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Poverty and Structural Adjustment Some Remarks on Tradeoffs between Equity and Growth

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Preface

The author argues that the adjustment experiences in the 1980s and the adjustment and liberalization experiences in the 1990s have recently led to renewed attention to issues on inequality, after the emphasis on adjustment policies in the 1980s had relegated the discussion on inequality to the sidelines, not withstanding a greater concern for poverty at the end of the 1980s and in the 1990s. This relative neglect of inequality issues was partly the consequence of a stream of thought which argued that the best way to tackle poverty, was to grow out of poverty, as changing income inequality, which is often the consequence of deep rooted societal structures, which would take much longer time. Others regarded measures to reduce inequality detrimental to growth and therefore not warranted during periods of adjustment when all emphasis was to be placed on reviving growth quickly.

The renewed attention to inequality can be on the one hand explained by new research findings, that large income inequalities may be harmful to growth (based upon the "new growth theory"), and on the other hand by increased concern for socio-political questions, namely that large income inequalities would incite a growing coalition of different groups in various countries against current measures of capital and trade liberalization and globalization.

This paper therefore reviews literature on the effects of stabilization and adjustment policies on poverty and inequality and, secondly, reviews the effects of of adjustment and liberalization on various labour market aspects such as informalization of employment, wage inequality, human capital formation and degree of workers organization.

In the last section, the paper argues that *reduction of inequality can greatly reduce the number of households in poverty and that efforts to reduce poverty mainly by stimulating growth are not sufficient and need to be complemented by efforts to reduce inequality.* Policymakers should therefore shift to policies which increase equality if the goal of poverty eradication of the World Summit for Social Development is to be taken seriously.

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Introduction

The adjustment experiences in the 1980s and the adjustment and liberalization experiences in the 1990s have recently led to renewed attention to issues on inequality. Inequality was a topical issue in the 1970s when major attention was given to it by scholars and international organizations such as ECLA and ILO. The emphasis on adjustment policies in the 1980s has relegated the discussion on inequality to the sidelines, not withstanding a greater concern for poverty at the end of the 1980s and in the 1990s. One stream of thought argued that the best way to tackle poverty was to grow out of poverty. Income inequality is often the consequence of deep rooted societal structures, which would take time to change. Others regarded measures to reduce inequality detrimental to growth and therefore not warranted during periods of adjustment when all emphasis is needed to be placed on reviving growth quickly. Such views were of course not uncontested (van der Hoeven 1995; ILO 1996; Ravallion 1997) but only recently has the concern for inequality in the discussion on adjustment and liberalization entered into mainstream discussion again (Rodrik 1998; Stiglitz 1998; Tanzi and Chu 1998). This renewed attention can be partly explained by very specific socio political reasons, namely that not only large inequalities may be harmful to growth following the analysis of the so-called new growth theory but also that large inequalities would incite a growing coalition of different groups in various countries against current measures of capital and trade liberalization.

In the light of this debate, three themes are explored in this paper. First a review of literature on the effects of stabilization and adjustment policies on poverty and inequality and, secondly, a review of adjustment and liberalization on various labour market aspects such as informalization of employment, wage inequality, human capital formation and degree of workers organization. This discussion in Chapter I and Chapter II confirms the notion that in several cases stabilization, adjustment and liberalization have contributed to greater inequality as argued recently also by Cornia (1998). Often it is argued that inequality is not a policy concern as long as countries have a good growth performance which would allow a decline in numbers of persons in poverty ("a rising tide will lift all boats").

The last chapter of the paper explores therefor effects of growth and equality on poverty. *It is argued that reduction of inequality can greatly reduce the number of households in poverty and that efforts to reduce poverty mainly by stimulating growth are not sufficient and need to be complemented by efforts to reduce inequality.* Policymakers should therefore shift to policies which increase equality if the goal of poverty eradication of the World Summit for Social Development is to be taken seriously.

1. Stabilization, adjustment and poverty: A review from literature

The question whether stabilization and adjustment is causing poverty cannot be answered in a straightforward manner. It is difficult to define poverty, but for our purposes, it suffices to define poverty as the percentage of households with an average income below a certain poverty threshold (see Fields, 1993). Although there are quite some objections against such a simple definition of poverty (see Foster et al., 1984; and Kanbur, 1987), this definition is much more clear cut than any definition of stabilization and adjustment. What constitutes such policies? One easy answer is a very practical one, namely that stabilization and adjustment policies are defined

as the set of policies of those countries which have accepted one or more structural adjustment loans from the World Bank since this term was introduced. Such a definition based upon actual practice shall be used.

Based upon various evaluation reports (e.g. World Bank 1996), we can define structural adjustment policies as a set of policies which combine short-run stabilization measures and longer-run adjustment measures, which are either applied sequentially or simultaneously or overlap each other.

The set of stabilization policies consist of the following elements:

– fiscal policies reducing the public budget deficit;
– monetary policies reducing the money supply either directly or through interest rate policy;
– wage and price policy to control inflation in support of the above policies (orthodox programmes) or replacing these partly (heterodox policies);
– exchange rate policies to reduce the balance of payment deficits.

The set of adjustment policies contains policies to make product and factor markets operate more smoothly by removing "obstacles" through removing price controls and subsidies through a process of liberalization. An important element is also formed by a reform of trade policies to strive for freer trade. Further, a restructuring of the public sector and privatizing of publicly-owned enterprises to reduce the fiscal deficit and to make enterprises more profitable is also part of a structural adjustment programme.

The above description makes it clear that it is much more difficult to delineate a set of proper adjustment policies than it is to delineate the components of stabilization policies. For example, one could question to what extent a change of trade regime is part of "normal" policy and to what extent it is part of an adjustment effort. It is here that the concept starts to lose some ground. We therefore discuss in this section first the relation between stabilization policies and poverty and then discuss adjustment policies in relation to some recent trends in the labour market.

1.1 Stabilization policies and poverty

The instruments of stabilization policies mostly applied are fiscal policies and monetary policies coupled with wage policies and devaluation and thus form part of macro economic policy. Fiscal and monetary policies deflating the economy as part of a stabilization programme reduce the absorption in the economy, which lowers growth rates or even results in decline in the national income. The simulation models applied by Moshin Khan of the IMF (Khan, 1990) point to an effect of reduced growth of usually one or two years. How do such deflationary policies affect poverty? If one assumes that income distribution does not change, then a deflationary action, per definition, increases poverty. How much poverty increases depends not only on the amount of deflation but also on the parameters which determine the slope of the income inequality function around the cut-off point for poverty. A first approximation is therefore that stabilization policies increase poverty. However, it is difficult to maintain the assumption that income distribution remains unchanged during a process of stabilization, since the very policy instruments applied in the stabilization process change the parameters of the various sets of income distribution, such as income before tax (wages, profit, rents), income after tax and net incomes which include the imputed benefits of public services (respectively, primary, secondary and tertiary income distribution (Ndulu, 1992)).

