Macroeconomic policies and health in developing countries

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Abstract
Economic reforms introduced over the1980s and 1990s were expected to improve the economic stance of less developed countries as well as improve poverty and health conditions. There has been remarkable improvement in the macroeconomic performance of some countries. Internal rigidities in trade and exchange rate policies have been addressed in some circumstances allowing for potential increased in access to external market for goods produced by large segments of the rural poor. Public expenditure on health and education has increased in many countries and so has achievements in improved sanitation as well as access to improved water sources. The question of whether these achievements have made positive impact on the health of people in these countries We explore the changes in macroeconomic policies and health status indicators in selected developing countries since 1980s.

1. Introduction

The major goal of many developing countries after independence was to improve on the living standards of their citizens through rapid development programmes. Public funded social services such as health and education were extended from urban areas (where they were concentrated to service the formal sector employees on government projects and/or projects for the colonial masters) to some rural areas. Rapid real economic growth recorded over the 1960s and in the early 1970s in most developing countries especially sub-Sahara Africa kept the public provision of these social services to an acceptable standard.

Major economic shocks including rapid increase in world oil prices during the 1970s and the 1980s, high levels of inflation and mismanagement of resources in key sectors (often accompanied by greed, corruption, nonproportional sectoral budgets, demand for increased wages, etc.) offset the objectives of most of the development plans. Instead, many developing countries accumulated huge debts and were faced with unsustainable imbalances between aggregate demand and supply as well as balance of payment problems. The macroeconomic imbalances led most developing countries to undertake adjustment policies during the 1980s and 1990s by the intermediation of the World Bank, the International Monetary Fund and their associates. The policy responses to the macroeconomic crisis have different impacts (positive or negative and sometimes ambiguous) on different sectors and on different groups of people. The health sector was no exception to the reforms. User charges were introduced

for health care services as part of the stabilisation program with longer term plans for prepaid schemes. Health care is a basic need for both poor and non-poor individuals. The reform policies which were mostly contractionary have different impacts on different people. The poor and the vulnerable may bear the brunt of the reforms because the effects of reforms can be transmitted through different channels to compound their problems. Evidence form previous studies suggest that some countries did better to adequately protect their most vulnerable citizens against the associated harsh realities of the reforms but others failed (Cornia, Jolly and Stewart 1987, Sahn and Bernie 1995, Ferreira and Litchfield 1998).

Even though a great deal has been learned, the impact of the macroeconomic reforms on poverty, inequality and health two and half decades later continues to attract concern (Agenor 2004; Gomes and Lawson 2005). The need to understand the linkages and impact of macroeconomic reforms on health and poverty have emerged as an important issue for national and international policy making (Gunter, Cohen and Lofgren 2005). Poverty reduction strategies including concessional lending and debt relief initiatives for Highly Indebted Poor Countries (HIPC) have emerged in the late 1990s to mitigate the negative effect of the reforms on the poor as well as reduce poverty. It is necessary to constantly monitor and evaluate these strategies for success. A variety of analytical tools including social accounting matrix (SAM) multiplier, computable general equilibrium (CGE) and microsimulation models with different variants in each category plus models focusing on the formal and informal sectors of the economy (the so called two sector model) are among the quantitative models developed to assess the impact of macroeconomic policies on poverty. Despite these promising steps there remains substantial disagreement on appropriate methodologies for analysing macro-poverty impacts and linkages (Savard 2005; Gunter, Taylor and Yeldan 2005). Gunter, Taylor and Yeldan (2005) highlight gaps and partial achievements some of the quantitative frameworks including CGE models when they are used in analysing poverty impacts of macroeconomic issues. The limitations of the models are partly due to flawed assumptions that are being used by researchers. The flawed assumptions are in fact due to the difficult and inherent complex nature of developing economies. Since outcomes of quantitative analyses mostly depend on the assumptions on which the models are based there is little surprise that wrong assumptions will only lead to questionable conclusions.

In this paper we present some views on the health and poverty impacts of macro crisis over the period 1980 to 2000. A combination of empirical observations and economic modelling of the impact of the adjustment are used as the basis for our discussion. In section 2 we examine the links between macroeconomic policies poverty and health. In section 3 we present some stylised facts about macroeconomic indicators as well as performance indicators for health and poverty for selected developing countries between 1980 and 1990. We bring the discussion to a conclusion in section 4.

2. Macroeconomic shocks, reform policies and potential channels of impact

Common macroeconomic problems that afflict many developing countries include balance of payment difficulties, accelerating inflation and imbalances in income distribution. Many developing countries suffer all or part of these macroeconomic shocks during the late 1970s and early 1980s. The major policy responses to macroeconomic crisis in the 1980s and 1990s were in the form of stabilisation and adjustment programmes. The adjustment policies or structural adjustment programmes (SAPs) as it was commonly called are set of stabilisation and adjustment policies designed to change production and market structures of poorly performing economies in order to increase exports and promote rapid growth. The reform policies consist of fiscal and monetary contraction, devaluation, freezing of wage demands, liberalisation and deregulation policies. The nature of the reforms suggests that the effects (positive/negative, direct/indirect and sometimes ambiguous) can be different for different groups of people. The effects on pensioners, farmers, wage earners, the self-employed etc. can be different. The difference in impact appears to be linked to the different sources of income, assets and/or to the prices that individuals face when purchasing goods and services. It is widely accepted that the poor are more vulnerable to negative shocks. Various arguments have been put forward to explain why the poor may be hurt most during economic crises. We discuss briefly the possible channels by which policy responses to macroeconomic shocks can be transmitted to household and their perceived impacts on health and poverty.

