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Impact of the global financial and economic situation on agricultural markets and food security

Steve Wiggins, Sharada Keats and Marcella Vigneri

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Contents

Executive summary v

1. Prices of food and agricultural commodities on international markets 1
   1.1 Recent trends: surprisingly large falls since mid 2008 1
   1.2 Prospects for agricultural prices in 2009 and 2010 3
   1.3 Longer-term prospects 4

2. Effects of financial difficulties and economic downturn on poverty and food security in developing countries 6
   2.1 From OECD recession to developing country economies 6
   2.2 From changing international prices and economic performance to food security 9

3. Some insights from history 12

4. Conclusions 14

References 15
Appendix A: Country cases of economic recession 16

Figures, tables and boxes

Figure 1.1: Commodity Price Indices, deflated, since January 2000 1
Figure 1.2: Cereals Prices, deflated, since January 2000 2
Figure A1.1: Indonesia, GDP per capita (1980-2003), constant 2000 national currency 16
Figure A1.2: Indonesian trends in poverty and inequality 18
Figure A1.3 Distribution of poverty types and their associated mean consumption levels 18
Figure A1.4: Per capita kg of rice imported by Indonesia 21
Figure A2.1: Mexico Gross Domestic Product per capita, 1975 to 2003 23
Figure A2.2: Mexico inflation, 1976 to 2003 24
Figure A2.3: Mexico, Poverty from 1992 to 2002 25
Figure A3.1: Zambia, Gross Domestic Product, 1960 to 2003 27
Figure A3.2: Zambia, Inflation from 1960 to 2003 28

Table 1.1: Forecast of commodity prices 4
Table 2.1: Forecasts of growth in the developing world for 2009, by region 7
Table 2.2: Low and middle income countries contrasted 7
Table 2.3: A typology of developing countries by susceptibility to OECD economic downturn 8
Table 2.4: From changing international prices and global economic recession to food security and nutrition in developing countries 10
Table 2.5: Changes in real incomes of vulnerable households from changes in food prices 11
Table 3.1: Summary of experiences of economic recessions in Indonesia, Mexico and Zambia 12
Table A1.1: Trend in prevalence of underweight infants in Indonesia, 1989–2003 20
Table A2.1: Mexico, nutrition 1979 to 1999 26
Table A3.1: Zambia. Poverty, inequality, and other social indicators 1991 to 1998 30
Table A3.2: Zambia nutrition data 1991 to 2001–02 30

Box A: Microeconomic impacts of the Asian Financial Crisis on Indonesia 19

Executive summary

Agricultural prices have fallen heavily since their peaks in the first half of 2008: some are already at the levels seen in early 2007 before the recent spike began. Thanks in part to economic downturn, prices are expected to continue falling in 2009. Prices of inputs such as fertiliser and oil, and ocean freight rates, have also come down; and by even larger fractions than those of outputs.

Increasingly it seems that the price spike was an extraordinary event caused by an unusual combination of mainly short-term factors, including harvest failures, higher oil prices and the associated acceleration of US ethanol production exacerbated by excessive reactions to rising prices by limiting exports and restocking in tight markets. The spike, however, was superimposed on a medium term trend of rising real prices caused partly by the falling value of the US dollar, rising aggregate demand and monetary expansion, and the slow-down in the growth of cereals outputs since the mid-1980s in which production has fallen behind population growth.

The economic downturn and outright recession in OECD countries can be expected to depress growth in the developing world, through reduced financial flows — investment in stock markets, banking capital, foreign direct investment and remittances, and through lower demand in markets pushing down commodity prices and reducing tourism receipts. Some countries will see their currencies depreciate as their current accounts weaken. While this will raise the threat of inflation, it will also stimulate exports and depress demand for imports and so help correct trade imbalances.
Overall, the impacts will be almost certainly be deflationary. World Bank forecasts see reduced growth across all regions of the developing world, although growth will still be positive and recessions are not expected.

Wider variations in impacts can be expected from country to country, depending on economic structure, integration into global financial markets, and the strength of the economy as seen in foreign exchange reserves, fiscal deficits, and external debt. Marked differences between middle and low income countries are likely, with further differentiation depending on the trade balance in oil and foods.

Food security and nutrition depend on the incomes of the poor and local price levels of foods, as well as general health conditions. So many intermediate variables intervene that making ex ante predictions risks too much guessing. Hence here the experiences of Indonesia, Mexico and Zambia when facing economic recessions in the 1990s have been reviewed.

