Linkages between Macroeconomic Reform Policies, Shocks, and Poverty Reduction: The Indonesian Case

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Executive Summary of the Main Findings

The aim of this study was to analyze the impacts of economic reform policies, i.e. external trade, investment and financial sector liberalizations, as three most important economic reforms in the 1970s and 1980s, and the 1997 crisis, known as the currency crisis (and latter it became the financial or economic crisis) on poverty and long-run economic growth in Indonesia. The main findings are the following: 1) the relationship between the depreciation of the rupiah against the US dollar (defined in this study as the "crisis" variable) and the growth of per capita real GDP is negative (as expected) and significant, which may suggest that the currency crisis in Indonesia is a type of economic shock which is strongly associated with negative economic growth; 2) although the estimated regression coefficients of the policy variables and inflation have the expected signs, only those of the total domestic investment-GDP ratio and the inflation rate are statistically significant, suggesting that the specific channels through which macroeconomic reform policies influence long-term economic growth in Indonesia are channel 1: investment growth and channel 2: price decreases. This supports the general notion in the literature on long-term economic growth that, while growth in consumption expenditure might be good for short-term growth, for long-term economic growth, it needs sustainability in investment growth and long-term price stability; 3) not only the percentage change in real GDP per capita and the percentage in poverty rate have a negative regression correlation, and it is significant from zero at 90% confidence interval, but the growth elasticity is more than unity, suggesting that the percentage change in the first variable contributes significantly to the linear prediction of the percentage change in the second variable based on the observed data; 4) the link between inequality level and economic growth rate is negative and significant from zero at 90% confidence level, meaning that higher inequality means smaller economic growth; but the regression coefficient for inequality is not positive with the percentage change in poverty rate. With a decomposition method, it shows that only for the period 1981-1990 the elasticity of poverty change to inequality change was positive. The gini elasticities for the other sub-periods, however, were negative; and 5) among the three main sectors, i.e. agriculture, industry and trade, income growth rate in the first sector appears to have the strongest and significant relationship between sectoral growth rates and poverty reduction, suggesting that in the Indonesian case the output or income

growth in agriculture, among other sectors, is the most important source of poverty reduction. Alternatively, the statistical relationship between the percentage change in poverty and the average agricultural yield per ha is negative and significant.

I. Introduction

In the beginning of New Order (NO) government led by Soeharto in 1966, the average Indonesian earned only roughly US$50 a year, and over 80% of the country's population lived on tiny, fragmented and scattered farms. They had little or no access either to rudimentary health care or to basic amenities of life such as safe drinking water or adequate shelter. About 60% of adult Indonesian could not read or write and close to 65% per cent of the country's population lived in absolute poverty. Faced with poverty and economic stagnation caused by bad macroeconomic management, military confrontation with Malaysia, isolated from western world, and domestic political instability during the Old Order government headed by Soekarno, the NO government launched the first five year plan (Repelita I) in 1969. The government adopted import substitution strategy to develop domestic industries and to support this, the government implemented investment and capital account liberalization policies. In that time, such liberalization policies (as the most important elements of the NO government's "open door" policy towards the West) were deemed as very important to get fresh capital from abroad. Since then, foreign capital, especially foreign direct investment (FDI), and official foreign loans and aid started to flow into the country. To facilitate further the implementation of the reforms, in the 1980s, during Repelita III the government launched again other two important economic reform policies in banking/financial and foreign trade areas. The banking reform policy reduced the power of monetary authority, and instead let market forces to determine domestic interest rates. As some restrictions on commercial bank operation had been removed, many new national commercial banks emerged and also many banks from abroad opened their offices in the country. The foreign trade reform policy consisted of two main elements which were implemented in a gradual way: the shift from import substitution towards export promotion, and the remove of some import restrictions.

All these important steps conducted by the NO government had generated a sustained rapid economic growth especially in the 1980s up to 1997, just before the crisis emerged. Accompanied with "pro-poor" policies in areas such as employment, education, health, cheap food, village development, and minimum wage, the rapid and sustained economic growth has led the real income per capita to increase, the adult illiteracy to drop dramatically, and the poverty incidence, i.e. people living under current official poverty line as percentage of total population, to fall substantially. This experience implies that economic growth is not the only determinant factor of poverty reduction, but with supports from the "pro-poor" policies, the growth has greater impact than without such policies on poverty reduction.

In July 1997, following the decline of the Thai bhat, the Indonesian rupiah depreciated dramatically against the US dollar. Since that initial decline of the rupiah, the Indonesian economy has undergone tremendous change, as shown by a fall by about 13% in real gross domestic product (GDP). Also prices of some goods, especially food, clothing, housing, and health, have risen substantially, real wages fell, and percentage of population deemed as poor increased by more than 100% for the period 1996-1998.

With the above experience, the aim of this study is to analyze the impacts of economic reform policies, focusing on trade, investment and financial sector reforms in the 1970s and 1980s, and the 1997 crisis, known as the currency or financial crisis (which also hit Thailand, South Korea and the Philippines), on poverty and long-term economic growth in Indonesia. Specifically, this country-case study addresses the following 3 (three) main policy questions. First, through what channels do macroeconomic (reform) policies influence the long-term economic growth and poverty reduction in Indonesia? Second, whether a shock like in 1997 which was characterized by a significant depreciation of the rupiah against the US dollar has a direct impact on poverty and long-term economic growth, or how does such shock affect the relationship between economic growth and poverty? Third, what macroeconomic policies should be adopted to prevent and/or mitigate the impacts of such shock on economic growth and poverty reduction?

II. Analytical Background and Conceptual Framework

Economic Growth-Poverty

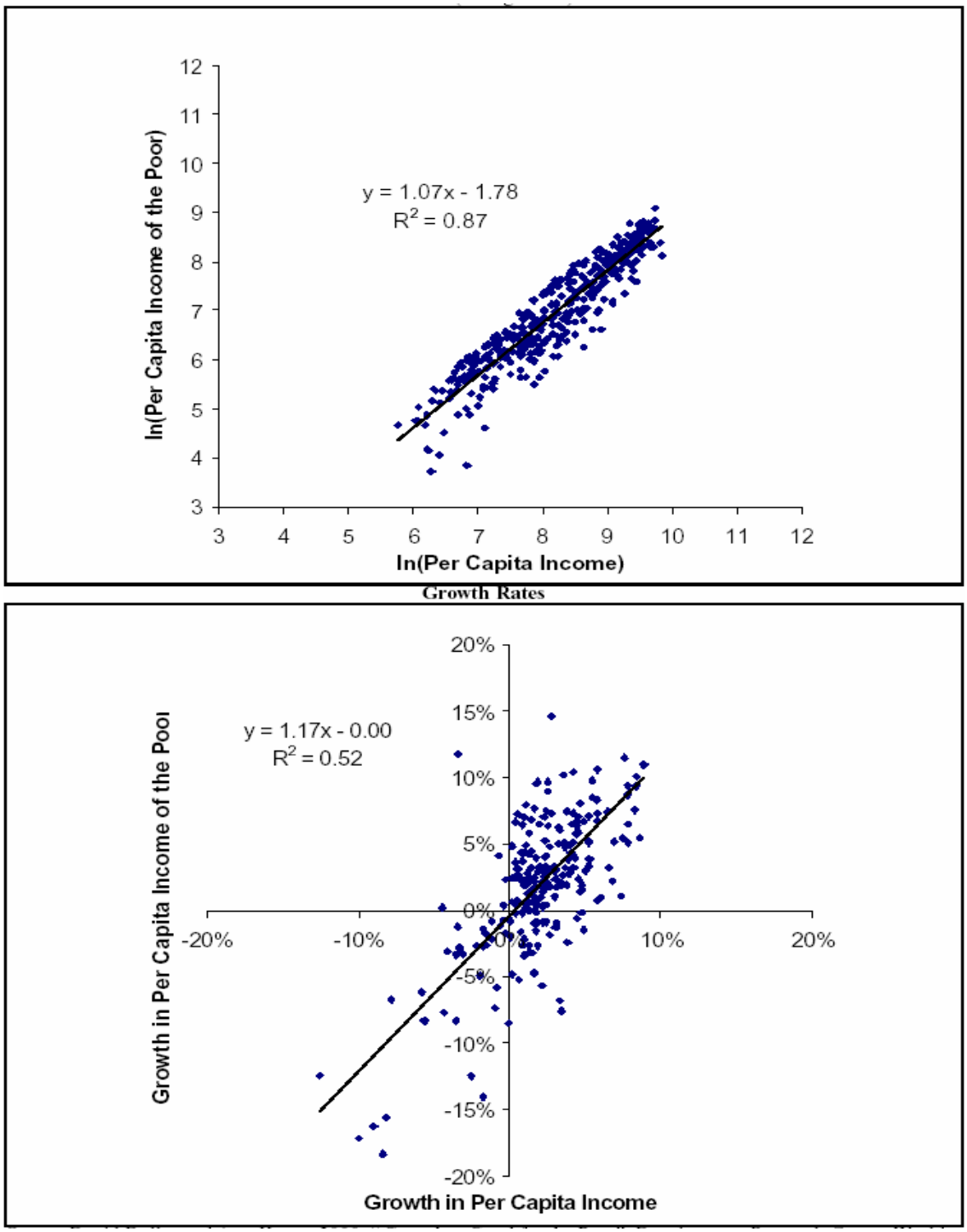
In the general development debate, economic development as measured by growth in real GDP per capita is viewed as an important, though not sufficient, means of achieving improvements in human well-being or reduction in absolute poverty. There are findings from a lot of empirical studies using data from a large group of developing countries which support this proposition. For instance, Dollar and Kraay (2000) investigate the link between the income of the poor (defined as the bottom 20% of the income distribution) and overall income or per capita GDP. The data used consists of income of the poor and mean income for 80 countries over 40 years. The study further examines the poverty–growth relationship in cases of poor countries versus rich countries, crisis periods versus normal growth periods, and the recent period compared to earlier times. Their study also introduces other institutions and policies into the analysis and asks whether these influence the extent to which growth benefits the poor. Their basic finding is that as overall income increases, on average incomes of the poor increase by exactly the same rate. As for the impact of policies and institutions, their study found that openness to international trade as well as improvement in rule of law (e.g. property rights) raise incomes of the poor by raising overall per capita GDP. Overall, their findings suggest that growth tends to lift the incomes of the poor proportionately with overall growth (Figure 1).

Similar evidence also provided by Ravallion and Chen (1997). By using data from household surveys for 67 developing and transitional economies over 1981-94, they found that almost always, poverty fell with growth in average living standards and rose with contraction. By regressing the growth of average income for the poorest 20% and the poorest 40% of the population against the growth of GDP per capita, Roemer and Gugerty (1997) found that on average the poor do benefit from economic growth. An increase in the rate of per capita GDP growth translates into a one-for-one increase in average income of the poorest 40%. For the poorest 20%, the elasticity of response is 0.921. Another conclusion from this study is that income distribution changes only very slowly, and that a policy that aims at redistributing income at the expense of economic growth may have very low payoffs in terms of poverty reduction. Also Gallup *et al.* (1999) have estimated the growth elasticity of per capita incomes of the poor to be close to unity, which implies that growth in average income leads to one-for-one increase in incomes of the poor. By using data on income distribution for 27 developing countries, Timmer (1997) estimates the impact of average per capita income growth on the growth of per capita income of each income quintile. He found that the elasticity of overall growth and the growth in the per capita income of the poorest quintile was only 0.8 (and significantly less than one) and rose steadily to slightly greater than one for the richest quintile. With this result, he argues that the apparent failure of growth to reach the poor in the countries with wide income gaps, while disappointing, should not be taken as a general indictment of economic growth itself. Using provincial data from the Philippines over the 1980s and 1990s, Balisacan and Pernia (2002) find that, on average, the growth elasticity is just above 0.5 indicating that income growth across the country's provinces has not translated into one-for-one to changes in the welfare of the poor.

There are still, however, controversial arguments in the literature regarding the role of inequality as a poverty determinant. A survey of empirical studies has found mixed results using different sample and different econometric techniques. For instance, a summary of cross countries studies by Benabou (1996) shows that most of these studies find a negative impact of inequality or increase in gini index of income or consumption expenditure (as a general used measurement of inequality) on economic growth whereby a one standard deviation decrease in inequality increases the annual growth rate of per capita GDP by between 0.5 to 0.8 points. A recent study by Deolalikar (2002) used provincial data from Thailand suggests that, while economic growth has a strong positive effect on poverty reduction, income inequality has a sharply negative effect. Income inequality reduces the rate of poverty reduction in two ways: first, increased inequality is association with increased poverty after controlling for economic growth, and second, high levels of initial inequality reduce future growth rates, thereby impeding the poverty reduction that would have taken place in the presence of rapid economic growth. So, as economic growth and poverty is assumed (or empirically

found) to have a positive correlation, the findings suggest that changes in income inequality, along with economic growth, jointly affect the rate at which poverty is reduced. The impact of economic growth on poverty reduction will be smaller if economic growth is associated with worsening distribution of income.[1]

Figure 1: Economic Growth and Poverty



[1] Of course, what matters to poverty reduction is not the degree of overall income inequality but the inequality of incomes in the vicinity of the poverty line (Deolalikar, 2002).

Source: Figure 3 in Dollar and Kraay (2000)

Based on a panel estimator using a larger sample of countries with 10-year periods, Barro (1999) finds that the negative impact of income inequality on GDP growth may depend on a country's wealth level, although even then the overall effects are weak and the relationship lacks robustness. Deininger and Squire (1996) find that for the 95 growth spells for which data on income shares were available, there was no systematic link between growth and inequality, but there was a strong positive relationship between growth and poverty alleviation. In particular, growth benefited the poor in the vast majority (87.5%) of cases, whereas economic decline hurt the poor disproportionately (in five out of seven cases). Use of better data that allow incorporation of panel aspects (using 5-or 10-year averages) suggests, however, that the empirical relationship weakens considerably, and may actually be reversed. This led to fear that negative inequality-growth relationships found empirically in many studies may be similar to the famous Kuznets curve: very robust in a cross section but disappearing once country level fixed effects were introduced. For instance, by using fixed effects with 5-year averages for 35 countries, Forbes (1998) finds a positive and significant relationship between income inequality and GDP growth. This relationship is robust to variations in samples used, inclusion of different variables or different measures of inequality, and divisions of the sample by region, initial income, and other specification tests.[2] On the other hand, Forbes (2000) and Li and Zou (1998), for instance, both find positive effects of income inequality on growth.

Overall, the basic analytical framework of economic growth-poverty relationships adopted in this study is thus the phenomenon of trickle-down effect of economic growth in the forms of higher employment (lower unemployment) and higher wages for the poor. Provided that mechanisms exist to facilitate trickle-down of the benefits of economic growth to the impoverished, economic growth can be an effective tool for reducing poverty. Three factors often mentioned in the literature as the main determinants of economic growth, and hence of poverty reduction, are growth in investment, external trade expansion (or growth in net exports), and financial depth (or growth in M2 or bank credit) (Diagram 1). With respect to the first factor, there is a broad agreement that a higher level of investment in a country is conducive to a higher rate of economic growth (other things being equal), though the exact relationship depends on a number of institutional and other factors. A standard development argument therefore runs as follows: higher investment enables higher economic growth, which in turn generates higher employment and wages, and thus reduces poverty (Kolstad

[2] Yet more such as Alesina and Rodrik (1994), Persson and Tabellini (1994), Perotti (1996), Barro (2000), and Easterly (2001) who find evidence of a negative effect of various measures of inequality on economic growth.

and Tøndel, 2002). Of course with the condition other factors develop along side the increase in investment in favor of poverty reduction (or at least the factors remain constant).

In the context of trade liberalization and poverty, recently trade has become a very important issue in efforts to reduce poverty in developing countries. The basic question is: does openness to trade or net export growth enhance economic growth and poverty alleviation? There is a consensus, however, that one important precondition for a sustained poverty reduction is a rapid and sustained labor-intensive economic growth, and, as generally argued in the literature, one way to have that is through sustained labor-intensive export growth.[3]

The literature points out five channels through which growth in international trade affects economic growth. First, increase in international trade leads to higher specialization and, thus, gains in total factor productivity (TFP) by allowing countries to exploit their areas of comparative advantage. Second, it expands potential external markets, which allows domestic firms to take advantage of economies of scales, thus increasing their TFP. Third, international trade diffuses both technological innovations and improved managerial practices through stronger interactions with foreign firms and markets. Fourth, freer international trade tends to lessen anti-competitive practices of domestic firms. Finally, international trade liberalization reduces the incentives for firms to conduct rent-seeking activities that are mostly unproductive.[4]

Over the 1990s the conviction that openness is good for economic growth was fostered by several highly visible and well-promoted cross-country studies e.g. Dollar (1992), Sachs and Warner (1995), Edwards (1998).[5] Winters *at al.* (2002) argue, however, that, while trade liberalization is likely to benefit economic growth under any circumstances (because they enlarge the set of opportunities for economic agents), a quasi-permanent effect on economic growth almost certainly requires combination with other good policies as well, including investment policies. Studies by Taylor (1998), Levine and Renelt (1992), and Wacziarg (2001) show that investment played a key role in linking trade liberalization and economic growth, and thus they conclude that poor investment policies which discourage investment, could undermine trade benefits.

Due to the complexity of the linkages between growth of trade or trade reform policies and poverty, the empirical evidence until now on trade liberalization and poverty is limited to studies of general market

[3] The trade-poverty debate has two main important arguments. On one side, trade expansion creates many new opportunities; it gives better long-run prospects for more open economies, and more access to new markets for producers as well as consumers. While, on the other side, increase in trade may also have some adverse effects: not everyone gains equally; some may lose, especially in the short-run, and even domestic markets can be destroyed (McCulloch, 2004). See also Winters (2000a,b,c) who developed a conceptual framework decomposing the links between trade policy and poverty.

[4] See for instance Lederman (1996), Grossman and Helpmann (1991) and Lucas (1988) for further discussions on this issue.

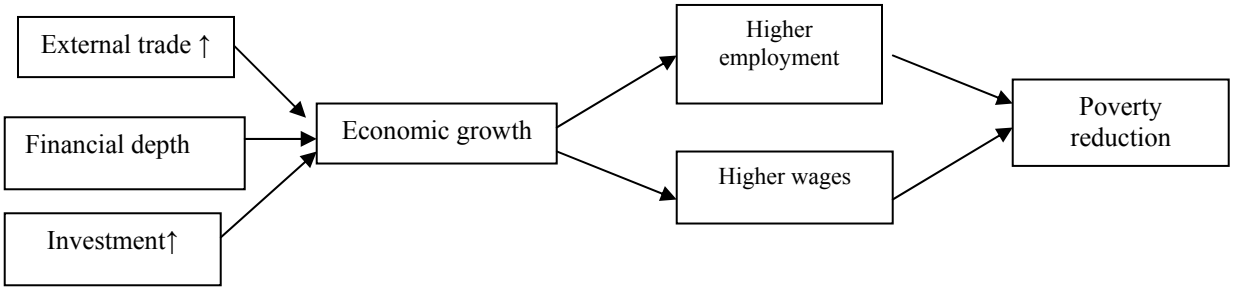
[5] Recently, however, these have received rough treatment from Rodriguez and Rodrik (2001), who argue, inter alia, that their measures of openness are flawed and their econometrics weak. Moreover, as argued in Winters *at al.* (2002) and Harrison (1996), liberal trade is usually only one of several indicators of openness used, and one which often seems to weigh rather lightly in the overall result.

reforms and economic growth, or case studies.[6] Winters *et al.* (2002) assess the current state of evidence on the widely debated issue of the impact of trade policy reform on poverty in developing countries. The result shows that there is relatively little empirical evidence addressing this question directly, but a lot of related evidence concerning specific aspects. They argue strongly that: *there can be no simple generalisable conclusion about the relationship between trade liberalisation and poverty, so that the picture is much less negative than is often suggested in popular debate. In the long run and on average, trade liberalisation is highly likely to be poverty alleviating, and there is no convincing evidence that it will generally increase overall poverty or vulnerability. But trade reform also involves important adjustments, and there is evidence that the poor may be less well placed in the short run to protect themselves against adverse effects and take advantage of favourable opportunities* (page i).

Dollar and Kraay (2001), who examined the effects of changes in trade volumes on the poor, conclude that since there is little systematic evidence of a relationship between changes in trade volume and changes in income share of the poorest, the increase in growth rates that accompanies expanded trade leads to proportionate increases in incomes of the poor.

With respect to financial depth, the general view in the new growth literature is that a well-functioning financial system promotes long-run economic growth. They influence economic growth through different channels. Financial markets facilitate risk diversification by trading, pooling, and hedging financial instruments. They can help identify profitable investment projects and mobilize savings to them. Moreover, financial systems can help monitor firm managers and exert corporate controls, thus reducing the principal-agent problems that lead to inefficient investment (Loayza, *et al*. (2002).[7]

Diagram 1: Conceptual Framework: Economic Growth and Poverty



[6] See Bannister (2001) and Winters et al. (2002) for surveys of literature/empirical studies on this particular issue.

