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## Macroeconomic Policies and Poverty Reduction: Stylized Facts and an Overview of Research

*Paul Cashin, Paolo Mauro,  
Catherine Pattillo, and Ratna Sahay*

**IMF Working Paper**

Research Department

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Prepared by Paul Cashin, Paolo Mauro,  
Catherine Pattillo, and Ratna Sahay<sup>1</sup>

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**Abstract**

The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

This paper provides a brief and selective overview of research on the links between macroeconomic policies and poverty reduction. Using the Human Development Index as a measure of well-being, the progress made by 100 countries during 1975–98 is presented, and its association with macroeconomic factors is explored. Several potential avenues for future research are also outlined.

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Authors' E-Mail Addresses: [pcashin@imf.org](mailto:pcashin@imf.org); [pmauro@imf.org](mailto:pmauro@imf.org); [cpattillo@imf.org](mailto:cpattillo@imf.org);  
[rsahay@imf.org](mailto:rsahay@imf.org)

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<sup>1</sup> Paul Cashin, Paolo Mauro, and Catherine Pattillo are Economists in the IMF's Research Department. Ratna Sahay is Advisor to the First Deputy Managing Director of the IMF. Parts of Section II draw upon work conducted with Antonio Spilimbergo and Saji Thomas. The authors thank Stanley Fischer, Sanjeev Gupta, Oded Galor, and Paul Masson for helpful suggestions, and Grace Juhn, Haiyan Shi, and Saji Thomas for excellent research assistance. An earlier draft of this paper was prepared for the Asian Development Bank's 2001 Asia and Pacific Forum on Poverty.

Contents	Page
I. Introduction .....	3
II. Research on Macroeconomic Policies, Macroeconomic Adjustment and Poverty.....	4
A. Poverty, Income Inequality, and Economic Growth .....	5
B. Inflation and the Poor .....	7
C. Trade Liberalization and Poverty .....	8
D. Poverty and External Debt.....	9
E. Macroeconomic Crises and Poverty .....	9
F. Fund Programs and Poverty.....	10
III. A Preliminary Look at the Data .....	12
A. Macroeconomic Policies, Human Development and Income Inequality .....	13
B. Governments' Actual Behavior .....	21
IV. Conclusion.....	23
Text Figures:	
Figure 1. Human Development Index (HDI), Human Poverty Index (HPI) and Poverty Line: 1998 .....	14
Figure 2. Human Development Index (HDI) and Gini Coefficient .....	15
Figure 3. Histogram of Human Development Index (HDI): 1975 and 1998 .....	17
Text Tables:	
Table 1. Human Development Index (HDI), 1998.....	16
Table 2. HDI Transition Matrix .....	18
Table 3. Macroeconomic Performance (1975-98) .....	20
References .....	24

## I. INTRODUCTION

While reducing poverty is the key challenge facing the world community, there is an important debate on the policies that may help attain that objective, and on how the international financial institutions can contribute toward that goal. This paper provides a brief and selective review of ongoing research efforts aimed at identifying the policies that can help reduce poverty. Our focus is on issues that relate to the interaction between macroeconomic policies—which are at the core of the IMF's mandate—and poverty.

The links between macroeconomic policies and poverty are complex, and the vast literature on poverty does not yet fully specify how one should think about the direct impact of macroeconomic policies on the poor. Likewise, empirical research on these topics remains at a somewhat preliminary stage. Lack of data, particularly in poor countries, often hinders high quality research. More recently, attempts at cross-country work have been made but are subject to various criticisms, as highlighted in Srinivasan (2000). The only systematic evidence that exists is regarding the poverty-reducing effects of economic growth and, to some extent, the beneficial impact of lowering inflation and, not uncontroversially, freeing trade regimes. But in all these areas, the magnitude of the estimated effects on the incidence of poverty has varied widely across countries and across time in the same countries. While reducing poverty has become a new global mantra, the challenge facing the world community looms large, with the specifics of how to spread the fruits of economic progress leaving room for a wide research agenda.

Recognizing the complexity of the relationships and the political economy aspects of reform programs, the role of the state is being redefined by the world community. The new consensus is that public policy will now be formulated with active participation from different sections of society. This is done not only to ensure popular support for each country's economic programs, but also to provide a more level playing field for the poorest sections of society, by removing the structural and cultural impediments to pro-poor economic development. According to this new consensus, a one-for-one response from growth to poverty cannot be taken for granted. Rather, appropriate conditions (such as ensuring that exchange rates are not overvalued, easing constraints on domestic credit markets, reducing labor market distortions, building human capital, and increasing access to trade markets) need to be created for the poor to benefit from growth and also for growth rates to rise and be sustained.

This paper is organized as follows. Section II conducts a survey of the literature on macroeconomic policies, macroeconomic adjustment and poverty in the run up to the new emphasis on participatory processes that emerged toward the end of the 1990s. Section III gives a preliminary look at the data, focusing on a United Nations Development Program (UNDP)-developed measure of well-being, the Human Development Index (HDI). This section examines changes in the HDI of individual countries between 1975 and 1998, and explores the association between macroeconomic policies and improvements in well being. Section IV contains some concluding comments and suggests potential areas for future research.

## **II. RESEARCH ON MACROECONOMIC POLICIES, MACROECONOMIC ADJUSTMENT AND POVERTY**

The consequences of macroeconomic policies for the welfare of the poor and on the distribution of income are issues attracting increasing interest from both economists and policymakers. While most analyses of poverty and inequality have been microeconomic in nature, there is an increasing recognition that macroeconomic policies and macroeconomic stabilization programs can have important effects on both the distribution and level of incomes.

The literature on the relationship between macroeconomic policies and poverty is gradually evolving away from an emphasis on the strong link between economic growth and poverty reduction to explore what policies, beyond growth itself, contribute to both poverty reduction and improvements in the distribution of income. This line of research explores whether macroeconomic imbalances (such as excessive fiscal and balance of payments deficits, large debt and debt servicing costs, and high inflation) have implications for poverty beyond those they exert on economic growth.

The consequences of Fund- and World Bank-supported adjustment programs for income distribution and on the poor have been of interest, particularly in the wake of the severe economic crises experienced by many countries in the 1990s. In examining the effects of macroeconomic adjustment on real incomes, the main theoretical model utilized has been the dependent economy model. In addition, several analyses of the actual effects of macroeconomic adjustment programs on income distribution and poverty complement the large literature that examines the relative economic performance of countries undertaking macroeconomic adjustment programs.

Macroeconomic instability (characterized by rising debt-servicing costs, adverse terms of trade shocks, high inflation, large fiscal and external imbalances) generates an unsustainable excess of aggregate demand over aggregate supply. To restore macroeconomic balance, countries undertake (in conjunction with the Fund and/or the World Bank) macroeconomic adjustment programs. As noted by Lipton and Ravallion (1995), the case for adjustment programs depends on demonstrating that the present social value of the future sequence of consumptions is greater with adjustment than without.

In this context, the workhorse dependent economy model (which assumes a constant terms of trade) is a useful means to highlight the likely effects of structural adjustment on real incomes, and particularly the incomes of the poor. In response to excess aggregate demand, to restore internal and external balance the price of nontraded goods must decrease relative to traded goods (a real devaluation), and domestic absorption needs to fall (typically through lower domestic consumption and net public expenditures). Given that the poor typically possess labor in abundance, and that labor is mobile across the traded and nontraded goods sectors, the Stolper-Samuelson theorem would predict that returns to the abundant factor (labor) will rise. Returns to labor will increase only if the traded goods sector is more labor-

intensive than the nontraded goods sector. This seems a plausible assumption for most developing countries, which have a comparative advantage in the production of labor-intensive products. Accordingly, the poor should gain as their real wage (in terms of nontraded goods) will rise with structural adjustment, though this may take a long time.