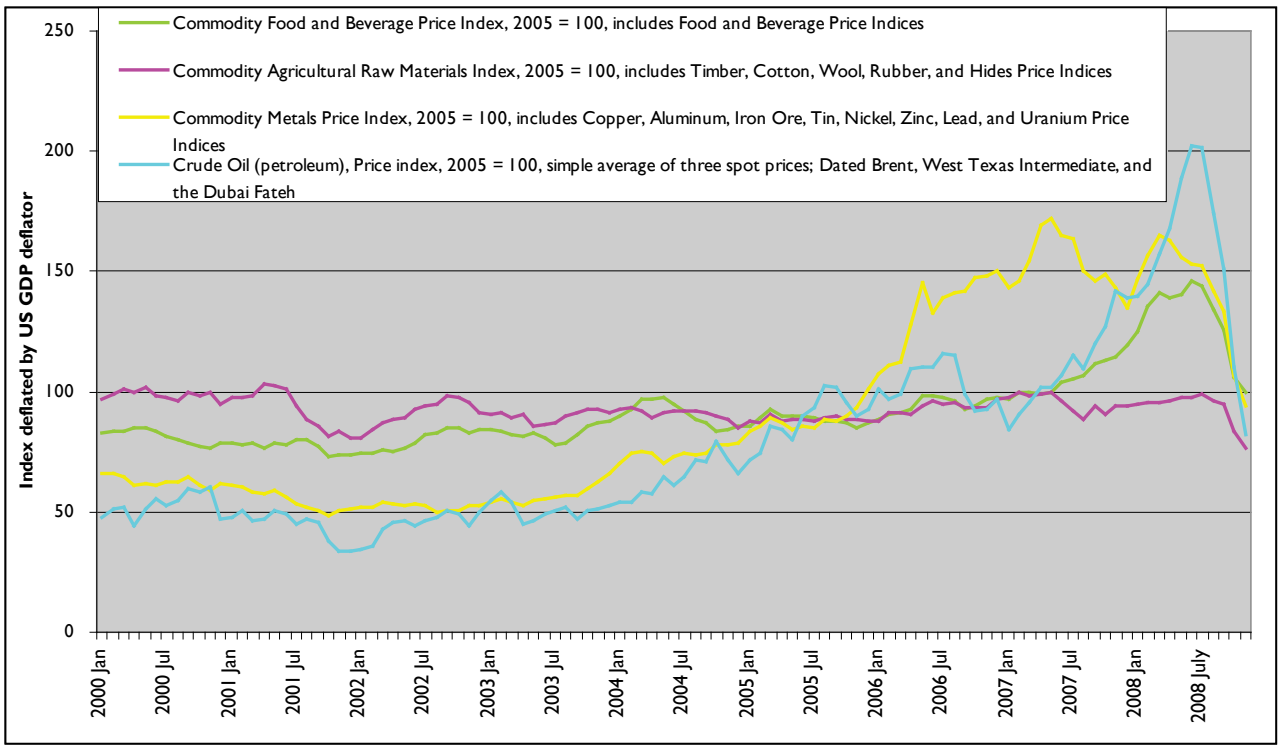
This shows the expected correlation between economic recession and rising rates of poverty. But there are some signs in these cases that the poor found ways to buffer themselves a little against hard times. Less obviously, the nutrition data for young children does not show any clear sign of deterioration in these economic crises, suggesting that while poverty and hardship may have intensified, long-term damage to the prospects of infants did not take place — or at least not on a scale large enough to show up in national surveys.

1. Prices of food and agricultural commodities on international markets

1.1 Recent trends: surprisingly large falls since mid 2008

Prices of all commodities have fallen rapidly in the second half of 2008, see Figures 1.1 and 1.2. The sharpest falls have been in oil and minerals, the commodities which saw the largest rises in the price spike of early 2008. Agricultural prices have also fallen strongly, both of foods and of raw materials.

Figure 1.1: Commodity Price Indices, deflated, since January 2000



Source: IMF Commodity Price data. US Deflator from Bureau of Economic Analysis.