Potential routes of impact

The possible routes by which macroeconomic shocks may be transmitted to poor households in developing countries vary. The common channels of impact include changes (i) in relative prices (measured through indicators such as inflation and variation in interest rates), (ii) exchange rates and its effect on trade, and (iii) the availability as well as receipt of subsidies and public transfers. Price changes alter the profitability of the different sectors in an

economy. The effect can be direct or indirect and can affect relative wages as well as employment levels in the various sectors of the economy to varying degrees. The relative prices of goods and services may change with a further effect on real incomes. Energy price for example is a macroeconomic variable with wide-ranging macroeconomic effects on virtually every sector of the economy. Increases in the market price of petrol and kerosene can have direct adverse effects on the welfare of poor households. The impact can be transmitted through increases in transport costs, the cost of using energy dependent ultilities, as well as the proportion of family income spent on domestic cooking. Changes in energy prices are assumed to have a direct and positive effect on poverty headcount, largely because of the adverse effect a rising energy prices has on the cost of consumption of the poor.

Macroeconomic shocks may affect incomes through the returns on assets such as bonds and real estates. Relative changes in prices through changes in interest rates and inflation may affect the value of asset (such as bonds and real estates properties). Those who have assets can change their holdings to smooth the effect of changes in relative prices on the value of their asset. Most poor people however do not have these types of assets. They hold their assets mostly in the form of cash. The poor are more vulnerable to changes in relative prices because such changes affect the value of nominal money and the poor are constrained in their ability to adjust their portfolio to rises in inflation. The rate of inflation is usually considered as a tax on money holdings. The poor usually borrow from informal money lenders whose cash rates are usually higher than bank rates. This may be due to the perceived risky nature of the informal credit market. Changes in relative prices can induce higher cash rates well and beyond the means of the poor.

An increase in exchange rate (or depreciation in the value of local currency) may increase production and trade in the tradable sector. If that happens and the poor are engaged in the tradable sector then devaluations may reduce poverty. In that a real devaluation may benefit the poor if the poor are net suppliers of traded goods (or workers in industries that produce tradable goods). Unfavourable changes in exchange rates however, can cause firms to close or cut back on production. Factory closures may reduce employment opportunities which can affect the poor directly. Developing countries are highly susceptible to exchange rate changes because they dependent on imports mostly for intermediate capital inputs. The poor may be hurt if the cost of imports rise more rapidly than the price of export and if imports are also consumed by the poor. The impact of devaluation on poverty therefore may be ambiguous.

Contractionary macroeconomic reforms may affect the poor by changing the existing level and form public transfers and subsidies. The importance of social safety nets cannot be over-emphasised. Public expenditure cuts affect negatively cash transfers and the provision of services. This may especially be the case if the expenditure cut is done across the board. These cuts tend to harm those (including the poor) who rely on public services. In Chile, per capita social spending fell by 20 percent between 1981 and 1986. The poorest 40 percent of families were particularly hard hit: their share of personal income was only 12 percent but they received 50 percent of public spending in health and education and 20 percent of social security payments (Bourguignon and Morrisson, 1992).

Foreign aid can have a strong positive impact on growth in developing countries assuming there are sound policies and institution to redistribute the aid towards pro-poor programmes. Corruption and poor targeting may reduce the impact of foreign aid.

3. Perceptions and stylised fact about reform policies, poverty and health

Economic crisis often recur and society can only minimise the impact of crises by learning from the past. Policy and institutional reform are thorny issues. By their nature reforms suggest improvement in the use of resources. Economic reforms that focus on improving the efficiency often require rationing and this can sometimes threaten equity. We examine the effect of economic reform policies (macro and sectoral level policies) in selected developing between 1980 and 2000 based on historical data on economic, health and poverty indicators.

Stabilisation and structural adjustment reforms are often required to fix gross economic imbalances but they also have social impacts. Fiscal contraction and the reduced role of the state in the provision of many goods and services during reforms have caused concerns about the reduction in the provision of social services such as health care and therefore a decline in health status. Much of the criticism of the human consequences of macro reform policies however, is difficult to justify in terms of differences in conditions before and after the reforms. The effects of reforms are difficult to show because the counterfactual are difficult to separate form the crisis indicators. There is little or no denial that economic growth is important (although not sufficient) for sustaining and for the improvement in human well-being. As shown in Figures 1a and 1b the long-run trends in real GDP growth and per capita consumption in selected developing countries from African and Asia are positively correlated.