In the short-run, however, the impact of the depreciation on the poor may be mixed. The impact effect is to increase the profitability of traded goods production and decrease that of nontraded goods production. This could have adverse distributional effects in some countries. For example, the gains of poor producers in the traded goods sector will be limited if the government does not pass on much of the export price increase to small holder farmers. The lower profitability of nontraded goods could also worsen poverty, where incomes are already very low for households producing nontraded food crops. Other important caveats to this beneficial effect of adjustment on the poor concern: the pattern of fiscal consolidation, particularly if spending cuts target programs which benefit the poor; and the rise in traded goods prices (particularly for food staples), which may adversely affect the urban poor (as net consumers) even as they benefit the rural poor (as net producers). The existing consensus appears to be that while the view that structural adjustment (relative to non-adjustment) is uniformly bad for the poor is overdrawn, it is true that the speed of supply-side response to adjustment (as embodied in the dependent economy model) may also have been overestimated for many developing countries.

#### **A. Poverty, Income Inequality, and Economic Growth**

One possible link between macroeconomic policies and poverty may well be indirect. Good macroeconomic policies are generally considered to lead to higher growth, and higher growth in turn to poverty reduction. There is considerable evidence supporting the former premise, particularly over the long run: good macroeconomic policies, if sustained, lead to higher growth rates for countries at the same level of economic development. We do not report on this strand of the literature here, as it is vast and would detract from the issue at hand.<sup>2</sup>

Regarding poverty and growth, the theoretical literature has explored the relationship between relative concepts of poverty (income distribution) and growth. Interestingly, researchers have not yet fully developed a theoretical framework for thinking about the links between absolute poverty levels and income growth.<sup>3</sup> Several empirical studies, however, have been undertaken to understand this link, including country studies and, more recently, cross-country studies. These studies have generally found a strong positive association

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<sup>2</sup> See, for example, Fischer (1993).

<sup>3</sup> One mechanism examined in the literature is the relationship between inequality, education, capital markets and growth (see Banerjee and Newman, 1993; Galor and Zeira, 1993).

between income growth and income measures of poverty.<sup>4</sup> An important question is the elasticity of this relationship, or the extent to which the poor benefit from growth. One approach is that of Ravallion and Chen (1997), which uses data from developing and transition countries where at least two household surveys are available, and finds an elasticity of poverty reduction (proportion of population living on less than 50 percent of the mean) to growth in average consumption of 2.6. Similarly, Roemer and Gugerty (1997) and Dollar and Kraay (2000) use aggregate data, and find that a one percent rise in per capita income is correlated with a one percent increase in the income of the poorest quintile.

However, the estimated relationship between economic growth and poverty reduction varies substantially across studies (on this point, see also Timmer, 1997; Hamner and Naschold; 1999; Bruno *et al.*, 1998). Many of these studies also employ different types of data, methods, definitions of poverty and of the relevant income or consumption growth variable, making comparisons difficult. For example, Lipton and Ravallion (1995) reference individual country studies where elasticities of the poverty gap (a measure of poverty intensity) with respect to growth in mean consumption range from 1.5 to 4.1. They note that since poverty headcount (compared to poverty gap) elasticities tend to be lower, this suggests that the growth-induced benefits of poverty reduction are felt well below the poverty line. Ravallion (1997) also finds higher elasticities for lower poverty lines.<sup>5</sup>

The *World Development Report 2000-01* points out several qualifications and extensions to the growth-poverty nexus. First, there is large variation in the statistical relationship between national per capita income growth and poverty measures. Given this wide variance in outcomes, many authors point out that the interesting policy question is not the connection of the poor to economic growth on average, but to understand the role of policy and economic structure in countries that have and have not been successful in turning growth into poverty reduction. In other words, both growth and poverty are possibly affected by a third set of factors that we do not yet fully understand.

What explains some of these different cross-country patterns in the relationship between growth and poverty? One important factor is the sectoral pattern of growth, as the poor are typically located in rural areas to a greater extent than in urban areas. There is some evidence from individual country studies that agricultural sector growth has the largest effect on poverty reduction (see Datt and Ravallion, 1998 on India; Thorbecke and Jung, 1996, on Indonesia). While Lipton and Ravallion (1995) agree that the balance of evidence supports

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<sup>4</sup> See Srinivasan (2000) for an assessment of the links between growth, poverty alleviation and income inequality.

<sup>5</sup> There seems to be little systematic work on the differences in the elasticities of the headcount, poverty gap, and squared poverty gap measures with respect to economic growth.

a correlation between high and growing farm output and falling rural poverty (see also Bourguignon, Berry and Morrison, 1998), they note that an empirical debate on this issue continues, both for particular country cases and in general.

Most recent research has found no systematic global relationship between growth and inequality, either when specifically testing the Kuznets hypothesis (Anand and Kanbur, 1993; Deininger and Squire, 1998; Barro, 2000) or in other analyses (Perotti, 1996; Ravallion and Chen, 1997; Kanbur and Lustig, 1999; Li, Squire and Zou, 1998; and Bruno *et al.*, 1998). If the distribution of income does not change during the growth process, the extent of poverty reduction during growth will depend on the extent of initial inequality. A number of studies (Ravallion, 1997; Timmer, 1997) have shown higher growth elasticities of poverty reduction in countries with lower Gini indices (that is, a more equitable income distribution). Clearly, the nature of the growth-poverty relationship becomes more complex if inequality changes during the growth process.

While there may be no significant relationship, on average, between income inequality and growth, there appears to be large variation in experience across countries. The same growth rate is associated with very different patterns of inequality change in different countries, which could explain some of the variation in poverty reduction for given growth rates, although this feature has not been systematically explored. Using survey data, Bruno *et al.* (1998) find that rates of poverty reduction respond even more elastically to rates of change in the Gini index than they do to the level of the index, indicating that even modest changes in inequality can lead to sizable changes in poverty incidence.

The poor are also hurt by high initial income inequality if countries with a more unequal distribution of income grow more slowly. Deininger and Squire (1998) find a strong negative relationship between initial distribution of real assets (such as land) and long-term growth, and that inequality reduces income growth for the poor but not the rich. Most other studies use data on income inequality, and currently there is no consensus on whether empirically there is a positive or negative link from initial income inequality to growth (see Banerjee and Duflo, 1999; Forbes, 2000).

## **B. Inflation and the Poor**

The literature on the relation between inflation and poverty has generally found that there is a significant association between improvements in the well being of the poor and lower inflation (Easterly and Fischer, 2001). Using panel data on a range of developed and developing countries, Romer and Romer (1998) also find the income share of the poorest quintile to be inversely related to inflation. Bulir (1998) shows that past inflation worsens income inequality. He finds that the effects are nonlinear: reductions in inflation from hyperinflationary levels lower income inequality much more than further reductions to low inflation levels. Earlier research by Cardoso (1992) found that the poor of Latin America were adversely affected by higher inflation primarily through a decline in real wages, (given the rigidity of nominal wages), as their holdings of cash were very small.



### C. Trade Liberalization and Poverty

While there is extensive research on trade liberalization's impact on income distribution, the direct links between absolute poverty and trade reform are only beginning to be explored.<sup>6</sup> Winters (2000) sets out an analytical framework for tracing the channels of impact of trade liberalization on individuals and households through changes affecting enterprises (including wages and employment), distribution (price changes and markets), and government (taxes and spending). Viewing trade reform broadly as including any accompanying domestic market liberalization, Winters suggests that the following factors matter: the creation or destruction of markets where the poor participate; the intra-household effects; intensity of factors of production in most affected sectors and their elasticity of supply; the effect on taxes paid by poor and government revenue; and whether transitional unemployment will be concentrated on the poor. Bannister and Thugge (2000) add that trade liberalization can affect poverty through incentives for investment, innovation and growth, as well as by influencing the economy's vulnerability to negative external shocks that could affect the poor.