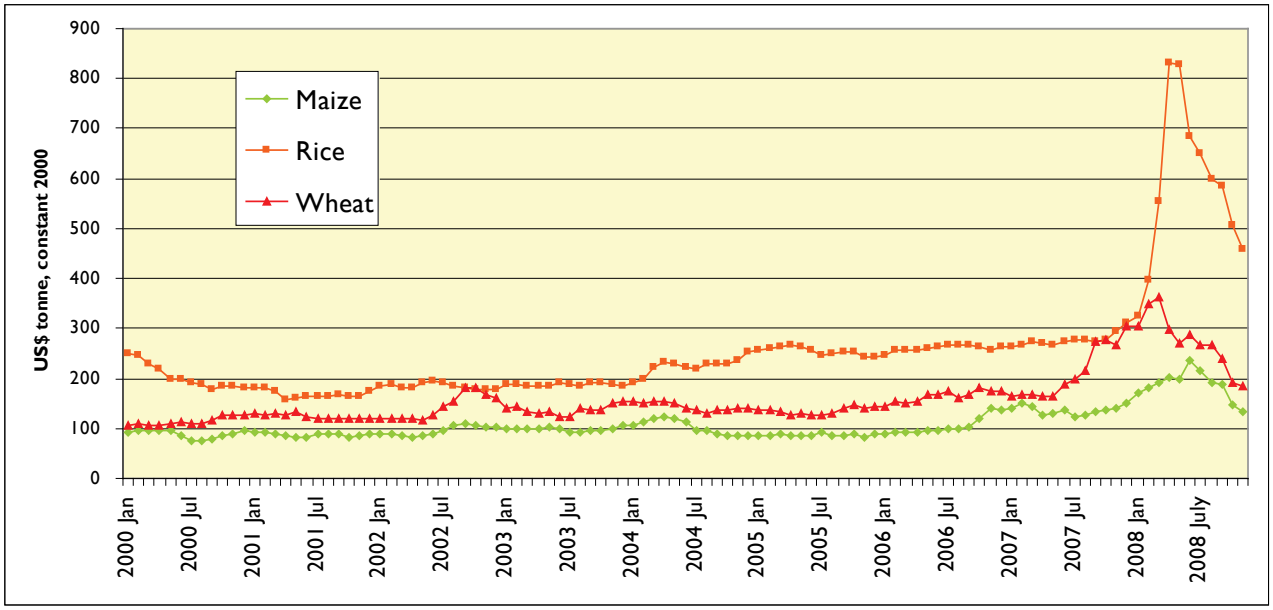
It is not just commodity prices that are falling: equally if not more dramatic are the plummeting prices of fertiliser and ocean freight rates. Urea prices that as recently as August 2008 were quoted at US$785/800 a tonne FOB Black Sea, were quoted in January 2009 this month quoted at US$215/230 a tonne. The Baltic Dry Index of ocean freight rates is at the lowest level seen in at least five years — from over 11,000 in May 2008, the index is this month below 1,000.

As the monthly data become available the nature of the spike becomes clearer. For oil, minerals and agricultural food commodities — that is everything plotted on Figure 1.1 other than agricultural raw materials — prices began to rise from around 2002. Price rises over the next three years were significant, but generally not more than 50% over this period.

From 2005 onwards, however, most commodities then saw accelerating prices. The spurt started earliest for minerals where strong price rises were seen from mid-2005, followed by oil prices from early 2007, and lastly food prices where the index did not take off until mid 2007. Prices of all these commodities then peaked quite sharply: minerals in mid 2007, oil and foods in the first half of 2008. From mid 2008 onwards all of these prices turned very sharply downwards; so that in several cases by

the end of 2008 prices in real terms were at or below their levels before the spike, but not below those seen in the early 2000s.[1]

Figure 1.2: Cereals Prices, deflated, since January 2000



Source: IMF Commodity Price data. US Deflator from Bureau of Economic Analysis.

The speed and extent of price falls in the second half of 2008 can only be described as surprisingly strong: most observers might have expected some kind of correction, but few would have imagined quite so much so quickly.

How may the spike in food prices be interpreted in the light of the patterns emerging? It seems the price spike was superimposed on a sustained rise in the real prices of these commodities that began in the early 2000s. The spike looks as though it will disappear as quickly as it appeared, but that may well leave the original trend.

So explanation of price movements divides in two: explaining the trend sustained since the early 2000s; and accounting for the spike of 2007/08. The medium-term trend can be seen as a result of three factors:

- The falling value of the US dollar against most other major trading currencies — for example between 2002 and March 2008, the dollar fell by 43% against the IMF Nominal Effective Exchanges Rates (NEER) index. Commodity prices usually rise when the dollar slips against other major currencies (see Abbott et al. 2008);
- Rising aggregate demand within the international economy from strong economic growth in both the developing and OECD countries. Associated with this has been an expansion of the money supply. (Gilbert 2008); and,
- A slow-down in the growth of cereals production that started in the mid-1980s and decelerated in the 1990s so that during the last twenty years cereals output has fallen behind population growth. From a peak in the early 1980s the ratio of stocks to use has fallen from more than 30% to around 15%, with much of the decline since 2000, so that international cereals markets have been left vulnerable to relatively minor variations in supply and demand. (Abbott et al. 2008, Trostle 2008)

[1] Prices of agricultural raw materials never spiked, but nevertheless have fallen in the last six months, to reach levels lower than at the beginning of the new century — and indeed lower than anything seen since 1980 in real terms.

In contrast, the short-term shock of the price spike can be seen as the result of an unusual conjuncture of events, including harvest failures, rising costs of production from higher oil prices, and the sudden acceleration in the production of ethanol from maize in the US, largely the result of higher oil prices making ethanol distilleries an attractive investment. To this last might be added investment funds moving into commodity futures markets; if, that is, the futures prices had an effect on the current prices.[2]

On top of this, once cereals prices began to increase rapidly and strongly, some governments over-reacted by restricting export of grain or by restocking in what was already a tight and rising market. The importance of these reactions is underlined by the case of rice, where the price spike was most strong. Yet this was the one cereal where the price should not have spiked. There were no major harvest failures. Rice is too expensive to be used as a biofuel feedstock; and there are few if any interactions between the demand for land to plant cereals for biofuels and the rice area. Futures markets for rice are small and little developed. The only things that can explain the surprising spike in rice prices was the heavy impact of export bans and restocking — on a world market where traded volumes represent a small fraction of rice production and consumption.[3]

The factors leading to the spike can be seen as largely temporary phenomena that had an extraordinary impact partly since they acted in combination — WFP Director Josette Sheeran's 'perfect storm'; partly because once prices rose at a certain rate, some actors panicked; and partly since there were insufficient stocks — or inadequate policies to manage them,[4] so that the system had little resilience. Almost all the adjustment thus came in the form of much higher prices.