How stabilization policies affect income distribution depends not only on the nature of the policies but also on the forces which drive income inequality, what Taylor (1988) calls the *social matrix* and Khan (1993) calls the interface between institutional organization and policy regime of the country applying stabilization policies. Based upon an overview as part of a UN/WIDER

set of studies of the stabilization experiences in the mid-1980s of 17 countries, Lance Taylor concludes:

> The moral is that getting into and out of economic stabilisations are not processes independent of major groups in the country, their political role, and insertion in the economic system. On the whole, professional economists deal uneasily with these issues, and often carry through their analyses of economic classes and their political roles ineptly. But such factors have ben vital to the successes and failures of many stabilisations "with a human face". This can only be realized on the basis of a serious analysis of the social matrix (Taylor, 1988).

Early analysis of the effects of stabilization policies pointed to an adverse effect on the poor which was at least equal to the deflationary push and often larger (Cornia, Jolly and Stewart, 1987; van der Hoeven, 1987; PREALC, 1985). The contraction in the economy has also frequently led to a decline in the wage share in national income, as Manuel Pastor has demonstrated (Pastor, 1987). Some authors (e.g. Sahn, 1992) argue that poor people do not take part in the formal economy and especially do not make much use of government services, and hence, are less (either negatively or positively) affected by stabilization policies than non-poor groups which used to profit much more from public services. Hence, stabilization policies and especially the fiscal contraction results in a more equal tertiary income distribution. These views are however questioned by many observers. In general it is accepted that the deflationary component of stabilization policies results in increased poverty, although the intensity depends both on the relative weight and intensity of the policies adopted as well as on the initial conditions, as Khan (1993) has recently demonstrated. Khan (p. 15) classifies countries into *four groups* which are characterized by the *degree of efficiency* (that is having basically the right policies and institutions to adapt to world market conditions and changes, and hence a positive growth of labour and/or total factor productivity) and by *the degree of egalitarian structure* (that is fair distribution of income and assets).

In an *efficient, egalitarian country* a balance of payments deficit which requires adjustment is typically caused by an external shock or by an overheating of the economy. In such a situation the correct answer is often a quick stabilization policy, of a deflationary nature which will result in a temporary increase in unemployment and a temporary drop in real wages. The efficiency of the economy will quickly allow for a recapturing of world market and the egalitarian system will keep a hold in the increase of poverty. However, few countries fall in this category.

A large number of countries fall in the *efficient inegalitarian* group. In this group a stabilization and deflationary policy will increase poverty and unemployment and several groups of the population will be worse off after the policy. Institutional and policy changes are needed to reverse this situation. The deflationary elements of the stabilization programmes should be scrutinized for their poverty enhancing impact. Corrective measures should be taken by retargeting public expenditure, by the provision of compensatory programmes to the group of citizens most effected and by an alteration of production patterns and ownership structures so that poorer groups such as peasant farmers and small scale industries can improve their production and productivity.

A third group of countries falls into the category of *inefficient egalitarian economics.* In this situation adjustment programmes ought to concentrate on long term structural changes and changing incentive structures and institutions for economies to react better to world market signals. Stabilization programmes will in this situation not bring about a resumption of growth, putting the egalitarian system under strong pressure and often causing its breakdown, placing countries often in the fourth category of countries.

The fourth category of countries consists of countries which combine an *inefficient and inegalitarian system.* The main challenge for countries in this group is a resumption of growth and a reduction of inequality allowing the whole population to benefit from growth. It is in these

groups of countries that adjustment programmes often break down and emphasis on stabilization and deflationary policies will frequently not lead to the desired results. Countries need simultaneously to remove structural impediments which lead to inefficiency and to remove structural impediments which prevent a egalitarian development. Adjustment policies should therefore be part of an overall and continuous development process which combines adaptation to foreign competition, industrial and agricultural policies for small and large scale producers with programmes of land redistribution, investment in human capital.

1.2 Macroeconomic efficiency and growth

It is, especially in the context of discussing stabilization policies, important to distinguish between short-term and long-term effects on growth. As argued above periods of adjustment policies dominated by stabilization were often characterized by a contraction in the economy, which led to a fall in GDP per capita. Such a contraction is accompanied by lower rates of capacity utilization. Several economists have therefore argued that a first prerogative of macroeconomic policies in a stabilization phase is to increase capacity utilization, a this will contribute to a non-inflationary growth. Taylor (1988 and 1993) has criticized the financial accounting in most stabilization packages of failing to take account of the importance of increases in capacity utilization. Monetary policies and income policies can play an important part in such a process of increasing capacity utilization and of reviving non-inflationary growth.

However, in general there is more attention in the literature to the relation between macroeconomic policies and long-term growth. Fisher's overview article (Fisher, 1991) is a good representation of this. Fisher starts from the premise that current thinking among economists differs from current thinking in the 1970s, when it was generally accepted that short-term cyclical movements should be dealt with through (Keynesian) effective demand policies, while growth or at least the trend of growth should result from more structural policies. In the 1980s, this was upset by the experience of adjustment policies as well as by the resurgence of the new growth theory which, although emphasizing structural phenomena to explain growth and the acceleration of growth also takes variables relating to macro economic policy climate into account (Romer, 1986; and Lucas, 1988; see also the discussion in Easterly, 1990, and Romer, 1991).

Cross-country regression using various variables in line with the neoclassical growth theory and the new growth theory as well as macroeconomic variables (both outcome variables such as inflation rate, and current account deficit, as well as policy variables such as budget surplus) suggests some relationship between macroeconomic policies and growth. "The evidence supports the view that the quality of macroeconomic management reflected in these regressions in the inflation rate, the external debt ratio and the budget surplus, matters for growth" (Fisher, 1991, p. 342). However, Fisher also points out that although it would be logical to try to tie down precisely which macroeconomic indicators are most robustly associated with growth, this would not lead to instructive results (as also Levine and Revelt, 1991 have shown). *The main reason for not being able to draw lessons for individual policy instruments is that the variables of macroeconomic policy and especially variables such as the debt ratio, the budget surplus and the current account deficit are not truly exogenous with respect to growth.* Faltering growth can affect the level of each of these variables, leading, for example, to larger current account deficits, larger budget deficits and higher debt ratios. In short, there is a large degree of simultaneity in the relation between growth and macroeconomic variables.

The result of most cross-section analysis is that one can argue broadly that good macroeconomic policies will contribute to growth, but that determining what exactly constitutes good macroeconomic policy is something which cannot be taken up with absolute certainty as it depends apparently much on the specific situation in each country. In order to solve the problem of causality, Fisher (1991) resorts to emphasizing the relation between some macroeconomic

variable and a major determinant of growth, namely investment, in order to establish, in an indirect way, a relation between macroeconomics and growth. Evidence is reported that inflation is negatively correlated to investment but also that the budget surplus is negatively correlated to investment, a result which Fisher interprets as counter-initiative since a positive relation between surplus and investment and, hence a negative relation between deficits and investment, does not tally well with the crowding-out hypothesis of budget deficits. However, others like Taylor (especially Taylor, 1988) would accept such results as being acceptable since in many instances public investment crowds-in private investment if conditions of stability and ownership rights are respected.