[7] There is ample evidence from firm-level, industry-level, and cross-country studies that financial development leads to higher growth. See for instance Levine (1997) for a review of the theoretical foundations for the role of financial market development. King and Levine (1993a,b), and empirical studies from such as Levine and Zervos (1993), and Levine *et al*. (1999) who have

Economic Reform Policy-Poverty

The assumption being made that the most important channel through which economic reform policies affect the poor is income or output growth effect. So, the main issue here is the effect of an economic policy on economic growth, given that economic growth and poverty are negatively correlated. The underlying theme of the endogenous growth literature is that the rate of long-term economic growth can be affected by economic policies. Although there may be disagreement on what policies are most conducive to long-term economic growth or the sequence in which policy changes must be undertaken, there is no doubt that economic policies can and do influence long-run economic growth. While theoretical work has usually focused on one or the combination of policies, empirical work so far has tended to be comprehensive in the sense of considering a wide array of policies determinants of economic growth.[8]

So, the conceptual framework of economic reform policy and poverty in this study is formulated as follows. Although, economic structural reform policies such as trade, investment and financial sector reforms are often not considered as a poverty reduction policy (or economic growth induced by increases in investment, credit or external trade is not considered as poverty-related issues), since long-term economic growth is an important determinant of poverty reduction, then, logically, economic policies do influence the poor. In other words, openness to trade (trade liberalization policies), more investment (investment liberalization policies) and more access to credit (financial sector reform policies) are good for long-term economic growth and hence for the poor. But, of course, to enjoy the full benefits of these liberalization policies, the growth should be "pro-poor" through its employment or/and wage effects (as discussed before), and to facilitate this channel the reform policies should be accompanied by sound policies in areas such as infrastructure, market access and facilitation, competition, education, health care, access to credit for the poor, minimum wage, price stability, subsidy, and governance. In a simple way, this channel can be studied by looking at the statistical relationship between poverty rate and growth rate in real GDP per capita (Warr, 2002).

Other channels through which economic reform policies may also affect poverty are through their influences on income distribution (redistribution effect) and price (price effect), as illustrated in Diagram 2.[9] In

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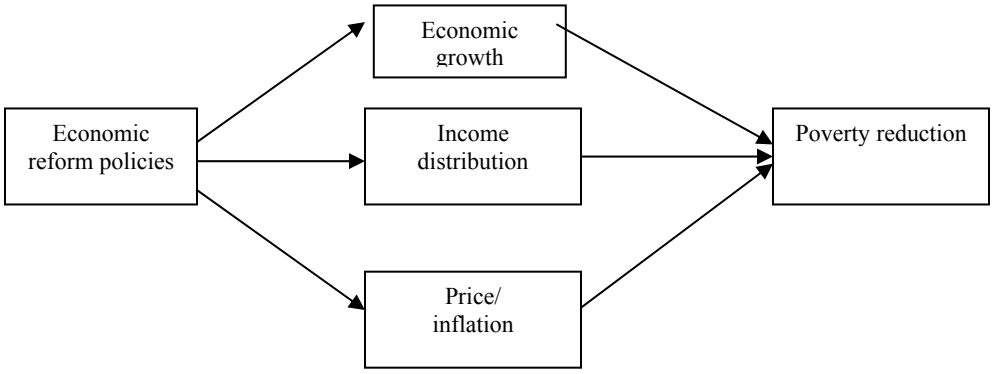
stressed financial development (most often measured by the ratio of M2 to GDP) as a robust causal determinant of economic growth.

[8] See Lucas (1988), Barro (1991, 1999a,b., 2002), Barro and Lee (1994), Barro and Sala-i-Martin (1995), Bekaert *et* al. (2001), Levine(1993), Oueslati (2001), Easterly and Rebelo (1993), Edwards (1997), and yet many others.

[9] For trade liberalization policies, another important channel is through its impact on the government's fiscal position, as trade liberalization also means the lost of tax revenues from import and export levies, and this may reduce the government's financial capability to finance poverty alleviation programs.

a simple way, these channels can be analyzed by looking at the statistical relationship between poverty rate on one hand, and inequality and inflation rate on the other.

Diagram 2: Conceptual Framework: Economic Reform Policies and Poverty



Economic Crisis-Poverty

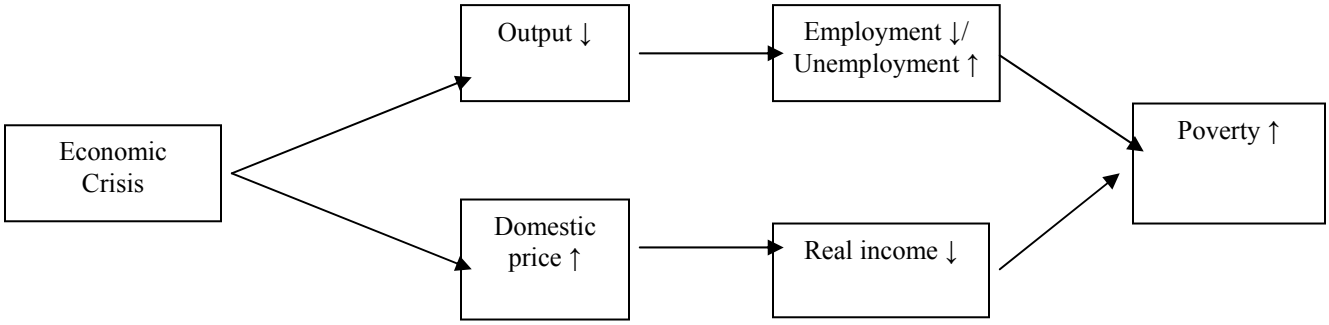
Most of existing empirical studies on the impact of economic crises/shocks on poverty covering developing countries examined such impact through output fluctuation, though with different methods of analysis or different models. For instance, with a vector auto regression technique and by using annual data for the period 1981-1999 in Brazil, Agénor (2001) examined whether output contractions associated with cyclical output fluctuations and economic crises have an asymmetric effect on poverty. The result indicates that poverty responds asymmetrically to output shocks, showing less sensitivity when the economy is initially in a downturn.

Various arguments have been offered to explain why economic crises may hurt the poor most. The most important arguments are the following ones. First, the poor often lack the means to protect themselves from economic shocks. They lack assets (such as bank deposits and land) and often have no direct access to credit markets (or face prohibitive borrowing costs when they do), to smooth the impact of these shocks. Second, due to the lack of education and skills, the poor tend to be less mobile (across sectors and regions) than better-educated workers and are therefore often unable to switch jobs and capitalize on available employment opportunities. Third, indirect sources of income and public transfers may decline during crises, because during such episodes the ability of relatives (or communities) to engage in income redistribution may be reduced and governments may be forced to adjust drastically their fiscal accounts with across the-board cuts in expenditure.[10]

[10] Quoted in Agénor (2001) and Neri and Thomas (2000).

Generally, it can be assumed that an economic shock or crisis as that in 1997 in Indonesia affects poverty through two main channels: output reduction and domestic price increases or higher inflation rate (Diagram 3). The first one is called the unemployment effect of an economic crisis: a fall in output reduces employment opportunity or creates higher unemployment rate, and thus increases poverty rate. The rise in poverty rate is also expected to have a positive correlation with the increase in domestic prices through the decline in real income; the so-called real income effect. So, in this study the effect of the 1997 crisis on poverty can be examined by looking at the statistical relationship between poverty and output or between poverty and price (inflation).

Diagram 3: Conceptual Framework: Economic Crisis and Poverty



III. Empirical Framework and Data Used

Methodologically, to obtain empirical insights into the issues raised in this study, analyses were made of the secondary data on poverty (measured by the headcount index), per capita real GDP, inequality (measured by Gini coefficient based on consumption expenditure) and other included variables by using several empirical equations discussed below. In addition, an in-depth discussion was conducted with selected relevant resource persons regarding the local poverty impact of the presence of a foreign company, in this case represented by P.T. Freeport in Papua. This concerns with the question whether the boom of foreign direct investment in Indonesia as the result of the investment liberalization policies during the NO era has benefited the local communities in areas where foreign companies operated.

Empirical Equations

Four (4) different equations were used as standard methods of analysis using secondary data, namely a simple model to estimate the impact of economic reform policies and the 1997 crisis on economic growth

(measured by the growth rate (percentage) of real GDP per capita); a simple estimating equation to analyze the relationship between poverty, economic growth, inflation and inequality; a decomposing poverty changes equation, as poverty reduction is not only determined by economic growth but also by improvement in income distribution (and the latter is also influenced by macroeconomic policies), and a simple equation to analyze the links between poverty change and sectoral composition of growth, in order to examine whether the relationship between poverty change and economic growth varies across sectors.

Equation 1: Determinants of economic growth

In the empirical analysis of the determinants of economic growth, this study follows the main strand of the new growth literature in explaining long-run economic growth.[11] In doing so, two steps were taken. First, looked at the effect of economic shock/crisis on economic growth without control variables:

$$\%\Delta Y = a_0 + a_i \%\Delta E + e \quad (1)$$

where $\%\Delta Y$ = the percentage change in per capita real GDP, $\%\Delta E$ = the percentage change in exchange rate of the rupiah against the US dollar (%), and e = a random variable that has mean 0 at fixed values of the predictor variables, commonly referred to as the regression residual or the error component in the equation that captures the effects of time invariant and time-varying unobserved variables. In this equation, the annual percentage change in exchange rate of the rupiah against the US dollar was chosen as the 'crisis' variable, as the economic crisis in 1997 was started with a currency crisis: a sudden and substantial depreciation of the rupiah against the US dollar. So, the link between a macroeconomic shock represented by this exchange rate shock and economic growth will be assessed first before controlling for other variables that affect a country's growth process. And then expand this structure of regression equation with:

$$\%\Delta Y = a_0 + a_1 \%\Delta E + a_i X_i + e \quad (2)$$

where, X represents a set of controls postulated as economic growth determinants, and a_i is a vector of coefficients on the variables in X. As this study concerns with the impact of economic reform policies on economic growth and poverty, the control variables in the analysis consist of three general used indicators or ratios that represented external trade, investment and financial sector reform policies respectively, i.e. the ratio of external trade balance to GDP, the ratio of total private domestic credit supplied by private financial

[11] See Barro (1991 & 1998); Levine and Renelth (1992); Easterly and Levine (1995); Hnatkovska and Loayza (2003) and many others).

institutions to GDP, and the ratio of total domestic capital formation (investment) to GDP. The choice of trade balance (export-import), instead of total trade (export + import), is based on a simple assumption that although import is also important for domestic production and hence economic growth, net export or trade surplus has greater impact on domestic economy as it leads to increase in foreign currency reserve and more added value to the economy. With respect to second policy variable representing financial reform policies, this study concentrates on credit from and to the private sector because the incentives generated by the financial reform policy to perform efficiently are clearer and stronger for private agents. For this reason and because data for this variable are available, in this study it is the preferred proxy for the size and activity of financial institutions affected by the financial reform policy in the country.[12]Regarding the third policy variable, as experienced by Indonesia during the NO government, not only fixed or long-term investment but also a short-term capital formation (including short-term capital inflow) is important in financing economic development.

In the literature on economic growth, population and education enrollment are also considered as two important determinants of long-term economic growth. However, as this study looks only at the impact of economic reform policies on economic growth and poverty, and also due to lack of long-term time series data on education enrollment so, these two variables are not included in this equation.

Besides the three policy variables discussed above, inflation (measured by changes in consumption price index) is also included as an explanatory variable in the equation as it is being assumed that macroeconomic policies influence price, and change in inflation rate affects output growth either through demand side (consumers' response to price changes) or/and supply side (producers' response to cost changes). So, this equation empirically examines whether these policy variables and inflation rate are strongly linked to long-run economic growth.

Equation 2: Effects of economic growth, inflation, and inequality on poverty

This study used a simple regression equation with the percentage change in poverty rate (%ΔP) as the dependent variable, and the percentage changes in real GDP per capita (%ΔY), the percentage change in consumer price index (%ΔCPI), and level of inequality measured by gini coefficient as the explanatory variables. Although these explanatory variables are influenced by many factors, in this equation they are treated as exogenous since the study aims to estimate the response of poverty to given changes in these three variables.

[12] See others who also used this ratio such as Beck *et al*. (2000), and Levine *et al*. (1999, 2000).

$$\%\Delta P = a_0 + a_1 \%\Delta Y + a_2 \%\Delta CPI + a_3 Gini + e \quad (3)$$

Equation 3**:** Decomposing Percentage Change in Poverty

To examine how much do the poor benefit from the rapid economic growth, the percentage change in poverty was decomposed into two parts, one due to economic growth and the other to change in income distribution (inequality level). Following the methods discussed in Ravallion and Huppi (1991), and Ravallion (1992), among others, the poverty headcount is 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, represented by gini coefficient. The decomposition equation can be written as follows:

$$P(Z/\mu_2,L_2) - P(Z/\mu_1,L_1) = [P(Z/\mu_2,L_1) - P(Z/\mu_1,L_1)] + [P(Z/\mu_1,L_2) - P(Z/\mu_1,L_1)] + r \quad (4)$$

The left hand side is the poverty reduction between period 2 and 1. On the right hand side, the first part is the growth component assuming income distribution, L_1, remained constant. The second part is the redistribution component keeping mean consumption, μ_1**,** constant, and the last part, r, is the residual.

Equation 4: Change in poverty by sectoral growth

To estimate the effect of sectoral growth on poverty reduction, this study used a simple equation, following the method used by Ravallion and Datt (1996), among others, as follows:

$$\%\Delta P = a + a_A x_A \%\Delta Y_A + a_I x_I \%\Delta Y_I + a_S x_S \%\Delta Y_T + e \quad (5)$$

Where $\%\Delta Y_A$, $\%\Delta Y_I$, $\%\Delta Y_T$, are percentage changes in real value added in the agricultural, manufacturing, and trade sectors, respectively; and x_A, x_I, x_T are value added shares in GDP of agriculture, industry and trade respectively.

Data

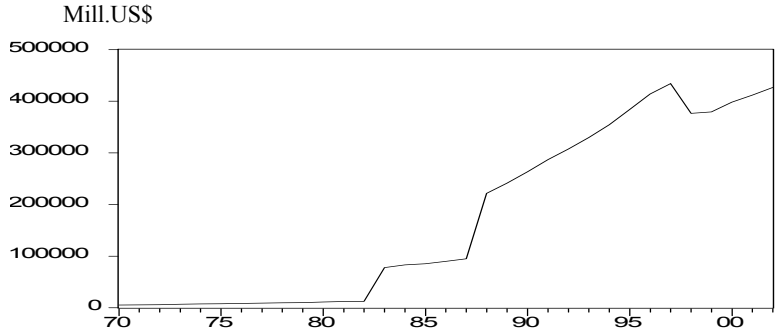
This study used annual data for all selected variables given above. Data on real GDP per capita, consumption price index or CPI (to measure inflation rate), export, import, investment and so on are from Statistics for Indonesia published annually by the National Agency for Statistics (BPS). Poverty rate is measured by the head-count index (HC index). As is well known, the HC index is given by the proportion of the population for whom consumption (or another suitable measure of living standard) is less than the poverty

line. To measure inequality in income distribution, this study uses the gini coefficient, which has been widely applied in empirical studies. Data on the HC index and gini coefficient are published annually by the BPS, based on consumption expenditure from the National Social and Economic Survey (SUSENAS), i.e. a cross-sectional survey of households.[13]The SUSENAS contains data on expenditures and on quantities consumed. Before 1993, the BPS defined the national poverty line as the total consumption expenditure needed to satisfy an energy requirement of 2,100 calories per capita per day. But, since 1993, the BPS has adopted the basic needs approach for both food and non-food calculations. A total of 52 food items has been chosen, and their quantities have been determined after being scaled-up to satisfy the 2,100 calories requirement, and the SUSENAS implicit prices have been used since then to derive the poverty line.

IV. Long Term Trend of Economic Growth and the 1997 Economic Crisis in Indonesia

Indonesia experienced many years of deteriorating economic growth performance during the old order regime. But, when Soeharto, the second president of Indonesia, took power in 1966, it was changed dramatically. On the basis of broad macro indicators, Indonesia's economy had performed very well, especially during the 1980s up to mid 1997, just before the crisis emerged. The country's economy had made an impressive structural change and a significant average per capita growth rate in real GDP (Figure 2). This impressive average growth rate was mainly attributable, among others, to buoyant investment, including FDI, achieved price stability, and export increased, and all these were resulted from structural reform policies especially in financial, investment and trade areas.

Figure 2 Real GDP (at 1973, 1983, 1993 prices): 1970-2002

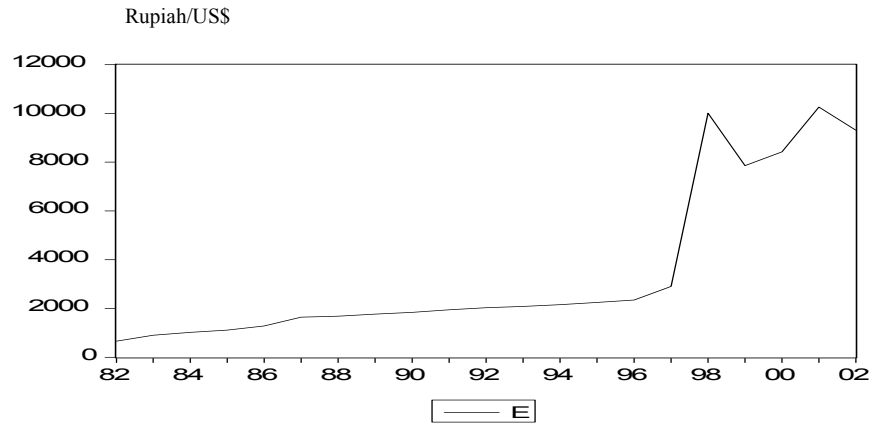


Source: BPS

[13] As in many other studies on poverty and inequality, consumption is preferred as the indicator of well-being because it incorporates the life cycle hypothesis, and because it is measured more precisely. Therefore, measures of poverty and inequality in

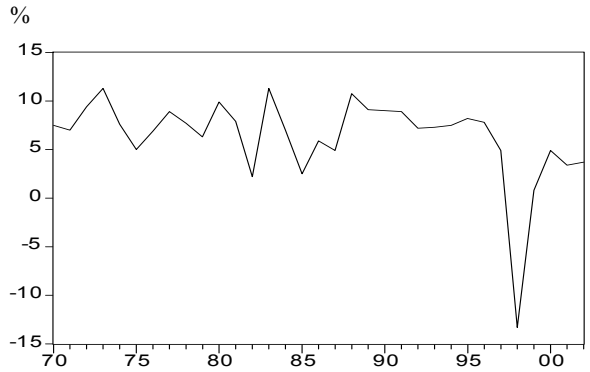
By the last quarter of 1997, Indonesia was subject to an economic shock of sizable magnitude, initially a currency crisis, as it started by an unexpected depreciation of the rupiah against the US dollar in a substantial rate (Figure 3), caused mainly by huge capital outflows (capital flights), especially short-term foreign investment. Later on, the crisis became the financial or economic crisis as the banking sector collapsed and the country's GDP in 1998 fell by 13.4% and in 1999 by 0.4% (Figure 4).

Figure 3 Nominal exchange rate of the rupiah against the US dollar (E): 1982-2002



Source: BPS

Figure 4 Growth Rates of Real GDP: 1970-2002



Source: BPS

There are many explanations and typologies that have been put forward to explain the 1997 crisis in Indonesia.[14]Among these, two that generally believed as the main factors of the crisis were macro-economic policy induced and financial panic (Alba *et al*., 1998). With respect to the first factor, basically, the crisis was widely deemed as the result of the pursuit of a set of inconsistent macro-economic policies. This includes the

this study will be based on consumption rather than income.

[14] See for instance, Corsetti *et al.* (1998), Feldstein (1998), Krugman (1998), Radelet and Sachs (1998), IMF (1997), and Alba *et* al. (1998).

case of a Krugman (1979) type balance of payment crisis, where the collapses of the rupiah as domestic credit expansion by domestic bank was inconsistent with the exchange rate target, as well as the type of self-fulfilling crises of Obstfeld (1986 and 1996). This explanation presumably also includes the presence of some structural weaknesses reflected by the decline in competitiveness as a result of poor labor upgrading, weak financial systems, lack of infrastructure, and not conducive tax system, which made macro-policies in Indonesia, including trade and financial sector liberalization policies in the 1980s more likely inconsistent to begin with. With respect to the second factor, Indonesia was subject to the equivalent of a run on a bank where creditors, particularly those with short-term claims, suddenly withdraw from the country, leaving the country with an acute shortage of foreign exchange liquidity. The withdrawal may be rational for creditors as there was lack of coordination among creditors and each individual's incentive was to withdraw first, as she/he fears that others will withdraw before her/him.

V. Overview of External Trade, Investment and Financial Sector Reforms in Indonesia

The macroeconomic strategy in Indonesia during the 1970s and 1980s had two main characteristics. First, an exchange rate regime oriented toward enhanced competitiveness, i.e., the achievement of a real exchange rate target to complement the outward orientation embodied in its structural policies. This policy was implemented through step devaluations in the rupiah against the US dollar during that period. Concerned with preventing an appreciation of its real exchange rates, Indonesia maintained pegged exchange rate system, with the authority intervening in the foreign exchange market to maintain the peg in the face of the large capital inflows.[15]The exchange rate policy in Indonesia implied relatively predictable nominal rates, and, it can be argued that this system encouraged the accumulation of these external liabilities in the form of unhedged foreign obligations.

The second macroeconomic component was the adoption of a tight medium-term stance for fiscal policy. Overall public sector budgets in the country, which had exhibited deficits not out of line with those which characterized other middle-income developing countries at the same time, moved steadily into surplus after mid-1980s. As the economy of Indonesia grew and the tight fiscal stance restrained and at times reversed the growth of public-sector debt, public-sector debt-to-GDP ratio fell, which coincided with the arrival of capital inflows into the country. This fiscal stance also promoted the depreciation of the long-run equilibrium real exchange rate, which favored not only tradable goods relative to non-tradable goods, but also prevented the emergence of exchange rate misalignment in the form of undervaluation of the domestic currency.

[15] It could be argued that allowing a greater degree of nominal exchange rate appreciation may have reduced the incentives to borrow abroad, in as much as an appreciation of the nominal exchange rate increases expectations of a future depreciation (Alba *et al*., 1998).