Figure 1a. Trends in real GDP and consumption per capita in selected African countries, 1960-2002
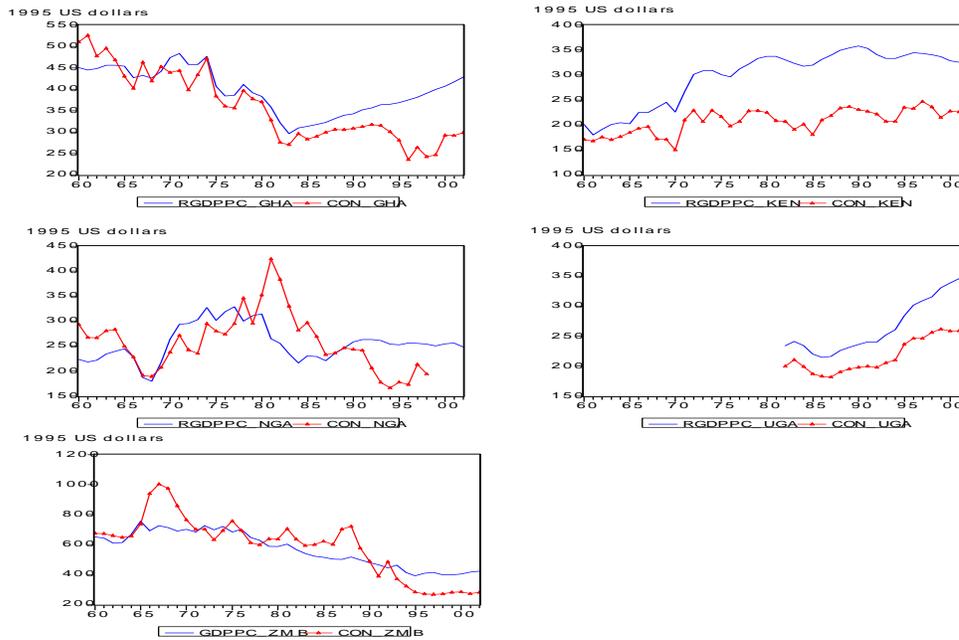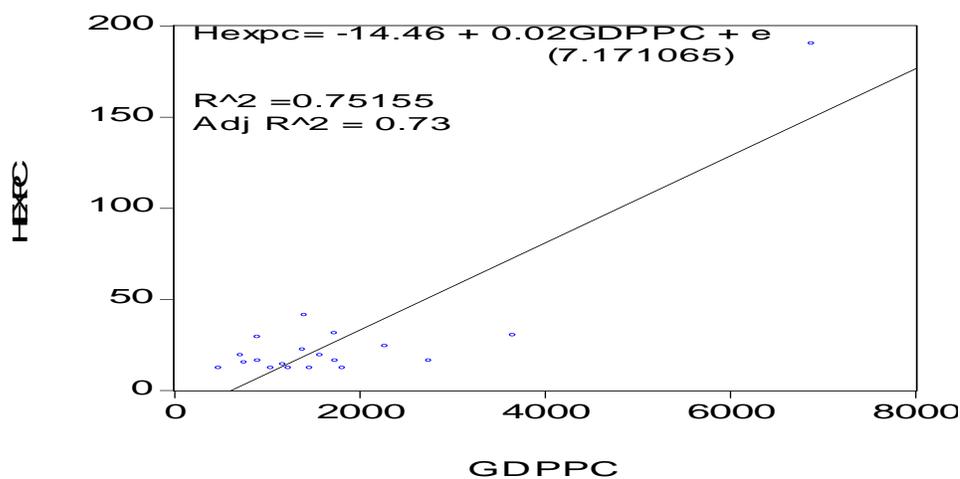

Source: WDI 2004

Figure 1b. Trends in real GDP and consumption per capita in selected developing Asian countries, 1960-2002
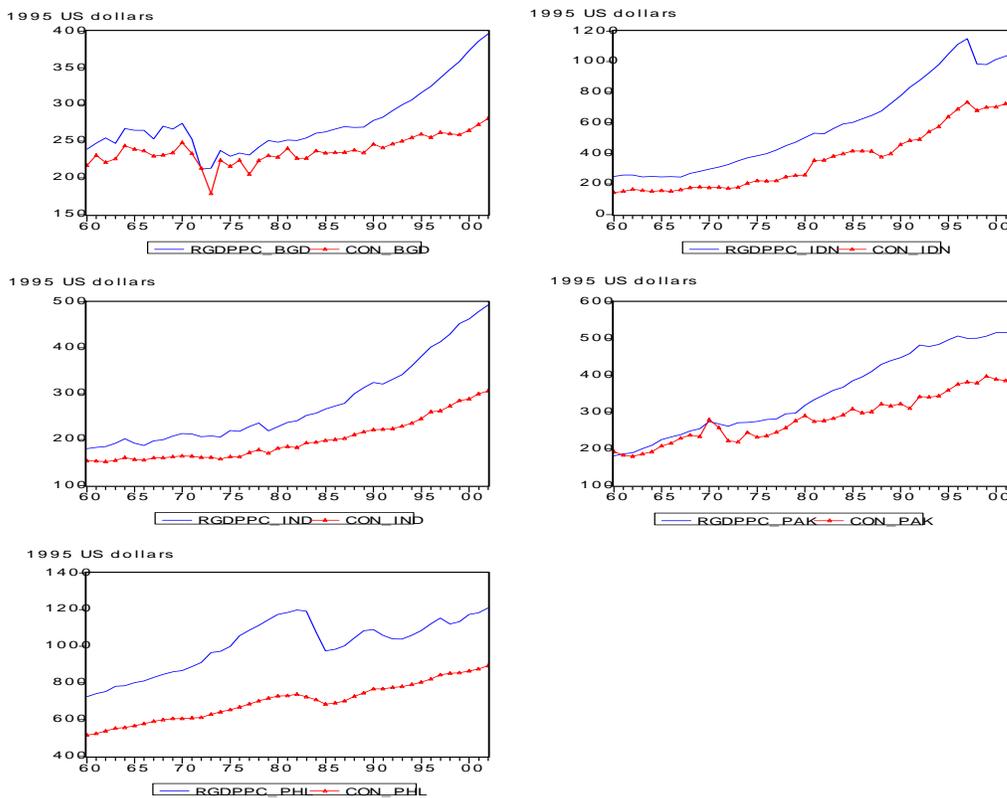
Source: WDI 2004