As to empirical work, Winters (1999) summarizes field studies on trade liberalization and poverty in Africa (Zambia and Zimbabwe) and South Asia (India and Bangladesh). The Zambian study found that following domestic deregulation of cash crop purchasing, the poor suffered as functioning markets disappeared and private markets did not develop in some areas, while opposite effects were found for Zimbabwe. In the two South Asian countries, labor market segmentation prevented the benefits of liberalization from spreading widely, and trade liberalization had uneven effects within households. In addition, a study of the first-round effects of trade liberalization in Nicaragua finds that while the fall in the price of agricultural products negatively affects poor producers, this is offset by the income effect of a decline in consumer goods prices (Kruger, 2000).

Another recent strand of research uses computable general equilibrium models to estimate the sectoral price effects of trade liberalization, and traces them to consumption and factor price changes for various types of households. Some preliminary findings are available for South Africa in Devarajan and van der Mensbrugge (2000) and for Indonesia in Friedman (2000).

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<sup>6</sup> Greater trade openness in a number of developing countries has been associated with relative increases in wages of skilled workers relative to unskilled workers, contrary to what might be expected from the Stolper-Samuelson theory (see for example, Harrison and Hanson, 1999, on Mexico; Beyer *et al.*, 1999, on Chile). On trade liberalization and income inequality, see Wood (1997), Morley (1999), and Spilimbergo *et al.* (1999).

#### **D. Poverty and External Debt**

Both in the development of, and modifications to, the HIPC (Heavily Indebted Poor Countries) initiative, much has been written by the IMF, World Bank and NGOs on strengthening the link between debt relief and poverty reduction. The focus has been on developing comprehensive poverty reduction strategies, and in designing adjustment programs to effectively use resources freed up from debt service for the task of poverty reduction. A key point recognized is that the extent to which increased education and health care spending improves social indicators is dependent on how efficiently the funds are spent and how well they are targeted to the poor (IMF, 2000, Box. 4.3; Gupta *et al.*, 1998). However, an important caveat is that to the extent that HIPCs were not servicing some of their debts, debt relief will not provide additional fiscal resources. While lower debt-service payments on existing borrowings should contribute to spending on poverty reduction, new loans and grants are expected to provide the bulk of total resources for that purpose. Despite the importance of the issue, there is still little research helping policy makers decide on prioritizing the allocation of available resources in line with poverty reduction targets.

There appears to be little work on the direct relationship between external debt and poverty, including the following questions: (i) Does high debt increase poverty, and if so, how? (ii) What is the incidence of poverty in heavily indebted countries—is there a positive correlation between poverty incidence and debt burdens? (iii) How would an aid allocation geared to meet some poverty reduction criteria differ from an allocation aimed at achieving debt sustainability? (iv) Have countries that have been more successful in improving debt sustainability without debt relief been better or worse than other countries at reducing poverty? (v) What do we know about the relationship between sustainable fiscal deficits, debt sustainability, and poverty?

#### **E. Macroeconomic Crises and Poverty**

The *World Development Report 2000-01* summarizes country case studies showing that macroeconomic crises tend to be associated with increases in income poverty, and often with increases in inequality (see also Lustig, 1999; Baldacci *et al.*, 2001).<sup>7</sup> An important issue raised in this context is whether poverty arising during the transition leads to chronic poverty even after the economic crisis has passed. It is argued that since crises are often associated with increases in inequality, such crises reverse previous poverty reduction gains proportionally more. In contrast, in a cross-country context, Dollar and Kraay (2000) find no difference in the growth-poverty relationship during periods of negative growth (crisis) episodes and periods of positive growth, and so conclude that crises do not affect the income of the poor disproportionately.

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<sup>7</sup> See Eble and Koeva (2001) for an interesting study of the distributional effects of the Russian crisis.

Further, there appears to be little or no research so far exploring how or why the extent of worsening poverty differs across crisis-hit countries. Key questions that are just beginning to be asked, though not necessarily examined, include: (i) Do certain types of macroeconomic policies associated with crises have a greater negative impact on the poor than others? (ii) Do macroeconomic responses to crises that are optimal for the poor differ from responses that are optimal for the economy as a whole? (iii) What are the most important elements of a pro-poor crisis response? (iv) What types of safety nets set up before a crisis hits are the most effective in protecting the poor during a crisis? (see also Ferreira *et al.*, 1998; Lustig, 1999).

## F. Fund Programs and Poverty

The debate regarding the effects of IMF programs on the welfare of low-income groups has recently been rekindled by the Fund's high-profile involvement in economic crises affecting Indonesia, Korea, Pakistan, Brazil and Russia. Programs aimed at restoring internal and external balance through fiscal consolidation, cuts in domestic absorption and real devaluation are viewed by critics of the IMF as having adverse effects on the poor. Supporters of Fund activities respond that its programs assist in macroeconomic stabilization and the restoration of international capital flows, which boost both economic growth and the welfare of the poor.

While studies of the macroeconomic effects of Fund programs (on growth, inflation, and the balance of payments, for example) are abundant, studies of the distributional effects of Fund programs have been rare, with the exception of recent work by Garuda (2000).<sup>8,9</sup> In examining 58 IMF programs over the period 1975-91, he finds that there is evidence of a significant deterioration in the distribution of income (as measured by Gini coefficients) and in the income of the poor (as measured by the income share of the lowest quintile), in the two years following the initiation of a Fund program. This deterioration is most marked in countries with large external imbalances in the pre-program period. However, when pre-program external imbalances are not large, income distribution improved to a greater extent in countries participating in Fund programs than in non-program countries.

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<sup>8</sup> Work by Conway (1994), for example, finds evidence that Fund programs are associated with real depreciation, smaller fiscal imbalances, lower economic growth and lower public investment. Later work by Dicks-Mireaux *et al.* (2000) finds that IMF lending to low-income countries has raised output growth and improved debt sustainability, yet with no significant effects on inflation. For a more skeptical view, see Przeworski and Vreeland (2000).

<sup>9</sup> Earlier work by Pastor (1987) found that the initiation of a Fund program reduced the income share of labor relative to both its pre-program level and in comparison with non-program countries. This is indicative of a worsening distribution of income, given that the poor typically possess much labor and little capital.

Of the four main channels by which Fund programs could have beneficially affected poverty and the distribution of income: currency devaluation (lowering the price of nontradables relative to tradables), shrinking of fiscal imbalances, increases in growth rates and falls in inflation rates, Garuda (2000) finds that real depreciation of the currency is the most plausible mechanism by which Fund programs assist the poor. Easterly (2000) also finds that World Bank and IMF adjustment lending is closely associated with a more depreciated real exchange rate. Real devaluation assists the rural, farm-based poor by raising the domestic-currency value of agricultural goods—the reverse effect would occur for food-consuming urban poor. To the extent that the bulk of poverty is rural based, and labor-intensity of production is greater for the tradables sector than the nontradables, then overall poverty can be reduced through the exchange rate channel.

Using data from household consumption surveys for a group of African countries, Demery and Squire (1996) find that those countries which implemented effective World Bank and IMF reform programs generated declines in overall poverty; those that implemented ineffective reforms programs generated increases in overall poverty. As with Garuda (2000), they find that real exchange rate depreciation is a key component of a successful, poverty-reducing adjustment strategy, through its beneficial effect on export-led economic growth, its changing the structure of production in favor of labor-intensive agriculture (which employs the majority of the poor), and the reduction of rents earned (through import quotas and exchange controls) by urban households. The important message is that the maintenance of overvalued exchange rates hurts the poor.<sup>10, 11</sup>

These results are broadly consistent with analyses conducted by the Fund itself as to the consequences for poverty and income inequality of IMF-supported programs. In IMF (1986), the experience of programs in 94 countries in the 1980s indicated that the effect on poverty and income distribution varied with the composition of programs. Poverty-reducing and distribution-improving measures included real devaluation, elimination of exchange controls, expanded access to credit markets, the widening of the tax base to property and income taxes

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<sup>10</sup> See also the findings of Sahn *et al.* (1996), derived using household survey data on ten African countries during the 1980s. They find that real devaluation, fiscal policy reform and agricultural market liberalization commonly part of IMF and World Bank adjustment programs have improved the distribution of income and not adversely affect the poor. However, these policies did not result in rapid economic growth, which might have further aided poverty alleviation, due to the poor implementation of adjustment policies.