1.2 Prospects for agricultural prices in 2009 and 2010

The following factors are likely to affect international agricultural prices over the next year or so:

- Supply will likely fall back. Farmers can be expected to take fright at price falls and plant less and apply fewer inputs in 2009 than last year. In OECD countries farmers may also find credit more difficult to obtain. On the other hand, there may be some lags in the system as some investments made in 2007 and 2008 — for example, additional land brought under the plough, irrigation works, residual effects of heavy fertilisation — that will continue to increase output beyond the immediate harvest;
- Cheaper fertiliser and lower oil prices will reduce costs of production while lower ocean freight rates will bring down CIF costs to buyers and importers — in effect pushing the supply curve outwards and countering the above effect;
- Falling oil prices should dampen enthusiasm for biofuels, above all in the US, where it seems the major increases in production of ethanol from maize have been strongly influenced by oil prices — and much less by mandates. Will some of the ethanol distilleries cease production, or will they treat their capital costs as sunk and be prepared to operate when covering only their marginal costs? Will the US increase subsidies on ethanol to keep production increasing on course to meet the mandates? Or might the latter be met either by a more liberal regime for Brazilian ethanol imports, or by ethanol imports coming from the Caribbean Basin that do not face the stiff tariffs applied to Brazilian ethanol?

[2] It is not at all clear how they would since futures contracts rarely involve the exchange of physical quantities. But the high and rising futures markets may well have contributed to a general expectation of higher prices and may have made some traders and government over-react.

[3] In recent years the world rice harvest has been above 400M tonnes of milled rice. Of this, less than 6% is traded internationally.

[4] For example, Japan keeps rice stocks of more than 2M tonnes. An announcement to release stocks came only in May 2008 after rice prices had soared, is understood to have contributed to depressing prices (Timmer 2008). The amount in question, however, was relatively small: 300,000 tonnes, about 1% of annual world rice trade, and just 2% of yearly consumption in the Philippines to which it was destined. Moreover it seems the stock never left Japan, since the price asked was too high.

- The economic downturn should lead to less demand for agricultural commodities, although for some foods the effects will be minor given the low income elasticity of demand for staples. Stronger effects may apply to luxury foods such as meat and dairy — with less demand for feedgrains, including soy beans, and for vegetable oils. Demand for industrial inputs, such as cotton and rubber, presumably will fall quite strongly.

The balance of these factors suggests that agricultural prices may well continue to fall over the next year, unless there are disruptions to supply from bad weather in major producing areas.[5] Stocks of grains remain low historically, so it may not be easy to counter any setbacks in production.
None of this necessarily changes the medium-term forecasts made for prices in ten year's time that saw cereals prices as being 20% to 40% higher in real terms than those seen in the early 2000s. The forces that were expected to raise prices — a higher oil price and OECD countries pushing to fulfil their biofuel mandates — may well still apply.[6] Oil prices are the main uncertainty in these considerations.

In summary, it looks as though economic downturn is likely to help reduce international prices of agricultural commodities over the next year or more.

This is what the World Bank (2008) in *Global Economic Prospects 2009* expects — see Table 1.1. Agricultural prices are forecast to fall by another 21% in 2009, with foods down by 23% and grains by 28%. Some additional small falls may occur in 2010.

Table 1.1: Forecast of commodity prices

Percent Change	2000-05	2006	2007	2008	2009f	2010f
Energy	13.5	17.3	10.8	45.1	-25.0	0.9
Oil	13.6	20.4	10.6	42.3	-26.4	1.8
Natural Gas	10.4	33.9	1.0	57.2	-10.8	-4.2
Coal	12.7	3.1	33.9	97.8	-23.1	-10.0
Nonenergy	8.3	29.1	17.0	22.4	-23.4	-0.3
Agriculture	6.0	12.7	20.0	28.4	-20.9	-1.3
Foods	6.0	10.0	25.6	35.2	-23.4	-0.3
Grains	4.8	18.4	26.1	50.9	-27.7	2.6
Raw materials	5.0	22.7	9.0	13.0	-14.9	-2.7
Metals and minerals	12.3	56.9	12.0	5.0	-25.5	-5.5
Copper	15.2	82.7	5.9	-0.6	-32.2	-4.2

Notes: f = Forecast
Source: World Bank (2008: Table 1.4).