There is also a positive relationship between per capita expenditure on health. The per capita health expenditures for developing countries shown in Figure 2 cluster around the bottom part of the regression line showing that the level of expenditure on health is low but correlates with real GDP. There are other determinants of well-being but the two examples shown here emphasize the importance of positive economic performance for sustaining well-being.

Figure 2. Per capita health expenditure as percentage of per capita GDP, selected developing countries, 2001
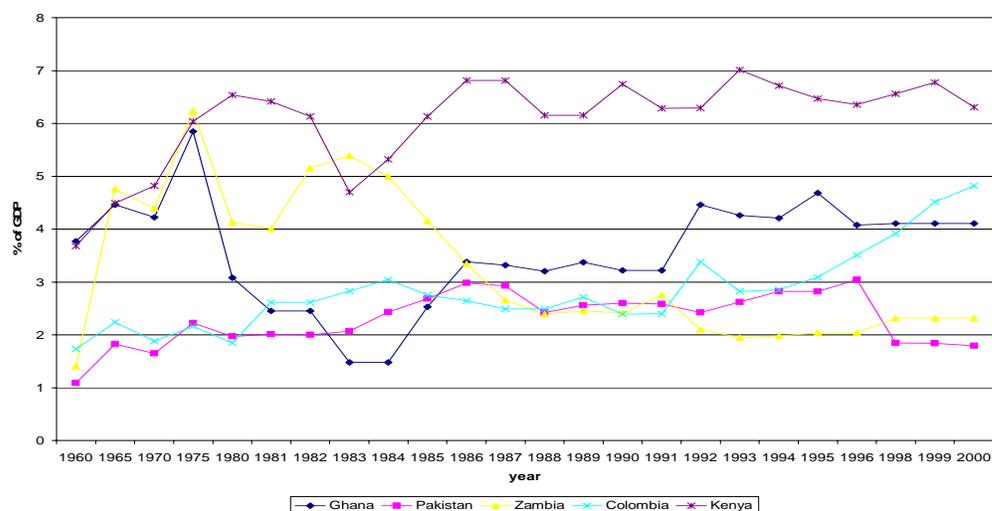

Source: WDI 2004.

Assessing the effect of macroeconomic policy on the poor by looking only at aggregate measures of public expenditure may be misleading. Empirical evidence suggests that social expenditure including expenditure on education and health disproportionately benefits the upper-income households (Castro-Leal, Dayton, Demery and Mehra 1999). There can be trickle down effects, however, but targeting of the poor through pro-poor policies is often a superior approach.

Expenditure on education fell in Ghana, Kenya and Zambia during the crises periods of the early 1980s (Figure 3). Kenya's expenditure recovered to pre-crisis level (about 6.5% of GDP) few years later improved (reaching 7% of GDP between 1993 and 1994) and continues on an increasing trend. Education expenditure in Ghana also recovered from a low of about 2.5% of GDP (in 1983 and 1984 when Ghana launched its economic reforms) but never reached the pre-crisis level. Educational spending in Zambia also showed early signs of recovery but took a dive again and remained stable around 2% of GDP since 1992 compared

with over 6% of GDP around 1975. Educational spending in Pakistan and Colombia showed a steady growth trend on average but Colombia started to show the effects of macro shocks over South America during the late 1990s. The pattern of educational spending in the selected countries closely followed general pattern in their respective geographical areas.

Figure 3. Long-term trend of public expenditure on education for selected developing countries, 1960-2000

Source: WDI 2004

Expenditure during reforms in some adjustment programmes has entailed a redirection of health and education expenditures towards basic/preventive health care and primary education. The focus on primary education for example is an improvement in the targeting of social safety nets where generalised transfers to households are targeted to benefit the poor. Primary education is assumed to benefit the poor because many households will be able to enrol at least for primary education. These programmes have to be sustained for a long period and they have to be tailored into a more advanced programmes (including secondary and tertiary education opportunities for the poor) if they are to be of value to the poor.

Macroeconomic reforms and health

Improvements in living standards as well as improvement in macroeconomic performance are desirable outcome from most macroeconomic reforms. The reform process however can be saddled with difficulties which may affect the end results. Bringing government budget into balance comes with painful consequences for the poor especially if government has to cut

expenditure on items which they use. Our examination of some of the most sensitive welfare indicators for the countries analysed showed a mixed results. See Table 1. Infant mortality declined between 1980 and 2000 in all the selected countries except in Zambia where infant mortality increased form 90 per 1000 live births in 1980 to102 per 1000 live births in 2000.