<sup>11</sup> Two points should be noted. First, studies examining reforms and poverty in Africa during the 1980s and early 1990s were limited in scope due to the lack of household survey data. Improvements in data availability for the 1990s are starting to allow more comprehensive analyses (Christiansen *et al.*, 2000). Second, looking forward, since many African countries have already eliminated large overvaluations of the real exchange rate, it is not clear whether further real depreciation would have a positive impact on their levels of poverty.

and the switching of expenditures to basic health and education. Measures that had the reverse effect included increases in indirect taxes (such as customs duties and value-added taxes), and the erosion of expenditures on social safety nets.

### III. A PRELIMINARY LOOK AT THE DATA

Indicators of well-being have improved in the vast majority of countries over the past few decades, though with major variation both within countries and across countries. A well-known composite indicator of well-being is the UNDP's Human Development Index (HDI), which is defined as the arithmetic average of a country's achievements in three basic dimensions of human development.<sup>12</sup> These include longevity (measured by life expectancy at birth); educational attainment (measured by a combination of the adult literacy rate and the enrolment ratio in primary, secondary and tertiary education); and living standards (measured by GDP per capita in U.S. dollars at purchasing power parity).

The HDI has a number of advantages: it moves beyond per capita income alone as a measure of well-being; it is compiled with uniform data sources and methodology over time and across countries; and it is available for 100 countries on a consistent basis over the period 1975-98.<sup>13</sup> The HDI does not capture income inequality directly. However, *for a given per capita income*, countries where income is distributed more evenly will tend to display greater average longevity and educational attainment, and therefore a higher HDI, because of the obvious limits to longevity and educational attainment faced by individual people.

Both the HDI and per capita income are highly correlated with other widely-used measures of poverty, such as: the UNDP's Human Poverty Index (HPI);<sup>14</sup> the share of the population

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<sup>12</sup> The HDI ranges between zero (low human development) and one (high human development), and its distribution is non-normal: it is skewed with a relatively long left-sided tail, that is, with the cross-country median HDI exceeding the mean HDI.

<sup>13</sup> A potential drawback of the HDI is that it may be positively related to urbanization, as there seems to be an urban bias in the provision of social services. While this is beyond the scope of our study, it may be an interesting avenue for further research.

<sup>14</sup> While the HDI measures the overall progress in a country in achieving human development, the HPI focuses on the distribution of that progress. Introduced in the *Human Development Report 1997*, the HPI captures deprivation in three key areas: deprivation in a long and healthy life (as measured by the percentage of people alive today not expected to reach age 40); deprivation in knowledge (measured by the adult illiteracy rate); and deprivation in economic provisioning (measured by a combination of the percentage of people lacking access to safe water and health services, and the percentage of children under five years who are underweight). The HPI is the simple average of these three component indices (see UNDP, 2000).

with income less than \$1 per day (a World Bank measure); the share of the population that is undernourished (a Food and Agriculture Organization measure); and measures of well-being, such as life expectancy, infant mortality, and educational attainment.<sup>15</sup> Figure 1 shows the close association among some of these variables. Figure 2 reports the association between the HDI and a measure of income distribution—the Gini coefficient.

Table 1 provides a complete list of the 174 countries for which data on the HDI for 1998 are available, categorized by regions, and in descending order of their HDI. In general, the African and Asian countries had relatively low HDI, while industrial, transition, and Latin American countries had relatively high HDI. The HDI improved in almost all countries between 1975 and 1998, and as set out in Figure 3, the median value of the HDI in 1998 (0.73) was significantly higher than in 1975 (0.62). At the same time, there was little change in the ranking of countries by HDI over this period: the cross-country rank correlation between the observations for the HDI in 1975 and in 1998 is 0.98.

Despite the basically unchanged ranking of countries, there is some evidence that low-HDI countries have been “catching up,” albeit slowly, with the high-HDI countries. Considering those countries for which HDI data are available for both 1975 and 1998, Table 2 shows that countries that commenced in 1975 in groups with relatively low HDI tended to display a greater improvement in HDI (in absolute terms) over the next two decades.<sup>16</sup>

#### **A. Macroeconomic Policies, Human Development and Income Inequality**

Poverty in a given country can be reduced by fostering per capita GDP growth,<sup>17</sup> that is, by raising the total resources available to the population, and by increasing the share of those resources going to the poorer segments of that population. A widely held view is that economic growth can be fostered through a set of policies aimed at promoting macroeconomic stability (low and stable inflation, low budget deficits, and sustainable external debt), openness to international trade, education, and the rule of law. A large number of studies based upon cross-country evidence are consistent with that view, although the

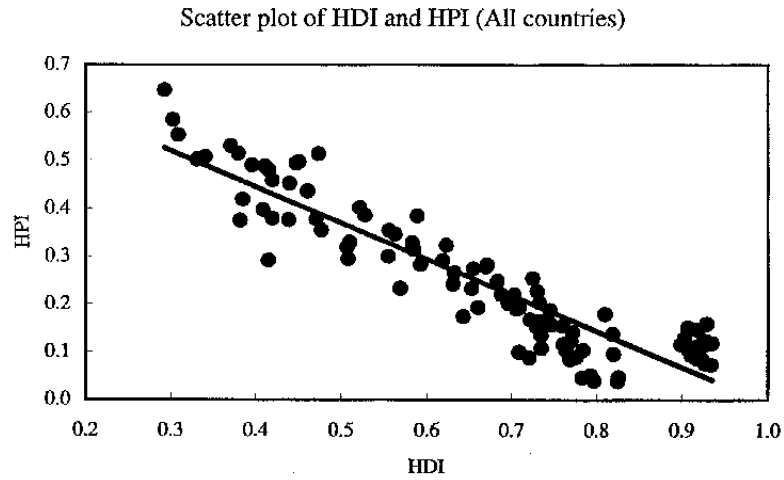
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<sup>15</sup> The rank correlation (for the 80 developing countries where both indices exist) between the HDI and the HPI for 1998 was extremely high at 0.94.

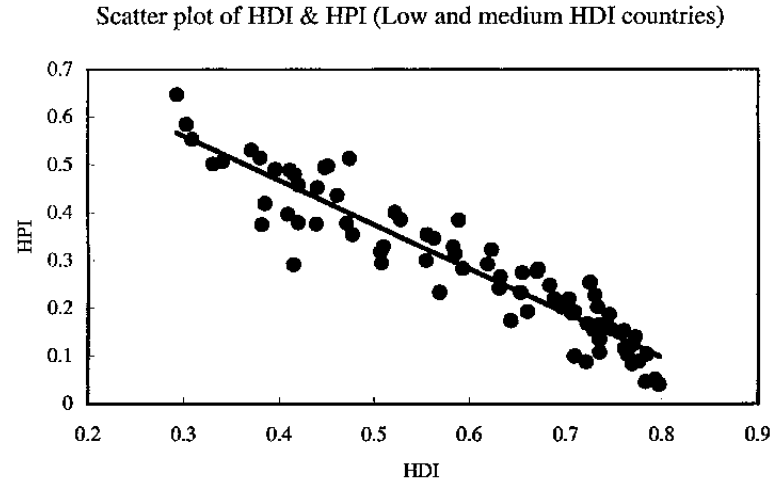
<sup>16</sup> The countries that displayed the greatest improvement in HDI from 1975 to 1998 are from Africa and Asia: Nepal (by 63 percent), Mali (53 percent), Pakistan (48 percent), The Gambia (47 percent), and Chad (45 percent). The countries with the least improvement were Guyana (5 percent), Democratic Republic of the Congo (3 percent), Romania (3 percent), and Zambia (-5 percent).