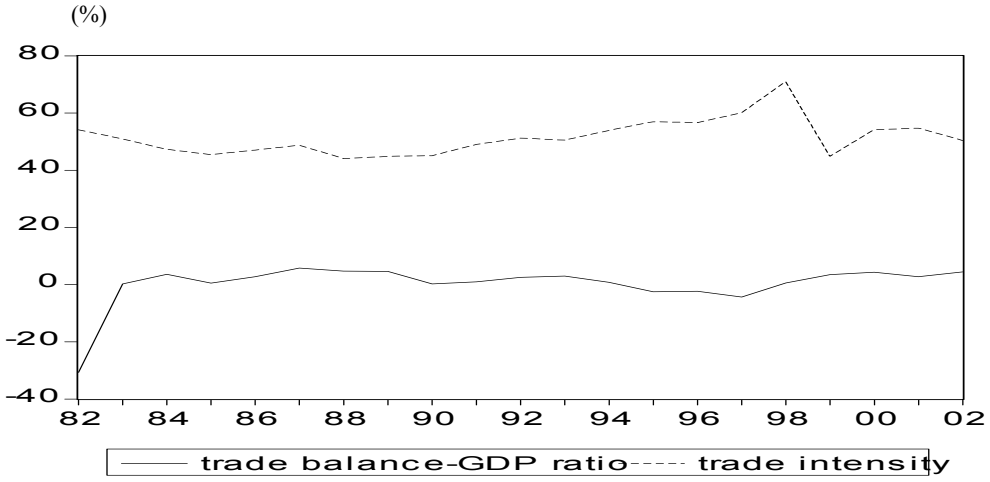
It is important to recognize that Indonesia had undertaken fiscal reforms and consolidation during the mid to late 1980s and had seen very significant improvements in its overall fiscal balances. During the 1990s, before the crisis, fiscal policy in the country remained conservative in the medium-term structural sense.

Overall, the macroeconomic policy mix pursued in Indonesia can be characterized as one in which the nominal exchange rate was assigned to a competitiveness objective, while fiscal policy was assigned the objective of price level stabilization.

Other macroeconomic policies which were being pursued in the 1970s and 1980s were investment, trade and financial sector liberalizations. The liberalization policies in these three areas can be deemed as the most important elements of the structural reforms in Indonesia during that period. Following these structural reforms, Indonesia saw sharp increases in its external trade, investment, and money supply (M2) caused mainly by substantial growth in domestic credits.

With respect to external trade, based on fob value, before the trade reform policy, i.e. a gradual shift from import-substitution towards export promotion, especially export of manufactured goods and reduction of import tariffs of selected goods, export value of Indonesia declined from almost 22.3 billion US$ in 1981 to 14.8 billion US$ in 1986. But, since 1987 it rose again to 17.1 billion US$ and in 1996 it reached almost 50 billion US$. Total import also went up from almost 11 billion US$ in 1986 to almost 26 billion US$ in 1991 and further rose to almost 42 billion US$ in 1997. This composition of change in external trade led to increase of trade balance surplus from 9.8% in 1981 to 5.5 % of GDP in 1997, and in 1998, as caused by a huge depreciation of the rupiah against the US dollar, increased to 22.5%. The trade intensity (total export and import in goods and services as a percentage of GDP) also raised in 1998 but fell significantly in 1999 (Figure 5).

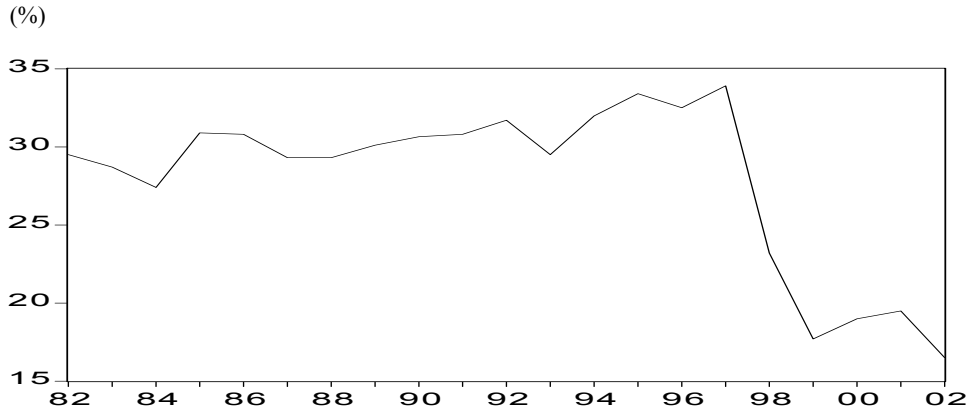
Figure 5: Long-term development trends of Trade Intensity and Trade Balance-GDP Ratio in Indonesia: 1982-2002 (%)



Source: BPS

Obviously, the investment liberalization has led direct investment, including from abroad (FDI), to steadily increase in Indonesia during the NO period. This was reflected by the increase in gross fixed capital formation (including increase in stocks) - GDP ratio from an average 25% during 1985-89 to 32% during 1990-96. But, as a result of the 1997 crisis, direct investment declined substantially that led to a significant fall in the ratio from 31.3% in 1997 to 16.8% in 1998 and reached its lowest level in 1999 at 11.4% (Figure 6).

Figure 6: Long-term development trend of Gross Fixed Capital Formation -GDP Ratio in Indonesia: 1981-2002

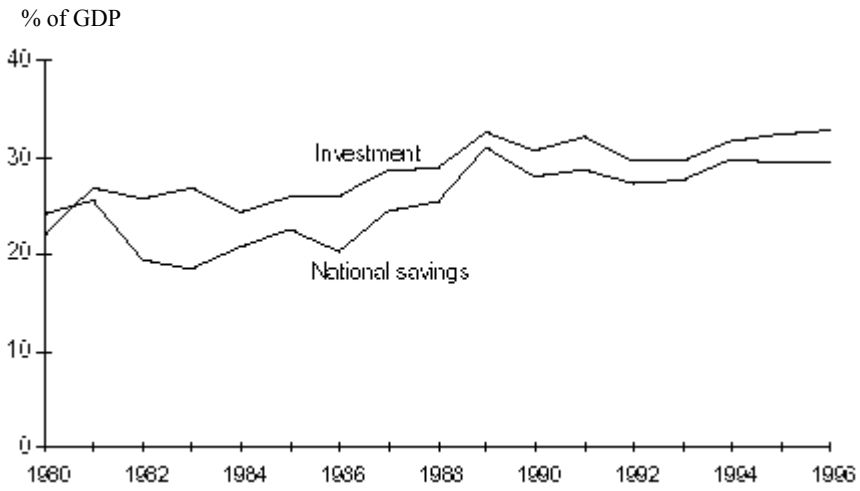


Source: BPS

In fact, as an important result of investment reform, Indonesia was included together with other East Asia countries, i.e. Malaysia, Thailand, Singapore, South Korea, and the Philippines, that led the developing world in the resurgence of private short-term capital flows in the late 1980s. Indonesia quickly emerged as one among the most important destination area within East Asia for foreign private capital flows, not only direct but also portfolio investment, and the country's share of total capital flows to developing countries increased significantly since late 1980s up to mid 1990s. During the mid.1990s, foreign portfolio flows (both bond and equity) into Indonesia expanded rapidly as did short-term borrowing.

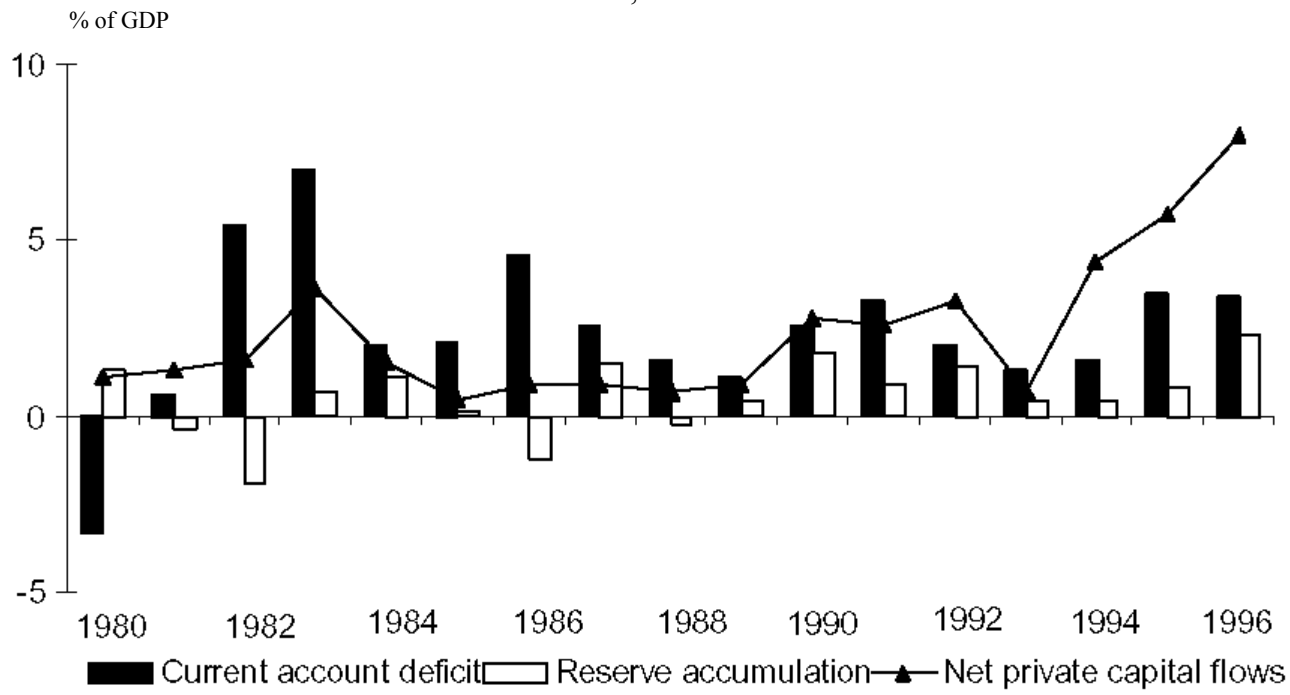
Earlier, the bulk of the increase in domestic investment in Indonesia was financed by a corresponding increase in national savings. But, since a few years before the crisis, the fraction of the increase in domestic investment financed by foreign capital tended to increase (Figure 7). Also, the magnitude of private capital inflows was much higher than the amount of foreign savings absorbed which led to substantial reserve accumulation and associated with some private sector capital outflows (Figure 8).

Figure 7 Trends of Total Investment and National Savings in Indonesia, 1980-1996



Source: see Alba *et al*. (1998)

Figure 8 Trends of Current Account Deficit, Reserve Accumulation and Net Private Capital Flows in Indonesia, 1980-1996

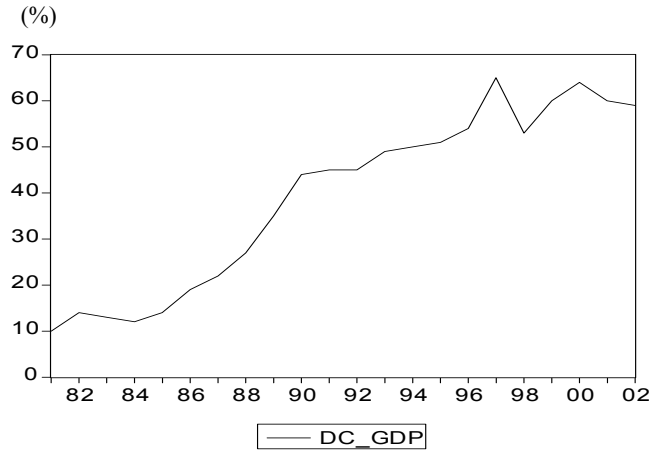


Source: see Figure 7

With respect to the financial sector liberalization, an important result of it was the significant accelerated growth of total private domestic credit (DC). The ratio of DC to GDP went up from 22% in 1987 to 65% in 1997. In 1998, as the crisis reached its worst condition, many banks collapsed and many big companies were

out of business or cut their production volume, which resulted in the decline of demand for as well as supply of new credits, and so the DC-GDP ratio in that year fell to 53% (Figure 9).

Figure 9: Growth Rates of Domestic Credit-GDP Ratio (DC GDP) in Indonesia: 1981-2002



Source: BPS

The trade, investment and financial sector liberalization policies have also led to demand pressures that were obvious in the last two-three years before the crisis, reflected by significant increases in private consumption expenditure and demand for domestic credit. In dealing with this demand pressures, the Indonesian government relied quite heavily on monetary policy. Following a rapid growth in monetary aggregates in 1994, which had been based on an expansion of domestic credit, monetary policy was tightened significantly by mid-1995. The primary instrument of monetary management used by Bank Indonesia (BI), the central bank of Indonesia, in implementing this policy was open market operations using BI certificates of deposits (SBI), but to a certain extent BI also used discount operations. This was reinforced by measures to control the growth of bank credit more directly. This tight monetary policy had increased domestic interest rates and the differential between domestic and international interest rates.

VI. Long-run Development Trends in Indonesia's Poverty and Inequality

In the beginning of NO government in 1969, the average Indonesian earned only roughly US$50 a year, and over 80% of the country's population lived on tiny, fragmented and scattered farms. They had little or no access either to rudimentary health care or to basic amenities of life such as safe drinking water or adequate shelter. About 60% of adult Indonesian could not read or write and close to 65% of the country's population lived in absolute poverty.

But with a sustained rapid economic growth, the income per capita has increased significantly and, with supports by social policies in areas such as education, health care, rural development, the adult illiteracy has dropped and other social indicators have improved substantially during the period 1970-2000 (Table 1). The NO regime was also able to keep inequality low with gini coefficient ranged from about 0.33 during the 1970s-1980s to 0.34 in the 1990s (Table 2). Even, inequality in the rural areas has improved since the beginning of the regime (Figure 10). This evidence may suggest that the low level of inequality has also enhanced the poverty reducing effect of rapid economic growth during that period.

The sustained rapid economic growth has also contributed to the steady drop in the poverty incidence, i.e. people living under current official poverty line as percentage of total population. As shown by official statistics, the rate fell significantly from 40% to around 11% during 1976-1996, and the biggest drop was happened during the 1970s up to the early 1980s with 13 percentage points, while during the period 1981-93 the decline was only 16 percentage points (Table 3). Of course, this does not say that economic growth has been the only determinant factor of poverty reduction in Indonesia. Pro-poor social spending and many other policies towards poverty alleviation have also been responsible for major poverty reduction in the country.

Table 1 Selected Social Indicators of Indonesia and Other Developing Countries, 1970-2000

Indicators	Beginning Period	Ending Period

	1970	2000
Average per Capita GDP (in 1999 PPP$)*		
- Indonesia	940	2,882
- East Asia & Pacific	875	4,413
- South Asia	1,051	2,216
	1980	1999
Infant Mortality (per 1,000 live births)		
- Indonesia	90	42
- East Asia & Pacific	55	35
- South Asia	119	74
- Low & Middle Income Countries	86	59
Life Expectancy at Birth (years)		
- Indonesia	55	66
- East Asia & Pacific	65	69
- South Asia	54	63
- Low & Middle Income Countries	60	64
Primary Gross Enrolment Ratio (%)**		
- Indonesia	107	113
- East Asia & Pacific	111	119
- South Asia	77	100
- Low & Middle Income Countries	96	107
Secondary Gross Enrolment Ratio (%)**		
- Indonesia	29	56
- East Asia & Pacific	44	69
- South Asia	27	49
- Low & Middle Income Countries	22	59
Adult Illiteracy (% of people aged 15 and above)***		
- Indonesia	13(M), 27(F)	9(M),19(F)
- East Asia & Pacific	13(M), 29(F)	8(M),22(F)
- South Asia	41(M), 66(F)	34(M),58(F)
- Low & Middle Income Countries	22(M),39(F)	18(M),32(F)

Notes: * Figures are three-year averages, centered on the year shown.
** The most recent data pertain to 1997, instead of 1999.
*** M=male, F=female
Source: Balisacan *et al*. (2002).

Table 2 Inequality in Income Distribution in Selected Countries/Group of Countries: 1970s to mid-1990s

Country/Group of Country	Gini Coefficient (average per year)*		
	1970s	1980s	1990s
Newly Industrialized Countries (NICs)			
-Hong Kong	0.41	0.37	0.45
-South Korea	0.33	0.39	0.34
-Taiwan	0.28	0.28	0.31
-Singapore	0.41	0.41	0.39
China	na**	0.32	0.38
ASEAN			
-Indonesia	0.33	0.33	0.34
-Malaysia	0.50	0.51	0.48
-Thailand	0.43	0.43	0.52
-Philippines	0.49	0.46	0.45
South Asia			
-India	0.30	0.31	0.30
-Bangladesh	0.36	0.39	0.28

-Pakistan	0.30	0.32	0.31
-Sri Lanka	0.38	0.42	0.30
OECD	na	0.33	0.34
Transition counties (East Europe)	na	0.25	0.29
Middle East & North Africa	na	0.41	0.38
African Sub-Sahara	na	0.44	0.47
Latin America & Caribbean	na	0.50	0.49

Note: * Some countries including Indonesia used household consumption expenditures, others used income for calculating gini coefficient; ** na = data not available

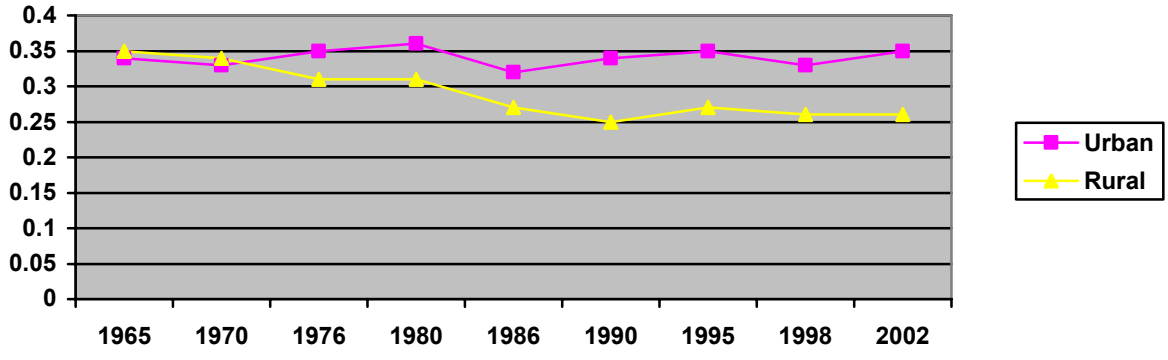
Source: BPS (SUSENAS) various issues, and Deininger and Squire (1995, 1996).

Table 3 Poverty Line, Number and Percentage of Population Living under the Poverty Line in Indonesia: 1976-2004

Year	Poverty Line (Rp/capita/month)		Poor People (%)			Number of Poor People (million persons)		
	Urban	Rural	Urban	Rural	National	Urban	Rural	National
1976	4,522	2,849	38.8	40.4	40.1	10.0	44.2	54.2
1978	4,969	2,981	30.8	33.4	33.3	8.3	38.9	47.2
1980	6,831	4,449	29.0	28.4	28.6	9.5	32.8	42.3
1981	9,777	5,877	28.1	26.5	26.9	9.3	31.3	40.6
1984	13,731	7,746	23.1	21.2	21.6	9.3	25.7	35.0
1987	17,381	10,294	20.1	16.1	17.4	9.7	20.3	30.0
1990	20,614	13,295	16.8	14.3	15.1	9.4	17.8	27.2
1993	27,905	18,244	13.4	13.8	13.7	8.7	17.2	25.9
1996	42,032	31,366	9.7	12.3	11.3	9.6	24.9	34.5
1998	96,959	72,780	21 .9	25.7	16.7	17.6	31.9	49. 5
1999	92,409	74,272	19.4	26.0	23.5	15.6	32.3	48.0
2000	91,632	73,648	14.6	22.4	19.1	12.1	25.2	37.3
2001	100,011	80,382	9.8	24.8	18.4	8.5	28.6	37.1
2002	na	na	14.5	21.1	18.2	13.3	25.1	38.4
2003	na	na	13.57	20.23	17.4	12.2	25.1	37.3
2004*	na	na	12.6	19.5	16.6	11.5	24.6	36.1

Source: BPS

Figure 10 Long Term Development Trend in Gini coefficients of Consumption Expenditure in Indonesia by Region: urban and rural, 1965-2002



Source: BPS

Until the onset of the economic crisis, as shown before, Indonesia experienced strong declines in poverty. The crisis, started by the end of 1997, left its mark on poverty, as official data show the poverty rate has increased sharply, from 11.3% in 1996 to 16.7% in 1998 and 23.5% in 1999 with real GDP growth of -13.4 %. Also, inequality reflected by the gini coefficient rose substantially in 1998 indicating that income distribution was also adversely affected by the crisis (Figure 11). However, Daly and Fane (2002) argued that much of the apparent rise was due to an increase in the poverty line induced by higher rate of inflation in 1998. According to their own calculation, relative to the former poverty line, the poverty rate rose from 11% in 1996 to 17% in 1998. Relative to the new poverty line, the rate increased from 18% in 1996 to 24% in 1998 and then declined slightly to 23% in 1999.[16]

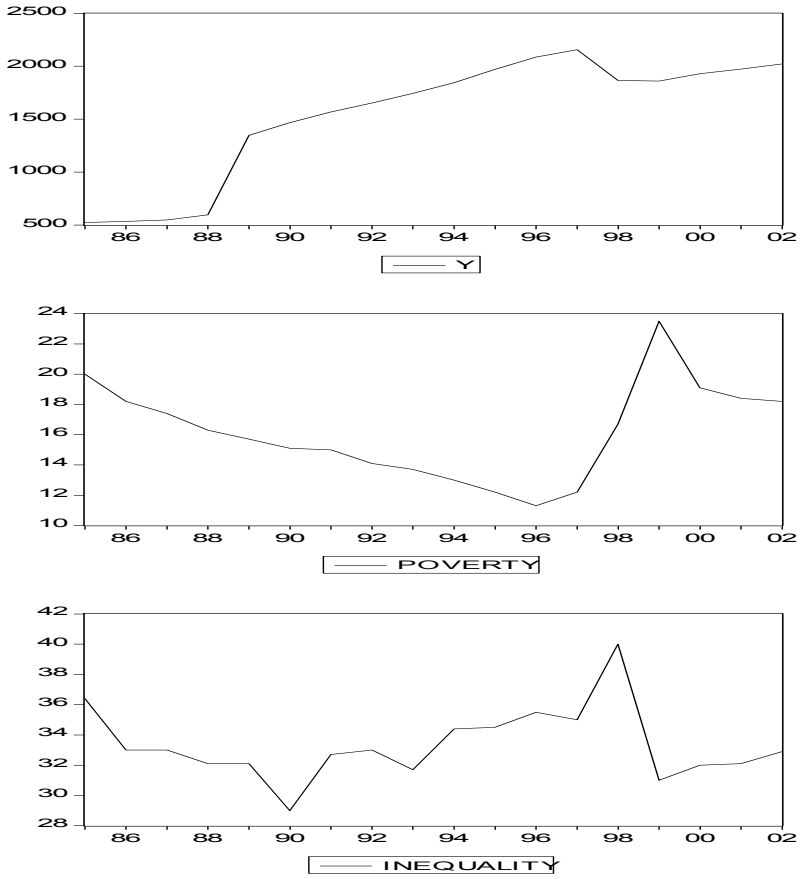
Between regions, the poverty rates in urban areas were lower than in rural areas during the crisis (as also in most other years), suggesting that the crisis had more adversely effect on rural than urban areas (see Table 3). Partly, the much higher poverty rate in rural areas in 1999 could be the result of many returned laid off workers from urban areas. They were mainly employees and daily laborers in firms in manufacturing, construction, banking and trade, the most adversely affected sectors by the crisis. Back in their villages, many of them worked in agriculture or became traders or opened their own small businesses. While, those who stayed in cities, they have been found to be engaged in low-income generated activities in the urban informal sector (Amin, 1998; Hugo, 1998). It was assumed that the flow of people from urban to rural areas during the crisis was huge, though no exact figure is available. However, one thing is obvious that agriculture and informal sectors in both rural and urban areas have played an important role during the crisis as the last resort for the laid off workers from the formal sector.[17]

Figure 11: Long term trends of Poverty Rate (%), real GDP per capita (Y; ml. rupiah) and Inequality (Gini

[16] Daly and Fane (2002) argued that measured poverty after the onset of the crisis may have slightly overstated real poverty because the anti-poverty programs that provided benefits in kind, i.e. subsidized rice, scholarships and subsidized health care and nutrition, would not have affected the expenditure-based measures of poverty, even though they reduced real poverty, because their benefits were not included in measured expenditure. See also recent studies on the poverty impact of the crisis such as ADB (2000), Suryahadi *et al.* (2000) and Skoufias (2000).

