the country's resources.

In addition, government together with the private sector ought to take a more active stance in assisting the public in getting gainful occupations. In handling similar crises in the future, government ought to consider funding a number of short-term training programs for those displaced by the effects

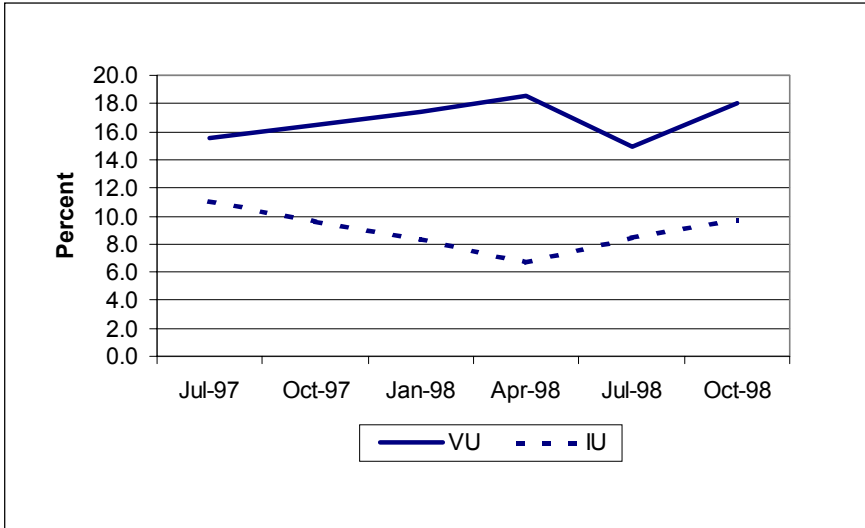
of the crises. Being able to shift occupations is largely dependent on the quality of one's education and training. While there may have been some gains in providing universal access to education over the past several decades, there are questions on whether low-income families are being given improved access to quality education, especially in higher education (Albert 2000). Hitherto, the programs offered in basic and higher education do not actually reflect labor market needs with the effect of having an oversupply of college graduates for some occupations resulting in underemployment and meager national productivity levels. Long-term investments will thus have to be made in both formal and non-formal education so that the labor force, especially the poor, may be assisted in choosing well their occupations, empowering them to cope with future shocks to the economy and improving their productivity, competitiveness and general state of well being.

Development policies and programs are, beyond doubt, dependent on fiscal constraints, which may not improve considerably within the short term. However, it is important that fiscal constraints do not hamper the development and implementation of long-term solutions to the country's problems. Furthermore it is important to recognize that a central issue in policy formulation is being able to collect information that will provide us reliable indications of whether goals being set out in these programs are truly being met. Studies on measurement errors in income and consumption and ways to address these have to be undertaken by the country's statistical system. On the basis of conceptual considerations, consumption appears to be a better measure of welfare (see Balisacan, 1999) and yet, it appears to be consistently underestimated, mitigating against its use. We need therefore to look into what accounts for this underestimation—the urban / rural dimension of it, our *tingi* (piecemeal) system of purchasing (the opposite of purchasing in bulk)—and hopefully, come up with measures to address it.