<sup>17</sup> As expected, improvements in HDI are found to be strongly and positively correlated with per capita income growth, though this is largely the result of the inclusion of per capita income as one of the components of the HDI.

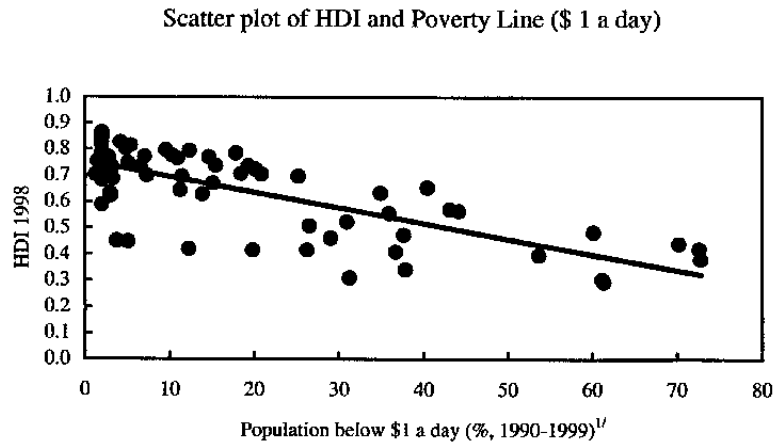
Figure 1. Human Development Index (HDI), Human Poverty Index (HPI) and Poverty Line: 1998



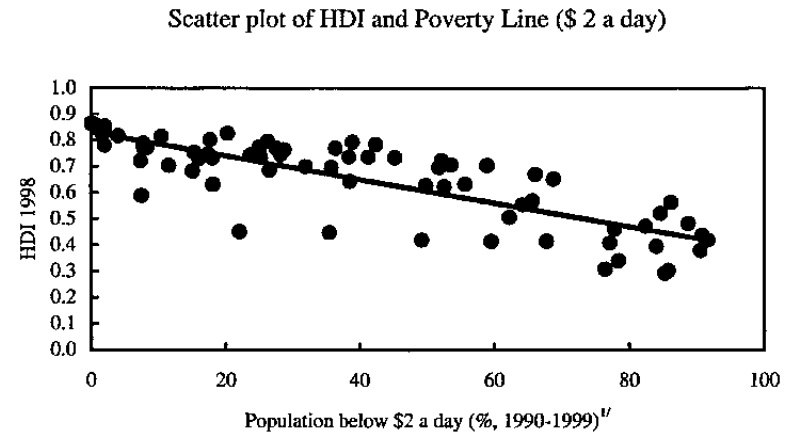
174 countries; correlation coefficient = 0.92



80 countries; correlation coefficient = 0.94



71 countries; correlation coefficient = 0.74

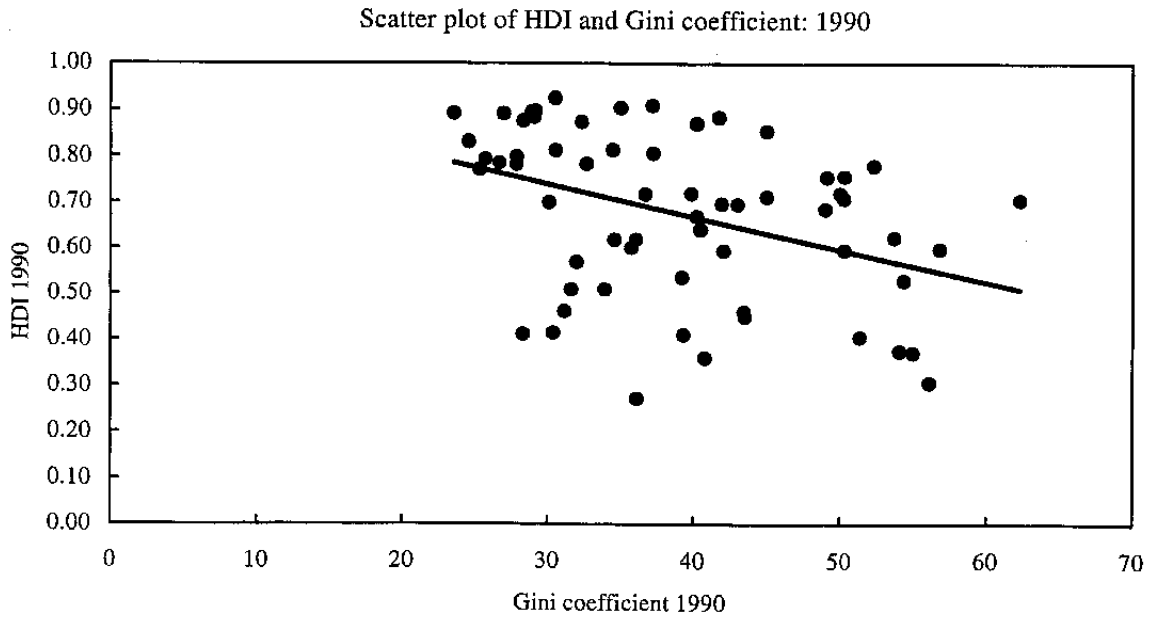


49 countries; correlation coefficient = 0.80

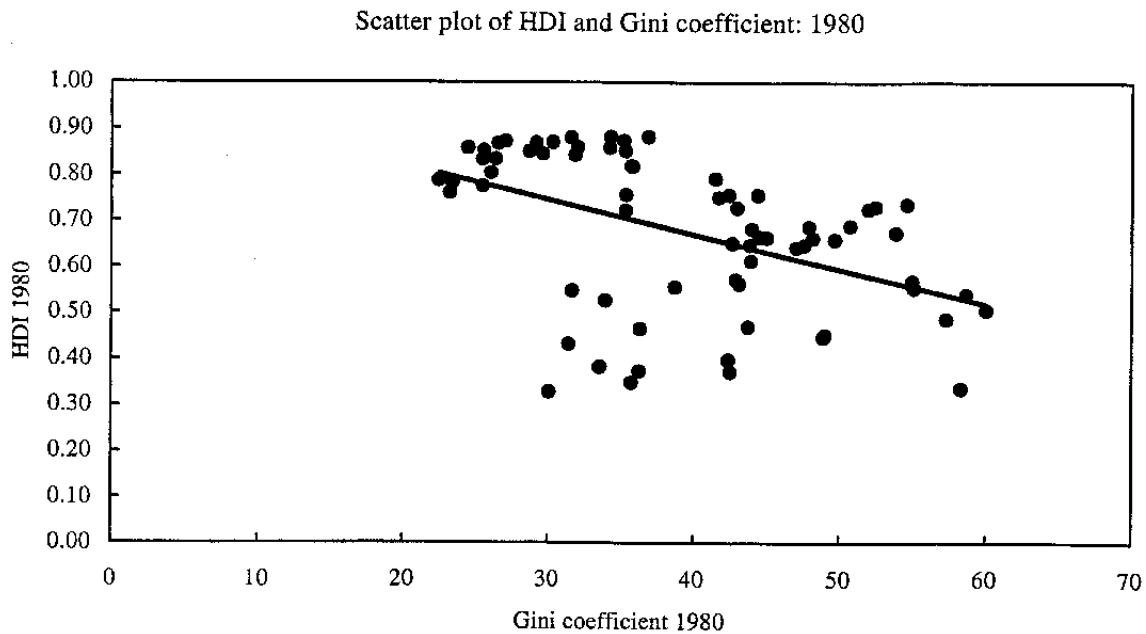
Source: UNDP, Human Development Report (2000); and World Development Indicators.