[17] Recently, LPEM from the faculty of economics, University of Indonesia has estimated the degree of the importance of the informal sector by regions, i.e. rural and urban areas, for the poor in 2002 and 2003. It shows that the HC index in the informal sector in both rural and urban areas was higher than in the formal one. In 2002 the index was 16.9 (with 18.84 and 14.14 in respectively rural and urban) compared to that in the formal sector, i.e. 10.87 (13.35 and 9.51 respectively in rural and urban areas). In 2003, the HC index in the informal sector was declined to 15.82 (16.29 and 15.06 in rural and urban areas respectively), but still higher than the index in the formal one, i.e. 10.44 (11.64 and 9.73 respectively in rural and urban areas).

coefficient): 1981-2002



The rebound of the country's economy after 1998 has led to a drop again in poverty incidence, from 23.5% in 1999 to 19.1% in 2000 and the decline tended to continue onwards (see Table 3), and income distribution also improved.

VII. Findings and Discussions

How Do Economic Reform Policies and Economic Crisis Affect Economic Growth?

To answer this question, the analysis covering the period 1982-2002 proceeded as follows: it started first by examining the simple regression of the growth rate of per capita GDP (%ΔY) on the crisis variable (%ΔE) by using least squares (LS) method. The finding of this simple growth regression is shown below:

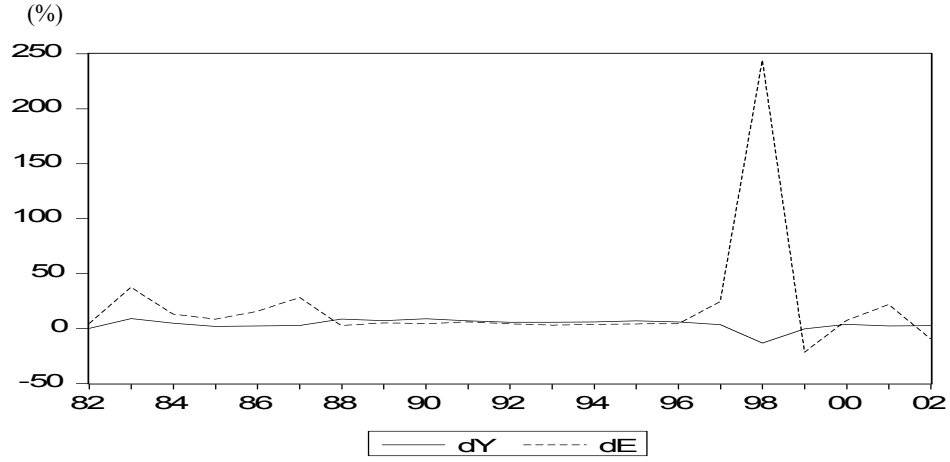
Regression 1:

$$\%\Delta Y = 5.12 - 0.07\ \%\Delta E$$
$$(7.1) \quad (-5.3)$$

$$R^2 = 0.60$$
$$\text{F-statistic} = 28.12$$

The finding shows that the relationship between %ΔY and %ΔE is negative (as expected) and significant, as also illustrated obviously in Figure 12. During 1998 a large number of mainly big companies especially in manufacturing, trade, and construction sectors bankrupted, caused mainly by the substantial price increases in imported inputs on one hand, and financial difficulties in paying back their bank loans, including short-term commercial loans from abroad (which they used mainly to finance long-term investments), on the other hand. Also many banks closed down due to big losses in foreign financial transactions. As an illustration, in 1998 output in manufacturing dropped by 12.4%, and the banking sector experienced a negative growth of 27% which led to astronomical losses which almost entirely paid for by the government.

Figure 12 Percentage Changes in exchange rate of the rupiah against the US dollar (dE) and real GDP per capita (dY) during the Crisis in Indonesia*



Note: * as this and other figures in this paper were made by using a program which do not have some mathematical symbols like Δ, so dE and dY (also with respect to other variables) have the same meaning as %ΔE and %ΔY, respectively.
Source: BPS

However, this is not unidirectional causality as this study want to assert. The Granger causality test indicates that the causality goes two ways. So, instead, the above finding shows association between changes in real income per capita and exchange rate, which may suggest that the currency crisis in Indonesia is a type of economic shock which is strongly associated with negative economic growth,

Next, the regression of the growth rate of per capita GDP on the policy indicators, i.e. the ratio of trade balance to GDP (TB/Y), the ratio of total domestic credit to GDP (TDC/Y), and the ratio of total investment to GDP (I/Y), and the percentage change in inflation (%ΔCPI), was estimated by using the same method. This regression analysis wanted to assess the relationships between these three macroeconomic reforms policies

and long-term economic growth in a "stable" environment without an economic shock; so %ΔE was not included in the analysis. The result is shown below (Regression II).

Regression 2:

$$\%\Delta Y = \underset{(0.1)}{0.4} + \underset{(0.6)}{2.01}\ TDC/Y + \underset{(2.3)}{0.23}\ I/Y - \underset{(-5.3)}{0.3}\ \%\Delta CPI + \underset{(1.7)}{0.13}\ TB/Y$$

$R^2 = 0.78$
F-statistic = 14.23

The finding shows that all the estimated regression coefficients have the expected signs, although only the investment ratio and inflation are statistically significant. As illustrated in Figure 13, GDP and investment move in the same direction, and economic growth falls sharply during discrete high inflation crisis, then it recovers strongly after inflation fall sharply. The relationships between inflation and economic growth as well as between investment and economic growth in the new growth literature are usually thought to reflect a long run relationship (Bruno and Easterly, 1998). So, the finding may suggest that the specific channels through which macroeconomic reform policies influence long-term economic growth in Indonesia are channel 1: investment growth and channel 2: price decreases. This supports the general notion in the literature on long-term economic growth that, while growth in consumption expenditure might be good for short-term growth, for long-term economic growth, it needs sustainability in investment growth and long-term price stability.

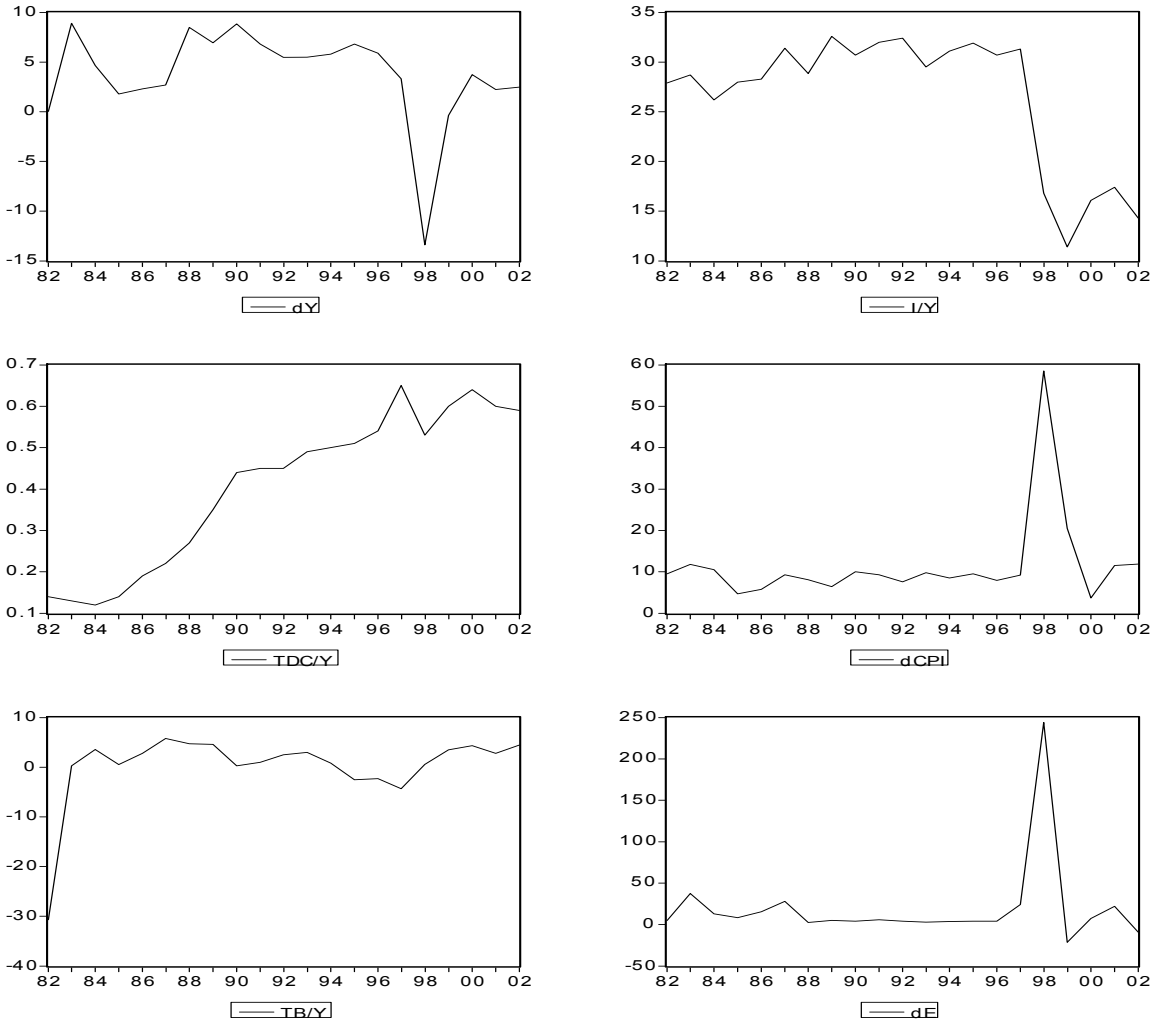
Finally, the link between the crisis and economic growth was assessed after controlling for the policy and inflation variables that affect the country's growth process. The result is presented below:

Regression 3:

$$\%\Delta Y = \underset{(-0.7)}{-2.7} + \underset{(0.3)}{0.83}\ TDC/Y + \underset{(2.9)}{0.3}\ I/Y - \underset{(-0.54)}{0.1}\ \%\Delta CPI + \underset{(1.96)}{0.14}\ TB/Y - \underset{(-1.74)}{0.05}\%\Delta E$$

$R^2 = 0.82$
F-statistic = 13.42

Figure 13 Long-term development trends of economic growth and main determinants, 1982-2002



How Do Economic Growth and Inflation Correlate with Poverty?

In estimating empirically the effect of changes in real GDP per capita and inflation rate on change in poverty rate, three subsequent steps were followed. First, following the approach used by Dollar and Kraay (2000) and others, the relation between %ΔP and %ΔY was estimated econometrically for the period 1982-2002. The result shows that, not only the two variables have a negative regression correlation, and it is significant from zero at 90% confidence interval, but the growth elasticity is more than unity (Regression 4). The F-statistic is statistically significant with the critical point 0.01, suggesting that %ΔY contributes significantly to the linear prediction of %ΔP based on the observed data. The lines of %ΔP and %ΔY in Figure 14 also indicate that during the crisis period when the real income per capita fell dramatically, the poverty rate increased significantly. Further, the scatter diagram between %ΔP and %ΔY as illustrated in Figure 15 shows a negative regression line, although the degree of the correlation between the two variables is not high.

Regression 4:

$$\%\Delta P = 6.45 - 1.99\%\Delta Y$$
$$(2.16)\ \ (-3.997)$$

$$R^2 = 0.457$$
$$\text{F-statistic} = 15.98$$

Figure 14 Lines of Annual Percentage Changes in Poverty Rate and Real GDP per capita

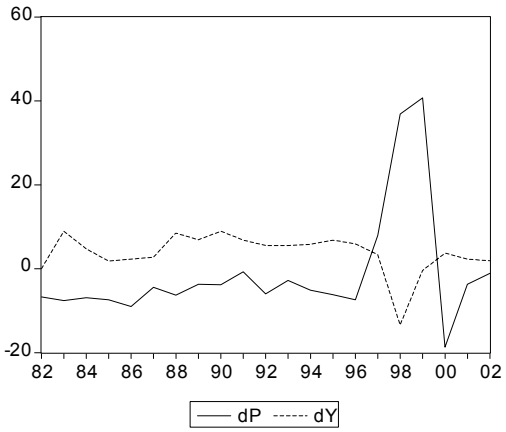
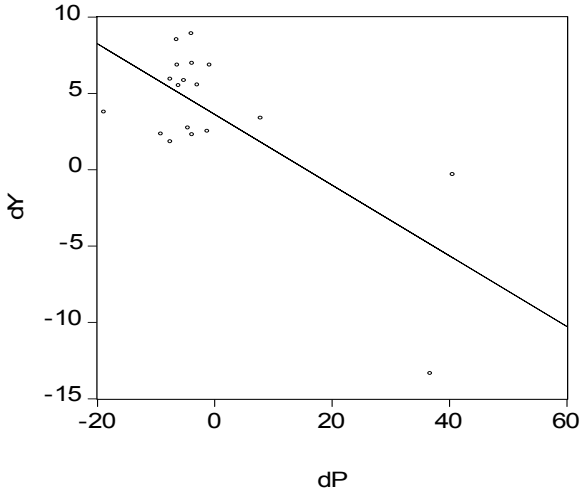


Figure 15 Scatter Diagram with Regression Line: changes in poverty rate and real GDP per capita



Agénor's (2001) study on the social costs of the crisis in other affected countries, i.e. Thailand and South Korea, also found similar evidence which provides a vivid illustration of the devastating impact that large output contractions caused by the crisis can have on the poor. In South Korea, the urban poverty HC index rose from 8.5% to 18% during 1997-98; and in Thailand, the incidence of poverty increased from 11.4% in 1996 to 12.9% in 1998.

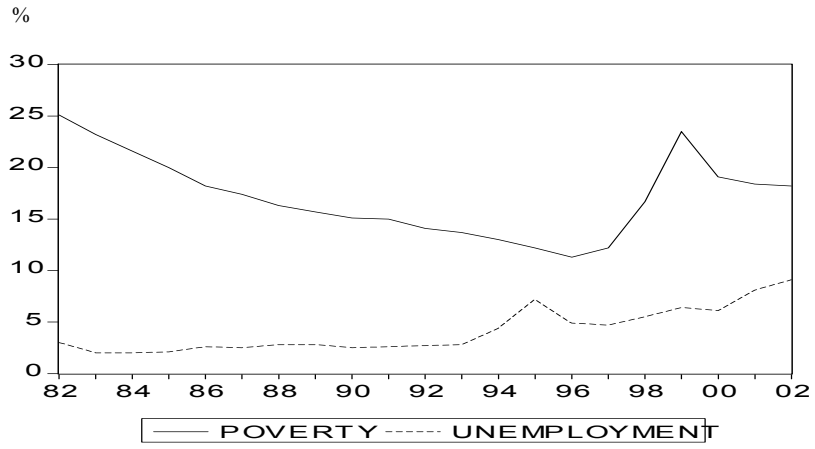
As discussed before, the assumption being made that economic crisis influences poverty through two main channels: output declines and domestic price increases or higher inflation rate (see Diagram 3). The first one is called the unemployment effect of an economic crisis simply because a fall in output reduces employment

opportunity or creates higher unemployment rate, and thus increases poverty rate. Horton and Mazumdar (2001), for instance, conclude that income of the poor during the crisis in Indonesia, Thailand and South Korea fell which not only caused by lower wages but also as a result of higher unemployment. However, a distinction must be made between open or official unemployment and total employment which also includes 'hidden' or 'disguised' unemployment. Because, when official or open unemployment is concerned, then the proposition that unemployment and poverty is positively related can be tested only in countries, mainly developed/industrialized ones, where there is no "hidden" unemployment. While, in poor or less developed countries, government data on open unemployment may not tell the true story, as total unemployment in these countries consists mainly of 'hidden' unemployment, which is usually found in low-income and often seasonal economic activities, known as the informal sector. In Indonesia too, the informal sector is obvious, and during the crisis this sector together with agriculture acted as 'the last resort' for those who were laid off from closed down or stagnated companies in the urban formal sectors such as industry, finance, trade and construction. That is why the increase in open unemployment in Indonesia during the crisis was less dramatic, but was accompanied by a significant shift toward the informal sector and a rise in "hidden" unemployment. It is generally expected that in Indonesia total unemployment (i.e. official or open unemployment + unofficial or hidden unemployment) has always been higher than open unemployment, as the informal sector that absorbed many unemployed labor force every year has always been booming (though no official data are available on hidden unemployment, so no one know how much total unemployment is in the country).

As illustrated in Figure 16, during the period 1982-1996 the poverty rate appeared to have a negative growth trend, while the open unemployment rate was more or less stable around 2%-2.5% on average per year and it started to increase since 1993 and reached 7.2% in 1995. In 1998 the open unemployment rate was about 5.5%, or increased from about four million workers in 1997 to over five million in 1998; while the poverty rate increased significantly. It was expected that in 1998 total unemployment rate was much higher than 5.5%. After 1999, the poverty rate declined, while the open unemployment rate tended to increase. As a comparison, in Thailand the open unemployment rate rose from 2.2% in 1997 to 5.3% in 1998, whereas in South Korea the urban open unemployment rate rose from 2.6% in 1997 to 8.4% in early 1999.

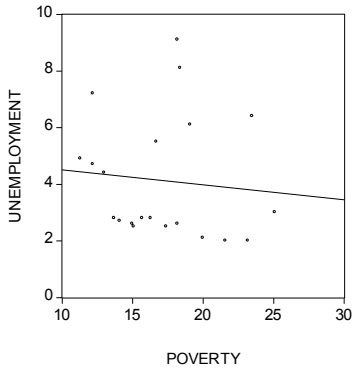
Scatter diagram in Figure 17 indicates indeed that the two variables are not really correlated to each other, or they do not have a positive relationship as generally expected. So, data on official or open unemployment in Indonesia could not be use as a good explanatory variable in predicting poverty rate in the country.

Figure 16: Open Unemployment and Poverty Rates (%), 1981-2002



Source: BPS

Figure 17 Scatter Diagram with Regression Line: poverty and Open unemployment rates



With respect to the second channel, the rise in poverty rate is also expected to have a positive relationship with the increase in domestic prices through the decline in real income (the so-called the price or the real income effect), and the 1997 crisis has also resulted in dramatic price increases. So, in this study the effect of the 1997 crisis on poverty change through the price channel was also estimated, and the finding as given in Regression 5 shows that the regression coefficient is not only positive but also highly significant from zero at 90% confidence interval. As compared to Regression 3, it is obvious that the significant effect of change in inflation rate was stronger than change in real GDP per capita on poverty change. It is also reflected by higher R^2 and F-statistic in Regression 5 than in Regression 4. The lines and the scatter diagram with regression line between the two variables are shown respectively in Figure 18 and Figure 19.