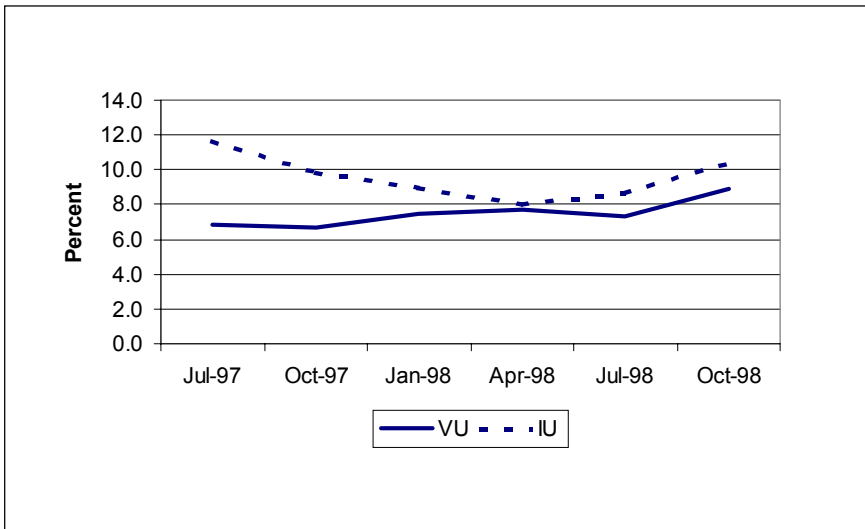
APPENDICES

Appendix Figure 1. Underemployment Trends for Panel Labor Force

(a) Agriculture, Fishery and Forestry

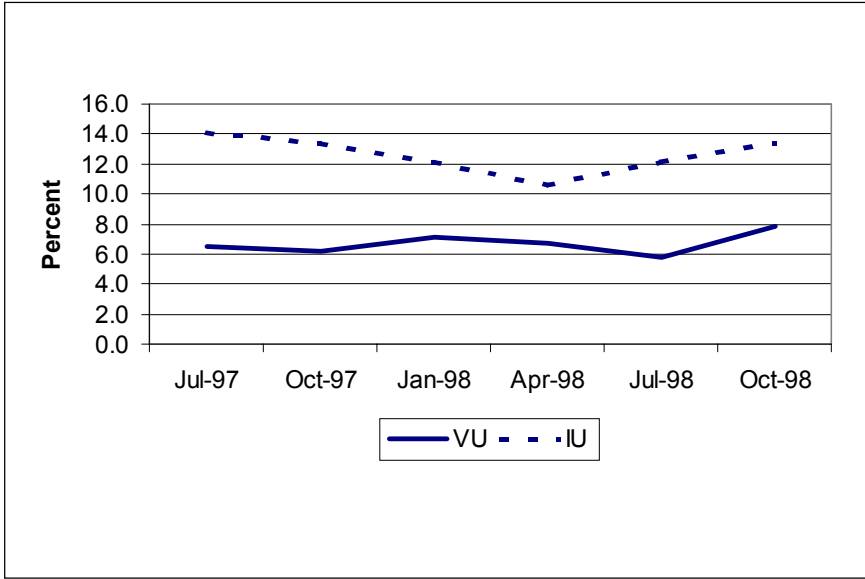


(b) Community, Social and Personal Services

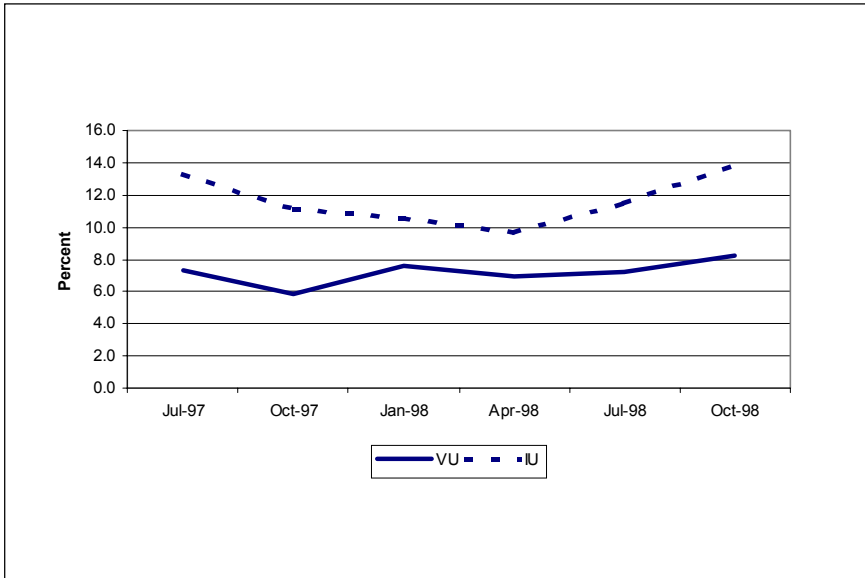


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(c) Non-food Manufacturing

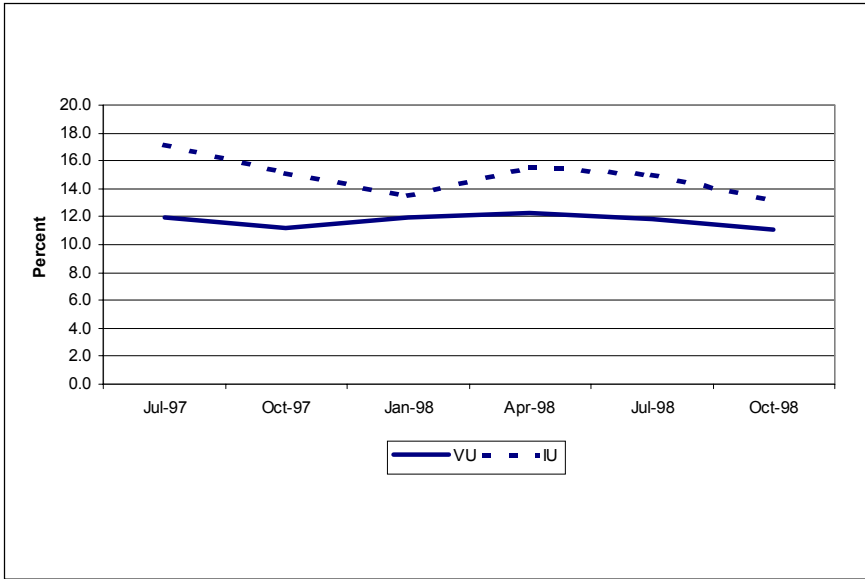


(d) Transportation, Storage and Communication