A final attempt to establish more robust relations between macroeconomic policy and growth is then done through combining country studies and time series, in which again investment is treated as the most crucial variable. The major conclusion of the more qualitative analysis is that uncertainty or instability in macroeconomic variables reduce investment and hence, growth. More recent work by Serven and Solimano (1992) also confirm these conclusions. Dornbusch (1990), analysing policies needed to move from stabilization to growth, offers the same line of argument. He also concludes that responsible macroeconomic policies contribute to growth, but he finds it also difficult to define exactly what responsible macroeconomic policies are. The debate on whether a 20 per cent annual inflation rate is responsible or not has not been settled. What seems to be important throughout the various discussions in Dornbusch is the degree of uncertainty.

Most of the analyses discussed in the previous paragraphs relate macroeconomic policies to growth in terms of rather aggregate variables such as the fiscal deficit, the inflation rate, money supply etc., and only weak relations were found. However, what is important in assessing this relation is not only the absolute levels of these macroeconomic aggregates but also the content of macroeconomic policy, especially fiscal policies. Buffie (1994) and Stewart (1992) for example indicate that fiscal contraction can have a negative effect on economic growth when essential investments in infrastructure and in human capital are neglected. Buffie (1994), through a general equilibrium model, shows furthermore that short term contractionary policies may force the economy in a low level equilibrium trap.

1.3 Macroeconomic efficiency and income distribution

Theoretically, macroeconomic policy as almost, per definition, an effect on different types of income distribution. This becomes immediately apparent when one considers the distinction between primary income distribution, which relates to total income earned, secondary income distribution, which relates to income after tax and transfers, and tertiary income distribution, which includes the imputed income of government services.

Tight monetary policy, as far as it relates to interest policy, will be beneficial to holders of interest-bearing assets which are usually found in the higher income groups. Furthermore, to the extent that higher interest rates depress (at least initially) economic activity, a strict application of monetary policies results in more unemployment and lower wages. For at least tow reasons, a more unequal primary income distribution can thus be expected from strict monetary policies. The effects on income distribution of a more relaxed monetary policy resulting in higher inflation are more difficult to gauge. It actually depends on whether wage income and pensions are properly indexed in order to keep real wages and pensions constant (Marinakis, 1993). Experience shows that high inflation is often regressive (and therefore not much liked by the electorates). However, the redistributive effect of lower levels of inflation is more difficult to determine and research outcomes are ambiguous (Dornbusch, 1990).

Fiscal policies have, by definition, an effect on income distribution since taxes determine the net disposable incomes of the families. Indeed, one of the aims of tax policies is precisely to bring about a redistribution in the economy, although the extent to which this is possible is often put into

question (for example, see the discussion in Newbery and Stern, 1987). The effect of different tax measures on secondary incomes depends much on the composition of taxes. In many developing countries, tax systems rely heavily upon indirect taxes which make the tax system regressive rather than progressive. For example, in Latin America direct taxes are equal to some 3 per cent of GDP while they are equal to 10 per cent of GDP in Europe. A switching of tax base favouring direct taxes could make secondary income distribution much more equal.

Public expenditure policy through providing services to poorer groups can change tertiary income distribution considerably. In effect, a sizeable literature existed at the end of the 1970s and in the early 1980s on the distributive aspects of government expenditure (Paukert, 1984; see also Jiminez, 1986). Distribution on the effects of government expenditure on the welfare situation of household was often dealt with in a static way. In the light of the new growth theory, the issue of the distributional aspect of government services becomes more important, since the access to government services is not a consumption or an imputed income element but contributes directly to growth. Whether such growth will be more or less equal (or whether a tertiary income distribution will affect the primary income distribution in the future) cannot be argued *a priori*. This depends clearly on whether poorer groups through income earning assets or high factor rewards can profit from the change in growth rate.

1.4 Adjustment and poverty

The major effect on poverty as part of the stabilization package is however not expected to result only from the macro economic deflationary package but also from the switching package, i.e. devaluation of the national currency which changes the price ratio between tradeable and non-tradeable goods. Exchange rate policies are applied to stabilize the economy as well as to change production patterns and belong thus partly to stabilization measures and partly to adjustment measures. Here the key question is to what extent the poor are producers of tradeables and non-tradeables and consumers of tradeables and non-tradeables. The theory is rather agnostic. The application of the Salter-Swan type of analysis is now widespread (Sachs and Larrien, 1993; Demery and Addison, 1993) . The difficulty lies with the interpretation of the theory in practice. Firstly, the definition of tradeables is not as clear as it may sound. Secondly, the production patterns and consumption patterns of the poor cannot easily be mapped on the category of tradeables and non-tradeables, as some want to lead us to believe. The complication is well explained in Jamal and Weeks (1993) and in Stewart (1995). Stewart argues that initial conditions determine whether switching policies lead to more employment and poverty, reduction or not. In the absence of growth, employment and income distribution (and thus poverty) are likely to worsen following devaluation in economies:

(i) specializing in mineral exports or agricultural products whose production is unequally distributed;
(ii) where urban poverty is high in relation to rural poverty;
(iii) where there is a: large oligopolistic modern sector, specialized in import substituting production - this will affect urban incomes in particular.

Employment, income distribution and the poverty situation are most likely to improve where:

(iv) tradeables ae labour-intensive relative to non-tradeables (i.e. in economies specializing, especially at the margin, in labour-intensive manufactures or labour-intensive agriculture);
(iv) rural poverty is high in relation to urban poverty, and rural incomes (and tradeable production are fairly evenly distributed.

The effect of other adjustment policies on poverty is more difficult to judge. For example, the effect of privatization on poverty or of a shrinking in the public sector employment depend very much on whether, for example, dismissed civil servants belong to poor groups or not, whether they can find other jobs, and whether the privatization process will result in a decline in the tax burden for the poor. Also, the effect of deregulation cannot be predicted in advance. If deregulation reduces rent-seeking by wealthy and influential groups and this results in lower prices of products consumed by the poor, then adjustment policies can contribute to a decline in poverty. However, if deregulation results in the creation of natural monopolies, then the effect of deregulation on the poor can be negative. The effects of adjustment policies on poverty depend therefore much more on the initial social economic setting in the country undergoing adjustment and on the type of adjustment policies applied. The next chapter will therefore review some aspects of adjustment policies and poverty especially in relation to some labour market issues.

2. Poverty and labour market developments: Some trends

In order to get a better appreciation of the effects of adjustment policies, we look particularly at three effects on the labour markets which the various developing regions underwent namely: the effect on the quality and quantity of employment, on wages and on income distribution in general and on human resources.