Regression 5:

$$\%\Delta P = -12.46 + 0.98\%\Delta CPI$$
$$(-4.40) \quad (5.54)$$

$$R^2 = 0.62$$
$$\text{F-statistic} = 30.72$$

Figure 18 Lines of Percentage changes in poverty rate and inflation rate

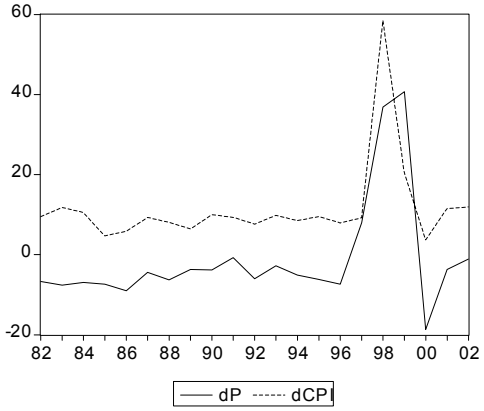
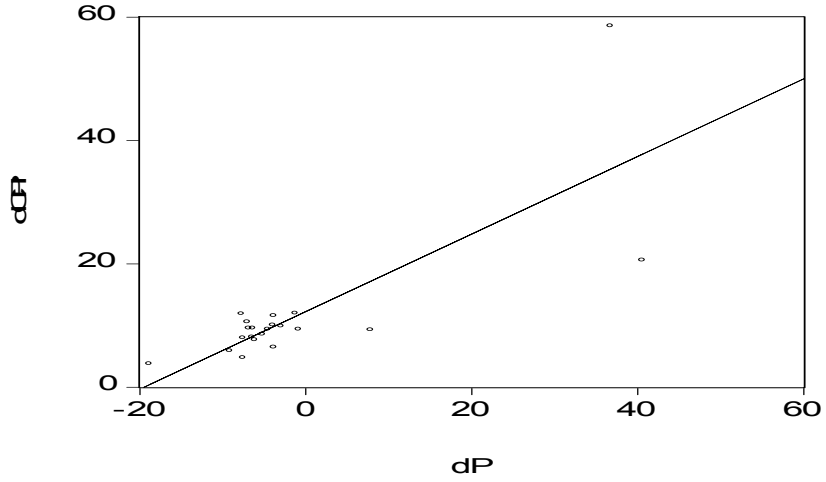


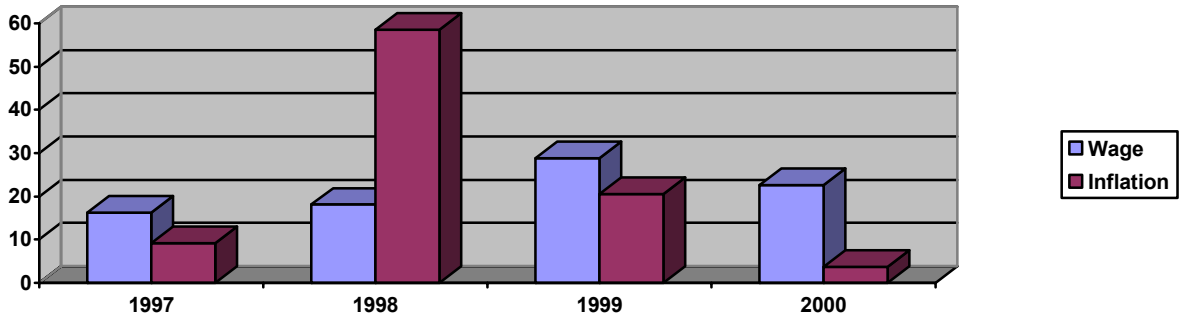
Figure 19 Scatter Diagram with Regression Line: changes in poverty rate and inflation rate



The importance of price effect channeling the impact of the crisis on poverty is also suggested in World Bank (2000), which found that as prices increased significantly during the period 1997-98, real wages fell by 4.5% in Thailand, 10.6% in South Korea, and 44% in Indonesia, which led poverty rates to increase in these countries. By using data on average nominal wages per month for employees in manufacturing and agriculture from National Wage Statistics (BPS), this study found that in 1998 the real wage in the two sectors respectively fell by slightly more than 40% (Figure 20), and 26.4% (Figure 21).

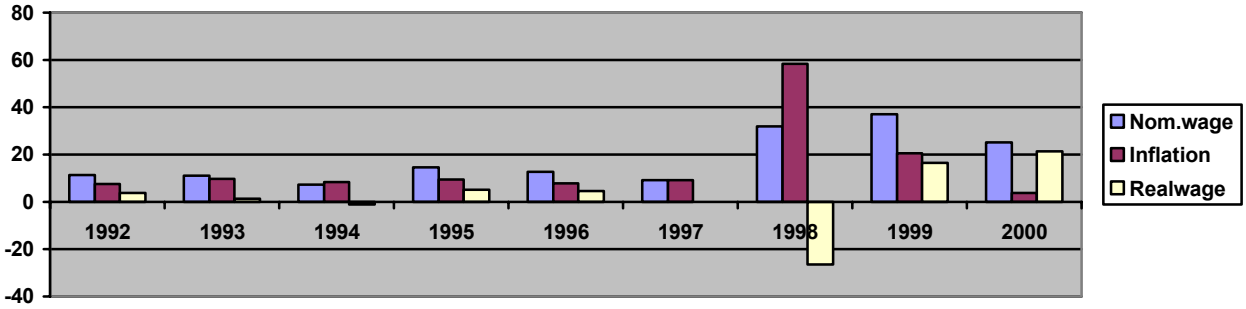
Figure 20 Changes in Average Nominal Wages in Manufacturing and Inflation Rate (%) in Indonesia During

the Crisis, 1997-2000



Source: BPS

Figure 21 Inflation rates and annual percentage changes in average nominal and real wages in agriculture in Indonesia, 1992-2000 (%)



Source: BPS

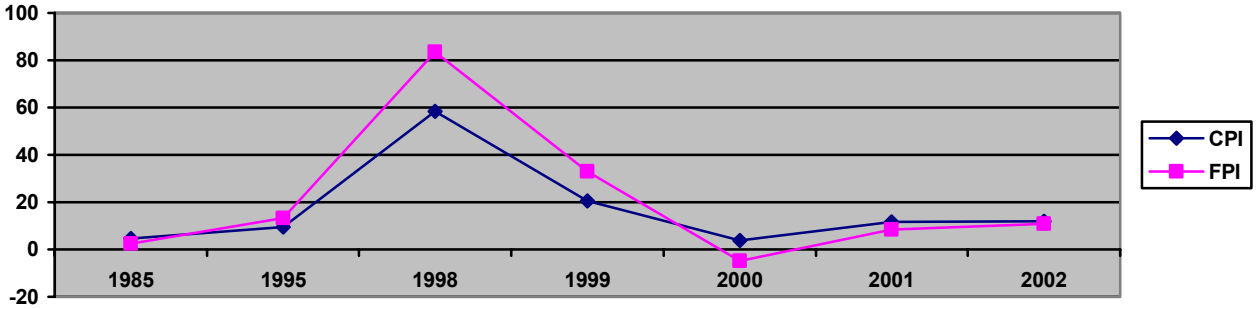
The inflation rate used in this study is the annual percentage changes in composite CPI in a large number of cities, and consisted of a large number of goods, including food, prepared food, clothing, health and housing. Especially domestic price increases of the first two items hurt very much the poor, and particularly the very poor. As shown in Table 4, the CPI for food and prepared food started to increase in 1998 and further up significantly in 1999. The dramatic price increases for food and other items are also clearly shown in Figures 22 and 23. The highly jumped CPI for food and other items in 1999 was not only related to the crisis itself (caused by the depreciated rupiah), but also as a result of mounted uncertainty by domestic producers of that items after several important events took place in the whole year of 1998 such as the riots in May followed by the resign of President Soeharto in the same month, and several students protests that turned violent by the end of that year.

Table 4: Composite CPI of 43 Cities: 1997-2002 (1996=100)

	1997	1998	1999	2000	2001	2002
-Food	203.9	209.2	261.7	249.0	270.0	299.3
-Prepared Food	188.8	173.9	215.9	229.5	261.5	292.9
-Housing	203.1	142.0	164.2	175.3	196.2	224.8
-Clothing	172.1	191.7	230.0	245.3	267.8	280.3
-Health	197.5	179.5	217.8	229.9	255.5	272.4

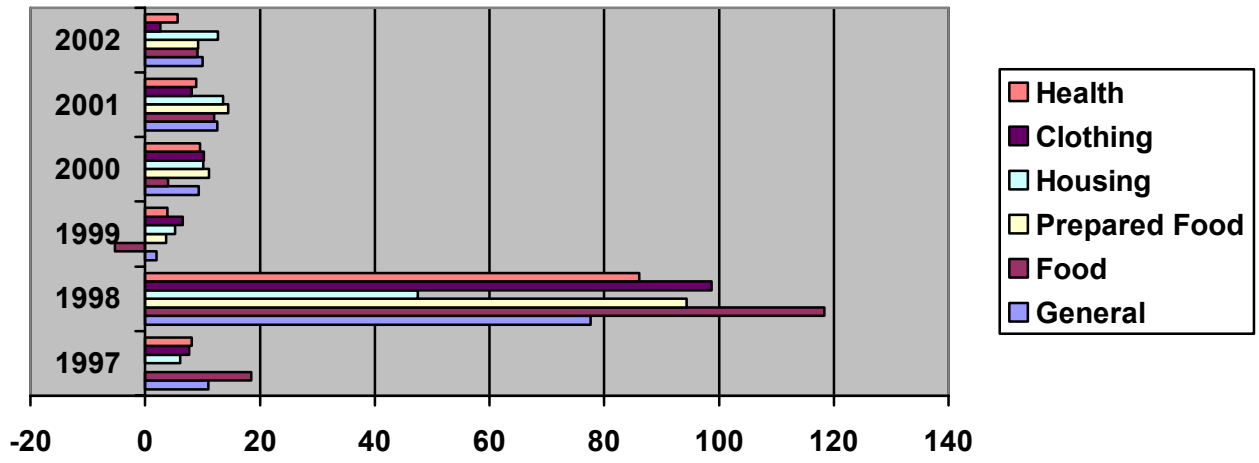
Source: BPS.

Figure 22: Annual Percentage Change in Consumer Price Index (CPI) and Food Price Index (FPI)): 1985-2002



Note: for 1985 to 1989, data refer to CPI for 17 cities with April 1977 to March 1978 as base period. For 1990 to 1996, data refer to CPI for 27 cities with April 1988 to March 1989 as base period. For 1997 onward, data refer to CPI for 43 cities with 1996 as base period.
Source: BPS

Figure 23: Inflation Rate of 44 Cities in Indonesia (%): 1997-2002



Note: for 1997, inflation rate of 27 cities (April 1988-March 1989=100), for 1998 onwards, inflation rate of 44 cities (1996=100).

Further, Table 5 provides the most important commodities in the category of food and prepared food items. As can be seen, the price index for rice increased substantially by slightly more than 100% within one year from 2965 in 1997 to 6198 in 1998 and continued onwards. The price index for salted fish also went up by almost 100%, and that for coconut oil jumped even more by almost 160% during the same period. Also price indices for other remaining food items in the table increased, though in different rates. This evidence suggests

that the poor, especially the very poor were hardly hit by the 1997 not only through employment but also price effect channels.

Table 5 Price Indices of 9 Essential Commodities in Rural Java (1971=100): 1993-2002

Commodity	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002*
Rice	1691	2216	2586	2064	2965	6198	7389	8072	9049	11245
Salted fish	1803	2021	2134	2512	2865	5422	6412	7435	8400	10082
Coconut oil	1267	1500	1435	1520	1659	4263	3847	3733	4102	5163
Granulated sugar	1389	1374	1493	1571	1614	2890	2945	4034	5307	5504
Salt	914	952	992	1042	1133	2310	4436	3623	3887	4414
Kerosene	2355	2382	2389	2436	2481	2772	2870	3224	4353	6866
Soap	825	859	893	958	1005	2214	3122	3051	3231	3399
Textiles	1134	1212	1347	1460	1550	2546	3973	3451	3977	4558
Batics	1249	1313	1402	1523	1659	2286	3239	2819	3084	3470
General	1655	2038	2296	2364	2652	5331	6441	6861	7777	9628

Note: * = December
Source: BPS

There are several authors who already made an attempt to analyze the impact of the domestic price changes on the poor with different methods of analysis, and Levinsohn *et al* (1999), Poppele *et al.* (1999), and Frankenberg *et al.* (1999a,b) are ones among them. For instance, Levinsohn *et al.* (1999) used data on average consumption expenditure per capita by income/expenditure groups (deciles) from the 1993 SUSENAS (BPS) which surveyed 65,600 households throughout the entire country, to investigate whether the price increases during the crisis have impacted the cost-of-living of poor households in a disproportionately harsh way. They found that the poor have indeed been hit hardest, and urban poor households faced a higher cost of living than rural poor households. Of course, since consumption baskets used in their analysis are calculated with 1993 data, their measured impacts of the price increases will diverse from the actual impacts of the crisis.[18]Nevertheless, the consumption expenditure data from the SUSENAS may give some indication about the likely impact of the crisis on poverty through the sharply price increases for food (see again Figure 22 or 23), and food is the most important expenditure component of the poor. The 1993 SUSENAS data show that the expenditure share of the bottom decile (the very poor households) on food was larger than that of the top one (the very rich), i.e. 68.1% vs. 46.9%. Specifically on rice, the very poor spent almost 25% of their total expenditure to buy the item, as compared to only 6.4% by the very rich households. Whereas data from the 1999 SUSENAS (which was not yet published by BPS during the Levinsohn *et al.*' study), the expenditure share of the very poor households was higher at 75.93%, while that of the very rich households declined to 36.13%. The expenditure share of the very poor on rice also increased to almost 33%, while that of the top decile fell to 2.79%.

[18] See further their paper for more detailed information on the methodology used, analysis and their findings, and also from other authors mentioned in the text above.

Finally, the relationships between change in poverty with real GDP per capita and inflation changes were estimated (Regression 6). The result shows that both the rate of growth in real GDP per capita and inflation change were found to be negatively and positively related, respectively, to the percentage change in poverty incidence. The result suggests that higher economic growth means lower poverty rate, and higher rate of inflation means higher poverty rate. But, the regression coefficient of the income variable is not significant, whereas the estimated coefficient relating poverty reduction to the inflation rate is significantly greater than zero at 90% confidence interval. This finding may thus suggest that the most important channel through which macroeconomic reform policies influence poverty reduction is price changes or increase in inflation rate.

Regression 6:

$$\%\Delta P = -10.5 - 0.25\%\Delta Y + 0.90\%\Delta CPI$$
$$(-1.6)\ \ (-0.33)\qquad (2.8)$$

$$R^2 = 0.62$$

F-statistic = 14.7

The above findings do not imply, however, that economic growth and price stability or low inflation rate are all that needed to improve the lives of the poor. There are obviously a whole range of historical factors and contemporary macroeconomic aspects that play a part in determining what happens to poverty. In other words, to make sure that economic growth benefits the poor, the economic growth should not only be labor intensive but it should also be accompanied with sound policies on areas such as land reform or asset redistribution, education and health care facilities, access to credit market, infrastructure development, market facilitation and market distortions elimination, fair competition, labor market flexibility, social safety net, and agricultural development.

How Does Inequality Correlate with Poverty?

The inclusion of inequality in this study is deemed as important in analyzing the effect of economic reform policies on poverty. Many factors affect inequality, including trade, investment and financial reforms. Trade liberalization, for instance, may favor some sectors or industries while disfavor others, or it may bring benefits for those who have access to trade facilities, including licenses. The investment incentives for entrepreneurs (usually as one important component in investment liberalization policies), who are typically better off, will increase inequality. Also investment policies in favor of FDI may put many local small or micro enterprises out of business, thus generates higher inequality.

Despite being subject to problems of possible endogeneity, this study has estimated the relationship between the level of inequality and poverty change in three different ways. One way is the link between inequality level and economic growth rate, and the result shows that the link is negative and significant from zero at 90% confidence level: higher inequality means smaller economic growth (Regression 7). The strong link between economic growth rate and inequality level is also illustrated in Figures 24 and 25. The combination of Regression 6 and Regression 7 may suggest that higher inequality level means larger percentage increase in poverty,

Regression 7

$$\%\Delta Y = 50.7 - 1.4\text{Gini}$$
$$(4.2) \quad (-3.9)$$

$$R^2 = 0.44$$
$$\text{F-statistic} = 15.21$$

Figure 24: Rate of Economic growth and Level of Inequality in Indonesia: 1985-2002

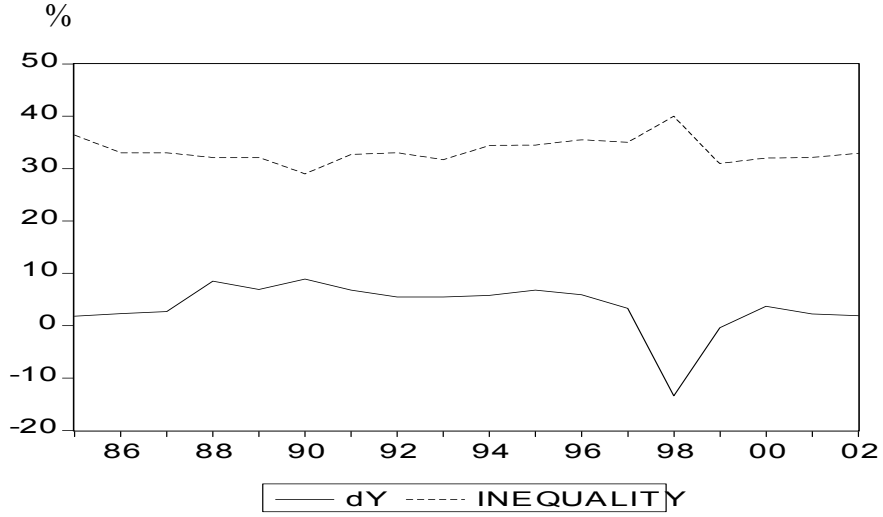
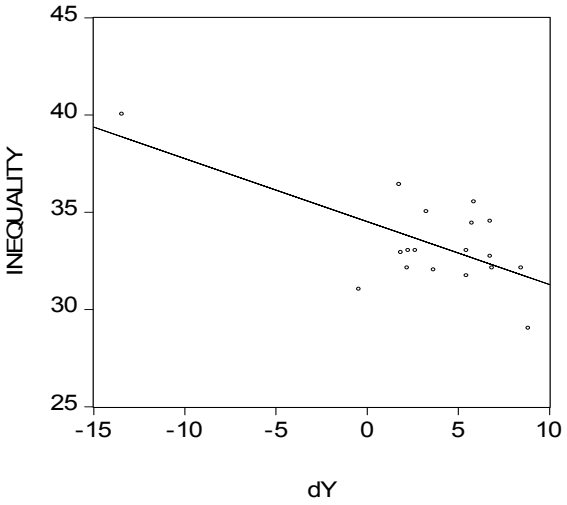


Figure 25 Scatter with Regression Line: economic growth and Inequality



But, as the second way, when the link between poverty change and inequality level was estimated after controlling other two main important poverty determinants, i.e. inflation change and economic growth , it was found that the regression coefficient for inequality is not positive with %ΔP (Regression 8). Figures 26 and 27 illustrate the relationships between poverty and inequality in Indonesia.

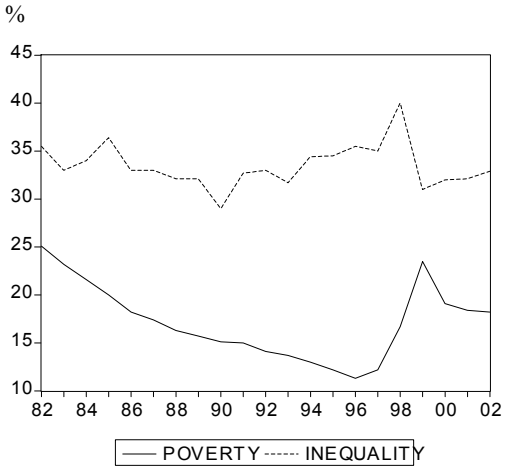
Regression 8

$$\%\Delta P = 62.7 + 0.90\%\Delta CPI - 0.9\%\Delta Y - 2.12Gini$$
$$(1.58) \quad (3.0) \qquad (-1.1) \qquad (-1.87)$$

$R^2 = 0.69$

F-statistic = 12.31

Figure 26: Long term development trends in poverty rate and gini coefficient (inequality level), 1982-2002



Source: BPS

Figure 27 Scatter with Regression Line: Poverty Rate and Inequality Level

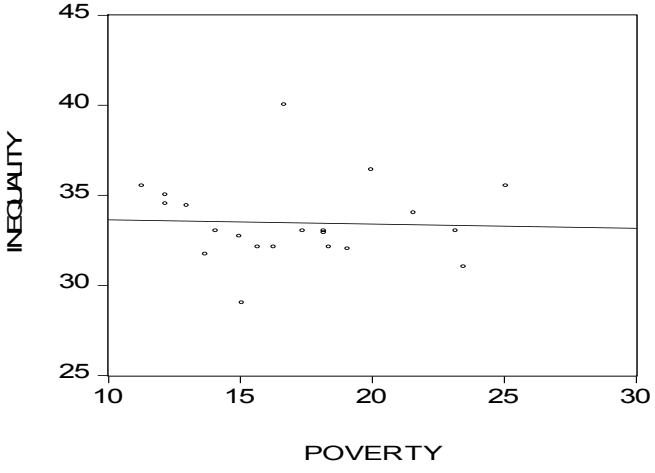


Figure 26 strongly suggests that poverty rate and inequality level are both caused by economic crisis. Yet in this analysis poverty was treated as endogenous and inequality as exogenous, as this analysis aimed to estimate the role of inequality level as a poverty determinant.[19]

The negative result shown in Regression 8 brought to the third way: the relative contribution of economic growth and inequality level to poverty change was estimated by using decomposition of percentage change in poverty (see equation 4). The result gives change in poverty rate (HC index) which would have been obtained with economic growth without change in inequality level, or with inequality change without economic growth from 1981 onwards in 4 subsequent sub-periods (Table 6). As can be seen, only for the period 1981-1990 the elasticity of poverty change to inequality change was positive at 2.30, suggesting that an increase in inequality of 1% would generate a reduction in the poverty rate of 2.3% with constant real income per capita (zero growth). The gini elasticities for the other three sub-periods, however, were negative. [20]

Table 6 Decomposition of percentage change in poverty rate (HC index) by percentage changes in real GDP per capita and inequality: 1981-2002

Period	Elasticity of poverty to		Actual change of poverty rate (%)	Growth only (%)	Inequality only (%)
	Growth	Inequality			
1981-1990	-0.82	0.19	-43.9	-1428.44	2.30
1990-1996	-0.67	-0.09	-25.2	-28.27	-2.02
1996-1999	-2.3	-0.6	107.97	-24.93	-0.6
1999-2002	-3.8	-1.9	-22.6	-32.99	-11.65

One explanation for the finding is (as said before) the problems of possible endogeneity: not only inequality affects economic growth, but the latter also may have influences on inequality. Furthermore, as noted by Bourguignon and Morrison (1990) and Papanek and Kyn (1986), many factors other than economic growth per se may affect inequality. These factors include the education of the labor force, the structure of exports, and the presence of trade distortion. When these factors are omitted, the link between economic growth (and hence poverty), and inequality may be spurious. Another explanation is that poverty and inequality are not the same things. Poverty refers to the failure by the individual or household to rise above a given minimally acceptable standard of living (the poverty line). Inequality, however, refers to the distribution of wellbeing across households. Thus, it is very likely to have a highly unequal society (gini coefficient is

[19] See again the discussion in Chapter II (Economic Growth-Poverty).