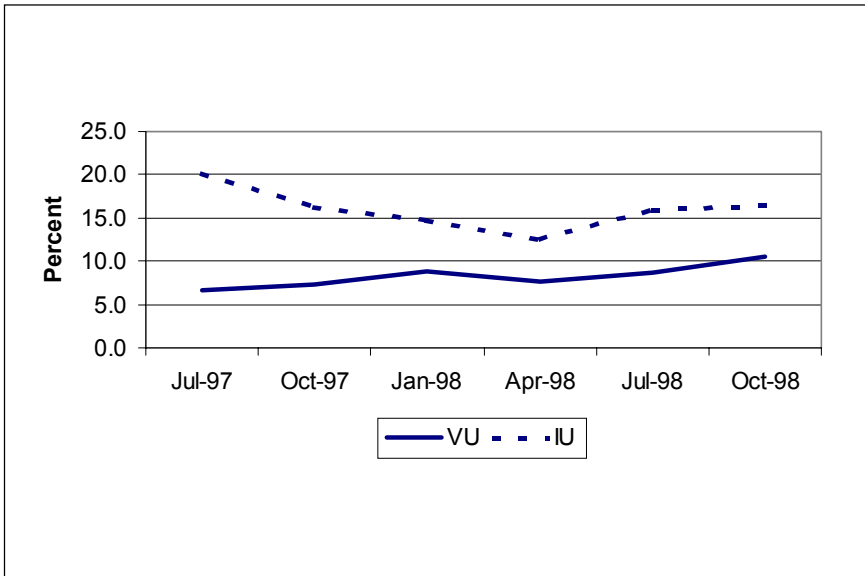


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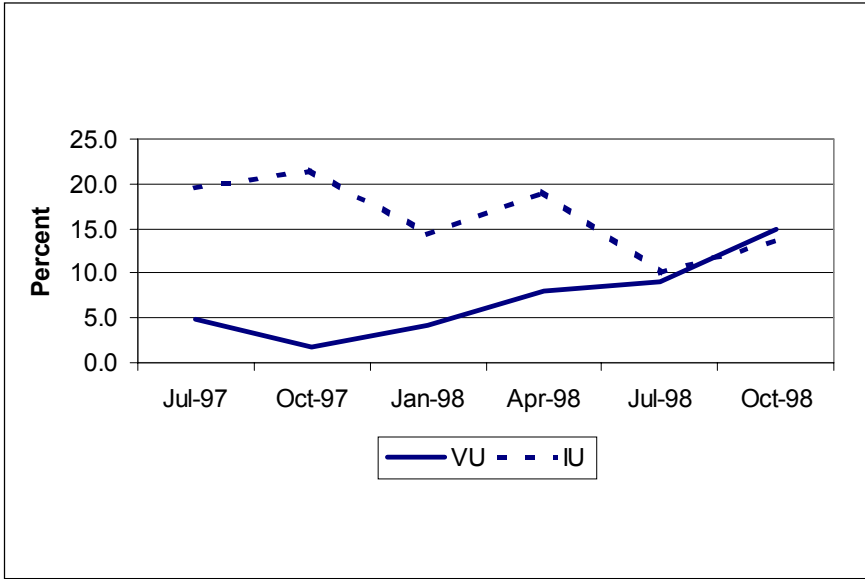
(e) Wholesale and Retail Trade



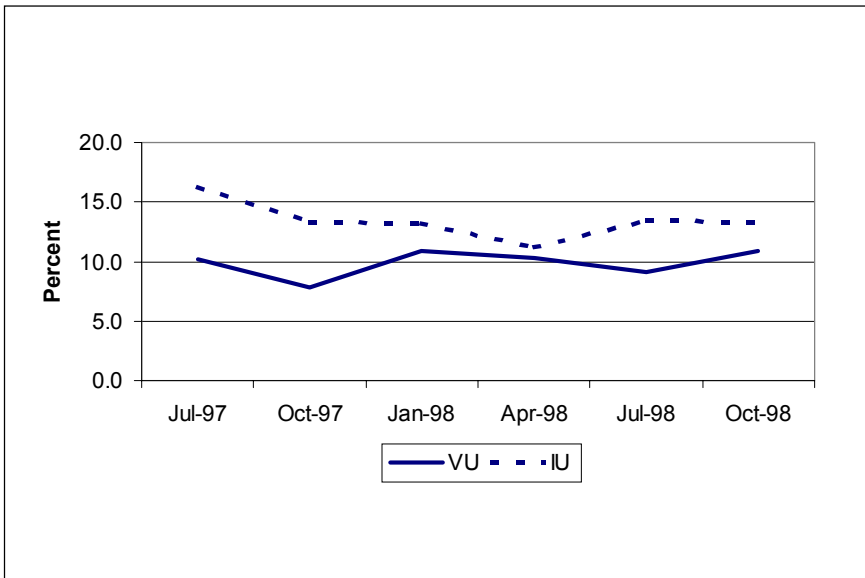
(f) Construction



(g) Mining and Quarrying

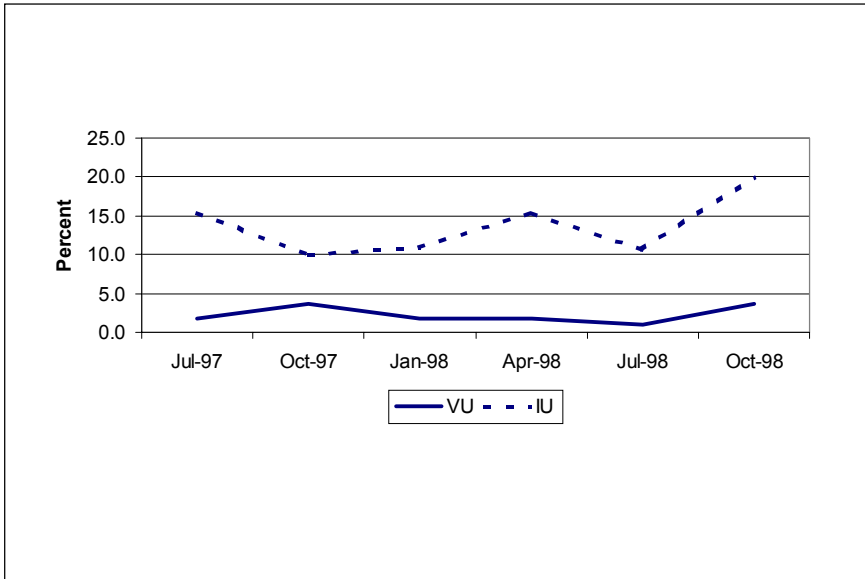


(h) Manufacture of Food, Beverage and Tobacco

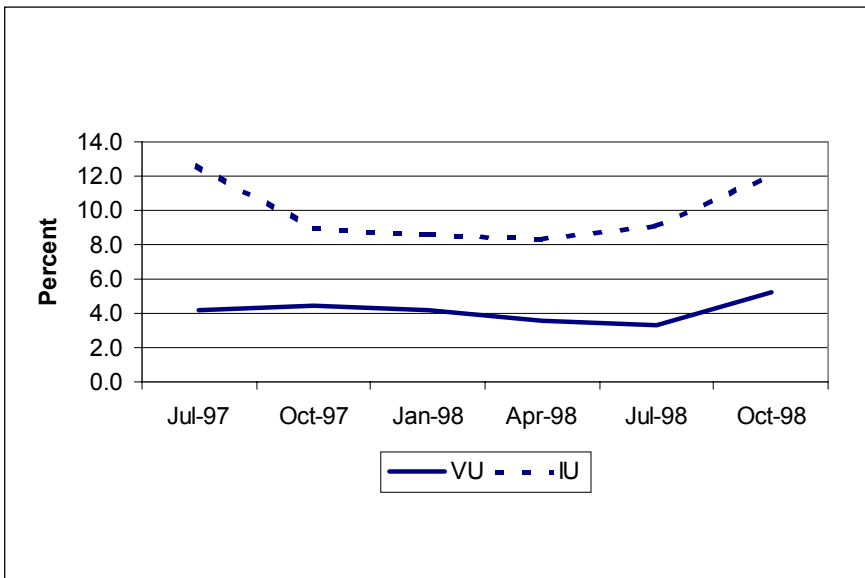


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(i) Electricity, Gas and Water