By discussing a number of labour market trends one may wonder whether the direction of these trends are the consequences of adjustment policies. Some argue that with so many adjustment policies adopted in all developing countries and considering that most were carried out for a decade or more, there exists a causal link between these policies and labour market trends. Others argue however that adjustment policies prevented a fall in production and income and that without them the situation would have been much worse, and as a consequence, poverty also. This often held debate, on the so-called counterfactual, is difficult to settle and can be best held on the basis of carefully undertaken country studies which involve the use of (general equilibrium) models to generate hypothetical course of development without adjustment. These methods have their drawbacks. Robinson (1990) in discussing a set of general equilibrium models argues that these models are useful to increase understanding but that because of assumptions of parameter values and reaction coefficients they are improper for policy evaluation and advice. The next section provides, in the general framework of this paper a broad overview. For more specific country analysis on adjustment and labour market issues, the reader is referred to, for example, van der Geest and van der Hoeven (1999), Garcia (1993), Islam (1994), Khan (1992) and Toye (1995).

2.1 Changes in employment patterns

In Africa since the introduction of adjustment programmes, the percentage of the labour force working in formal sector jobs has declined (Table 1). This is mainly due to a declining number of workers in state enterprises and the inability of the economic and social system to generate sufficient jobs in other sectors to accommodate both the retrenched workers from the public sector. Industrial and formal service employment have hardly increased (van der Hoeven and van der Geest, 1999). The aim of the liberalization and reform programme is to create conditions for stronger (formal sector) growth and quite some impressive policy changes have been made in Africa. Exchange rates have been adjusted, currencies have become (almost) fully convertible and budget deficits have decreased. In most countries per capita growth has become positive. However despite all these policy changes the recovery in Africa has not translated itself yet in massive creation of new jobs. Of course adjustment takes time, and adjustment programmes have been stretched from an initial round of 2-3 years to programmes of 5 years and longer in order to take into account necessary structural changes, but nevertheless results are very slowly forthcoming, putting the achieved stabilisation measures under pressure. International markets have well sensed this ambivalence in African adjustment programmes. Despite the richness in terms of primary commodities, climatic conditions and low (international) cost of labour (following successive devaluation of the currencies especially in English-speaking Africa) foreign domestic investment, which is needed to provide the financial backing for the necessary structural changes, has not been forthcoming. This makes it even more difficult to manage the transitional cost of the present in Africa.

Table 1: Sub-Saharan Africa: Evolution of employment in the formal sector during the adjustment phase (as % of the active population)

Country	1990	1995
Kenya	18.0	16.9[1]
Uganda	17.2	13.3
Tanzania, Republic of	9.2	8.1
Zambia	20.7	18.0[1]
Zimbabwe	28.9	25.3

[1]1994

Source: R. van der Hoeven, W. van der Geest (1999).

Employment experiences in Asia have differed substantially in East and South Asian countries on the one hand and Southern Asian countries on the other. In the former countries there has been sustained high formal sector employment growth in most countries, resulting in increases in the real manufacturing employment. In South Asia on the contrary there are strong indications that employment in the informal sector has expanded (see ILO 1996 for more details).

Also in Latin America, transitional costs of liberalization policies have been high. As Lee (1996) points out "The experience of Chile in the early 1980s illustrates the severe effects of overshooting in terms of stabilisation policy. Output contracted by 23 per cent in 1982-93 and unemployment remained above 23 per cent for 5 years. Similarly the Mexican crisis of 1994-95 illustrated the devastating effect of wrong monetary and exchange rate policies" (p.489).

Table 2: Informal employment as % of labour force (non-agricultural) Selected countries in Latin America

	1990	1991	1992	1993	1994	1995	1996	1997
Latin America	51.6	52.4	53.0	53.9	54.9	56.1	57.4	57.7
Argentina	47.5	48.6	49.6	50.8	52.5	53.3	53.6	53.8
Brazil	52.0	53.2	54.3	55.5	56.5	57.6	59.3	60.4
Chile	49.9	49.9	49.7	49.9	51.6	51.2	50.9	51.3
Colombia	55.2	55.7	55.8	55.4	54.8	54.8	54.6	54.7
Mexico	55.5	55.8	56.0	57.0	57.0	59.4	60.2	59.4
Paraguay	61.4	62.0	62.2	62.5	68.9	65.5	67.9	59.4
Uruguay (Montevideo only)	36.3	36.7	36.6	37.0	37.9	37.7	37.9	37.1
Venezuela	38.8	38.3	37.4	38.4	44.8	46.9	47.7	48.1

Source: ILO (1998).

Strong recovery took place in Latin America in the 1990s, with almost all countries having a positive GDP growth rate but as the Regional Office of the ILO (ILO 1995) indicates, unless the GDP growth rate is robust at levels well above the labour force growth and sustainable (see also Fanelli and Frenkel 1995 and Amadeo 1996), growth in formal sector jobs remains limited. In effect, also in most countries in Latin America one detects an increase in the number of workers in the informal sector (Table 2) which makes many workers understandably fearful of further liberalization measures. Investigations by the Regional Office of the ILO confirm that growth in formal sector jobs is correlated with high economic growth, irrespective of the type of labour market regulations followed (ILO, 1995).

2.2 Changes in wage and income inequality

Another phenomenon which is observed in many countries is an increase in wage and income inequality. For those countries where reliable data are available in the 1980s, income inequality increased in Asia in 6 out of 12 countries: Bangladesh, Indonesia, Thailand, China, Singapore and Sri Lanka; in Africa in 4 out of 6 countries: Nigeria, Tanzania, Kenya and Ethiopia; and in Latin America in 9 out of 14 countries: Bolivia, Mexico, Argentina, Brazil, Panama, Venezuela, Guatemala, Honduras, Peru. (See World Bank, 1996).

Changes in income inequality are in themselves often a sign of worry although these changes must be seen in wider perspectives. Firstly, some countries start from a low base. Income inequality is low in many Asian countries and slight increases in inequality, especially when accompanied by strong growth, will not result in increased concern by workers. And even in countries with high income inequality strong growth may diffuse concern by lower income classes. Secondly, income inequality figures do give only a limited indication of inequalities in society. A rich person paying for an expensive medical treatment, which is paid for in other countries by the state may be in fact not better off than a sick person in that other country. However, in general, changes in income inequality reflects changes in inequities in society, which can have important effects on the social climate and willingness to change.