International price movements will translate to domestic prices with varying degrees. Most clearly, there will be greater transmission to countries that have ports and good transport, and where there are few tariffs, taxes or subsidies that affect food. In landlocked countries and remote areas, transmission will be much weaker.

1.3 Longer-term prospects

If the analysis holds that the price spike interrupted a medium-term trend, then presumably that trend will reassert itself as the spike is passed, subject to the modifications of the changed international economic climate and the causes of the medium term trend being unchanged.

[5] The news from Argentina is of a severe drought this season, the worst in one hundred years. This could have a considerable impact on the wheat and soybean markets, although for the moment it is not clear just how great the effect may be.
[6] IFPRI (von Braun 2008) also worry that agricultural investment may fall in line with reduced economic growth.

Of the three main reasons offered for the trend, two are likely to be substantially offset by economic downturn: the fall in the US dollar and the rapid expansion of aggregate demand. The third reason, the global slowdown in cereals production may persist. Two of the main factors behind the slowdown have been low international and domestic prices for staples seen over the previous ten years or more that have deterred farmers from producing more; and, under-investment in agricultural technology. The price effect has probably been stronger in OECD countries where there have been some moves to reduce the very high levels of market support seen in the 1980s;[7] while much of the underinvestment in technology has been seen in developing countries.[8]

It is unlikely that OECD countries will return to price supports for their farmers, so any price incentives applying will have to come through the market. To some extent there is a dampening or corrective feedback loop in the system: if prices do rise, then strong response can be expected from OECD farmers — as has been seen with the price spike. If prices were however to fall to the levels seen in the early 2000s, the disincentive to produce would persist, thus putting upward pressure on prices.

The unknown here, and which governments can affect strongly, is then investment in agricultural technology. Will the price spike of 2007/08 have a similar effect to that of 1973/74 when world leaders, fearing Malthusian famines, rushed to contribute to the international agricultural research network (CGIAR)? If that happens, then after a lag — of at least five years — the response could be as strong as that seen in the first wave of the green revolution in the 1970s. Or will additional funding to agriculture be directed into input subsidies that probably have lower returns in the long run?

[7] For example, the EU's Common Agricultural Policy previously provided much of its support through interventions to boost prices of farm output: that has been in large measure replaced by direct and environmental payments that are decoupled from production — even if the extent of decoupling is imperfect. The slowdown in cereals production is very much an OECD phenomenon, although both China and India have seen slower rates of increase as well.
In contrast in some developing countries where negative protection of farming was heavy in the 1980s, liberalisation has done something to correct this and some farmers will have seen rising farm-gate prices in the last decade or two. Imperfections in markets and costly transport to market, however, may well have dampened the effect.

[8] Typically OECD countries see spending on agricultural research at a rate equivalent to around 2% of the value of agricultural production, while in developing countries the rate is often below 0.5% — especially in Africa.

2. Effects of financial difficulties and economic downturn on poverty and food security in developing countries

2.1 From OECD recession to developing country economies

Most analyses, and most prominently IMF forecasts, expect recession in the OECD countries to reduce growth in the developing world. That said, there is uncertainty over the strength of the linkage.

The processes that would transmit the downturn from OECD to developing countries include the following (IDS 2008, Massa & te Velde 2008):

Through movements of capital —

- falling stock markets as foreign investors liquidate portfolios fearing future losses from recession;
- bank transfers out of the country where the banks are foreign owned as headquarters shift capital to shore up balance sheets in OECD countries, or from exposure to losses on sub-prime mortgages and other failed loans;
- fewer and less valuable remittances from expatriate workers in OECD and OPEC economies;
- reduced flows of official aid as OECD governments face fiscal deficits;
- reduced foreign direct investment (FDI) as potential ventures look less attractive as a consequence of reduced aggregate demand, and as investors suffer a crisis of confidence;

Through exchange rate depreciation —

- Countries that find themselves facing large outflows of capital or a sharply adverse current account from falling commodity prices may see their currencies depreciate, since the demand for trading currencies will outstrip supply. A falling exchange rate will tend to encourage production of exports and discourage consumption of imports, but it will also tend to raise inflation;

Through changes in demand on world markets —

- less demand for exports from developing countries[9] pushing down prices on world markets and reducing earnings;
- for those countries where tourism is an important earner,[10] fewer tourists from OECD countries, especially for long-haul destinations; and.
- lower oil and food staples prices may ease the import bills of developing countries where such imports make up a substantial share of imports.

Of the nine potential processes listed, all but two — falling exchange rates and lower prices for food and oil — are deflationary.

The balance of deflation shows in the latest forecasts from the World Bank (2008) and IMF (2009) for the developing world, see Table 2.1. While growth is expected to slow across all regions, both total growth and growth per capita are forecast to be positive rather than in the outright recession expected in most OECD countries. Latin American growth, however, while positive is sufficiently low that it will not keep pace with expected population increase.

[9] This may be exacerbated by lowered interest rates in developed countries that cause shifts away from interest-bearing elements of portfolios to other assets including commodities, thereby increasing domestic supply.