(j) Finance, Insurance, Real Estate and Business Services



Appendix Table 1. Employment of Persons in Panel Labor Force by Industry, July 1997 to October 1998

Industry	Jul-97		Oct-97		Jan-98		Apr-98		Jul-98		Oct-98	
	No. of Persons	Pct of Panel LF	No. of Persons	Pct of Panel LF	No. of Persons	Pct of Panel LF	No. of Persons	Pct of Panel LF	No. of Persons	Pct of Panel LF	No. of Persons	Pct of Panel LF
Agriculture, Fishery and Forestry	8466	33.9	8415	34.2	8318	33.7	8095	29.7	8330	33.7	8431	33.3
Mining and Quarrying	122	0.5	121	0.5	118	0.5	126	0.5	110	0.4	87	0.3
Manufacture of Food, Beverages and Tobacco	553	2.2	523	2.1	521	2.1	543	2.0	506	2.0	515	2.0
Non-food Manufacturing	1565	6.3	1561	6.3	1598	6.5	1677	6.1	1563	6.3	1588	6.3
Electricity, Gas and Water	110	0.4	109	0.4	110	0.4	116	0.4	103	0.4	110	0.4
Construction	1456	5.8	1415	5.7	1370	5.6	1392	5.1	1323	5.4	1275	5.0
Wholesale and Retail Trade	2232	8.9	2235	9.1	2262	9.2	2159	7.9	2277	9.2	2787	11.0
Transportation, Storage and Communication	1547	6.2	1567	6.4	1638	6.6	1645	6.0	1626	6.6	1620	6.4
Financing, Insurance, Real Estate & Business Services	507	2.0	515	2.1	499	2.0	502	1.8	483	2.0	520	2.1
Community, Social and Personal Services	4719	18.9	4580	18.6	4619	18.7	4893	17.9	4673	18.9	4720	18.6
Total*		85.2		85.4		85.3		77.5		84.9		85.4
Total Employed	22262		22493		22468		22987		22460		22681	
Labor Force Total	24965		24634		24671		27271		24723		25335	
Employment Rate		89.2		91.3		91.1		84.3		90.8		89.5

*Percentages do not add to 100 because of unemployment and exclusion of "nec" sector

Appendix Table 2. Visible Underemployment of Persons in Panel Labor Force by Industry, July 1997 to October 1998

Industry	Jul-97		Oct-97		Jan-98		Apr-98		Jul-98		Oct-98	
	No. of Persons	Pct of Panel LF	No. of Persons	Pct of Panel LF	No. of Persons	Pct of Panel LF	No. of Persons	Pct of Panel LF	No. of Persons	Pct of Panel LF	No. of Persons	Pct of Panel LF
Agriculture, Fishery and Forestry	1320	5.3	1384	5.6	1449	5.9	1498	5.5	1242	5.0	1518	6.0
Mining and Quarrying	6	0.0	2	0.0	5	0.0	10	0.0	10	0.0	13	0.1
Manufacture of Food, Beverages and Tobacco	56	0.2	41	0.2	57	0.2	56	0.2	46	0.2	56	0.2
Non-food Manufacturing	102	0.4	96	0.4	113	0.5	112	0.4	91	0.4	124	0.5
Electricity, Gas and Water	2	0.0	4	0.0	2	0.0	2	0.0	1	0.0	4	0.0
Construction	97	0.4	104	0.4	121	0.5	106	0.4	114	0.5	135	0.5
Wholesale and Retail Trade	266	1.1	249	1.0	269	1.1	265	1.0	270	1.1	308	1.2
Transportation, Storage and Communication	113	0.5	92	0.4	125	0.5	114	0.4	118	0.5	133	0.5
Financing, Insurance, Real Estate & Business Services	21	0.1	23	0.1	21	0.1	18	0.1	16	0.1	27	0.1
Community, Social and Personal Services	324	1.3	306	1.2	347	1.4	377	1.4	342	1.4	420	1.7

Appendix Table 3. Invisible Underemployment of Persons in Panel Labor Force by Industry, July 1997 to October 1998

Industry	Jul-97		Oct-97		Jan-98		Apr-98		Jul-98		Oct-98	
	No. of Persons	Pctof PanelLF	No. of Persons	Pctof PanelLF	No. of Persons	Pctof PanelLF	No. of Persons	Pctof PanelLF	No. of Persons	Pctof PanelLF	No. of Persons	Pctof PanelLF
Agriculture, Fishery and Forestry	941	3.8	815	3.3	698	2.8	545	2.0	704	2.8	821	3.2
Mining and Quarrying	24	0.1	26	0.1	17	0.1	24	0.1	11	0.0	12	0.0
Manufacture of Food, Beverages and Tobacco	90	0.4	70	0.3	69	0.3	61	0.2	68	0.3	69	0.3
Non-food Manufacturing	222	0.9	209	0.8	195	0.8	178	0.7	190	0.8	213	0.8
Electricity, Gas and Water	17	0.1	11	0.0	12	0.0	18	0.1	11	0.0	22	0.1
Construction	295	1.2	230	0.9	202	0.8	175	0.6	212	0.9	210	0.8
Wholesale and Retail Trade	385	1.5	338	1.4	306	1.2	336	1.2	343	1.4	369	1.5
Transportation, Storage and Communication	207	0.8	175	0.7	173	0.7	159	0.6	187	0.8	225	0.9
Financing, Insurance, Real Estate & Business Services	64	0.3	46	0.2	43	0.2	42	0.2	44	0.2	63	0.2
Community, Social and Personal Services	553	2.2	450	1.8	416	1.7	394	1.4	407	1.6	492	1.9

Appendix Table 4. Computational Formulas for Labor Market Indicators

A. Stringent Definition Identifying:

- (1) HHs where number of employed HH members in July 1997 exceeds the number of employed HH members in October 1998 and whose number of employed HH members in the intervening quarters is not larger than the July 1997 figure.

$$\begin{aligned} \text{EMPSDEC} &= 1 \text{ if } \text{NEMP}_Q > \text{NEMP}_{98.4}, \text{ all } Q \text{ before } 98.4 \\ &\quad \text{and } \text{NEMP}_{97.3} \geq \text{NEMP}_Q, \\ &\quad Q = 97.4, 98.1, 98.2, 98.3 \\ &= 0 \text{ otherwise,} \end{aligned}$$

where NEMP_Q = number of employed HH members in period Q.