Theory on income inequality and adjustment and trade liberalization points often to declining inequality, as adjustment and trade liberalization will favour the production of goods by the production factor in which a country has comparative advantage (for most developing countries

unskilled labour) (Berry et.al. 1997). However, evidence is often not supporting these theoretical outcomes. ILO (1996) indicates for example that in most countries in the 1980s which underwent structural adjustment programmes, wage dispersion increased with falling real wages (Table 3). Also World Bank (1997) argues that "information on wage inequality in developing countries is sparse and mixed". "Evidence from East Asia supports the view that greater openness in countries with an abundance of unskilled labour benefits this type of labour" but "even for these countries however, the picture of relative wages is more complex, reflecting the interplay of the increase in relative demand for unskilled labour and the supply of skilled labour". For Africa "greater openness and policy changes in the 1980s are associated with recovery in growth and some reduction in poverty, but with an increase in equality in some cases". It continues that "The generally favourable verdict on East Asia in the 1960s and 1970s has been brought into question by analysis of experience in Latin America in the 1980s. In some countries increased openness has been associated with widening wage differentials" (p.61).

Table 3: Wage dispersion and real wage changes in manufacturing (US$) (1975-1979 to 1987-91)

		Wage Dispersion	Real Wage
Asia	Singapore	-12.5	58.5
	Taiwan China	-9.8	151.5
	India	-9.3	-2.5
	Korea, Republic of	-8.2	116.9
	Indonesia	4.7	-22.0
	Philippines	7.4	12.5
	Sri Lanka	8.2	-10.2
	Pakistan	14.7	17.9
	Malaysia	19.8	2.8
	Thailand	49.2	29.5
Africa	Mauritius	-25.1	-37.3
	Zimbabwe	-8.8	-32.2
	South Africa	6.8	-7.4
	Kenya	17.2	-40.4
	Tanzania	38.0	-83.1
Latin America	Colombia	-5.3	-31.5
	Uruguay	1.8	-3.9
	Mexico	15.1	-44.5
	Guatemala	25.3	-41.2
	Peru	26.5	32.7
	Argentina	26.5	-29.1
	Panama	27.2	-17.1
	Brazil	34.2	-15.5
	Chile	55.4	-16.6

Source: ILO (1996).

The facts thus seem to be clear. The increasing inequality may lead to different conclusions however. One conclusion is that liberalization has not been advanced sufficiently and that domestic labour market constraints have inhibited the markets to profit from liberalization (as in World Bank, 1997). One might also conclude that the liberalization process is influenced by other mechanisms which are not explained by the traditional Hecksher-Ohlin theory which lie at the heart of the theories of comparative advantages. Alternative explanations for increased inequality introduce more than two categories of labour (namely no education, basic education and higher education) and argue that for successful export production at least basic education is necessary (Berry et.al. 1997, p.14, also Owens and Wood, 1997). Other explanations are that manufacturing tends to be dominated by large companies in the formal sector where wages are higher which have weak linkages to the small scale sector ("globalization accentuates the disadvantage of small scale producers"), or that liberalization makes it easier to import capital goods (especially if exchange rates are overvalued) which increases productivity and raises the demand for skilled labour (UNDP, 1997).

Furthermore Amsden and van der Hoeven (1996) observe that the distribution between incomes from labour and capital in industry has shifted in the direction of capital in the 1980s which has led to changes in consumption patterns and lifestyles adding to inequity (see also Pieper, 1997, and ILO, 1996). Also liberalization has resulted in the decline of trade union membership which has weakened the bargaining power of workers (as we will further discuss in section 2.4).

2.3 Changes in human capital formation

Liberalization and adjustment programmes in developing countries have put social expenditure under strong pressure. However in some countries downward pressure on expenses on education, health and social welfare, started already during the economic crisis before adjustment programmes were applied. Adjustment programmes are therefore not necessarily the principal cause of decline in social expenditure, although they failed in most cases to reverse the decline. A recent evaluation of adjustment programmes by the World Bank has pointed out (World Bank, 1996) that especially in Latin America and Africa, adjustment programmes were accompanied with a decline in the percentage of social expenditure in total government expenditures (Table 4) Given the fact that total government expenditure often declined in absolute terms, this resulted in declining per capita expenditure figures. Declining government expenditure will not necessarily be detrimental to poorer classes. Alesina (1998) points out that often middle classes and more vocal political groups profit most from government expenditure and that therefore a decline in government expenditure might hurt them more than the poor. However looking at educational and health indicators measuring primary and secondary school enrolment and infant mortality which are relevant to the poor one notices a deterioration in education standards and a slowdown in the decline in infant mortality rates during adjustment and less than full recovery after adjustment (Table 5). This is strongest felt in Africa, where actually in a number of countries primary school enrolment rates declined (a phenomenon unprecedented in history) affecting large parts of the population especially in poorer areas (van der Hoeven and van der Geest, 1999), as well as in Latin America where especially the middle class suffered large setbacks in providing their children with accessible quality education.

Table 4: Composition of social sector expenditures (percentage of GDP)

	Asia			Latin America[a]			Sub-Saharan Africa[a]		
	Before	During	After	Before	During	After	Before	During	After
Expenditure									
Total social spending	2.7	3.3	3.4	7.1	7.3	7.8	5.9	5.6	5.3
Education	1.8	2.2	2.2	3.0	2.7	2.6	3.4	3.3	3.1
Health	0.5	0.6	0.6	1.7	2.1	2.4	1.3	1.2	1.1
Percentage of total expenditures									
Total social spending	17.9	19.6	19.6	23.7	23.4	19.3	26.1	22.4	19.9
Education/total expenditures	11.8	12.9	12.6	19.6	16.9	14.3	16.3	14.2	13.5
Health/total expenditures	3.6	3.4	3.7	9.2	10.9	11.0	6.0	5.4	5.2

Note: [a] = Only countries with data for the post-adjustment period.
Source: World Bank (1996).

Limited or absence in progress in education has not only serious implications for efforts by countries to increase productivity for production for domestic markets and export markets but also for income inequality. Londono (1996) argues for example that the growing uneven distribution of human capital in Latin America has increased income inequality and provides figures that the dispersion in human capital increased the Gini concentration coefficient by 5 points. Furthermore a strong correlation between the growing number of households in poverty and the growing number of households headed by illiterate household heads is suggested (p.16).

Table 5: Trends in the selected social indicators

	Asia			Latin America[a]			Africa[a]		
Indicator	Before	During	After	Before	During	After	Before	During	After
% change in gross enrolment ratio	1.3	0.5	0.3	1.4	-0.4	1.0	4.7	-0.5	-0.4
% change in infant mortality rate	-2.5	-3.1	-3.6	-5.6	-2.5	-2.4	-1.8	-1.7	-1.4

Note: [a] = only countries with data for the post-adjustment period.
Source: World Bank (1996).

UNCTAD (1997) reports on educational attainment and the skill intensity of exports in a number of countries. The analysis "lends support to the hypothesis that educational attainment is a necessary but not a sufficient condition for skill-intensive production". "All countries with a high share of skill-intensive exports also have a relatively high educational attainment while evidence from countries such as Argentina, Chile, Peru and Uruguay suggests that relatively high educational attainment does not automatically translate into skill-intensive exports". "Almost all countries where high educational attainment has translated into skill-intensive exports are those that have sustained a rapid pace of capital accumulation, technological upgrading and productivity growth over many decades" (p.158).