[10] There are at least 19 developing countries where tourism contributes 20% or more of foreign exchange, and more than 40 where the share is more than 10%. For example, the Caribbean region is heavily tourism dependent. The small scale and remote location of many islands makes it difficult for them to compete in other sectors such as manufacturing and export.

Table 2.1: Forecasts of growth in the developing world for 2009, by region

Percentage growth rates	2008 estimate		2009 forecast	
	GDP	GDP/capita	GDP	GDP/capita
East Asia & Pacific	8.5	7.6	6.7 (China)	5.9
Latin America & Caribbean	4.4	3.1	1.1 (W Hemi. developing)	- 0.1
Middle East & North Africa	5.8	4.0	3.9 (Middle East)	3.2
South Asia	6.3	4.8	5.1 (India)	3.7
Sub-Saharan Africa	5.4	3.4	3.4	1.5

Source: World Bank (2008), from Tables in the Appendix, for 2008 estimate; 2009 forecasts come from IMF projections, World Economic Outlook, Jan 2009 —where the regions do not strictly correspond, the regional description appears in brackets.

How badly affected countries will be depends on both the structure of their economies that makes the different processes more or less important for particular countries; and their vulnerability to these forces. The latter is largely a function of foreign currency reserves held, the prior balance of trade, levels of external debt, and fiscal balance. Those countries with weak economic positions prior to the current downturn will have little room for manoeuvre and scope to counter external pressures.

Given the great variations in economic structures and vulnerability, the impact of the downturn is likely to be highly variable. Defining a typology of countries can help to draw more general lessons. The starting point for identifying this typology is to mark the differences between middle income and low income countries as follows:

Table 2.2: Low and middle income countries contrasted

Typical low income country	Typical middle income country
Heavy dependence on exports of primary commodities Often small countries, trade making up a high proportion of GDP	More diversified portfolio of exports Often larger countries, less dependent on trade
Current account deficits offset by capital flows of: • Remittances • Official aid • Concessionary finance from the global and regional IFIs	Private capital inflows may be important through: • Foreign direct investment • Portfolio investments on stock markets.

In addition, there are other factors that will further divide countries, including:

- Those dependent on earnings from oil and minerals versus those exporting agricultural primaries;
- Importance of earnings from long-haul tourism;
- Extent of imports of food; and,
- Degree of liberalisation of banking and foreign ownership of banks.

The considerations above suggest the following set of country experiences:

Table 2.3: A typology of developing countries by susceptibility to OECD economic downturn

	Key links to economic downturn	Vulnerability and resilience
A. Low-income countries, dependent on agricultural primaries Eg: *The Gambia, Uganda, Nicaragua*	Losses on export earnings from falling prices — moderate to severe impact given importance of trade in GDP Reduced remittances — varies by extent of international migration Reduced flows of aid —depends on who the main donors are.	Typically run current account deficits, depend on official flows of aid and concessionary finance to balance the external account. In some cases remittances and tourism earnings may be important. Unlikely to have deep reserves. May have fiscal deficit: donor contributions often make up a large share of government resources. Food and oil importers will have seen their reserves depleted during the spikes seen in 2007 and early 2008
B. Low-income countries, dependent on oil or minerals Eg: *Angola, Equatorial Guinea, Zambia, Bolivia*	Heavy losses of export revenues — impacts severe since trade usually a large share of GDP Some rely little on aid and little affected by changes in aid Remittances unlikely to be highly significant	May have accumulated large reserves during 2007 and early 2008 from the high prices applying during the spike.
C. Middle-income countries, oil importers Eg: *India, Philippines, Chile, Brazil, Thailand, Morocco*	Vulnerable to falling demand for exports, including manufactures Will benefit from fall in oil price Trade may be a small share of economy in large MICs May see substantial reductions in FDI Some may see significant falls in remittances from emigrants	Likely to have reasonable macro-economic position and scope to adopt countervailing measures to deflationary forces
D. Middle-income countries, oil exporters Eg: *Mexico, Ecuador, Gabon, Iran*	Sharp reductions in earnings from oil exports	May have accumulated large reserves during 2007 and early 2008 from the high prices applying during the spike. Some may have sovereign wealth funds. Likely to have scope to undertake countervailing measures to deflationary forces

2.2 From changing international prices and economic performance to food security

Food security — defined as access to enough food for an active and healthy life[11] — can be seen an outcome of the *availability* of food, *access* to food by households and individuals, and the *utilisation* of food.[12]

Although historically the focus has often been on food availability —indeed, there is often confusion in debates between national self-sufficiency and food security, — in the contemporary world the factors that affect food consumption and nutrition of individuals are mainly those of access and use. It is only a slight exaggeration to say that food is almost always available to those with the means to acquire it: absolute shortages are rare and short-lived. Availability, however, does affect price levels in inland areas with poor access to ports.