<sup>1/</sup> Most recent available observation.

Figure 2. Human Development Index (HDI) and Gini Coefficient



63 countries; correlation coefficient = 0.39



70 countries; correlation coefficient = 0.46

Source: UNDP, Human Development Report (2000) and World Development Indicators (2000).

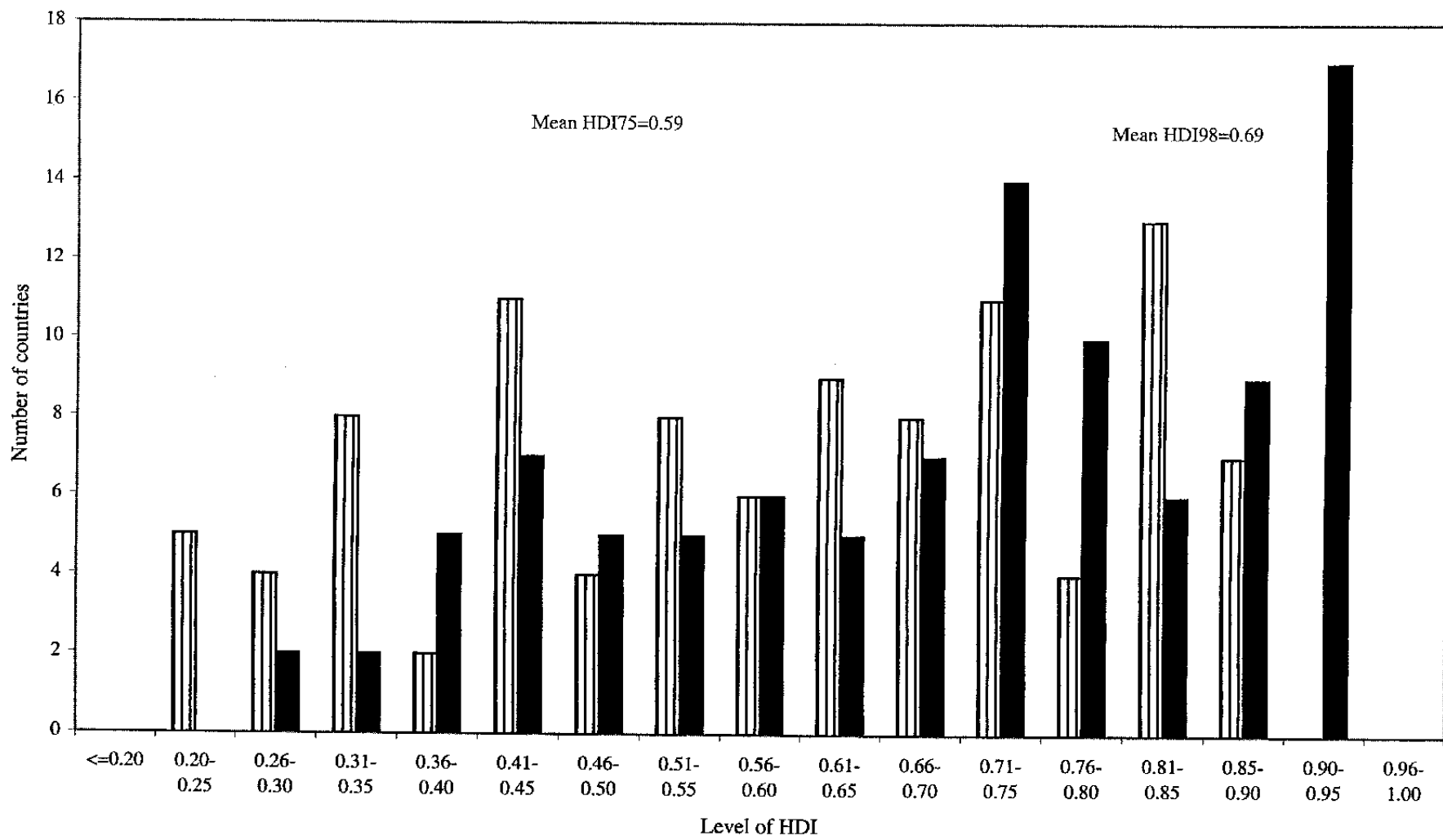


Table 1. Human Development Index (HDI), 1998

HDI	0.22 - 0.50	0.51 - 0.70	0.71 - 0.80	> 0.80
	<u>Africa</u>	<u>Africa</u>	<u>Europe/Industrial Countries</u>	<u>Europe/Industrial Countries</u>
	Madagascar (0.48)	South Africa (0.7)	Turkey (0.73)	Canada (0.93)
	Sudan (0.48)	Cape Verde (0.69)		Norway (0.93)
	Togo (0.47)	Algeria (0.68)		United States (0.93)
	Mauritania (0.45)	Swaziland (0.66)	<u>Africa</u>	Australia (0.93)
	Djibouti (0.45)	Namibia (0.63)	Seychelles (0.79)	Iceland (0.93)
	Nigeria (0.44)	Botswana (0.59)	Mauritius (0.76)	Sweden (0.93)
	Congo, Dem. Rep. of the (0.43)	Gabon (0.59)	Tunisia (0.7)	Belgium (0.92)
	Zambia (0.42)	Morocco (0.59)		Netherlands (0.92)
	Côte d'Ivoire (0.42)	Lesotho (0.57)	<u>Asia</u>	Japan (0.92)
	Senegal (0.42)	Ghana (0.56)	Malaysia (0.77)	United Kingdom (0.92)
	Tanzania, U. Rep. of (0.41)	Zimbabwe (0.56)	Fiji (0.77)	Finland (0.92)
	Benin (0.41)	Equatorial Guinea (0.55)	Thailand (0.74)	France (0.92)
	Uganda (0.41)	São Tomé and Príncipe (0.55)	Philippines (0.74)	Switzerland (0.92)
	Eritrea (0.41)	Cameroon (0.53)	Sri Lanka (0.73)	Germany (0.91)
	Angola (0.4)	Comoros (0.51)	Maldives (0.73)	Denmark (0.91)
	Gambia (0.4)	Kenya (0.51)	Samoa (Western) (0.71)	Austria (0.91)
	Guinea (0.39)	Congo (0.51)	China (0.71)	Luxembourg (0.91)
	Malawi (0.38)			Ireland (0.91)
	Rwanda (0.38)	<u>Asia</u>	<u>Transition Economies</u>	Italy (0.9)
	Mali (0.38)	Viet Nam (0.67)	Croatia (0.79)	New Zealand (0.9)
	Central African Republic (0.37)	Indonesia (0.67)	Lithuania (0.79)	Spain (0.9)
	Chad (0.37)	Mongolia (0.63)	Belarus (0.78)	Greece (0.88)
	Mozambique (0.34)	Vanuatu (0.62)	Bulgaria (0.77)	Portugal (0.86)
	Guinea-Bissau (0.33)	Solomon Islands (0.61)	Russian Federation (0.77)	Cyprus (0.89)
	Burundi (0.32)	Myanmar (0.58)	Latvia (0.77)	Malta (0.87)
	Ethiopia (0.31)	India (0.56)	Romania (0.77)	
	Burkina Faso (0.3)	Papua New Guinea (0.54)	Macedonia, TFYR (0.76)	<u>Asia</u>
	Niger (0.29)	Pakistan (0.52)	Georgia (0.76)	Singapore (0.88)
	Sierra Leone (0.25)	Cambodia (0.51)	Kazakhstan (0.75)	Hong Kong, China (SAR) (0.87)
		<u>Transition Economies</u>	Ukraine (0.74)	Korea, Rep. of (0.85)
	<u>Asia</u>	Moldova, Rep. of (0.7)	Azerbaijan (0.72)	Brunei Darussalam (0.85)
	Lao People's Dem. Rep. (0.48)	Uzbekistan (0.69)	Armenia (0.72)	
	Bhutan (0.48)	Tajikistan (0.66)	Albania (0.71)	<u>Transition Economies</u>
	Nepal (0.47)		Kyrgyzstan (0.71)	Slovenia (0.86)
	Bangladesh (0.46)	<u>Middle East</u>	Turkmenistan (0.7)	Czech Republic (0.84)
		Syrian Arab Republic (0.66)		Slovakia (0.82)
	<u>Middle East</u>	Egypt (0.62)	<u>Middle East</u>	Hungary (0.82)
	Yemen (0.45)	Iraq (0.58)	Libyan Arab Jamahiriya (0.76)	Poland (0.81)
			Saudi Arabia (0.75)	Estonia (0.8)
	<u>Western Hemisphere</u>	<u>Western Hemisphere</u>	Lebanon (0.74)	
	Haiti (0.44)	El Salvador (0.7)	Oman (0.73)	<u>Middle East</u>
		Honduras (0.65)	Jordan (0.72)	Israel (0.88)
		Bolivia (0.64)	Iran, Islamic Rep. of (0.71)	Kuwait (0.84)
		Nicaragua (0.63)		Bahrain (0.82)
		Guatemala (0.62)	<u>Western Hemisphere</u>	Qatar (0.82)
			Saint Kitts and Nevis (0.8)	United Arab Emirates (0.81)
			Costa Rica (0.8)	
			Trinidad and Tobago (0.79)	<u>Western Hemisphere</u>
			Dominica (0.79)	Barbados (0.86)
			Grenada (0.78)	Bahamas (0.84)
			Mexico (0.78)	Argentina (0.84)
			Cuba (0.78)	Antigua and Barbuda (0.83)
			Belize (0.78)	Chile (0.83)
			Panama (0.78)	Uruguay (0.82)
			Venezuela (0.77)	
			Suriname (0.77)	
			Colombia (0.76)	
			Brazil (0.75)	
			Saint Vincent and the Grenadines (0.74)	
			Peru (0.74)	
			Paraguay (0.74)	
			Jamaica (0.73)	
			Dominican Republic (0.73)	
			Saint Lucia (0.73)	
			Ecuador (0.72)	
			Guyana (0.71)	
Number of countries	35	38	55	46