- (2) HHs where the number of visibly underemployed HH members in July 1997 is less than the number of visibly underemployed HH members in October 1998 and where the number of visibly underemployed HH members in the intervening quarters is not lower than the July 1997 figure.

$$\begin{aligned} \text{VUSINC} &= 1 \text{ if } \text{NVU}_Q < \text{NVU}_{98.4}, \text{ all } Q \text{ before } 98.4 \\ &\quad \text{and } \text{NVU}_{97.3} < \text{NVU}_Q, Q = 97.4, 98.1, 98.2, 98.3 \\ &= 0 \text{ otherwise,} \end{aligned}$$

where NVU_Q = number of visibly underemployed HH members in period Q.

- (3) HHs where the number of invisibly underemployed HH members in July 1997 is less than the number of invisibly underemployed HH members in October 1998 and where the number of invisibly underemployed HH members in the intervening quarters is not lower than the July 1997 figure.

$$\begin{aligned} \text{IUSINC} &= 1 \text{ if } \text{NIU}_Q < \text{NIU}_{98.4}, \text{ all } Q \text{ before } 98.4 \\ &\quad \text{and } \text{NIU}_{97.3} < \text{NIU}_Q, Q = 97.4, 98.1, 98.2, 98.3 \\ &= 0 \text{ otherwise,} \end{aligned}$$

where NIU_Q = number of invisibly underemployed HH members in period Q.

- (4) HHs where the number of underemployed HH members in July 1997 is less than the number of underemployed HH members in October 1998 and where the number of underemployed HH members in the intervening quarters is not lower than the July 1997 figure.

$$\begin{aligned} \text{USINC} &= 1 \text{ if } \text{NU}_Q < \text{NU}_{98.4}, \text{ all } Q \text{ before } 98.4 \\ &\quad \text{and } \text{NU}_{97.3} < \text{NU}_Q, Q = 97.4, 98.1, 98.2, 98.3 \\ &= 0 \text{ otherwise,} \end{aligned}$$

where NU_Q = number of underemployed HH members in period Q.

B. Indicators for Households with Improved Employment Profiles, e.g.,

- (1) HHs where the number of employed HH members in October 1998 exceeds the number of employed HH members in any quarter and where the number of employed HH members in the intervening quarters is not smaller than the July 1997 figure.

$$\begin{aligned} \text{EMPSINC} &= 1 \text{ if } \text{NEMP}_Q < \text{NEMP}_{98.4}, \text{ all } Q \text{ before } 98.4 \\ &\quad \text{and } \text{NEMP}_{97.3} < \text{NEMP}_Q, \\ &\quad Q = 97.4, 98.1, 98.2, 98.3 \\ &= 0 \text{ otherwise.} \end{aligned}$$

- (2) HHs where the number of visibly underemployed HH members in October 1998 is less than the number of visibly underemployed HH members in any quarter and where the number of visibly underemployed HH members in the intervening quarters is not higher than the July 1997 figure.

$$\begin{aligned} \text{VUSDEC} &= 1 \text{ if } \text{NVU}_Q > \text{NVU}_{98.4}, \text{ all } Q \text{ before } 98.4 \\ &\quad \text{and } \text{NVU}_{97.3} \geq \text{NVU}_Q, Q = 97.4, 98.1, 98.2, 98.3 \\ &= 0 \text{ otherwise.} \end{aligned}$$

- (3) HHs where the number of invisibly underemployed HH members in October 1998 is less than the number of invisibly underemployed HH members in any quarter and where the number of

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invisibly underemployed HH members in the intervening quarters is not higher than the July 1997 figure.

$$\begin{aligned} \text{IUSDEC} &= 1 \text{ if } \text{NIU}_Q > \text{NIU}_{98.4}, \text{ all } Q \text{ before } 98.4 \\ &\quad \text{and } \text{NIU}_{Q97.3} \geq \text{NIU}_{Q8}, Q = 97.4, 98.1, 98.2, 98.3 \\ &= 0 \text{ otherwise.} \end{aligned}$$

- (4) HHs where the number of underemployed HH members in October 1998 is less than the number of underemployed HH members in any quarter and where the number of underemployed HH members in the intervening quarters is not higher than the July 1997 figure.

$$\begin{aligned} \text{USDEC} &= 1 \text{ if } \text{NU}_Q > \text{NU}_{98.4}, \text{ all } Q \text{ before } 98.4 \\ &\quad \text{and } \text{NU}_Q \geq \text{NU}_{98.4}, Q = 97.4, 98.1, 98.2, 98.3 \\ &= 0 \text{ otherwise.} \end{aligned}$$

C. Indicators based on Weak Definition:

(1) $\text{EMPDEC} = 1$ if $\text{NEMP}_Q > \text{NEMP}_{98.4}$
 $Q = 97.3, 97.4, 98.1, 98.2, 98.3$
 $= 0$ otherwise,

where NEMP_Q = number of employed HH members in period Q.

(2) $\text{VUINC} = 1$ if $\text{NVU}_Q < \text{NVU}_{98.4}$
 $Q = 97.3, 97.4, 98.1, 98.2, 98.3$
 $= 0$ otherwise,

where NVU_Q = number of visibly underemployed HH members in period Q.

(3) $\text{IUINC} = 1$ if $\text{NIU}_Q < \text{NIU}_{98.4}$
 $Q = 97.3, 97.4, 98.1, 98.2, 98.3$
 $= 0$ otherwise,

where NIU_Q = number of invisibly underemployed HH members in period Q.