Access to food, by households, is a function of the price of food, incomes, wealth and transfers.[13] Use of food by individuals is then a matter of how food is distributed within the household, its preparation and feeding practices — important for post-weaning infants, and the ability of individuals to make use of nutrients, in turn a function of the general health and sanitary environment.

Hence there are many intermediate variables between changes in international prices, economic downturns, and the food security and nutrition of individuals — and above all of those who are vulnerable to malnutrition. Table 2.4 sets out how the changes are likely to affect food security and nutrition.

In general the key issues are the extent to which lower world food prices translate to lower food prices domestically and locally, the extent to which downturn reduces the incomes of the poor and near poor, and the ability of governments with reduced revenues to maintain transfers and investments in health and sanitation. To some extent poor households that farm may be insulated from some of these pressures by their own production, but surveys repeatedly show that many of the rural poor are net food buyers even when they do produce some of their own staples.

The income losses expected from economic downturn could weaken food security amongst the poor and increase malnutrition. The lower cost of food internationally may however dampen or outweigh the effects for the majority of poor households that are net buyers of food: the result in particular circumstances being a matter of the fall in food prices, reduction in incomes and the share of household budget spent on food.

Table 2.5 illustrates these possibilities by looking at the implied changes to real incomes of poor households with high budget shares spent on food from changes to the prices of maize, rice and wheat in the periods January 2007 to November 2008 and for June to November 2008 — assuming that international prices are completely transmitted to local markets, that the prices of all foods consumed vary to the same extent as the main staple, and that consumers make no changes in their diet in response to changing food prices.

[11] Food security exists when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. (FAO 1996)

[12] Some, including FAO, would add stability to these categories as a fourth dimension. Others would see some stability and security as intrinsic to the three categories.

[13] A K Sen famously (1981) defined access as a matter of entitlements — a function of assets, exchange possibilities, and transfers.

Table 2.4: From changing international prices and global economic recession to food security and nutrition in developing countries

Intermediate variable	Lower prices of food on world markets	Economic downturn
Price of food	Likely lower prices of imported food at the border Transmission to local food costs depends on transport costs, border measures, market imperfections and any taxes or subsidies applied Inland areas remote from ports may be effectively insulated from world prices, so that most of the time prices depend on local supply and demand.	[Lower demand pushes down food prices] Currency depreciation may tend to raise the domestic cost of imported food.
Incomes	Lower costs of food imports improve trade balance, stimulate the economy, encourage more jobs and better pay — but such effects likely to be small and outweighed by those in next column But lower food prices will reduce incomes of farmers selling surpluses on domestic market	Unemployment, underemployment, and lower wages reduce incomes Poor and the near poor may find it difficult to access the food they need
Wealth, assets[14]	Less likelihood of assets being sold off to pay for higher food bills	With lower incomes, savings may be drawn down and assets sold off to fund essential spending. If prolonged, some households may cope but then pass a threshold from poverty to destitution and hunger
Transfers	Lower world prices likely to see increased supplies of food aid	Lower government revenues make funding transfers less feasible
Intra-household distribution of food	No effect	Gender and age bias as women and elderly reduce consumption to maintain consumption levels of children
Food preparation & feeding practices		
Health & sanitation		Reduced public spending on primary health care and nutritional programmes (growth monitoring, education, supplementation, remedial measures) Reduced public and private investments in and maintenance of water supplies, sewage and waste disposal Distress migration to towns may expose vulnerable infants to poor sanitary conditions and infectious diseases from other children in dense temporary settlements

[14] Environment note. In the case of Indonesia, some researchers (Sunderlin et al 2000) found that farmers who perceived their incomes affected by the financial crisis (both positively and negatively) were more likely to engage in environmentally damaging activities, such as burning forest for swidden agriculture, than those who perceived no change in their welfare. This type of impact is also noted by von Braun (2008) regarding the food price crisis — which he explains increased competition for agricultural land and water resources (farmland prices in Brazil increased 16% in response to the food price crisis).

Table 2.5: Changes in real incomes of vulnerable households from changes in food prices

Main food staple	Household budget share spent on food	Jan 07 to Nov 08	Jun 08 to Nov 08
	50%		
Maize		1%	22%
Wheat		-40%	17%
Rice		-8%	18%
	75%		
Maize		1%	33%
Wheat		-60%	25%
Rice		-12%	26%
Memo: Price changes seen on world markets — Nov 08 prices compared to:			
		Jan 07	June 08
Maize		99%	56%
Wheat		180%	67%
Rice		116%	65%

As this shows in the short term — from the height of the spike in mid-2008 to late 2008 — the real incomes of poor households could have risen by 17% to 33%; but that looking over the medium term, and comparing recent prices to those in early 2007, households consuming rice and wheat would have seen their incomes *fall* by fractions as great as 60%, the exception being maize consumers who would be marginally better off.

Seen against the medium term picture, poor households, already made worse off by price changes, would be hit hard by any further loss of income to economic recession. Of course, this back-of-the-envelope calculation does not take into account further falls in food prices. Unless, however, there are some heavy further falls in prices, it looks as though poor households are likely to face less food security than they enjoyed two years ago if there is an economic downturn, although they may not be as badly off as they were in mid 2008.