Source: UNDP, Human Development Report 2000

Figure 3: Histogram of Human Development Index (HDI): 1975 and 1998



Source: UNDP, Human Development Report (2000).

▨ hdi75

■ hdi98

Table 2. HDI Transition Matrix <sup>1/</sup>

HDI in 1975	Absolute changes in HDI by 1998		
	< 0.10	0.10 - 0.15	0.16 - 0.20
Low (0 - 0.5)	Burkina Faso, Burundi, Central African Republic, Dem. Rep. of the Congo, Côte d'Ivoire, Guinea- Bissau, Kenya, Madagascar, Malawi, Niger, Togo, Zambia	Bangladesh, Benin, Botswana, Cameroon, Chad, The Gambia, Ghana, Lesotho, Mali, Mauritania, Nigeria, Papua New Guinea, Senegal, Sudan	Egypt, India, Indonesia, Morocco, Nepal, Pakistan
Medium (0.5 - 0.7)	Fiji, Guyana, Jamaica, Mexico, Nicaragua, Paraguay, Philippines, South Africa, Zimbabwe	Bolivia, Brazil, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Islam Rep. of Iran, Mauritius, Peru, Sri Lanka, Swaziland, Syrian Arab Republic, Thailand, Turkey	Algeria, China, Rep. of Korea, Malaysia, Saudi Arabia, Tunisia
High (0.7 - 0.8)	Argentina, Costa Rica, Hungary, Panama, Romania, Trinidad and Tobago, United Arab Emirates, Uruguay, Venezuela	Chile, Hong Kong (SAR), Malta	Singapore

Source: UNDP, *Human Development*

<sup>1/</sup> Twenty-three industrial countries were excluded from the table because they almost invariably began with very high HDIs in 1975 and tended to have rather small improvements over the following two decades.

evidence on whether each individual policy among those listed above raises economic growth is typically not very robust (Levine and Renelt, 1992).<sup>18</sup>

Casual observation is also broadly suggestive of an association between sound macroeconomic policies and rapid improvement in HDI. Table 3 shows that—within “low HDI,” “medium HDI,” and “high HDI” groups of countries—lower inflation, lower variability of inflation, lower external debt, better rule of law, lower black market premium, and a lower frequency of financial crisis were associated with greater improvement in HDI. At the same time, as in the economic growth literature, it is difficult to show conclusively whether individual policies cause countries to experience more rapid improvements in well-being.

There is also a debate regarding the policies that improve the well-being of the poorer segments of the population *for a given growth rate of GDP per capita*,<sup>19</sup> and an even more fervent debate about whether certain policies imply a trade-off between increasing total available resources (raising growth rates) and improving their distribution (reducing poverty). In the latter respect, there seems to be broad agreement that policies aimed at improving basic education and health can both raise economic growth and improve distribution, but of course there certainly is no consensus regarding the most effective policies that will raise education and health.

To examine whether macroeconomic policies have a direct impact on poverty, in a cross-country framework we attempted to estimate the relationship between economic policies and improvements in the HDI (or other indicators of well-being such as life expectancy), *for a given rate of growth of GDP per capita*. The rationale is that when policies bring about greater improvement in the HDI than would be expected on the basis of the observed rate of

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<sup>18</sup> Robust evidence is obtained when a variable is significant in a battery of regressions that include several combinations of other potential explanatory variables.

<sup>19</sup> See Agénor (1999) for cross-country regressions linking macroeconomic variables and poverty rates, controlling for GDP growth.

Table 3. Macroeconomic Performance (1975 - 98)

Average of 1975 - 98														
	Growth in real GDP per capita <sup>7/</sup>	Inflation <sup>8/</sup>	Deficit <sup>9/</sup> (% of GDP)	Government consumption (% of GDP) <sup>10/</sup>	Standard deviation in inflation <sup>11/</sup>	Log difference in terms of trade <sup>12/</sup>	External debt <sup>13/</sup> (% of GDP)	Private capital flow <sup>14/</sup> (% of GDP)	Exports and imports (% of GDP)	Openness * GDP <sup>15/</sup>	Aid <sup>16/</sup> (% of GNP)	Rule of law <sup>17/</sup>	Black market premium <sup>18/</sup>	Percent of years country had crisis <sup>19/</sup>
Low HDI														
Slow change in HDI <sup>1/</sup>	-0.22	91.50	-4.89	16.17	259.83	-0.33	87.49	2.03	68.21	3.47	13.49	28.80	48.62	44.00
Rapid change in HDI <sup>2/</sup>	1.42	13.69	-4.43	12.14	10.81	-0.25	60.74	1.53	47.48	13.07	7.94	34.69	35.35	35.64
Middle HDI														
Slow change in HDI <sup>3/</sup>	0.63	151.85	-6.22	13.34	311.63	-0.48	77.18	2.27	66.20	10.73	4.20	40.82	236.99	37.45
Rapid change in HDI <sup>4/</sup>	1.85	54.81	-2.56	14.69	179.01	-0.11	45.36	2.92	67.48	28.89	2.56	49.31	103.87	20.24
High HDI														
Slow change in HDI <sup>5/</sup>	0.34	82.67	-0.92	13.16	114.53	-0.21	48.77	3.29	63.72	1.66	0.66	59.93	50.98	37.78
Rapid change in HDI <sup>6/</sup>	5.34	14.77	1.51	12.04	22.82	-0.51	42.00	6.58	205.77	271.07	0.61	88.64	4.17	7.50

Source: UNDP, *Human Development Report 2000*; World Development Indicators; and International Financial Statistics.