Table 1. Infant mortality rate, life expectancy and gross primary school enrolment for selected developing countries

Country	Mortality rate, infant (per 1,000 live births)		Life expectancy at birth, total (years)		School enrolment, primary (% gross)	
	1980	2000	1980	2000	1980	2000
Ghana	96	62	53	57	79	75
Kenya	73	77	55	47	115	95
Uganda	107	85	48	42	49	71
Zambia	90	102	50	38	90	99
Bangladesh	129	54	49	61	61	72
Indonesia	79	35	55	66	107	115
Philippines	55	30	61	69	112	111

Source: WDI 2004

Life expectancy deteriorated in three of the four African countries and gross primary school enrolment also worsened in three of the four African countries. Bangladesh, Indonesia and the Philippines all showed consistent improvement (Table 1). The patterns showed by the African countries resemble the situation in many other African countries. The emergence of HIV/AIDS, the development of drug resistant parasites to common diseases like malaria, and frequent natural disasters such as drought aggravate crisis situations in many poor African countries. Other factors (economic and non-economic) including poor governance, corruption and inefficiency in targeting the poor can contribute to the worsening human tragedies in some African countries. The poor social and health situations however, merit a strong advocacy for protecting the poor during reforms.

Macroeconomic reforms and poverty
Global elimination of poverty is a major theme on the Millennium agenda but it is in the richer countries that an immediate elimination seemed possible. Poverty is multi-dimensional in concept. Different indicators are used to describe the level of poverty. Poverty in the

developed countries can be defined basically in terms of income (that is income poverty). In the developing countries poverty has several other dimensions in addition to income. Other common dimensions of poverty include lack of access to basic human needs such as health care, education, sanitation, housing and safe drinking water (that basic needs poverty). There are also different measures of poverty but the common metric is income. The main indicators used in the literature are based on the proportion of people earning less than a given absolute income per period. Relative poverty is defined as the share of the world population living on less than $1 a day and extreme poverty is defined as the share of people living on less than $2 day. Another common measure of poverty is the headcount index. The head count index is defined as the proportion of people living below the national poverty line (or designated income level). Poverty however, does not only mean insufficient income but also lack of access to adequate health services and high levels of illiteracy and deprivation of basic rights and security (World Bank 2000, Agenor 2004). These conditions referred to as human deprivation indicators are sometimes used at the micro level to collect information on poverty because macro level data is hardly available for most developing countries. Table 2 showed that poverty levels are more likely to increase after major crisis.

Table 2. Poverty (head count ratio) and macroeconomic crisis in selected Latin American countries

Country	Poverty index (year)						% change in poverty before and after crisis
	Before crisis		Crisis		After crisis		
Argentina (Greater Buenos Aires)	10.1	(1980)	20.6	(1985)	25.2	(1987)	149.5
Argentina (Greater Buenos Aires)	25.2	(1987)	34.6	(1989)	35.0	(1990)	38.9
Argentina (Greater Buenos Aires)	16.9	(1993)	24.8	(1995)	26.3	(1997)	55.6
Mexico	28.5	(19840		(1986)	32.6	(1989)	14.4
Based on households							
Chile (Metropolitan areas)	40.3	(1980)		(1982)	48.6	(1987)	20.6
Guatemala	65.0	(1980)		(1982)	68.0	(1986)	4.6
Mexico	36.0	(1994)		(1995)	43.0	(1996)	19.4
Peru	46.0	(1979)		(1983)	52.0	(1986)	13.0
Uruguay	11.0	(1981)		(1982)	15.0	(1986)	36.4
Venezuela	25.7	(1982)	32.7	(1983)	34.8	(1985)	35.4
Venezuela	40.0	(1988)	44.4	(1989)	41.5	(1990)	3.8
Venezuela	41.4	(1993)	53.6	(1994)	48.2	(1996)	16.4
Based on consumption							
Costa Rica	29.6	(1981)	32.3	(1982)	29.7	(1983)	0.3
Dominican Republic	37.3	(1984)		(1985)	38.2	(1986)	2.4
Dominican Republic	35.7	(1989)		(1990)	39.5	(1992)	10.6
Panama	40.6	(1980)		(1983)	44.0	(1986)	8.4
Panama	44.0	(1986)		(1988)	50.0	(1989)	13.6
Peru (Urban)	32.2	(1985)		(1988)	50.0	(1991)	55.3

Source: Poverty indexes extracted from Lustig (1999)
 Percentage changes calculated by Authors

Costa Rica had the lowest level of percentage change in poverty (0.3%) and Argentina (Greater Buenos Aires) had the highest percentage change (149.5%) in its poverty level during its 1985 crisis. The percentage in poverty levels exceeded 20% in seven of the 18 episodes but the countries or (country areas) that had large increases had lower levels of poverty before the crisis hit. Countries like Guatemala already had high levels of poverty (head count per 1000 population). It appears people are able to cope better in Guatemala (based on the calculated percentage changes) because poverty is wide spread and many households might have developed some knowledge about coping mechanisms from experience.

Poverty levels in selected African and South Asian countries are shown in Table 3. Over 20 percent of the population in the selected African countries live in extreme poverty (living on less than $1 a day) between 1990 and 2003 (Table 3).