[20] Earlier, Asra (2002) has also estimated the relative contribution of economic growth and equity to poverty alleviation in urban and rural areas respectively in Indonesia by using the same decomposition formulae for the period 1981-90 and 1990-1996. The results show that most of poverty incidence drop during the period 1981-90 can be attributed to higher mean consumption at a given consumption expenditures distribution. This growth impact was more prevalent during the 1990s (before the crisis). The decomposition shows that the change in consumption expenditures distribution based on current prices has had an adverse effect on poverty alleviation, as in that period inequality of consumption expenditures as measured by the Gini coefficient increased slightly. But, this finding might be different if constant prices, instead of current prices have been used.

very high or one) in which no one is poor (no individuals or households under the poverty line). Conversely, it is possible to a country has a very equal society (gini coefficient is very low or zero) while the poverty rate is very high (the majority of population under the poverty line) such as in the former Soviet Union or China prior to the economic reforms started in 1978.

But poverty and inequality are obviously linked. If the overall level of income stays constant, an increase in inequality will generally increase poverty and *vice versa*. But, since the overall level of income in a country does not usually stay the same, therefore, it is very possible for economic growth to cause a fall in poverty rate while inequality increases; or for an economic crisis to increase poverty significantly while improving the distribution of income. Some examples to mention here, the investment incentives for entrepreneurs, who are typically better off, will increase inequality, but at the same time it will tend to improve economic growth and hence reduce poverty, or, a very unequal initial distribution of assets results in a poorer use of resources than might occur with a more equal distribution (McCulloch, *et al*., 1996).

Does the Sectoral Composition of Growth Matter for Poverty Reduction?

To estimate empirically the importance of the sectoral composition of growth for poverty reduction, the analysis was consisted of two stages. The first stage covers the period 1982-1998, and the regression result shows that among the three main sectors, income growth rate in agriculture ($\%\Delta Y_A$) appears to have the strongest and significant relationship between sectoral growth rates and poverty reduction. The null hypothesis that the sectoral composition of growth does not influence the rate of poverty reduction was rejected by *t* and F-test at the 95 per cent confidence level (Regression 9):

Regression 9

$$\%\Delta P = \underset{(3.75)}{11.55} - \underset{(-2.14)}{10.04}\%\Delta Y_A - \underset{(-1.92)}{2.56}\%\Delta Y_I - \underset{(-1.19)}{1.82}\%\Delta Y_T$$

$R^2 = 0.72$

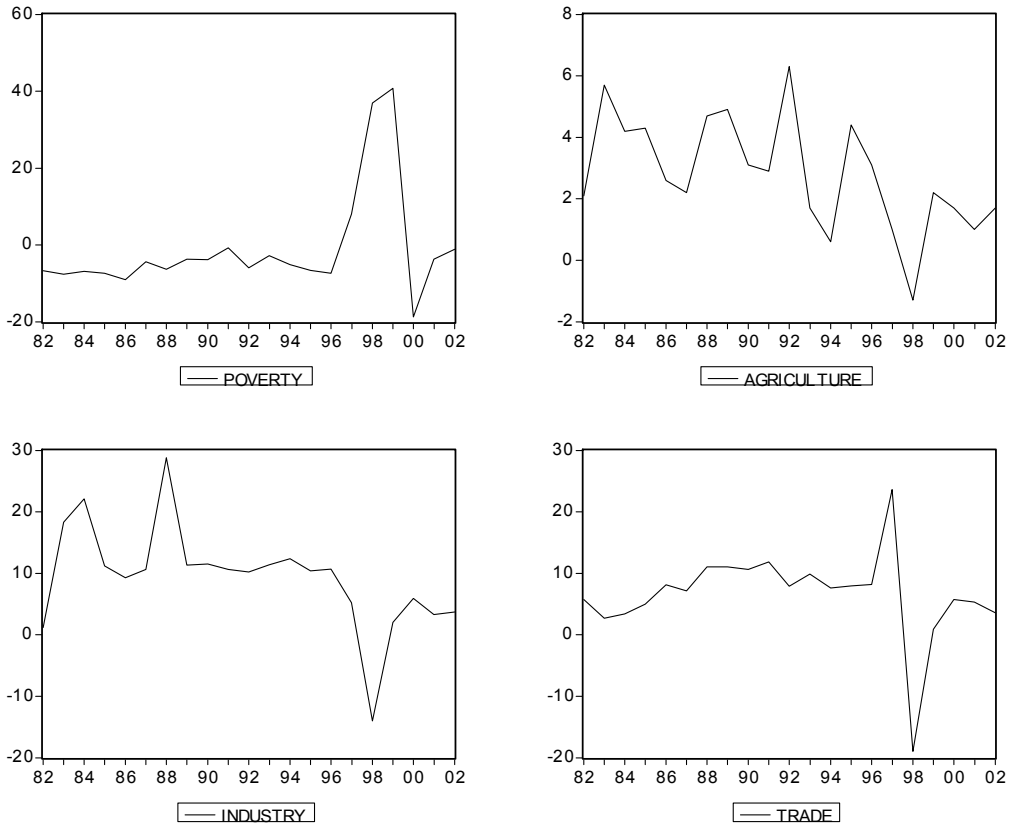
F-statistic = 11.09

In the second stage, the empirical analysis covers the period 1982-2002, and the regression result show that although the estimated coefficients of the three explanatory variables are negative (and agriculture still have the largest estimated regression coefficient), but they are not significant from zero (so not shown here). This can be explained by the fact that in 1999 the rate of change in poverty was still negative, while, the rates

of output growth in industry and agriculture were positive (trade was still negative), though varied among them (Figure 28). This phenomenon may have created a distortion to the nature of relationship between the output growth in these sectors on one hand and the reduction of poverty on the other hand.

Nevertheless, the result in Regression 9 gives a strong signal indicating that in the Indonesian case the output or income growth in agriculture, among other sectors, is the most important source of poverty reduction. This proposition was also tested by looking at the statistical relationship between the percentage change in poverty (%ΔP) and the average agricultural yield per ha (Yield) for the period 1974-2002, and the result shows that the estimated correlation is negative (as generally expected) and significant (Regression 10). Figures 29 and 30 also indicate that the relationship between the percentage change in poverty and average agricultural yield per ha is almost perfectly linear.

Figure 28: Percentage change in poverty and sectoral growth rate



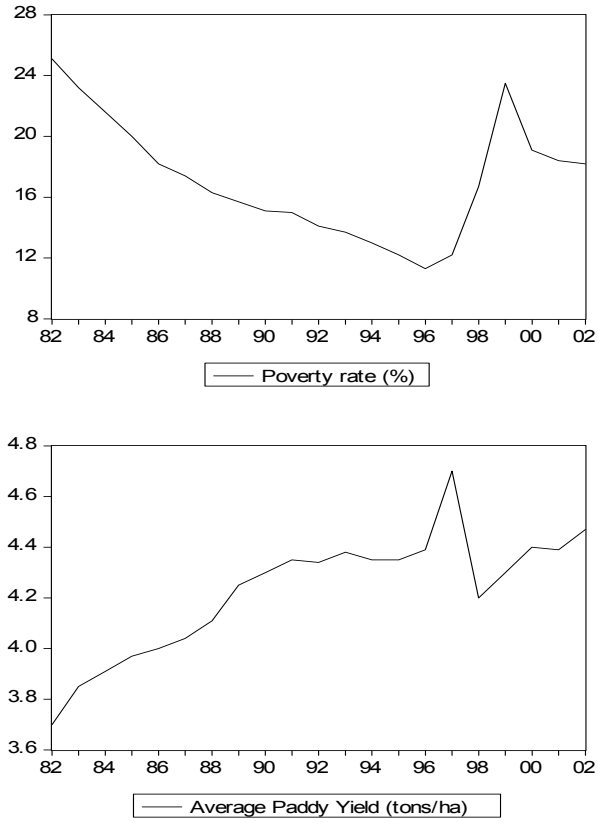
Source: BPS

Regression 10

%ΔP = 66.1 – 11.6Yield
(5.9) (-4.3)

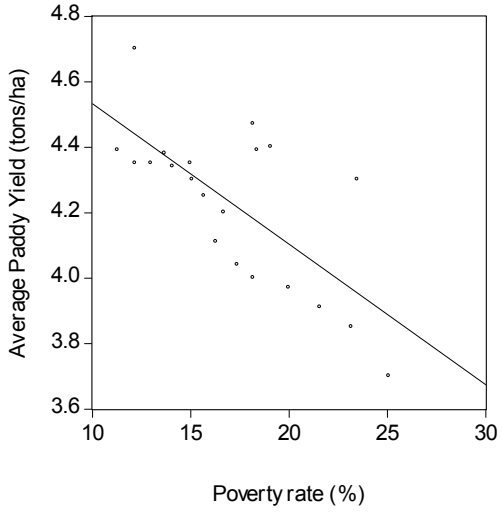
$R^2 = 0.5$
F-statistic = 18.73

Figure 29: Poverty rate and Average Paddy Yield, 1974-2002



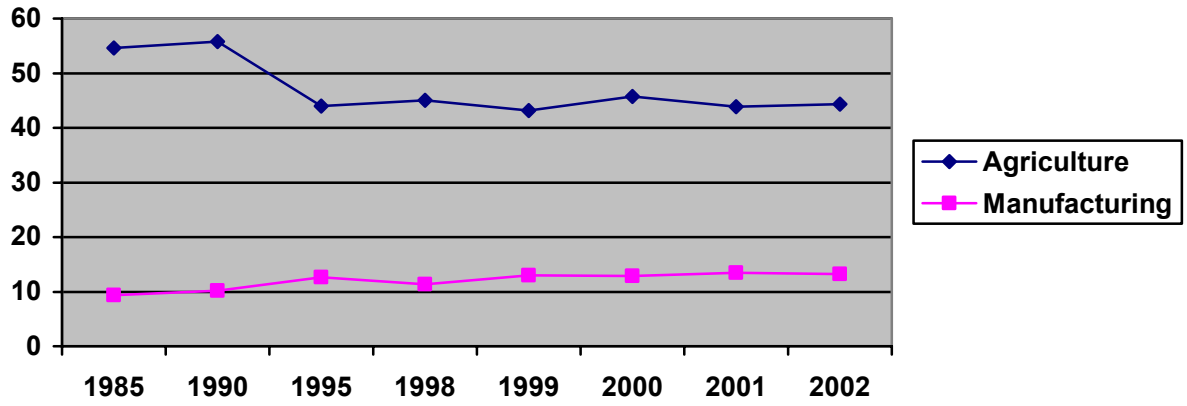
Source: BPS

Figure 30 Scatter with Regression Line: Poverty Rate and Yield



Poverty is indeed a highly multidimensional phenomenon or process, which, by implication, obtains from an array of factors. The World Development Report 2000 identifies institutional, social, economic and human factors as the major causes of poverty. But, in the Indonesian context, poverty has been mainly a rural phenomenon, and to a larger extent it has been related to the lack of development in agriculture. The importance of agriculture is reflected by data from the National Labor Survey (BPS) which show that the majority of total employed labor force in Indonesia was found in agricultural (Figure 31).[21]

Figure 31: Percentage of Total Employed Labor Force in Agriculture and Manufacturing (%): 1985-2002



Source: BPS

SUSENAS data on distribution of poor families by occupation also support the notion that in Indonesia poverty has a strong relationship with the level of development in agriculture, which shows that the vast majority of poor families are in agricultural work, predominantly on farms (Table 7). Recent SUSENAS data in 2002 show that almost 70% of the poor people in rural areas work in agriculture, and even agricultural activities played a dominant role as a source of income for the urban poor (Table 8). The evidence reflects one thing that people in the agricultural sector have always been relatively poorer than those in other sectors.

Table 7 Distribution of Poor Families by Occupation, 1996-2002 (number of heads of families in 000 persons)

	1996	%	1998	%	1999	%	2000	%	2001	%	2002	%
Unemployed/others	994	2.88	941	1.90	4.063	8.47	3.560	9.26	2.349	6.33	3.072	8.61
Agriculture	21739	63.01	28063	56.67	25.997	54.19	20.109	51.73	23.375	62.99	20.605	57.75
Industry	2208	6.40	3679	7.43	6.069	12.65	5.380	13.84	4.401	11.86	4.471	12.53
Services	9560	27.71	16837	34.00	11.840	24.68	9.784	25.17	6.984	18.82	7.571	21.22
Total	34.500	100.0	49.520	100.0	47.969	100.0	38.833	100.0	37.109	100.0	35.719	100.0

[21] That is why it is generally believed that in a large agrarian economy like Indonesia, only the agricultural sector interventions have a serious claim to poverty reduction, or as argued by Mason and Baptist (1996), direct ways that policy can help to reduce poverty in Indonesia are through improving the operation of product, land, and capital markets, particularly where the regulatory environment now works to reduce farm profitability or inhibit entry to productive enterprises by the poor.

Source: BPS (SUSENAS Modul, various issues).

Table 8 Distribution of Poor Families by Sector and Area: 2002 (%)

Sector	Urban	Rural
Agriculture	31.11	69.09
Forestry	0.23	1.34
Fishery	1.48	2.23
Mining	1.25	0.49
Industry	12.17	4.98
Electricity	0.10	0.02
Construction	9.67	3.63
Trade	14.06	5.00
Transportation	8.94	2.73
Finance	0.69	0.08
Services	8.14	2.40
Others	0.04	0.06

Source: BPS.

One interesting point from Table 7 is that in 1998 although the number of poor families in agriculture increased, as also happened in other sectors, it declined relatively. This distribution of increased poor families by sector during the crisis provides other evidence which suggests that agriculture was not the most affected sector by the crisis. This is also supported by estimates from Pradhan *et al*'s (2000) who studied the increase in poverty by sectors. Based on SUSENAS data from February 1996 and February 1999, their estimates shows that although the rate of poverty in agriculture increased during that period, it declined as a percentage of total poor families (Table 9).

Table 9 Poverty Incidence and Contribution to Total Poor by Main Sector of Occupation: February 1996 and February 1999 (%)

Sector	February 1996		February 1999	
	Poverty rate	Contribution to total poor	Poverty rate	Contribution to total poverty
Agriculture	26.29	68.54	39.69	58.38
Trade, hotel, and restaurant	7.96	8.10	17.63	11.13
Manufacturing industry	10.69	5.71	22.92	7.71
Civil, social, and private services	5.73	5.72	13.13	7.36
Transport and communication	8.85	3.32	24.02	5.58
Construction	14.04	5.42	28.97	5.52
Receiving transfer	6.58	1.86	15.57	2.65
Mining and quarrying	15.34	1.01	29.81	1.00
Others	13.29	0.10	32.00	0.27
Finance, insurance, and leasing	1.24	0.06	5.23	0.23
Electricity, gas, and water	6.10	0.16	14.48	0.17

Source: Pradhan et al. (2000).

One factor that responsible for the lower productivity in agriculture is the distribution of land, which in Indonesia is very unequally. Data from agricultural census indicate that Indonesian agriculture is dominated by large and increasing number of small-scale family farms. Recent agricultural census indicates that in 2003 there were 25.437 million land-using farmers, 13.663 million or almost 57% of which were marginal farmers with less than 0.5 ha of land under their control. In 1993 the number of land-using farm households was

20.518 millions or grown by 1.8% per year, whereas the number of marginal farmers was 10.804 million or increased by 2.6% per year during the 1993-2003 period. In Java, where the majority of total population as well as poverty are concentrated, the marginal farmers increased by 2.4% per year (Table 10). The marginal farmers and farm laborers with the lowest income among all agricultural household groups have been identified as containing the majority of poor in rural areas (Mason and Baptist, 1996).

Table 10 Number and growth rate of land-using farms and marginal farmers in Indonesia: 1993-2003

Category	1993			2003		
	Java	Outside Java	Indonesia	Java	Outside Java	Indonesia
Number (million)						
- Marginal farmers	8.067	2.737	10.894	9.989	3.674	13.663
	(69.8)*	(30.6)	(52.7)	(74.9)	(33.9)	(56.5)
- Land-using farms	11.564	8.954	20.518	13.336	10.841	24.176
- Agricultural households	11.671	9.116	20.787	13.964	11.472	25.437
Growth rate per year, 1993-2003 (%)						
- Marginal farmers				2.4	3.4	2.6
- Land-using farms				1.5	2.1	1.8
- Agricultural households				2.0	2.6	2.2

Note: * = % of land-using farms
Source: BPS

The Socio-economic Accounting Matrix (SAM) from BPS provides another way of looking at the positive relationship between the level of income of farmers and the size of land they owned. In SAM, agricultural household groups are divided into: farm laborers, individuals owning land of 0.5 ha or less, those owning land ranging in size from 0.5 to 1 ha, and those with more than 1ha. As can be seen in Table 11, that farm laborers are from the agricultural household group with the lowest disposable income.

Table 11 Per capita Disposable Income by Agricultural Household Groups (Rp. Thousands), 1975-1999

Agricultural household group	1975	1980	1985	1990	1993	1995	1999
Farm laborers	40.1	102.2	238.1	415.3	468.2	616.7	1629.7
Farms with 0.5 ha or less	43.3	133.9	228.7	548.9	757.6	934.5	1676.9
Farm with 0.501 – 1.0 ha	57.7	154.8	342.0	656.5	901.9	1200.2	2650.5
Farms with > 1.0 ha	84.4	198.9	553.7	1035.3	1471.8	1758.8	3422.3

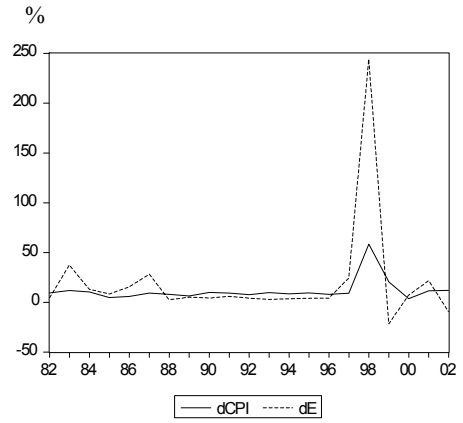
Source: BPS

How the Crisis and Economic Reform Policies Correlate with Poverty?

It was shown earlier that the currency crisis in Indonesia has a negative impact on economic growth. But the crisis also resulted in higher inflation rate, as the huge depreciation of the rupiah was followed directly by a large increase in inflation rate (Figure 32). The estimation shows that $\%\Delta CPI$ and $\%\Delta E$ both are positively and significantly related (t-statistic was 9.3). Thus, to answer the above question, it is important to understand

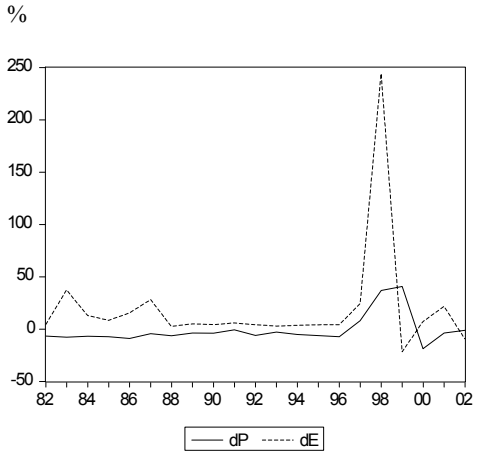
how the resulting output and price changes affect the poor. The analysis shows that the estimated regression coefficients of %ΔP with respect to %ΔY and %ΔCPI were negative and positive, respectively and both are significant. The finding suggests that income (or employment) and price effects are two important channels through which the crisis had a negative effect on poverty.

Figure 32: Long term development trends in percentage changes in inflation rate and exchange rate of rupiah, 1982-2002



The relationship between the crisis and poverty was also estimated directly, and indeed both variables (%ΔP and %ΔE) was found to have a positive and significant correlation (t-statistic was 2.61), meaning that the depreciation of the rupiah led to the increase in poverty (Figure 33).

Figure 33: Long term development trends in the percentage changes in poverty and in the exchange rate of rupiah, 1982-2002



Source: BPS

Structural reforms (in this case trade, investment and financial sector reform policies) are often designed to increase output, and sometimes too to reduce prices. Since one objective of this study is to analyze the effect

of such reform policies on poverty, so the effect of the resulting output and price changes on the poor was analyzed, and it shows, as before, that output and price are, respectively, negatively and positively correlated. Of course this is a simple way in analyzing the impact of economic reform policies on poverty, given time constraint and data problems.[22]Whatever method of analysis was used, it is clear, however, that income or output and price changes are the two most important channels through which the reforms affect the poor, and specifically in the Indonesian case, reform policies which affect agriculture (e.g. trade liberalization in agriculture) may have greater impact on poverty than those which affect other sectors.