The relation between adjustment, education, skills and productivity increases are thus complex, but data are sufficiently robust to argue that a slowdown or reversal in primary and basic

secondary and vocational education contributes to greater inequalities in societies and that this hampers countries possibilities to take full advantage of increased production for exports.

3. Poverty, inequality and growth

3.1 A tradeoff between growth and equity?

We have reviewed briefly the relation between stabilization, macroeconomic policy and adjustment policy on growth and equality. This chapter discusses in more detail the interlinkage between growth, inequality and poverty.

A trade-off between growth and income equality is often based upon the argument of accumulation, i.e. lower income inequality would lower national savings rates and hence, hamper future growth. Evidence of research in the 1970s has shown rather convincingly that the savings arguments for a trade-off between income equality and growth is often not valid, and were it valid, it is only a weak explanatory variable. Country studies have provided examples of countries which combined high income equality with high growth rates.

The discussion on inequality and growth has received recently impetus from authors who combined new growth theory - which endoginizes technical progress - with political economic models - which endoginize political decisions. These authors argue that inequality is harmful to growth. Alesina and Perotti (1994) discuss several causal links which underlie this notion. Links on a more traditional economic footing, include the effect of income inequality on the composition of the demand and the effect of inequality on factor endowment effecting the supply of human capital. A more equal income distribution leads to an increased demand for industrial goods which triggers off innovation and growth. Growth is further enhanced by increased investment in education by low income groups, as a consequence of increased equality in income and capital, allowing them to build up stocks of human capital more rapidly. Among the political explanations, two explanations seem to figure prominently. The first one postulates that inequality leads to voting behaviour which sanctions higher taxes and larger budget deficits with consequent negative influence on growth rates forces the government and application of redistributive policies which are growth destructive (Person and Tabellini 1994). The second explanation is that inequality causes political instability and prevents governments from effective management (a point also made by Stern in discussing the relevance of growth policies, Stern 1991). However, Alesina and Perotti (1994) show rather convincingly that the argument that inequality causes higher taxes which harm growth is not finding much support in the data. They explain this mainly on the basis of a weak link between inequality and taxation levels. The argument of policy uncertainty in explaining the positive relation between inequality and growth has found some support and is most recently confirmed by the unwillingness of private investors to continue to finance capital flows to countries with looming conflicts on land redistribution and poverty programmes.

The experiences of the 1980s and some findings of the new growth theory allow therefore to reconsider the growth and equity debate. On the one hand higher taxes and some deficit financing can affect decisions on savings negatively and through neoclassical reasoning distort growth, while on the other hand a higher level of government expenditure (as a result of higher taxes or deficit financing) can increase investment in human resources, support the development of markets and improve infrastructure which, following the new growth theories, contribute to higher levels of growth. The new growth theory thus offers, especially through the link between tertiary income distribution and the generation of future primary incomes, a more dynamic element than traditionally was the case of the relationship between income equality and economic growth.

As argued earlier macroeconomic policies can have a potentially positive redistributive slant, especially when emphasis is simultaneously placed on tax policies and on expenditure policies (Pyatt, 1993), with monetary policies playing only a lesser role of bringing stability into the economy. Macroeconomic policies can especially be more poverty-focussed if "sound" macroeconomic policies are carried out in tandem with a set of incomes policies including minimum wage policies and mesopolicies which underline the redistributive aspect of the macroeconomic policies. Incomes policy, when based upon consultation with employers and workers, can contribute to a better social climate and can therefore reduce inflationary pressure.

Countries which reduced income inequality and had a reasonable growth record relied amongst others on a set of incomes policies which included an active minimum wage policy. Mesopolicies deal with the distribution of the fiscal burden of targeted public expenditure, of microeconomic policies (functioning of the labour market integration in the product market) and distribution of ownership assets. However, despite the potentially redistributive role of fiscal policies, fiscal policies are often not explored for that. Tax policies are often less redistributive than originally designed and budget deficits are often dealt with through reducing expenditure rather than to increase taxes. The distributive aspect of government expenditure is often less than it is claimed, since many public service programmes benefit the rich more than the poor and application of priority ratios to favour expenditure items affecting the poor is often not well developed. Yet some countries combined high priority ratios with high growth rates (UNDP, 1991).

However a pro-poor design of macroeconomic policies depends not on the macroeconomic policies themselves but on the social situation in the country and especially on the fact whether a society is willing to give priority to distributional issues in times of economic crisis (Khan 1992). Politically it is often more difficult to develop a distributional strategy in times of economic difficulty than in times of economic growth. The paradox is therefore that macroeconomic policies can have elements favouring the poor, especially in those countries which had already a more egalitarian society, but that applying more poverty-oriented macro policies in a less egalitarian society is probably doomed to fail. Changes in distribution of assets and human capital should become a necessary complement of macroeconomic policies to reduce inequality and stimulate growth. This issue is discussed in Stiglitz (1998) and will not be further pursued here. This conclusion thus weakens the case often made that policies of income distribution are less relevant than stimulating overall growth in a poverty alleviation strategy as a steady state growth will lift gradually all people above the poverty threshold. In the next section we will argue that through redistributive measures important gains can be made in poverty reduction.

3.2 Tradeoff between growth and equity: a politician's surfguide

One elegant way to consider the relation between equity and growth in relation to poverty levels is to construct a poverty measure which takes into account simultaneously growth and distribution. Ravallion (1997) has investigated this by running combined time series country data analysis and estimating for certain groups of countries a poverty reduction elasticity of growth, confirming that countries with lower inequality have a higher poverty reduction elasticity of growth. Also McKay (1997) has argued that a dynamic poverty count, which expresses a poverty index over time, should be split up between a growth component and a equity component, but is not able to present an integrated measure.

In this section we show that by using a perhaps somewhat restrictive assumption regarding the shape of the distribution function of inequality a composite index can be developed which can deal with tradeoffs and complementarity between distribution and growth.

The restrictive assumption is that the distribution of inequality follows a pattern of a log normal distribution. Various authors have argued (e.g. Aitchison and Brown 1973) that this

assumption can be made for inequality in developed countries. The proposition has not been tested for developing countries but, pending further research we assume this to be the case.

If we assume that incomes are lognormally distributed, we can calculate the head count index of poverty, expressed as a fraction of the population below the poverty line, as follows:

$$(1) \qquad P\,(X \;\#\; \frac{1}{s} \;\; \log\, f + ½\, F\,) \qquad\qquad X \text{ is } N\,(0, 1)$$

This is the probability of a standard normally distributed variate X where f is the poverty line expressed as a fraction of per capita income and F is the variance of the lognormal distribution and a measure of inequality. (There is a one to one relation between the F and the Gini ratio, one of the most frequently used measures of inequality.)