Table 3. Poverty (% of population) and average GDP growth rates for selected African and Asian countries

Country	Population below income poverty line (%)			Average GDP growth (% annual) (1990-2002)
	$1 a day (1990-2003)	$2 a day (1990-2003)	National poverty line (1990-2002)	
Sub-Sahara Africa				
Ghana	44.8	78.5	39.5	4.2
Madagascar	61	85.1	71.3	1.1
Kenya	22.8	58.3	42	1.8
Gambia	59.3	82.9	64	3.1
Senegal	26.3	67.8	33.4	3.4
Rwanda	51.7	83.7	51.2	3.3
Malawi	41.7	76.1	65.3	3.1
Zambia	63.7	87.4	72.9	1.2
Mozambique	37.9	78.4	69.4	6.1
Ethiopia	26.3	80.7	44.2	3.7
Mali	72.3	90.6	63.8	3.9
Burkina Faso	44.9	81	45.3	3.7
Sierra Leone	57	74.5	68	-2.1
Niger	61.4	85.3	63	2.1
Developing Asia				
Philippines	14.6	46.4	36.8	3.2
Indonesia	7.5	52.4	27.1	4.6
India	34.7	79.9	28.6	5.4
Pakistan	13.4	65.6	32.6	3.8
Nepal	37.7	82.5	42	4.6
Bangladesh	36	82.8	49.8	4.9

Source WDI 2004 (Poverty index from Millennium Development Goals)

Relative poverty (living on less than $2 a day) is 80% or higher in 11 (Bangladesh, Burkina Faso, Ethiopia Gambia, India, Madagascar, Mali, Nepal, Niger, Rwanda and Zambia) out of the 20 countries shown. Most of the economies (except Sierra Leone) achieved modest growth in their GDP with some registering average GDP growth rates above 3 per cent.

Table 4 showed that countries in the three geographical regions (sub-Sahara Africa, Asia and Latin America and the Caribbean) are making progress towards a millennium development goal to halve, between 1990 and 2015, the proportion of people who suffer from hunger. Inadequate access to basic needs such as food, clean water and shelter are part of the dimensions that define poverty in developing countries. As shown in Table 4 many countries have to increase their effort (or better still need assistance) to achieve the millennium development goal.

Table 4. Tracking progress toward a Millennium Development Goal to halve, between 1990 and 2015, the proportion of people who suffer from hunger

Region and progress (1996-2005)	Number of Countries
SSA	
on track	8
insufficient data	10
making progress, but insufficient	18
no change or getting better	15
ASIA	
on track	
insufficient data	9
making progress, but insufficient	
no change or getting better	4
LAC	
on track	14
insufficient data	
making progress, but insufficient	3
no change or getting better	1

UNICEF: 2004

Figure 4 shows improvement in poverty levels between 1998 and 2000. There is a general improvement in the general poverty levels over the period shown. The percentage change in poverty levels in sub-Sahara Africa for example has been negative. The available aggregate national data is poor however, on the situation about rural and urban poverty. Studies by other researchers suggest that poverty is mostly a rural issue in sub-Sahara Africa. National poverty rates are highly concentrated in rural areas. Sahn, Dorosh, and Younger (1998 *cited in Agenor 2004*) found that the share of national rural poverty in the late 1980s and early 1990s were 66 % in Gambia, 71% in Zambia, 72 % in Ghana, 78% in Cote d'Ivoire, 88 % in Madagascar, 90 % in Kenya and Tanzania and 98 % in Malawi. In some countries rapid rural-urban migration sometimes affect the dynamics of the poverty distribution.

In Ghana for example, rapid rural-urban migration saw rural poverty rate decline sharply in 1992 to 34% while urban poverty increased to 26.5% with little success in reducing urban poverty (Agenor 2004). The distribution of poor households between rural and urban areas has important implications for studies aimed at assessing the effects of short-term macroeconomic policies on poverty and health.

Figure 4. Progress in absolute poverty levels in developing countries, 1998-2001
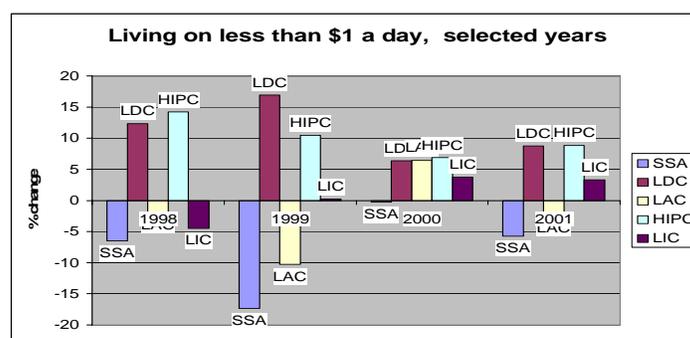
Modelling the quantitative effects of macro shocks on poverty

We also examined quantitatively the relative effects of changes in key macroeconomic variables on poverty for selected developing countries between 1980 and 2000. Taking into account the availability of data, the nature of developing economies as well as the suggested channels through which macroeconomic policies can affect the poor we investigate the effect of selected macroeconomic variables on poverty and health. The analysis is based on selected

13

sub-Sahara African (SSA) countries and Latin American and Caribbean (LAC) countries. The selection of countries is determined by the availability of data. The macroeconomic variables used in the analysis include exchange rate changes, trade openness, inflation, energy (petrol or gasoline) prices at the pump, external debt service obligations and the availability as well as receipt of pubic and overseas transfers and subsidies. The number of physicians and indicators like primary, secondary and tertiary school enrolments are used as proxies for other structural variable through which reform policies affects welfare.