VIII Conclusions and Policy Implications

The aim of this study was to analyze the impacts of trade, investment and financial sector reform policies, as three most important economic reforms in the 1970s and 1980s, and the 1997 crisis, known as the currency or financial crisis on poverty and long-run economic growth in Indonesia. The study finds that the relationships between the depreciation of the rupiah against the US dollar and the growth of per capita real GDP and poverty are both negative (as expected) and statistically significant. This suggests that the currency crisis in 1997 in Indonesia is a type of economic shock that has negative impacts on the long-run economic growth and poverty reduction.

With respect to the relationships between macroeconomic reform policies and long-term economic growth, the study finds that although all the variables have the expected signs, only the ratio of total domestic investment to GDP and inflation rate have significant correlations with the growth of per capita real GDP. The findings support the view in the new growth literature that inflation and investment are two very important determinants of long-run economic growth. These are two most important channels through which macroeconomic reform policies influence long-term economic growth.

With respect to poverty, in its separated regression analyses the study finds that increases in GDP per capita and inflation rate lowers and increases, respectively, poverty. This supports the view that economic crisis influences poverty through two main channels, i.e. output declines and domestic price increases or higher inflation rate. But, in its combined analysis, only inflation has been found to have a significant relationship with poverty. This may suggest that inflation is the most important channel through which macroeconomic reform policies influence poverty reduction. The finding does not imply, however, that growth and price stability or low inflation rate are all that are needed to improve the lives of the poor. There

[22] The literature so far provides various methodologies, from the simple one, as used here, to the extension ones, in analyzing the

are obviously a whole range of historical factors and contemporary macroeconomic aspects that play a part in determining what happens to poverty. In other words, to make sure that economic growth benefits the poor, the economic growth should not only be labor intensive but it should also be accompanied with sound policies on areas such as land reform or asset redistribution, education and health care facilities, access to credit market, infrastructure development, market facilitation and market distortions elimination, fair competition, labor market flexibility, social safety net, and agricultural development.

The study also finds that among other sectors, the output or income growth in agriculture is the most important source of poverty reduction. With this finding, it can be argued that, at least in the Indonesian case, development in agriculture to raise productivity or real income per capita in the sector is one important way to channeling the benefits of the economic growth to the poor. Policies on such as land reform; development of infrastructure, education, health care and housing facilities in rural areas; access to credit market for farmers, distribution system; and market access for output are necessary for supporting the development in agriculture.

Overall, the findings of this study have two important policy implications. First, different shocks require different macroeconomic policies to prevent and/or mitigate the impact of the shock on economic growth and poverty reduction. With respect to this study case, the crisis experienced by Indonesia in 1997 was initially the currency crisis. It has severely affected the country's economy mainly because of two reasons: 1) many large companies/conglomerates, mainly in manufacturing industry, which had market monopoly in many sub-sectors, were heavily dependent on imports for their required materials and other intermediate inputs that they paid in US dollar and on overseas commercial short-term loans, also in US dollar, while they were not well performed in terms of productivity, efficiency and export; and 2) many domestic private as well as state banks were also collapsed due to mismanagement. Many of these private banks, which were established in the 1980s, were affiliated to the collapsed conglomerates (they were in the same groups). No doubt, the unhealthy development of banking and manufacturing sectors in the 1980s and 1990s had made the Indonesian economy very vulnerable to the currency crisis in 1997. So, to prevent and/or mitigate the impact of such crisis on economic growth and poverty reduction in the future, macroeconomic policies on, among many others, sound banking/financial system, price stability, exchange rate stability, development of domestic supporting industries producing import substitution intermediate inputs, development of competitive tax system, market competition, and development of non-oil and gas export, and development of small and medium enterprises and agriculture are necessary. In addition, short-term policies on social safety nets for the poor especially on food, education and health, and public works to provide minimum income generated employment for the laid

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impact of economic reform policies on poverty. See for instance McCulloch (2003) of his survey on such methodologies.

off workers are also necessary. The Indonesian experience during the crisis has shown that such short-term poverty alleviation programs did help much to prevent the poverty from rising further.

Second, if the majority of poverty are found in rural areas, such as in Indonesia, and an economic shock affects urban as well as rural sectors, then there should be different government interventions directly towards rural poverty and urban poverty in mitigating poverty effect of the economic shock Similarly, if an economic reform has a direct effect only on agriculture, say tariffs reduction on imported agricultural commodities, then government interventions should be focused on rural poverty, as the reform inevitably involves cost of adjustment notably job losses in formerly protected agricultural sector. In Indonesian case, as shown in this study, the agricultural sector was less affected than the "urban" sectors such as manufacture, banking and trade. But, during the crisis, the poverty rate was higher in rural than in urban areas. Probably, as one reason, this was caused by many laid off workers from the collapsed companies in urban areas who went back to their villages. In this case, the government interventions towards rural poverty should focus especially on providing facilities, including subsidized credit and market facilities, to prevent agricultural production (i.e. sub-sectors affected by the crisis) from further decline, on one hand, and to supports those laid off workers to open their own small businesses, on the other hand. In urban areas, poverty alleviation policies should emphasize especially on social safety net and public work programs as well as development of micro and small businesses, as also done by the Indonesian government during the crisis. The first two programs are much more required by the urban poor than by the rural poor, as having cash for daily consumption and other basic needs expenditure in cities is more important than in villages, also because inflation impact of a crisis is usually greater in cities than in rural areas.

Referrences

ADB (2000), "Assessment of Poverty in Indonesia", paper, Manila: Asian Development Bank.

Adelman, I. and Morris, C. (1973), *Economic Growth and Social Equity in Developing Countries*, Stanford University Press.

Alba, Pedro, Amar Bhattacharya, Stijn Claessens, Swati Ghosh, and Leonardo Hernandez (1998), "Volatility and Contagion in a Financially-Integrated World:Lessons from East Asia's Recent Experience", paper at the PAFTAD 24 conference, "Asia Pacific Financial Liberalization and Reform", May 20-22, 1998, Chiangmai, Thailand,

Agénor, Pierre-Richard (2001), "Business Cycles, Economic Crises, and the Poor: Testing for Asymmetric Effects", September, Washington, D.C: the World Bank.

Agénor, Pierre-Richard (2003), "Mini-IMMPA: A Framework for Assessing the Unemployment and Poverty Effects of Fiscal and Labor Market Reforms," Policy Research Working Paper No. 3067, World Bank, May 2.

Agénor, Pierre-Richard (2004), "Unemployment-Poverty Trade-Off," Policy Research Working Paper No. 3297, World Bank, May.

Agénor, Pierre-Richard, Reynaldo Fernandes, and Eduardo Haddad (2003), "Analyzing the Impact of Adjustment Policies on the Poor: An IMMPA Framework for Brazil," paper, World Bank, October.

Agénor, Pierre-Richard, Alejandro Izquierdo, and Hippolyte Fofack (2003), "IMMPA: A Quantitative Macroeconomic Framework for the Analysis of Poverty Reduction Strategies," Policy Research Working Paper No. 3092, World Bank, June.

Agénor, Pierre-Richard, Derek H. C. Chen, and Michael Grimm (2004), "Linking Representative Household Models with Household Surveys for Poverty Analysis. A Comparison of Alternative Methodologies", paper, The World Bank, and Department of Economics, University of Göttingen, and DIAL, Paris.

Aghion, P., E. Caroli, and C. Garcia-Peñalosa. (1999). "Inequality and Economic Growth: The Perspectives of the New Growth Theories", *Journal of Economic Literature*, pp. 1615-1660.

Ahluwalia, M. (1976) "Inequality, Poverty and Development", *Journal of Development Economics*, 3.

Ahluwalia, M., Carter. N. amd Chenery, H. (1979), "Growth and Poverty in Developing Countries", *Journal of Development Economics*, 6.

Ahmad, Ehtisham, and Yan Wang. 1991. "Inequality and Poverty in China: Institutional Change and Public Policy, 1978-1988." *World Bank Economic Review* 5(2).

Alesina, Alberto and Dani Rodrik (1994). "Distributive Politics and Economic Growth", *Quarterly Journal of Economics*. 109(2).

Alesina, Alberto., Ozler S., N. Roubini, and P Swagel (1996). "Political Instability and Economic Growth," *Journal of Economic Growth* 2.

Amin, A.T.M. Nurul (1998), "The Urban Informal Sector in Indonesia: through the economic recession and recovery", ARTEP Working Papers, New Delhi: ILO.

Anand, S. and Kanbur, R. (1985), "Poverty Under the Kuznets Process", *Economic Journal*, 95.

Anand, S. and Kanbur, R. (1993), "The Kuznets Process and the Inequality-Development Relationship", *Journal of Development Economics*, 40.

Angelsen, Arild and Daju Pradnja Resosudarmo (1999) *"Krismon*, farmers and forests: the effects of the economic crisis on farmers' livelihoods and forest use in the outer islands of Indonesia", May, Center for International Forestry Research (CIFOR), Jakarta

Asra, Abuzar (2000), "Poverty and Inequality in Indonesia. Estimates, decomposition, and key issues", *Journal of the Asia Pacific Economy*, 5(1/2).

Badiane, O. and M. Kherallah (1999), "Market Liberalisation and the Poor", *Quarterly Journal of International Agriculture*, 38.

Balisacan, Arsenio M. and Ernesto M. Pernia (2002), "Probing Beneath Cross-National Averages: Poverty, Inequality, and Growth in the Philippines", ERD Working Paper Series No.7, Manila: Asian Development Bank.

Balisacan, Arsenio M., Ernesto M. Pernia and Abuzar Asra (2002), " Revisiting Growth and Poverty Reduction in Indonesia: What do Subnational Data Show?", ERD Working Paper No.25, October, Manila: Asian Development Bank.

Bannister, Geoffrey J. (2001), "International Trade and Poverty Alleviation", IMF Working Paper, WP/01/54, May, Washington, D.C.: International Monetary Fund.

Barro, Robert J. (1991). "Economic Growth in a Cross Section of Countries." *Quartlerly Journal of Economics* 56(2).

Barro, Robert J. (1998), *Determinants of Economic Growth. A Cross-Country Empirical Study*, The MIT Press.

Barro, Robert .J. (1999a). "Determinants of Economic Growth: Implications of the Global Experience for Chile," *Cuadernos de Economía* 36 (107).

Barro, Robert .J. (1999b). "Notes on Growth Accounting." *Journal of Economic Growth,* (2).

Barro, Robert J. (2000). "Inequality and Growth in a Panel of Countries". *Journal of Economic Growth*. 5.

Barro, Robert J. (2001), "Economic Growth in East Asia Before and After the Financial Crises," National Bureau of Economic Research Working Paper No. W8330.

Barro, Robert J. (2002), "Quantity and Quality of Economic Growth," memeo, Fifth Annual Conference of the Central Bank of Chile.

Barro, Robert J. and J. W. Lee (1994), "Sources of Economic Growth,." *Carnegie-Rochester Series on Public Policy* 40.

Barro, Robert .J. and X. Sala-i-Martin (1995), *Economic Growth*., Mc Graw-Hill.

Bautista, R. and M. Thomas (1997) Income Effects of Alternative Trade Policy Adjustment on Philippine Rural Households:- a General Equilibrium Analysis. IFPRI Discussion Papers.

Beck, T., A. Demirguc-Kunti, and R. Levine (2000),"A New Database on Financial Development and Structure." *The World Bank Economic Review* 14(3).

Bekaert, G., C. Harvey, and C. Lundblad (2001),"Does Financial Liberalization Spur Growth?," National Bureau of Economic Research Working Paper No.W8245.

Bencivenga, Valerie R. and Smith, Bruce D. (1991), "Financial Intermediation and Endogenous Growth," *Review of Economics Studies,* 1991, 58(2).

Ben-David, D, M. Loewy (1997). "Free Trade, Growth, and Convergence," National Bureau of Economic Research Working Paper No.W6095.

Bernanke, B. and R. Gurkaynak (2001), "Is Growth Exogenous? Taking Mankiw, Romer, and Weil Seriously." National Bureau of Economic Research Working Paper No. W8365.

Beyer , H. , P. Rojas and R. Vergara (1999) Trade Liberalisation and Wage Inequality. *Journal of Development Economics*, 59(1).

Bhorat, Haroon and Laura Poswell (2003), "Employment and Household Poverty: The Effects of Trade, Investment and Technology in South Africa", Discussion Paper No.14, Global and Poverty, October, Development Policy Research Unit, University of Cape Town.

Bidani, Benu and Martin Ravallion (1993), "A Regional Poverty Profile for Indonesia", *Bulletin of Indonesian Economic Studies*, 29(3).

Blomstrom, M., R. E. Lipsey, and M. Zejan (1996), "Is Fixed Investment the Key to Economic Growth?," *Quarterly Journal of Economics* 111.

Booth, Anne (1997), "Poverty in Indonesia", SAAT Working Papers, ILO-SAAT, New Delhi.

Bourguignon, Francois and C. Morrison (1990), "Income Distribution, Development and Foreign Trade: A Cross-Sectional Analysis", *European Economic Review*, 34.

Bowles, S. (1999), "Globalisation and Redistribution", Stiglitz Summer Research Workshop on Poverty, Washington D. C. , July 6 – July 8, 1999.

Bruno, Michael, Ravallion, M., and Squire, L. (1996), "Equity and growth in developing countries : old and new perspectives on the policy issues", Policy Research Working Paper, No. 1563. The World Bank.

Bruno, Michael and Wiliam R. Easterly (1998), "Inflation Crises and Long-run Growth", *Journal of Monetary Economics*, 41(1).

Caballero, R. J. (2000), "Macroeconomic Volatility in Latin America: A View and Three Case Studies," *Economia,* 1(1)

Caballero, R. J. (2001), "Macroeconomic Volatility in Reformed Latin America: Diagnosis and Policy Proposals," Washington, D.C.: Inter-American Development Bank.

Chen, Shaohua, and Ravallion, Martin (1997), "How did the world's poorest fare in the 1990s?", World Bank Economic Review.

Chen, Shaohua and Yan Wang (2001), "China's growth and poverty reduction: recent trends between 1990 and 1999", paper presented at a WBIPIDS Seminar on "Strengthening Poverty Data Collection and Analysis", Manila, Philippines, April 30-May 4, 2001.

Chen, Shaohua, Datt, Gaurav and Ravallion, Martin (1991), "POVCAL – A program for calculating poverty measures from grouped data". The World Bank memo, available at http://www.worldbank.org/research/povmonitor

Chowdhury, Anis (2002), "Indonesia 2020 Long-term Issues & Priorities", BAPPENAS/UNSFIR Discussion Paper, July, Jakarta: BAPPENAS/UNSFIR.

Cogneau, Denis, Michael Grimm, and Anne-Sophie Robilliard (2003), "Evaluating poverty Reduction Policies–The Contribution of Micro-Simulation Techniques," in Jean-Pierre Cling, Mireille Razafindrakato, and Francois Roubaud (eds.), *New International Poverty Reduction Strategies*, Routledge Books, London.

Cooper, R. N. (2002), "Growth and Inequality: The Role of Foreign Trade and Investment", in World Bank, *Annual World Bank Conference on Development Economics 2001/2002*, Washington, DC.

Corsetti, Giancarlo, Paolo Pesenti and Nouriel Roubini (1998), "What Caused the Asian Currency and Financial Crisis?," mimeo, New York University.

Daly, Anne and George Fane (2002), "Anti-Poverty Programs in Indonesia", *Bulletin of Indonesian Economic Studies*, 38(3).

Datt, Gaurav (1991), " Computational tools for poverty measurement and analysis". The World Bank, Memo.

De Gregorio, Jose and Giudotti, Pablo E (1995). "Financial Development and Economic Growth," *World Development,* 23(3).

De Janvry, Alain, and Elisabeth Sadoulet, (2000), "Growth, Poverty, and Inequality in Latin America: A Causal Analysis," *Review of Income and Wealth*, 46(3).

Deaton, Angus (1997), *The Analysis of Household Surveys: A Microeconometric Approach to Development Policy*, John Hopkins University Press, Baltimore.

Decaluwé, Bernard, Jean-Christophe Dumont, and Luc Savard (1999), "Measuring Poverty and Inequality in a Computable General Equilibrium Model,"Working Paper No. 99-20, Université Laval, September.

Decaluwé, Bernard, A. Patry, Luc Savard, and Eric Thorbecke (1999), "Poverty Analysis within a General Equilibrium Framework," Working Paper No. 99-09, African Economic Research Consortium, June .

Deininger, K. dan L. Squire (1995b), "Inequality and Growth: Results from a New Data-Base", (mimeo), Washington, D.C.: The World Bank.

Deolalikar, Anil B. (2002), "Poverty, Growth, and Inequality in Thailand", ERD Working Paper Series No.8, Economic and Research Department, March, Manila: Asian Development Bank.

Dervis Kemal, Jaime de Melo, and Sherman Robinson (1982), *General Equilibrium Models for Development Policy*, Cambridge University Press, Cambridge.

Dhanani, Shafig and Iyanatul Islam (2000), "Poverty, Inequality and Social Protection", Working Paper: 00/01, April, Jakarta: UNSFIR

Dhanani, Shafig and Iyanatul Islam (2002), "Poverty, Vulnerability and Social Protection in a Period of Crisis: The Case of Indonesia", *World Development*, 37(2).

Dollar, David (1992), "Outward-Oriented Developing Economies Really Do Grow More Rapidly: Evidence From 95 LDCs, 1976-1985," *Economic Development and Cultural Change,* 40.

Dollar, David, and Aart Kraay (2000), "Growth is Good for the Poor." World Bank Policy Research Working Paper, Development Research Group, the World Bank, Washington, D.C.

Dollar, David and Aart Kraay (2001), "Trade, Growth, and Poverty", Working Paper, June, Development Research Group, World Bank, Washington, D.C.

Easterly, William (1999), "Life during Growth." *Journal of Economic Growth* 4(3).

Easterly, William (2001). "The Middle-Class Consensus and Economic Development," *Journal of Economic Growth*. 6.

Easterly, William and Sergio T. Rebelo (1993), "Fiscal Policy and Economic Growth: An Empirical Investigation." *Journal of Monetary Economics*, 32(3),

Easterly, Williani and Ross Levine (1995), "Africa's Growth Tragedy. A Retrospective, 1960-89", Policy Research Working Paper No.1503, August, World Bank

Easterly, William, and Ross Levine (2000), "It's Not Factor Accumulation: Stylized Facts and Growth Models," Working Paper, World Bank, Washington, D.C. Available at http://www.worldbank.org/html/prdmg/grthweb/ pdfiles/fact3.pdf.

Easterly, William and Stanley Fischer (2000). "Inflation and the Poor." World Bank Policy Research Department Working Paper No. 2335, Washington, D.C..

Easterly, William., R. Islam and J. E. Stiglitz (2000), "Shaken and Stirred: Explaining Growth Volatility," *The World Bank Annual Conference on Economic Development*, Washington, D.C.: the World Bank

Edwards, Sebastian (1997). "Trade Policy, Growth, and Income Distribution". *American Economic Review*. 87(2).

Edwards, Sebastian (1998), "Openness, Productivity and Growth: What Do We Really Know?", *Economic Journal*; 108.

Fatás, A. (2000a), "Endogenous Growth and Stochastic Trends," *Journal of Monetary Economics,* 45.

Fatás, A. (2000b), "Do Business Cycles Cast Long Shadows? Short-run Persistence and Economic Growth,." *Journal of Economic Growth,* 5.

Fatás, A. (2002), "The Effects of Business Cycles on Growth," Central Bank of Chile Working Paper No. 156, May.

Feenstra, R.C., D. Madani, Y. Tzu-Han and L. Chi-Luan (1997), "Testing Endogenous Growth in South Korea and Taiwan", NMER Working Paper No. 6028.

Feldstein, Martin (1998), "Refocusing the IMF", Foreign Affairs, 77, March/April, 1998.

Ferreria, F., G. Prennushi and M. Ravallion (1999), "Protecting the Poor from Macroeconomic Shocks: An Agenda for Action in a Crisis and Beyond", Policy Research Working Paper No. 2160, World Bank, Washington D.C.

Filmer, Deon, Haneen Sayed, Boediono, Jiyono, Nanik Suwaryani and Bambang Indriyanto (1999), "Impact of Economic Crisis on Basic Education in Indonesia" Watching Brief issue 2, World Bank, Washington DC, USA.

Finger, J. M. and Schuler, P. (1999), "Implementation of Uruguay Round Commitments: the Development Challenge", Policy Research Workong Paper, No. 2215, World Bank, Washington DC.

Fischer, Stanley (1993). "The Role of Macroeconomic Factors in Growth," *Journal of Monetary Economics*, 32(3).

Fontana, M. and A. Wood (2000), "Modelling the Effects of Trade on Women, at work and at home. *World Development*, 28(7).

Forbes, Kristin J. (2000). "A Reassessment of the Relationship between Inequality and Growth," *American Economic Review*. 90(4).

Foster, James and Miguel Székely (2001), "Is Economic Growth Good for the Poor? Tracking Low Incomes Using General Means, Interamerican Development Bank Research Department Working Paper No. 453.

Foster, James E. and Miguel Székely (2001), "Is Economic Growth Good for the Poor? Tracking Low Incomes Using General Means", Department of Economics Research Department and Vanderbilt University Inter-American Development Bank, January, paper prepared for the Asia and Pacific Forum on Poverty held in Manila, February 5-9.