(4) $\text{UINC} = 1$ if $\text{NU}_Q < \text{NU}_{98.4}$
 $Q = 97.3, 97.4, 98.1, 98.2, 98.3$
 $= 0$ otherwise,

where NU_Q = number of underemployed HH members in period Q.

Appendix Table 5. Logistic Regression Model Relating Labor Market Shock Indicator (Strict Definition) and Industry Classification

Adjusted Wald test						
(1) pmine	=	0.0				
(2) pfoodm	=	0.0				
(3) pelec	=	0.0				
(4) ptrade	=	0.0				
	F(4, 212)	=	0.17			
	Prob > F	=	0.9538			
Survey logistic regression						
pweight	:	nrfact98		Number of obs	=	11722
Strata	:	urb		Number of strata	=	2
PSU	:	domain		Number of PSUs	=	217
				Population size	=	14370890
				F(6, 210)	=	28.86
				Prob > F	=	0.0000
strlshk	Odds Ratio	Std. Err.	t	P> t	[95% Conf. Interval]	
pagri	.8730585	.0721668	-1.642	0.102	.7417967	1.027547
pnonfdm	1.491298	.1508191	3.952	0.000	1.221779	1.820272
pconst	1.483897	.1060033	5.525	0.000	1.289002	1.708261
ptransp	1.125827	.0897448	1.487	0.139	.9621316	1.317374
pfin	1.303442	.1619327	2.133	0.034	1.020338	1.665095
pserv	1.127793	.0659475	2.057	0.041	1.005017	1.265566

strlshk is the measured indicator based on the strict definition
 = 1 if EMPSDEC = 1 or VUSINC = 1 or IUSINC = 1 or VLZWAGE = 1
 = 0 otherwise

Appendix Table 6. Logistic Regression Model Relating Labor Market Shock Indicator (Weak Definition) and Industry Classification

Survey logistic regression						
pweight	:	nrfact98		Number of obs	=	11722
Strata	:	urb		Number of strata	=	2
PSU	:	domain		Number of PSUs	=	217
				Population size	=	14370890
				F(9, 207)	=	38.09
				Prob > F	=	0.0000
wlshk	Odds Ratio	Std. Err.	t	P> t	[95% Conf. Interval]	
pagri	.4393048	.0309317	-11.682	0.000	.3823781	.5047065
pmine	.5055105	.1346895	-2.560	0.011	.2989854	.8546932
pnonfdm	1.482057	.1985156	2.937	0.004	1.138163	1.929858
pelec	.4440492	.1006716	-3.581	0.000	.2840275	.6942275
pconst	3.102372	.3765545	9.328	0.000	2.442268	3.940891
ptrade	.4753429	.0393298	-8.989	0.000	.4038128	.5595436
ptransp	1.193635	.1102625	1.916	0.057	.9949384	1.432012
pfin	1.264638	.1710952	1.735	0.084	.9686202	1.65112
pserv	2.06267	.1606244	9.297	0.000	1.76917	2.40486

wlshk is the measured indicator based on the weak definition
 = 1 if EMPDEC = 1 or VUINC = 1 or IUINC = 1 or ALZWAGE = 1
 = 0 otherwise

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Appendix Table 7. Test of Association Between Self-Reported and Measured (Weak Definition) Labor Market Shock Indicator

pweight	: nrfact98	Number of obs	= 11722
Strata	: urb	Number of strata	= 2
PSU	: domain	Number of PSUs	= 217
		Population size	= 14370890

shk	jobloss		
	0	1	Total
0	.6504	.1472	.7976
1	.158	.0444	.2024
Total	.8083	.1917	1

Key: cell proportions

Pearson:

Uncorrected	chi2 (1)	= 14.8323	
Design-based	F(1,215)	= 6.2914	P = 0.0129

Note: jobloss is the self-reported indicator
shk is a measured indicator based on the weak definition
= 1 if EMPDEC = 1 or VUINC =1 or IUINC =1
= 0 otherwise

Appendix Table 8. Regression Results for Strong Labor Shock Model

Majority of employed				
HH members in	Coef.	P> t 	Coef.	P> t
Agriculture	-.2135679	.000	-.2265908	.000
Food Manufacturing	-.0076452	.788		
Non-food Manufacturing	-.0147157	.482		
Mining	-.0285637	.616		
Utility	.2373765	.000	.2156678	.000
Finance	.1418943	.000	.1407317	.000
Trade	-.0438016	.034	-.0474876	.018
Transportation	.0090337	.601		
Construction	-.0683602	.001	-.0712607	.000
Services	.155378	.000	.1582375	.000
Produces food for own				
Consumption	-.1273441	.000	-.1378727	.000
Urban	.0469113	.125		
Member of cooperative or				
NGO (coop)	.1629461	.000	.1666023	.000
Beneficiary of government				
assistance	.0127172	.591		
Owens land (land)	.1342516	.027	.096084	.001
Family size	-.1928583	.000	-.1932747	.000
Family size, squared	.0070156	.000	.0070584	.000
HH head is female	.0673597	.008	.0591928	.012
Age of HH head	.0147119	.000	.0149833	.000
Age of HH head, squared	-.0001385	.000	-.0001408	.000
Ave. years of education of adult				
HH members (15-60) (schl)	-.0365666	.000	-.040458	.000
Ave. years of education of				
adult HH members, sqd.	.0061393	.000	.0063201	.000

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Appendix Table 8. ... *continued*