Macro data from the 2004 World Development Indicators are used. We adopt a cross section time-series OLS regression framework similar to the one used by Agenor (2004). We are aware of the limitations associated with cross-section analysis involving poverty and macroeconomic shocks. But the cross-section model allows us to work with one of the major problems facing econometric modelling and estimation (based on macroeconomic data) in developing countries; the availability and reliability of data. Unlike Agenor (2004) we explore the differences between the impact of reforms on the poor in two geographical areas; SSA and LAC as well as a combined SSA-LAC sample..

The dependent variable is the logarithm of the head count index for poverty rate (LPOV). It measures the proportion of a country's population below a nationally specified poverty line. The explanatory variables include;

- the annual rate of change in the official exchange rate (LXRAT). An increase in the exchange rate is depreciation. The relationship between real exchange rate depreciation and poverty is ambiguous. Depreciation can lead to an improvement (reduction) in poverty if it benefits small farmers in the tradable sector. It can also increase poverty if cheaper capital imports cause businesses to reduce their demand for unskilled labour or the type of labour supplied by the poor.

- the log of inflation rate in consumer prices (LCPI). Inflation is expected to have a positive effect on poverty.

- the log of gross capital formation as a measure of gross domestic investment (LKI). An increase in investment may improve poverty if it generates employment and increases aggregate demand. It is expected to have a negative sign.

- Number of physicians per 1000 population (PHYS). It is defined to cover graduates of any facility or school of medicine who are working in the country in any medical field

(practice, teaching, research). Improvement in the supply of health services or health indicators should reduce poverty. The expected sign is therefore negative.

- pump prices (in US $) of the most widely sold grade of diesel fuel (DESL). Higher fuel prices can exert inflationary pressure in non-oil producing developing countries. If fuel prices lead to and sustain a second round increase in general price level (for example through increase in transport costs) then it may lead to increases in poverty. It is also a source of revenue for governments which can be used to support public expenditure such as subsidies and transfer. If the transfers are well targeted there may be no increase in poverty. The a priori sign is therefore ambiguous.

- debt servicing (the repayment of principal and interest) to the World Bank, regional development banks, and other multilateral agencies (DEBTS). Debt obligations are expected to have negative effect on poverty.

- the log of subsidies and transfer (LTRSF). Subsidies and transfers include all unrequited, non-repayable transfers on current account to private and public enterprises as a ratio of GDP. Subsidies and transfers may have negative effect on poverty if cuts are ad-hoc or done across the board. There may be no significant effect if targeting is effective. The a priori expected sign is therefore ambiguous.

- net official development assistance to promote economic development and welfare (LAIGOF). Increased foreign aid may increase the availability of resources which may enable the government to undertake expenditure. If the expenditure programmes benefit the poor then it may reduce poverty. The relationship between development assistance and poverty is expected to be negative.

- the log of net exports (LNEXP). It is calculated by taking log of the ratio of the sum of exports to the sum of imports. The degree of trade liberalization has an ambiguous effect on poverty. It has a negative relationship with poverty if benefits the poor.

- the log of gini coefficient (LGINI) as a measure of inequality. It is expected to a negative effect on poverty.

- annual growth rate of real per capita GDP based on purchasing power parity (PPP) (PCAPGR) as a measure of cyclical movement in output. It is expected to be negatively correlated with poverty.

- the log of value added in wholesale and retail trade (LSRV) as percentage of GDP (value added in agriculture and industries were also investigated but dropped because they showed no distinct effect on poverty.

- .domestic credit to private sector (LPRVT).

Estimated results

Table 5 summarises some of the empirical results. The results indicate that gross capital formation, transfers and subsidies and the number of physician per 1000 population have statistically strong (at 1% level of confidence) and negative effect on poverty reduction in SSA but not in LAC countries. The results for the SSA countries are consistent with the view that improvements in investment, health services (number of physicians used as proxy) and improvement in the availability and efficient distribution of transfers can reduce the intensity of the head count index (HCI) of poverty in SSA. Capital formation or investment is also highly significant (at the 1%) in the combined models emphasising the influence of this factor in sub-Sahara Africa. A change in the real exchange rate is also statistically significant in the three SSA models and in the second LAC model (LAC2). The signs and hence the direction of impact of changes in real exchange on poverty is therefore different for countries in the two regions. The result for LAC and the combined sample (SSA merged with LAC) showed that changes in real exchange rate has negative relationship with the intensity of HCI poverty but positive relationship with HCI in SSA. Discretionary changes in real exchange rates through devaluations are often employed to correct fiscal imbalance in reforming countries. Theory suggests that real devaluations can benefit the rural poor if they are net producers of tradables. The mixed effect of the real exchange rate variable may be due to the composition of the poor who are involved in the tradable sector in both SSA and in LAC countries. The degree of openness measured by net exports has the expected negative signs but is only statistically significant in the combined models. Inequality (measured by gini coefficient) has the expected positive relationship with poverty but it is significant (at the 5% level of confidence) only in the LAC2 model.