Francisco H. G. Ferreira, Phillippe G. Leite, Luiz A. Pereira da Silva and Paulo Picchetti (2004), "Can the Distributional Impacts of Macroeconomic Shocks Be Predicted? A Comparison of the Performance of Macro-Micro Models with Historical Data for Brazil", World Bank Policy Research Working Paper 3303, May 2004

Frankel, Jeffrey A. and David Romer (1999). "Does Trade Cause Growth?,"*American Economic Review*, 89

Frankenberg, Elizabeth, Duncan Thomas, and Kathleen Beegle (1999b), "The Real Costs of Indonesia's Economic Crisis: Preliminary Findings from the Indonesian Family Life Surveys", RAND Labor and Population Program, Working Paper Series 99-04.

Frankenberg, Elizabeth, Kathleen Beegle, Duncan Thomas and Wayan Suriastini (1999a), "Health, Education, and the Economic Crisis in Indonesia", RAND working paper, Santa Monica, USA.

Gallup, John Luke., Radelet, Steven and Warner, Andrew (1999), "Economic Growth and the Income of the Poor" CAER II Discussion Paper No. 36, HIID, Harvard.

Galor, Oded and Joseph Zeira (1993). "Income Distribution and Macroeconomics, "*Review of Economic Studies*, 60(1).

Gelb, Alan H.(1989), "Financial Policies, Growth, and Efficiency," World Bank PPR Working Paper WPS 202, June, Washington, D.C.

Ghani, Ejaz (1992), "How Financial Markets Affect Long-Run Growth: A Cross-Country Study," World Bank, PPR Working Paper Series no. 843, January, Washington, D.C.

Ghiara, R. (1999), "Impact of trade liberalisation on Female wages in Mexico:- An Econometric Analysis", *Development Policy Review*, 17(2).

Goldsmith, Raymond, W. (1969) *Financial Structure and Development.* New Haven, CT: Yale University Press.

Greenaway, D., W. Morgan and P. Wright (1998), "Trade Reform, Adjustment and Growth: What Does the Evidence Tell Us?", *Economic Journal*, 108

Hanson, G. and A. Harrison (1999), "who gains from trade reform? Some remaining puzzles", *Journal of Development Economics*, 59(1).

Harrison, A. (1996), "Openness and Growth: A Time-series Cross Country Analysis for Developing Countries", *Journal of Development Economics*, 48.

Harrison, A. and Revenga, A. (1998), "Labor markets, foreign investment, and trade policy reform", in J. Nash, and W. Takacs, (eds.) *Trade policy reform: Lessons and implications,* The World Bank, Washington, D.C.

Hill, Hal (1996), *The Indonesian Economy Since 1966,* Cambridge University Press.

Hnatkovska, V and N. Loayza (2003), "Volatility and Growth", working paper, August, Washington, D.C.: the World Bank.

Hofman, Bert, and Ella Rodrick-Jones (2004), "Indonesia: Rapid Growth; Weak Institutions," paper presented at the Shanghai Conference, May 28-29.

Horton, Susan, and Dipak Mazumdar (2001), "Vulnerable Groups and the Labor Market: The Aftermath of the Asian Financial Crisis," in Gordon Betcherman and Rizwanul Islam (eds.), *East Asian Labor Markets and the Economic Crisis*, Washington, D.C., the World Bank.

Howes, S. and Hussain, A. 1994. "Regional Growth and Inequality in Rural China." STICERD Discussion paper 11. London: London School of Economics.

Hugo, Graeme (1998), "Some comments on the Employment Consequences of the Currency Crisis in Indonesia", unpublished manuscript, Jakarta: ILO Office.

IMF (1997), *World Economic Outlook*, December, Washington DC: International Monetary Fund.

ILO (1999), "Indonesia: Strategies for Employment-Led Recovery and Reconstruction", Report of the Employment Strategy Mission to Indonesia, 26 April-7 May, October, Geneva: International Labour Organization.

ILO/UNDP(1998), "Employment Challenge of the Indonesian Economic Crisis", June, Jakarta: International Labour Organization.

Islam, Iyanatul (1999), "Poverty, Inequality and the Indonesian Crisis: Revisiting the Issues", paper presented at "Forum on Strategy for Employment-Led Recovery and Reconstruction", 23-25 November, ILO/Depnaker/Bappenas, Jakarta.

Jalan, Jyotsna and Martin Ravallion (1997), "Spatial Poverty Trap?" Policy Research Working paper 1862. The World Bank, Washington, DC.

Joekes ,S. (1995), "Trade-Related Employment For Women in Industry and Services in Developing Countries", UN Fourth World Conference on Women. UNRISD Occasional Paper No. 5.

Johnson, Colin (2000), "The Indonesian Economy in 1999: Some Comments", in Manning, Chris and Peter van Dierman (eds.), *Indonesia in Transition. Social Aspects of Reformasi and Crisis*, Singapore: Institute of Southeast Asian Studies (ISEAS).

Jonsson G and Subramanian A (1999), "Dynamic gains from trade: evidence from South Africa", IMF Working Paper, Africa Department, IMF, August.

Judson, R. and A. Orphanides (1996), "Inflation, Volatility and Growth," Finance and Economics Discussion Series No. 19, Washington, Board of Governors of the Federal Reserve Bank,

King, , Robert G. and Levine, Ross (1993a), "Finance and Growth: Schumpeter Might Be Right," *Quarterly Journal of Economics,* 108(3).

King, Robert G. and Levine, Ross (1993b), "Finance, Entrepreneurship, and Growth: Theory and Evidence," *Journal of Monetary Economics,* 32(3).

Kroft, K. and H. Lloyd-Ellis (2002), "Further Cross-Country Evidence on the link Between Growth, Volatility and Business Cycles,". Queens University Working Paper.

Krugman, Paul (1998), "Fire-Sale FDI", mimeo, MIT, paper prepared for NBER-conference *Capital Inflows to Emerging Markets*.

Lanjouw, Peter, Menno Pradhan, Fadia Saadah, Haneen Sayed, Robert Sparrow (2001), "Poverty, Education and Health in Indonesia: Who Benefits from Public Spending?, December, Washington, D.C.: the World Bank.

Lederman, D. (1996), "The Sources of Economic Growth: A Survey from a Latin America Perspective," Office of the Chief Economist of Latin America and the Caribbean Region, mimeo, Washington, D.C.: the World Bank

Levine, Ross (1991), "Stock Markets, Growth, and Tax Policy," *Journal of Finance,* 46(4).

Levine, Ross (1997), "Financial Development and Economic Growth: Views and Agenda." *Journalof Economic Literature* 35.

Levine, Ross and Renelt, David (1992), "A Sensitivity Analysis of Cross-Country Growth Regressions," *American Economic Review,* 82(4).

Levine, Ross and Zervos, Sara (1993). "What We Have Learned About Policy and Growth from Cross-Country Regressions," *American Economic Review,* May , pp. 426-430.

Levine, Ross and Zervos, Sara (1994), "Looking at the Facts: What We Know about Policy and Growth from Cross Sectional Analysis" in Robert Solow and Luigi Pasinetti (eds.), *Economic Growth and the Structure of Long-Term Development,* MacMillan Press, U.K.

Levine, Ross, N. Loayza, and T. Beck (2000), "Financial Intermediation and Growth: Causality and Causes," *Journal of Monetary Economics,* 46(1).

Levinsohn, J., S. Berry and J. Friedman (1999), "Impacts of the Indonesian Crisis: Price Changes and the Poor", working paper No.7194, Cambridge, MA: National Bureau of Economic Research.

Levy S and van Wijnbergen S (1992), "Agricultural adjustment and the Mexico-USA free trade agreement", in Goldin I and Winters L A (eds.) *Open Economies: Structural Adjustment and Agriculture,* Cambridge University Press, Cambridge.

Li, Hongyi and Heng-fu Zou (1998). "Income Inequality is not Harmful for Growth: Theory and Evidence." *Review of Development Economics*, 2(3).

Loayza, N. and L. Palacios (1997), "Economic Reform and Progress in Latin America and the Caribbean," World Bank Policy Research Working Paper No. 1829, Washington, D. C.

Loayza, N., P.Fajnzylber, and C. Calderòn (2002), "Economic Growth in Latin America and the Caribbean. Stylized Facts, Explanations, and Forecasts", June, Latin America Regional Studies Program, Washington, D.C.: the World Bank.

Löfgren H. (1999), "Trade Reform and the Poor in Morocco:- a Rural-Urban General Equilibrium Analysis of Reduced Protection", IFPRI Discussion papers.

Lokshin, Michael, and Martin Ravallion (2000), "Short-Lived Shocks with Long-Lived Impacts? Household Income Dynamics in a Transition Economy," PRE Working Paper No. 2459, October, the World Bank.

Lopez, R. J. Nash and J. Stanton (1995), "Adjustment and Poverty in Mexican Agriculature: How Farmers' Wealth Affects Supply Response", Policy Reasearch Working paper No. 1494. World Bank, Washington, DC.

Lundberg, M. and Squire, L. (2000), "The Simultaneous Evolution of Growth and Inequality", Mimeo, World Bank, Washington DC.

Lustig, Nora (2000), "Crises and the Poor: Socially Responsible Macroeconomics," Working paper No. POV-108, February, Inter-American Development Bank.

Lustig, Nora, Omar Arias, and Jamele Rigolini (2002), "Poverty Reduction and Economic Growth: A Two-Way Causality", March, Sustainable Development Department Technical Papers Series, Inter-American Development Bank Washington, D. C.
Lucas, R. (1988). "On the Mechanics of Economic Development," *Journal of Monetarv Economics,* 22.

Lustig, Nora (2000), "Crises and the Poor: Socially Responsible Macroeconomics," Working paper No. POV-108, February, Inter-American Development Bank.

Mankiw, Gregory N., David Romer, and David N. Weil (1992), "A Contribution to the Empirics of Economic Growth." *Quarterly Journal of Economics* 105(2).

Martin, P. and C. A. Rogers (1997), "Stabilization Policy, Learning By Doing, and Economic Growth,". *Oxford Economic Papers*

Martin, P. and C. A. Rogers (2000), "Long-term growth and short-term economic instability," *European Economic Review* 44 (2).

Mason, Andrew D. and Baptist, Jacqueline (1996), " How important are labor markets to the welfare of the poor in Indonesia?", Policy Research Working Papers, World Bank.

Matusz, S.J. and Tarr, D. (1999), "Adjusting to Trade Policy Reform", Policy Research Working Paper No. 2142, The World Bank, Washington.

McCulloch, Neil (2003), "The Impact of Structural Reforms on Poverty: A Simple Methodology with Extensions", World Bank Policy Research Working Paper 3124, August 2003

McCulloch, Neil (2004), "Trade and Poverty in Indonesia: What are the Links", paper presented at the Thematic Workshop on Trade and Industry "Why Trade and Industry Policy Matters?", 14-15 January, Jakarta.

McCulloch, Neil, L Alan Winters, and Xavier Cirera (1996), *Trade Liberalization and Poverty: A Handbook*, International Development (DfID), London: Centre for Economic Policy Research

McKay, A., C. Milner, A. Kedir and S. Franco (1999), "Trade , Technology and Poverty:- the Linkages. A Review of the Literature", a Report to the International Economic Policy Department of DFID. CREDIT, University of Nottingham.

McMahon, Gary and Lyn Squire (eds.)(2003), *Explaining Growth.* A Global Research Project, IEA Conference Volume No.137, Palgrave Macmillan in association with the International Economic Association.

Milner, C.R. and Wright, P.W. (1998), "Modelling Labour Market Adjustment to Trade Liberalisation in an Industrialising Economy", *Economic Journal*, 108.

Minot, N. and F. Goletti (1998), "Export Liberalisation and Household Welfare: The Case of Rice in Viet Nam", *American Journal of Agricultural Economics*, 80(4).

Moreira , M. M. and S. Najberg (2000), "Trade Liberalisation in Brazil:- Creating or exporting jobs?", *Journal of Development Studies,* 36(3).

Neri, Marcelo, and Mark Thomas (2000), "Household Educational Responses to Labor-Market Shocks in Brazil: 1982-99," unpublished, May, Washington, D.C. the World Bank.

Nordstrom, Hakan, Dan Ben-David, and L. Alan Winters (1999), "Trade, Income Disparity, and Poverty", Geneva: World Trade Organization.

Oxfam (1996), "Trade Liberalisation as a Threat to Livelihoods: The Corn Sector in the Philippines", December.

Oxfam-IDS(1999), "Liberalisation and Poverty", Final Report to DFID, August.

Panizza, U., (2001), "Income Inequality and Economic Growth: Evidence From American Data", Mimeo, Research Department, Inter American Development Bank, Washington DC.

Papanek, Gustav. 2004. "The Poor During Economic Decline, Rapid Growth and Crisis: The Case of Indonesia." Prepared for the USAID Project on Pro-Poor Growth conducted by DAI and BIDE, Bethesda, MD: processed.

Papanek, Gustav and Oldrich Kyn (1986), "The effect on income distribution of development, the growth rate and economic strategy", *Journal of Development Economics*, 25.

Parris, B. (1999), *Trade for Development:- making the WTO work for the poor*, World Vision International.

Persson, Torsten and Guido Tabellini (1994). "Is Inequality Harmful for Growth?,"*American Economic Review*. 84(3).

Poppele, Jessica, Sudarno Sumarto, and Lant Pritchett (1999), "Social Impacts of the Indonesian Crisis: New Data and Policy Implications", a background note for the Consultative Group for Indonesia (CGI) Update, January 1999, Washington, D.C.: the World Bank.

Pradhan, Menno, Asep Suryahadi, and Sudarno Sumarto (2000), "Measurements of Poverty in Indonesia: 1996, 1999, and Beyond", SMERU Working Paper, June, Jakarta.

Radelet, Steven and Jeffrey Sachs (1998), "The East Asian Financial Crisis: Diagnosis, Remedies, Prospects," Brookings Papers on Economic Activity, Panel, Washington, D.C., March 26-27.

Ramey, G. and V. Ramey (1995), "Cross-Country Evidence on the Link between Volatility and Growth,". *American Economic Review* 85 (5).

Ravallion, Martin (2000), "Growth and Poverty: Making Sense of the Current Debate", Mimeo, World Bank, Washington DC.

Ravallion., Martin and Chen, Shaohua (1997), "What Can New Survey Data Tell Us About Recent Changes in Distribution and Poverty?",*World Bank Economic Review*, 11(2).

Ravallion, Martin (1999), "When Is Growth Pro-Poor? Evidence from the Diverse Experiences of India's States." Policy Research Working Paper no. 2263. World Bank, Development Research Group,Washington, D.C.

Ravallion, Martin and Gauray Datt (1996), "How Important to India's Poor is the Sectoral Composition of Growth?" *World Bank Economic Review*, 10(1).

Ravallion, Martin, and Gaurav Datt (1998), "Why Have Some Indian States Done Better Than Others at Reducing Rural Poverty?" *Economica* 65.

Ravallion, Martin, and Shaohua Chen (1996)," Growth rates by percentile of income per person in China. " The World Bank Memo.

Ravallion, Martin and Huppi, Monika (1991), "Measuring changes in poverty: a methodological case study of Indonesia during an adjustment period", *World Bank Economic Review*, 5(1), p.57-82.

Regmi, A. (1999), "Trade Liberalisation and the South Asian Economies:- Adjusting to the Challenge of Globalisation", special article for the World Bank from Economic Research Services/ USDA.

Robbins, D. and T. H. Gindiling (1999), "Trade Liberalisation and the Relative Wags for More – Skilled workers in Costa Rica", *Review of Development Economics* ,3(2).

Roemer, Michael, and Mary Kay Gugerty (1997), "Does Economic Growth Reduce Poverty", CAER I Discussion Paper No. 5, Cambridge, MA.: Harvard Institute for International Development.

Rodriguez, F. and Rodrik, D. (1999), "Trade policy and economic growth: a skeptic's guide to the cross national evidence", CEPR Discussion Papers Series, No. 2413.

Rodrik D. (1997), *Has Globalization Gone Too Far?*, Institute for International Economics, Washington D.C.

Rodrik, D. (1999), *Making Openness Work: The New Global Economy and the Developing Countries*, Overseas Development Council, Washington DC.

Romer, Paul (1986), "Increasing Returns and Long Run Growth.," *Journal of Political Economy,* 90(6).

Saadah, Fadia, Menno Pradhan and Soedarti Surbakti (1999) "Health Care during Financial Crisis: What can we learn from the Indonesian National Socio-Economic Survey?,Working paper, World Bank, Washington DC, USA

Saadah, Fadia, Samuel Lieberman and Melanie Juwono (1999) “Indonesian Health Expenditures during the Crisis: Have they been Protected?” Watching brief issue 5, World Bank, Washington DC, USA.

Sahn D E, Dorosh P A and Younger S D (1997), *Structural Adjustment Reconsidered: Economic Policy and Poverty in Africa,* Cambridge University Press, Cambridge.

Sjöholm, Frederik (1999), "Productivity Growth in Indonesia: The Role of Regional Characteristics and Direct Foreign Investment." *Economic Development and Cultural Change*. April.

Skoufias, E. (2000), “Changes in Household Welfare, Poverty and Inequality during the Crisis”, *Bulletin of Indonesian Economic Studies*, 36 (August), p.97-114.

Smolensky, E., Plotnick, R., Evenhouse, E. and Reilly, S., (1994), “Growth, Inequality and Poverty: A Cautionary Note”, *Review of Income and Wealth*, Series 40 (2).

Storm, S. (1999), “Food Grain Price Stabilisation in an Open Economy:- A CGE analysis of variable Trade Levies for India”, *Journal of Development Studies* 36(2).

Suryahadi, Asep., Sumarto. Sumarto, Y. Suharso, and L. Pritchett (2000), “The Evolution of Poverty during the Crisis in Indonesia, 1996 to 1999”, report, Social Monitoring and Early Response Unit (SMERU), Jakarta.

Thomas, Vinod, et al. (2000), *The Quality of Growth* . New York: Oxford University Press.

Timmer, C. Peter. (1997), “How Well Do the Poor Connect to the Growth Process?" CAER Discussion paper No. 17, Cambridge, MA: Harvard Institute for International Development.

Timmer, C. Peter (2004), “The Road to Pro-Poor Growth: The Indonesian Experience in Regional Perspective1”, Working Paper No. 38, April, Center for Global Development Center for Global Development

UNSFIR (1999), “The Social Implications of the Indonesian Economic Crisis: Perceptions and Policy”, April, Jakarta.

Wacziarg, R. (2001), “Measuring the Dynamic Gains from Trade” , *The World Bank Economic Review*, 15(3).

Wang, Yan and Yudong Yao (2001), “Sources of China’s Economic Growth, 1952-1999: Incorporating Human Capital Accumulation,” WBI Working Paper, Washington D.C.: the World Bank.

Warr, Peter (2002), “Economic Recovery and Poverty Alleviation in Indonesia”, paper presented at the Young Economists’ Seminar, 29 May, Jakarta.

Watkins, K.(1997), “Globalisation and Liberalisation:- Implications for poverty, distribution and inequality”, UNDP occasional paper 32.

Widyanti, Wenefrida and Daniel Perwira (2001), “The Coordinating Board for the Alleviation of Poverty”, News in Brief no.03, May-June, SMERU Research Institute, Jakarta.

Winters, L.A. (2000a), “Trade, Trade Policy and Poverty: What are the Links?”, Discussion Paper No. 2382, Centre for Economic Policy Research, London.

Winters, L. Alan (2000b), “Trade Liberalization and Poverty”, Discussion Paper No.7, Poverty Research Unit, University of Sussex.

Winters, L. Alan (2000c), “Trade and Poverty: Is There a Connection”, in Ben David, D.; H. Nordstrom and L. Alan Winters (eds.), *Trade, Income Disparity and Poverty*, Special Study No.5, Geneva: World Trade Organization.

Winters, L.A. (2000d), “Trade Policy as Development Policy: Building on Fifty Years”, Proceedings of the High-Level Round Table, Tenth United Nations Conference on Trade and Development, Bangkok, February, 2000.

Winters, L. Alan; Neil McCulloch; and A. McKay (2002), "Trade Liberalization and Poverty: The Empirical Evidence",CREDIT Research Paper No.02/22, October, Center for Research in Economic Development and International Trade, University of Nottingham.

Wodon, Quentin, Rodrigo Castro-Fernandez, Kihoon Lee, Gladys Lopez-Acevedo, Corinne Siaens, Carlos Sobrado, and Jean-Philippe Tre (2001), "Poverty in Latin America: Trends (1986-1998) and Determinants," unpublished, March, the World Bank.

Wood, A. (1997), "Openness and Wage Inequality in Developing Countries:- The Latin American Challenge to East Asian Conventional Wisdom", *World Bank Economic Review*, 11.

World Bank (1981), *World Development Report,* Washington, D.C.

World Bank (1983), *World Development Report,* Washington, D.C.

World Bank (1990a) *Indonesia: Poverty Assessment and Strategy Report* Washington DC, the World Bank

World Bank (1990b) *Indonesia: Strategy for a sustained Reduction in Poverty* Washington DC: the World Bank

World Bank (1992), *World Development Report,* Washington, D.C.

World Bank (1997), *Sharing Rising Incomes: Disparities in China*, one of the China 2020 series, The World Bank, Washington, DC.

World Bank (1998), "Education in Indonesia – From Crisis to Recovery", Report No 18651-IND, Washington DC, USA.

World Bank (2000a), "Indonesia: A Macroeconomic Update", January, Jakarta.

World Bank (2000b), *World Development Report 2000/2001: Attacking Poverty*, World Bank, Washington, D.C.

World Bank (2001), "Poverty Reduction in Indonesia: Constructing a New Strategy", Jakarta. .

World Bank (2002), *World Development Report,* Washington, D.C.

Yrarrazaval R, Lindert K and Weins T (1998), "Redistributive impact of agricultural and pricing reform", Panama Poverty Assessment Working Paper, DRAFT, May 1998.

Dear Tulus,

I am writing to tell you that your paper has been chosen for presentation in the Washington conference (as I informed you in Dakar). Regards, Gary

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