The proof of relation (1) can be found in Annex I.

Table 6 indicates for various values of the poverty line (f) and various values of inequality (F and G) the percentage of the population below the poverty line. [1]

What is striking is that inequality does matter. For example in case of countries with high inequality (a Gini ratio of 0.6 like Brazil, see Table 8) a poverty line of 15 per cent of per capita income will result in 23 per cent of the population in poverty, but if that country would reduce its inequality to that of a low inequality country (a Gini ratio of 0.28), its percentage of population in poverty would be less than 1 per cent.

Another example on the tremendous effects of inequality reduction on poverty from Table 6 is that with a poverty line equal to 50 per cent of per capita income, a high inequality country (with a Gini ration of above 0.6) has 50 per cent of its population in poverty while a country with a low inequality (a Gini ratio of 0.3) has only 25 per cent of its population in poverty, *a difference in magnitude of 100 per cent.*

It is obvious that in formula (1), f (the poverty line as a fraction of average per capita income) will decrease as the average per capita income (y) increases.

Thus we have

$$(2) \qquad f = \frac{a}{y}$$

with a = the absolute poverty line expressed in money terms
and y = average per capita income in money terms

$$(3) \qquad y = y_o \;\; e^{gt}$$

y is growing per year with a growth rate g and y_o is the per capita income in the base year

by substituting (2) and (3) in (1) it can be easily deducted that the fraction of the population below the poverty line is

$$(4) \qquad P\,(X \;\#\; \frac{1}{s} \;\; (\log \frac{a}{y_o} \; - \; g\,t) + ½\, F\,)$$

[1] I would like to thank Fahrad Mehran for help in calculating the poverty counts in Tables 6 and 7.

Table 6: Percentage of population below the poverty line as a function of inequality (G, F) and the poverty line (f) (expressed as a fraction of per capita income)

G	0.28	0.30	0.33	0.35	0.38	0.40	0.43	0.45	0.48	0.50	0.52	0.54	0.56	0.58	0.60	0.62	0.64	0.66	0.68
f \ F	0.5	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	1.05	1.10	1.15	1.20	1.25	1.30	1.35	1.40
0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.6	1.0	1.5	2.1	2.9	3.8	4.9	6.1	7.5
0.10	0.0	0.0	0.0	0.1	0.2	0.4	0.7	1.1	1.7	2.6	3.6	4.8	6.1	7.7	9.4	11.2	13.1	15.1	17.2
0.15	0.0	0.1	0.2	0.5	0.9	1.6	2.4	3.5	4.9	6.4	8.1	10.0	12.0	14.1	16.3	18.6	20.9	23.3	25.6
0.20	0.1	0.4	0.9	1.6	2.6	3.8	5.4	7.1	9.0	11.1	13.4	15.7	18.1	20.5	22.9	25.4	27.8	30.3	32.6
0.25	0.6	1.2	2.2	3.5	5.2	7.0	9.1	11.4	13.8	16.2	18.8	21.3	23.9	26.4	28.9	31.4	33.9	36.2	38.6
0.30	1.5	2.8	4.4	6.3	8.5	10.9	13.5	16.1	18.7	21.4	24.1	26.7	29.3	31.8	34.3	36.8	39.1	41.4	43.6
0.35	3.2	5.1	7.4	9.9	12.5	15.3	18.1	20.9	23.7	26.4	29.1	31.7	34.3	36.8	39.2	41.5	43.7	45.9	48.0
0.40	5.7	8.2	11.0	13.9	16.9	19.9	22.8	25.7	28.5	31.2	33.9	36.4	38.9	41.2	43.5	45.7	47.8	49.9	51.8
0.45	8.9	12.0	15.1	18.3	21.5	24.5	27.5	30.3	33.1	35.7	38.3	40.7	43.0	45.2	47.4	49.4	51.4	53.3	55.2
0.50	12.8	16.2	19.6	22.9	26.1	29.1	32.0	34.8	37.4	40.0	42.3	44.6	46.8	48.9	50.9	52.8	54.6	56.4	58.1
0.55	17.2	20.8	24.3	27.6	30.7	33.6	36.4	39.0	41.5	43.9	46.1	48.2	50.3	52.2	54.1	55.8	57.5	59.2	60.8
0.60	22.0	25.7	29.1	32.2	35.2	38.0	40.6	43.0	45.3	47.5	49.6	51.5	53.4	55.2	56.9	58.6	60.1	61.7	63.1
0.65	27.0	30.6	33.8	36.8	39.5	42.1	44.5	46.7	48.9	50.9	52.8	54.6	56.3	57.9	59.5	61.0	62.5	63.9	65.3
0.70	32.2	35.9	38.4	41.1	43.7	46.0	48.2	50.2	52.1	54.0	55.7	57.4	58.9	60.4	61.9	63.3	64.6	65.9	67.2
0.75	37.2	40.2	42.9	45.3	47.6	49.7	51.6	53.4	55.2	56.8	58.4	59.9	61.4	62.7	64.1	65.4	66.6	67.8	69.0

Formula (4) thus represents a poverty measure which depends on the absolute poverty line (a) and per capita income (y_o) in the base year, the degree of inequality (F) and the growth of per capita income (g) as well as the time period (t) over which the growth is considered.

That inequality matters in the growth process is confirmed by a glance at Table 7 where we have indicated for an initial poverty line of 0.75 per cent of per capita income (a quite normal assumption, see Ravallion and Chen 1997), and a range of different inequality figures, the percentage of population below the poverty line in the initial year and after 5 years following various hypothetical per capita growth rates (g) ranging from 0.25 per cent to 3.5 per cent.

With a per capita growth rate of 2.0, a quite acceptable figure in the 1990s, a country with high inequality (Gini of 0.60) reduces its part of the population living below poverty from 64 per cent to 60 per cent. However a country with low inequality (a Gini ratio of 0.3) reduces the number of poor from 40 per cent to 33 per cent of the population. Thus when inequality is low (and the income distribution curve flatter) growth will reduce poverty faster than when inequality is high.

These are powerful instruments to emphasize in all policy measures the reduction in inequality, even if this will reduce growth somewhat. For example, in the case of an initial poverty line of 75 per cent of per capita income, reducing inequality from a Gini ratio of 0.60 to 0.40 with a 1.0 per cent per capita growth rate over 5 years reduces poverty more as compared to a per capita growth rate of 4 per cent and keeping inequality unchanged (the percent of people in poverty in the first case is 47 per cent and in the second case only to 57 per cent).

It is often argued that social and cultural factors prevent improvements, in income inequality, except at very high costs. A glance at Table 8 learns that changes in income distribution take place over time (some countries improving, others deteriorating) nullifying the argument that income distribution is a more or less given parameter.