<sup>1/</sup> Countries in this category include Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Congo, Congo, Dem. Rep., Côte d'Ivoire, Ghana, Guinea-Bissau, Kenya, Lesotho, Madagascar, Malawi, Mauritania, Niger, Papua New Guinea, Senegal, Togo

<sup>2/</sup> Countries include Bangladesh, Benin, Chad, Egypt, Gambia, India, Indonesia, Mali, Morocco, Nepal, Nigeria, Pakistan and Sudan.

<sup>3/</sup> Countries include Brazil, Colombia, Dominican Republic, Ecuador, El Salvador, Fiji, Guyana, Jamaica, Mauritius, Mexico, Nicaragua, Paraguay, Peru, Philippines, South Africa, Sri Lanka and Zimbabwe.

<sup>4/</sup> Countries include Algeria, Bolivia, China, Guatemala, Honduras, Iran, Korea, Malaysia, Saudi Arabia, Swaziland, Syrian Arab Republic, Thailand, Tunisia and Turkey.

<sup>5/</sup> Countries include Argentina, Costa Rica, Hungary, Panama, Romania, Trinidad and Tobago, United Arab Emirates, Uruguay and Venezuela.

<sup>6/</sup> Countries include Chile, Hong Kong, SAR, Malta, Singapore and Israel.

<sup>7/</sup> Log difference of real output

<sup>8/</sup> Percentage change in consumer prices per annum

<sup>9/</sup> Overall fiscal deficit as a percent of GDP

<sup>10/</sup> Government consumption spending as a percent of GDP

<sup>11/</sup> Standard deviation of inflation between 1975-98

<sup>12/</sup> Log difference in terms of trade between 1975-98

<sup>13/</sup> External debt as percent of GDP in 1975

<sup>14/</sup> Private capital flow as a percent of GDP

<sup>15/</sup> Imports and exports in share of GDP weighted by GDP growth between 1975-98

<sup>16/</sup> Aid as a percent of GNP

<sup>17/</sup> Rule of law as defined by Kaufmann *et al* (1999).

<sup>18/</sup> Defined as (parallel exchange rate/official exchange-1)\*100

<sup>19/</sup> Percent of years the country had a financial crisis, during 1970-99.

economic growth, they are likely to be of particular benefit to the poorer segments of the population. This makes it possible, in principle, to estimate the relationship between economic policies and that component of the improvement in well-being that is unrelated to economic growth.<sup>20</sup>

We examined a large set of potential explanatory variables related to economic policies. The set included many of the variables that previous researchers have used to analyze the determinants of economic growth (such as inflation and its variance; budget deficits, government spending, and foreign aid as a share of GDP; indicators of openness such as the ratio of foreign trade to GDP and the black market foreign exchange premium; and indices of the rule of law). It also included others that have received less attention in previous work (such as the presence and length of exchange-rate or banking crises; and initial external debt as a share of GDP)—see Table 3 for a partial list of variables.

Using this cross-country regression approach, we have not found significant and robust evidence that any of these variables are individually associated with pro-poor (or anti-poor) economic growth. Of course, by no means does this constitute proof that these policies do not matter. On the contrary, it suggests that alternative research approaches are needed to find significant and robust evidence on the direction and strength of the effects of these variables on the poor. Other studies have relied on panel regressions, which use the information contained in the variation both over time and across countries. These studies have generally also not found significant evidence of links between policy variables and improvements in the relative well-being of the poor, with the possible exception of a significant association with lower inflation (see, for example, Easterly and Fischer, 2001).

### **B. Governments' Actual Behavior**

Although simple cross-country regressions do not provide conclusive evidence on the policies that help reduce poverty, it is useful to analyze how governments behave in practice with respect to the policies that are widely believed to help in that regard, especially when they are faced with macroeconomic shocks.

The conventional wisdom is that certain policies, such as fiscal spending on education and health, tend to help the poor.<sup>21</sup> In fact, the international financial institutions have often encouraged countries not to reduce spending on health and education (at least as a share of total spending, and often also in real per capita terms) at times when fiscal adjustment was

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<sup>20</sup> Therefore, our approach was to regress the improvement in the HDI on initial HDI, per capita GDP growth, and average economic policies during the period; and to repeat the exercise using infant mortality and life expectancy instead of the HDI.

<sup>21</sup> See, for example, Gupta and others (1999).

needed, and to increase spending on health and education as a share of total spending at times when countries were able to afford increases in overall spending.<sup>22</sup>

This section provides a more detailed, systematic analysis of the composition of large government expenditure cuts (or increases), as an illustration of governments' actual behavior with respect to policies that are believed to affect the poor. Considering 179 countries during 1985–98,<sup>23</sup> there are about sixty (non-overlapping) instances in which governments cut total spending by more than 5 percentage points over three years. The share of education spending in total spending and the share of health spending in total spending rose in three quarters of those instances. On average, the share of education spending in total spending increased by 2 percentage points and the share of health spending in total spending increased by 1½ percentage points. (By comparison, the average level of education spending and health spending amounted to 13 percent, and 7 percent, respectively, of total spending during the sample period.) Conversely, the share of education spending in total spending and the share of health spending in total spending declined in about two thirds of the roughly thirty (non-overlapping) instances in which governments increased total spending by more than 5 percentage points over three years; in those instances, both education spending and health spending declined, on average, by 1 percentage point of total spending.

These results suggest that spending on health and education is typically more stable than spending on the remaining items in governments' budgets. Therefore, when governments are faced with the need to cut overall spending, the share of education and health spending is far more likely to rise than to decline. In this light, an unchanged share for education and health does not appear to be an especially ambitious target at a time when overall government spending is being cut. Conversely, a decline in the share of education and health spending at a time when overall spending is increasing may partly reflect the more stable nature of these expenditures.

As this simple example illustrates, there seems to be much scope for research on how governments behave in practice with respect to policies that are widely believed to affect the poor, and this line of research may help establish more useful benchmarks in assessing the impact of governments' efforts in reducing poverty.

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<sup>22</sup> While the international institutions have typically encouraged countries to preserve the share of spending on health and education, this has not been a condition for IMF loans. Consistent with this absence of conditionality, the results presented below are similar if the sample is restricted to those instances involving IMF-supported programs.

<sup>23</sup> The data were drawn from the Expenditure Policy Division in the IMF's Fiscal Affairs Department.

#### IV. CONCLUSION

On the basis of systematic cross-country studies, the current state of knowledge is that economic growth is associated with improvements in indicators of well-being. However, little has been conclusively proven regarding individual macroeconomic policies that help raise economic growth (given questions about the robustness of many findings), and even less is known about the individual policies that help reduce poverty for a given rate of economic growth. Of course, a wide range of country experiences has made it possible for policy makers to accumulate a certain degree of expertise regarding these issues, the validity of which nevertheless still needs to be confirmed by systematic empirical studies.

This leaves an important and comprehensive research agenda. Further cross-country studies of the types conducted so far appear to be less likely to yield much value added regarding the effects of macroeconomic policies on poverty. Other issues to be further explored include lags between policy actions and their effects on poverty, and better methods to identify relevant endogenous and exogenous variables. Perhaps the greatest payoff for future research is likely to be obtained through studies based on survey data regarding households or firms for one or a few individual countries, around the time of clearly-identifiable macroeconomic shocks. However, while there has been significant progress in recent years, the number of countries for which such reliable surveys are currently available is relatively limited, and continued data collection efforts in this direction may greatly contribute to our knowledge about the links between macroeconomic policies and poverty reduction.



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