Majority of employed				
HH members in	Coef.	P> t 	Coef.	P> t
No. of children 1-6	-.1254124	.000	-.1258364	.000
No. of children 7-14	-.1079371	.000	-.1099284	.000
No. of male HH members				
employed as of July 1997	.0974917	.000	.0990019	.000
No. of female HH members				
employed as of July 1997	.1670191	.000	.1777535	.000
HH head is single	-.0032577	.930		
HH head is widow(er)	-.1367049	.000	-.1323783	.000
HH head is divorced	-.0542377	.304		
Has electricity	.2802159	.000	.2861293	.000
Social capital index (SCI)	-.0432409	.512		
Infrastructure capital index (ICI)	.1554549	.056	.1814944	.000
Commercial capital index (CCI)	.048503	.474		
Diversity of employment (diver)	.0433452	.023	.0386829	.018
Change in no. of employed males	-.0657569	.000	-.0638867	.000
Change in no. of employed females	-.0980245	.000	-.0983901	.000
Strong labor shock (S(SL))	-.1517894	.073	-.051503	.053
Per capita wage salary difference				
(PCWSD)	.00000147	.032		
S(SL) * PCWSD	-8.44e-08	.966		
El Niño (S(E))	-.1122745	.094	-.1682998	.000
S(E) * PCWSD	-7.93e-07	.687		
S(SL) * S(E)	.2044904	.023	.1093488	.014
No. of perceived labor shocks	-.0165006	.201		
No. of strong labor shocks	.0249635	.288		

Appendix Table 8. ... *continued*

Majority of employed				
HH members in	Coef.	P> t 	Coef.	P> t
S(SL) * schl	-.0014472	.786		
S(SL) * male	.0484636	.080		
S(SL) * fem	.02429	.416		
S(SL) * diver	-.0250352	.421		
S(SL) * coop	-.0996193	.064	-.1032314	.059
S(SL) * land	-.0124706	.871		
S(SL) * SCI	.1133266	.229		
S(SL) * ICI	.1175108	.252		
S(SL) * CCI	-.1287777	.241		
S(E) * schl	-.0016322	.682		
S(E) * male	-.0078318	.708		
S(E) * fem	-.0386054	.071	-.0500437	.005
S(E) * diver	.0375233	.101	.0396564	.039
S(E) * coop	-.0531073	.127	-.0643943	
S(E) * land	-.0513933	.354		
S(E) * SCI	-.0037786	.960		
S(E) * ICI	-.0163503	.861		
S(E) * CCI	.1016719	.246	.120717	.051
S(SL) * S(E) * schl	-.0038927	.534		
S(SL) * S(E) * male	-.0444848	.205		
S(SL) * S(E) * fem	-.0240627	.457		
S(SL) * S(E) * diver	.0300938	.369		
S(SL) * S(E) * coop	.1085408	.086	.1063889	.053
S(SL) * S(E) * land	.0291531	.729		
S(SL) * S(E) * SCI	-.1751905	.092	-.1237228	.043
S(SL) * S(E) * ICI	-.1640464	.268		
S(SL) * S(E) * CCI	.1288602	.439		

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Appendix Table 8. ... *continued*

Majority of employed				
HH members in	Coef.	P> t 	Coef.	P> t
Region 1	-.0623347	.153	-.1253863	.002
Region 2	.0276193	.000	.0242626	.000
Region 3	.0776813	.115		
Region 4	.0517837	.341		
Region 5	-.23956	.000	-.2868322	.000
Region 6	-.2612914	.000	-.2951021	.000
Region 7	-.3569518	.000	-.393505	.000
Region 8	-.3171449	.000	-.3457225	.000
Region 9	-.3388645	.000	-.3706499	.000
Region 10	-.3621288	.000	-.3857517	.000
Region 11	-.4098255	.000	-.4269257	.000
Region 12	-.4725127	.000	-.4901459	.000
Region 14	-.3365847	.003	-.344909	.003
Region 15	-.2094236	.003	-.222077	.001
Region 16	-.616195	.000	-.6225586	.000
Number of observations	11721		11721	
R-squared	0.5841		0.5819	

Appendix Table 9. Regression Results for Weak Labor Shock Model

Majority of employed HH members in	Coef.	P > t 	Coef.	P > t 	Coef.	P > t
Agriculture	-.218334	.000	-.2229839	.000	-.2366039	.000
Food Manufacturing	-.0044617	.875				
Non-food Manufacturing	-.0166341	.424				
Mining	-.0314879	.562				
Utility	.2294871	.000	.2043686	.000	.2104356	.000
Finance	.1443621	.000	.1364608	.000	.1387264	.000
Trade	-.047457	.026	-.0469973	.024	-.054114	.007
Transportation	.0083796	.626				
Construction	-.0646003	.001	-.0672693	.001	-.064304	.002
Services	.1543799	.000	.1545924	.000	.1636457	.000
Produces food for own consumption	-.1274873	.000	-.1295448	.000	-.1410368	.000
Urban	.0406935	.178	.0424689	.162		
Member of cooperative or NGO (coop.)	.1283107	.027	.0846639	.013	.1184207	.000
Beneficiary of government assistance	.011588	.626				
Owns land (land)	.0949393	.275	.094576	.001	.0952764	.001
Family size	-.1896955	.000	-.1875854	.000	-.1904845	.000
Family size, squared	.0068978	.000	.0067739	.000	.0068691	.000
HH head is female	.0709013	.006	.0643212	.006	.0563824	.016
Age of HH head	.0137428	.000	.0139051	.000	.0146477	.000

Appendix Table 9. ...continued

Majority of employed HH members in	Coef.	P > t 	Coef.	P > t 	Coef.	P > t
Age of HH head, squared	-.0001291	.000	-.0001303	.000	-.0001389	.000
Ave. years of education of adult HH members (15-60) (school)	-.0381106	.000	-.0409851	.000	-.0446743	.000
Ave. years of education of adult HH members, sqd.	.005853	.000	.0059465	.000	.0063078	.000
No. of children 1-6	-.1241022	.000	-.1242516	.000	-.1247427	.000
No. of children 7-14	-.1063629	.000	-.1068383	.000	-.1095123	.000
No. of male HH members employed as of July 1997 (male)	.1352135	.001	.1219772	.003	.1120226	.000
No. of female HH members employed as of July 1997 (female)	.1158243	.000	.114461	.000	.1151223	.000
HH head is single	-.0075995	.835				
HH head is widow (er)	-.1331129	.000	-.1280979	.000	-.1275828	.000
HH head is divorced	-.0447275	.393				
Has electricity	.2798979	.000	.281554	.000	.2860548	.000
Social capital index (SCI)	-.0369344	.734				
Infrastructure capital index (ICI)	.1782159	.109	.1588197	.000	.1855039	.000
Commercial capital index (CCI)	.0850914	.486				
Diversity of employment (diver)	.0340868	.273	.0713246	.003	.0941914	.000
Change in no. of employed males	-.0631917	.000	-.0636931	.000	-.0642054	.000