The second objection to active policies reducing income inequalities is that there are costs to reducing inequality, but as argued earlier there are strong indications that income equality will contribute to faster growth and hence some of the costs of achieving higher equality will be gained back over time, although more research might be needed to substantiate this. It is nevertheless clear that increased attention to inequality and policies to reduce inequality should be a primary objective of development policy.

Table 7: Percentage of population below the poverty line as a function of inequality (G, F) and a 5 year annual growth of per capita income (g) from an initial poverty line of 75% of per capita income (f = 0.75) at year t =o

	G	0.28	0.30	0.33	0.35	0.38	0.40	0.43	0.45	0.48	0.50	0.52	0.54	0.56	0.58	0.60	0.62	0.64	0.66	0.68
	F g	0.5	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	1.05	1.10	1.15	1.20	1.25	1.30	1.35	1.40
Year 0		37.2	40.2	42.9	45.3	47.6	49.7	51.6	53.4	55.2	56.8	58.4	59.9	61.4	62.7	64.1	65.4	66.6	67.8	69.0
Year 5	0.25	36.2	39.3	42.1	44.6	46.9	49.0	51.0	52.9	54.6	56.3	57.9	59.4	60.9	62.3	63.7	65.0	66.2	67.5	68.6
	0.5	35.4	38.5	41.2	43.8	46.1	48.3	50.4	52.3	54.1	55.8	57.4	59.0	60.5	61.9	63.3	64.6	65.9	67.1	68.3
	1.0	33.5	36.7	39.6	42.3	44.7	47.0	49.1	51.1	53.0	54.8	56.4	58.1	59.6	61.1	62.5	63.9	65.2	66.5	67.7
	1.5	31.7	35.0	38.0	40.8	43.3	45.7	47.9	49.9	51.9	53.7	55.5	57.1	58.7	60.2	61.7	63.1	64.5	65.8	67.0
	2.0	30.0	33.4	36.5	39.3	41.9	44.4	46.6	48.8	50.8	52.7	54.5	56.2	57.8	59.4	60.9	62.4	63.7	65.1	66.4
	2.5	28.3	31.7	34.9	37.8	40.5	43.0	45.4	47.6	49.7	51.6	53.5	55.2	56.9	58.6	60.1	61.6	63.0	64.4	65.7
	3.0	26.6	30.1	33.4	36.4	39.2	41.7	44.2	46.4	48.6	50.6	52.5	54.3	56.0	57.7	59.3	60.8	62.3	63.7	65.1
	3.5	25.0	28.6	31.9	34.9	37.8	40.4	42.9	45.3	47.4	49.5	51.5	53.4	55.1	56.9	58.5	60.1	61.6	63.0	64.4
	4.0	23.4	27.0	30.4	33.5	36.4	39.2	41.7	44.1	46.3	48.5	50.5	52.4	54.2	56.0	57.7	59.3	60.8	62.3	63.7

Table 8: Gini ratios and per capita growth for selected countries 1970s-1990s

	GINI RATIOS			PER CAPITA GROWTH		
	1970s	**1980s**	**1990s**	**1970-80**	**1980-1990**	**1990-1995**
Taiwan	20.9	21.1	-		-	-
India	30.9	31.4	31.1-		3.7	2.8
China	-	31.5	36.2		8.7	11.7
Indonesia	36.6	33.4	33.1		4.3	5.9
Pakistan	35.5	33.4	-		3.2	1.7
Korea	36.1	35.6	-		8.2	6.2
Bangladesh	34.8	37.3	-		1.9	2.5
Jamaica*	-	43.2	39.8		0.8	1.9
Côte d'Ivoire	-	39.1	41.4		-3.7	-2.2
Singapore	-	39.0	40.0		4.7	6.8
Uganda*	-	33.0	41.0		0.7	3.5
Venezuela*	41.5	42.9	44.4		-1.6	0.2
Jordan*	40.8	36.1	40.7		-5.2	3.4
Sri Lanka	38.8	43.7	-		2.8	3.6
Tanzania*	-	44.0	48.6		0.3	0.2
Tunisia	44.0	43.0	41.0		0.8	2.1
Philippines*	41.9	45.0	45.0		-1.6	0.0
Hong Kong	41.9	41.4	45.0		-	-
Bahamas	48.2	44.4	43.0		-	-
Costa Rica	46.1	45.1	-		0.2	3.0
Trinidad and Tobago	48.5	41.7	-		-3.8	0.2
Thailand	41.9	47.4	50.1		5.9	
Senegal*	49.0	45.1	54.1		0.2	7.2
Chile	48.0	51.0	50.3		2.5	3.0
El Salvador*	46.1	48.4	50.0		-0.8	5.7
Guatemala	-	58.6	59.5		-2.0	3.9
Malaysia	51.5	48.0	-		2.6	2.8
Colombia	52.1	51.2	-		1.8	6.4
Honduras	-	54.0	52.7		-0.6	2.8
Mexico*	55.0	52.7	57.0		-1.3	0.5
						-0.7
South Africa	51.0	49.0	62.3		-0.9	-1.1
Brazil	57.0	58.7	60.6		0.5	1.0

Source: Gini ratios: Bruno, Ravallion, Squire (1998); WIDER data base (*); GDP per capita: World Bank: World Development Indicators 1997; World Development Report 1998/89. Thanks are due to Mr. Kiiski for providing the data from UNU/WIDER.

Annex I

Income inequality is assumed to follow a log normal distribution pattern, with average µ and variance F

(A1) $y = 7\ (y;\ \mu,\ F^2)$

Hence relative income expressed as a fraction or multiple of average income is also log normally distributed with the following parameters (see Aitchison and Brown 1973)

(A2) $y/\bar{y} = 7\ (y/\bar{y}\ ;\ \mu - \log \bar{y},\ F^2)$

as y is log normally distributed we have the following relationship:

(A3) $\overline{\log y} = \log \bar{y} - ½\ F^2$

and (A2) can be written as:

(A4) $y/\bar{y} = 7\ (y/\bar{y}\ ;\ \mu - \overline{\log y} - ½\ F^2,\ F^2)$

But $\overline{\log y}$ is a maximum likelihood estimator for µ and the log normal distribution (A4) may be approached by:

(A5) $y/\bar{y} = 7\ (y/\bar{y}\ ; -½\ F^2,\ F^2)$

expressing this lognormal distribution as a standard normal distribution gives:

$$\text{(A6)}\ N\left(\frac{\log y/\bar{y} + ½\,\boldsymbol{s}^2}{\boldsymbol{s}}\right)\ ;0,1$$

$$\text{(A7)}\ N\left(\frac{1}{\boldsymbol{s}}\log y/\bar{y} + ½\,\boldsymbol{s}\,;0,1\right)$$

Thus if f is the poverty line income expressed as a fraction of average (or per capita) income, according the normal distribution function, the fraction of the population below the poverty line is given by:

$P\ (X\ \#\ \frac{1}{\boldsymbol{s}} \log f + ½\ F)$ where X is N (0, 1).

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