There is a negative and statistically insignificant relationship (at the 10% level of confidence) between changes in real energy price of petrol and poverty for the SSA models but not for LAC models (not included). The direction of impact can be explained by assuming that most of the poor in SSA do not have vehicles or motorised gadgets so they are not hit directly by increases in fuel price. The poor may however, benefit from fuel taxes that are collect by governments through transfer and subsidies.

Table 5. OLS estimates of macro determinants of poverty, selected developing countries: 1984-2001

	SSA 1	SSA 2	SSA 3	LAC 1	LAC 2	SSA-LAC	SSA-LAC
Variable	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
C	6.504565***	6.586711***	5.569520***	3.948570***	5.663995	4.869870***	4.101969***
	(6.198016)	(6.102142)	(6.678769)	(3.148926)	(1.460174)	(8.625015)	(3.008365)
LXRAT	0.035564**	0.034812**	0.034090**	-0.033564	-0.132495**	-0.001681	-0.001689
	(2.490739)	(2.382087)	(2.381044)	(-0.696007)	(-2.365984)	(-0.071590)	(-0.067612)
LCPI	0.059081	0.067543	0.058938	0.142896*	0.266095	0.080704*	0.083143*
	(1.333466)	(1.420651)	(1.368470)	(1.898981)	(2.779444)	(1.847431)	(1.714448)
LKI	-0.461982***	-0.476975***	-0.488133***	-0.405887	-1.688108	-0.489963***	-0.508538***
	(-4.151548)	(-4.096179)	(-4.214212)	(-0.851849)	(-2.494167)	(-2.701981)	(-2.630557)
PHYS	-2.545990***	-2.476012***	-2.464973**			-0.067795	-0.086784
	(-2.786783)	(-2.635986)	(-2.734328)			(-0.528821)	(-0.624044)
DESL	-0.313205*	-0.330057*	-0.332162*	1.281806			
	(-1.712451)	(-1.748508)	(-1.762848)	(0.702998)			
DEBTS	-0.004767	-0.005432	-0.005367				
	(-0.410594)	(-0.456804)	(-0.455408)				
LTRSF	-0.318114***	-0.324798***	-0.322934***			-0.042358	-0.030980
	(-4.074823)	(-4.037926)	(-4.026656)			(-0.410050)	(-0.290345)
LAIDOF	-0.029456	-0.033085					
	(-0.500198)	(-0.548106)					
LNEXP		-0.053316	-0.059159			-0.337998**	-0.368655**
		(-0.569501)	(-0.625064)			(-1.953244)	(-2.014923)
LGINI			0.112552		2.844423**		0.202342
			(0.618308)		(2.094122)		(0.642895)
PCAPGR					0.06069		0.001101
					(1.703961)		(0.080201)
LPRVT					0.312887		
					(1.545849)		
LSRV					-2.510379**		
					(-2.869669)		
R-squared	0.770331	0.774630	0.775692	0.229893	0.521528	0.364795	0.371590
Adjusted R-squared	0.668255	0.655317	0.656941	0.048691	0.282292	0.274051	0.245908
DW	2.203146		2.181449	2.350916	1.937907	2.090981	2.097697
N	27			22		49	

The results also indicate that debt obligations, growth rate of real per capita GDP and net official development assistance do not have a statistically significant impact on poverty. Debt servicing obligations and net official development assistance has the correct expected signs but their impact is statistically insignificant. The fact that debt servicing obligations and net official development assistance has no significant effect on poverty may result from the fact

receipts from development assistance and debt repayments almost neutralise each. They may therefore have little or no discernible effect on poverty and health. The indicators for economic growth real per capita GDP and the annual growth rate of real per capita GDP based on purchasing power parity were not statistically significant. They also had the wrong sign. Both variables were dropped in the estimations except for the Latin American and Caribbean second equation (LAC 2). All the fixed effects (except for LAC2 model) are statistically significant (at the 1% level of confidence). This suggests that country-specific effects are important in determining the behaviour of poverty rates.

4. Conclusion

Over the 1980s and 1990s many developing countries experience persistent economic decays and external account imbalances. Many of those countries implemented a World Bank and the International Monetary Fund (IMF) led stabilisation and structural adjustment programmes to halt their individual economic crisis and to foster growth. The stabilisation programme involved a combination of monetary and fiscal restraints as well as other policies such as exchange rate devaluation (alignment) to reduce the magnitude of the external account imbalances. The measures are contractionary or demand reducing. Adjustment programmes are normally broad and can affect the health sector as well as other institutional structures responsible for the delivery of services in the health sector directly or indirectly. It is therefore appropriate to address the issue of the effect of structural adjustment on health and poverty.

It is likely that the most important effect of macroeconomic policies on health will be indirect, through the ability of households to demand health care, as mediated through changes in aggregate consumption, income distribution, price level, and so on. Nevertheless health and in particular the health of the poor can be adversely affected. The introduction of user fees in health can lower health outcomes and/or erode previous achievements in health. Market failure and the public goods nature of certain health services present the compelling argument for the state to be prominently involved in protecting and providing health care and other human resources. Cutting spending and/or increasing private health expenditure across the board can be dangerous. Some countries have increased the size of government spending in education and in health but the increased spending did not result in uniform improvement in health indicators. This suggests that targeting is necessary because different people experience different effects from reform policies.

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