Appendix Table 9. ...continued

Majority of employed HH members in	Coef.	P > [t]	Coef.	P > [t]	Coef.	P > [t]
Change in no. of employed females	-.0939142	.000	-.0958067	.000	-.0981936	.000
Weak labor shock S (WL)	-.1571926	.067	-.1271675	.029	-.1104699	.011
Per capita wage salary difference (PCWSD)	-.0000106	.005	-.0000101	.008		
S (WL) * PCWSD	.0000138	.001	.0000137	.001		
El Niño S (E)	-.1452601	.193	-.1553524	.019	-.117854	.002
S (E) * PCWSD	-.00000017	.939	-.000000704	.728		
S (WL) * S (E)	.1183393	.296	.0255975	.673		
S (WL) * schl	.0053409	.322	.005411	.101	.0062191	.060
S (WL) * male	-.0282649	.488	-.0156816	.692		
S (WL) * female	.0658791	.046	.0370473	.084	.043411	.043
S (WL) * diver	.0017661	.958	-.0299668	.176	-.0424915	.055
S (WL) * coop	.0206026	.755	.0483307	.191		
S (WL) * land	.0431969	.587				
S (WL) * SCI	.0189511	.865				
S (WL) * ICI	.0223629	.808				
S (WL) * CCI	-.0824515	.480				
S (E) * schl	-.0037383	.532				
S (E) * male	-.0795623	.072	-.0659611	.125	-.0660164	.001
S (E) * fem	-.0037811	.922				

Appendix Table 9. ...continued

Majority of employed HH members in	Coef.	P > [t]	Coef.	P > [t]	Coef.	P > [t]
S (E) * diver	.0735433	.048	.0200933	.309		
S (E) * coop	-.0562768	.380				
S (E) * land	-.0086538	.913				
S (E) * SCI	-.0519821	.673				
S (E) * ICI	-.0892488	.505				
S (E) * CCI	.2144518	.192	.088871	.113	.0938679	.089
S (WL) * S (E) * schl	.0010971	.869				
S(WL) * S(E) * male	.0758143	.110	.0640689	.159	.0670554	.000
S(WL) * S(E) * fem	-.0475144	.266				
S(WL) * S(E) * diver	-.0455193	.272				
S(WL) * S(E) * coop	.0323702	.662				
S(WL) * S(E) * land	-.0361934	.654				
S(WL) * S(E) * SCI	.0137519	.919				
S(WL) * S(E) * ICI	.0205147	.871				
S(WL) * S(E) * CCI	-.1184897	.485				
Region 1	-.0736935	.090	-.1279171	.002	-.1196018	.003
Region 2	.0246563	.000	.020656	.000	.0245947	.000
Region 3	.0653248	.170				
Region 4	.0438075	.395				

Appendix Table 9. ...continued

Majority of employed HH members in	Coef.	P > [t]	Coef.	P > [t]	Coef.	P > [t]
Region 5	-.2313888	.000	-.2701042	.000	.0398639	.000
Region 6	-.2531487	.000	-.2811141	.000	-.2918193	.000
Region 7	-.3508622	.000	-.3746403	.000	-.3928954	.000
Region 8	-.306317	.000	-.3205624	.000	-.3438022	.000
Region 9	-.3267697	.000	-.3489257	.000	-.3731513	.000
Region 10	-.345395	.000	-.3645803	.000	-.3905677	.000
Region 11	-.3899932	.000	-.394739	.000	-.4276663	.000
Region 12	-.4502365	.000	-.4458568	.000	-.486055	.000
Region 14	-.3065675	.006	-.3032654	.007	-.3450241	.003
Region 15	-.203651	.002	-.2019477	.001	-.2463438	.000
Region 16	-.5819786	.000	-.5678687	.000	-.6206545	.000
Number of observations		11721		11721		11721
R-squared		0.5902		0.5856		0.5822

NOTES

1. LFS defines unemployment and other LFS terms as follows:

- Labor force population 15 years and over who contribute to the production of goods and services in the country and are either employed or unemployed
- Employed persons in the labor force who were reported either at work or with a job or business although not at work during the reference week
- Unemployed persons in the labor force who did not work or had no job/business during the reference week and were reportedly looking for work
- Underemployed employed persons who expressed the desire to have additional hours of work in their present job or in an additional job or to have a new job with longer working hours
- Visibly underemployed employed persons who worked less than 40 hours a week and wanted additional hours of work
- Invisibly underemployed ... employed persons who worked 40 hours or more a week and still wanted additional hours of work

2. The level of significance used for logistic regression models is 0.15, following suggestions in the literature that higher levels be used (Hosmer and Lemeshow 1989). The level of significance used for regression models is 0.10, following Datt and Hoogeveen (2000).

3. The self-reported transition employment indicator is a binary variable indicating loss of job within the country or loss of job of migrant/overseas worker in the family.

4. The self-reported shock indicator is now a binary variable for reported loss of job within the country or reported loss of job of migrant/overseas worker in the family or reported reduced wages.

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A B O U T T H E A U T H O R S

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This volume tackles the economic and social impacts of the financial crisis on six East Asian countries that experienced many of the crisis' worst effects: Malaysia, Thailand, South Korea, Indonesia, China and the Philippines. It presents the analyses of the crisis' impacts carried out by researchers and analysts of the six countries and also evaluates the government programs and policies implemented to mitigate the negative impacts on the various sectors. More importantly, this volume discusses the lessons that can be learned from the crisis and provides important policy recommendations that could help government officials and policymakers alike to better handle crises in the future.



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