How the various forces play out will depend considerably on circumstances. The list of contingencies and uncertainties is long. Rather than try and assess in advance the results of these, it is probably more instructive to see what is known about the impacts of economic downturns and shocks and poverty and food security in developing countries.

3. Some insights from history

Three cases of economic downturn and recession have been reviewed: Indonesia, 1997–1998; Mexico 1994–1995; and Zambia from 1975 to the early 1990s. The main features of these cases are summarised in Table 3.1. Details of the cases appear in Appendix A.

Table 3.1: Summary of experiences of economic recessions in Indonesia, Mexico and Zambia

	Indonesia 1997–1998	Mexico 1994–95	Zambia 1975 to early 1990s
Cause	Following the sharp fall in the value of the Thai currency in 1997, investors lost confidence in the region, including in Indonesia. The value of the Indonesian rupiah slumped in 1998. Inflation increased to 78%, with food prices increasing by all of 118%. The economy contracted by almost 14%. The surprise here was that until then the economy has been growing rapidly for several decades and appeared to be quite sound.	By the late 1980s Mexico was recovering from the debt crisis with a series of measures to stabilise and liberalise the economy. But the peso was pegged against the dollar. Continuing inflation above the US level meant real appreciation of the currency against the US dollar and mounting current account deficits. For several years a large surplus on the capital account allowed this to continue, but in 1994 investors took fright and capital inflows slowed. By the end of the year reserves had been all but exhausted and the peso was floated. It lost half its value against the dollar in 1995, inflation mounted to 35% a year, and the economy contracted by 7%. It took another two years for the economy to recover to its previous level.	Zambia's economy started to contract after the 1975 shock when the copper price fell soon after the cost of oil rose. Copper exports, the main source of foreign exchange declined, and the economy went into prolonged recession. By the early 1990s real consumption per person had fallen by two-thirds over 15 years. Before 1991, policy was to try and sustain levels of household and government spending, by borrowing: adjustment programmes were short-lived. When the new government entered in 1991 it undertook (long overdue) economic reforms, cutting government spending — including reducing subsidies on staple foods — and liberalising the economy. The initial impact was to intensify economic decline, but by 1996 the economy was growing again.
Changes in poverty	Poverty rose from 38% of the urban population to 40%, and from 46% to 54% in rural areas. Loss of incomes was heavier amongst the well-off so that the recession made income more equal. The net changes in poverty obscure considerable movement in and out of poverty by those at the lower end of the income distribution.	Poverty rose for both moderate and severe levels, and in both urban and rural areas. On average between 1992 and 1996 poverty rose from 53% to 70% of the population and food poverty increased from 23% to 37%. From 1996 the economy recovered reflected in increased earnings and falling rates of poverty, although it took until 2002 before poverty rates fell to the levels seen in 1992.	Poverty rose nationally from 70% of the population to 80% between 1991 and 1996. Urban areas suffered greater increases in poverty, as the headcount rose from 47% to 62%; compared to rural areas where the increase from 88% to 90% was much less. Urban households were hit hard by reduced subsidies on food and by loss of formal employment as the public sector contracted. By 1998, however, poverty had fallen but was still above the 1991 rate. Indeed mean incomes were still below 1991 levels in 2003.
Changes in nutrition	The medium term trend in child malnutrition from 1989 shows a slow but steady reduction in the fraction of infants who were underweight. No impact of the 1998 recession can be seen.	No clear increase in child malnutrition is evident. On the contrary, national surveys show clear improvements in child nutrition between 1979 and 1999. Indeed, the largest falls occur during the 1990s, despite the crisis. Rural data allow comparison of the situation in 1996, immediately after the crisis, to before. The percentage of children underweight and wasted rises slightly, but stunting declines. This suggests that any harm to children may have been short-term.	Evidence is mixed. On some data series there was no apparent impact of the recession of the first half of the 1990s on child malnutrition: other data shows a small increase in rates of malnutrition.

In all three cases the economic recession was strong: economies contracted with falling average incomes. Not surprisingly poverty rose. There were some cases where the poor were less badly affected than others. The Indonesia poor lost less than the better off, in Mexico the poor looked to find extra jobs to cushion the declining real wages they received, and in Zambia it was the urban areas that were hit harder by reforms that the poorer rural areas.

Not that the ability of the poor to cushion themselves is always good: it is highly likely that in looking for extra work in Mexico mothers and school-age children took to informal activities to make ends meet. In Indonesia there is evidence that younger children may have been taken out of school to allow older children to complete their secondary education, and that amongst the secondary students, girls were more likely to withdraw than boys.

Although the recessions seen were times of hardship for the poor and nearly poor, there is little in the nutritional record for infants — those most vulnerable to any deterioration in diet — to show any impact either temporary or lasting. Zambia may be an exception, but in this case the recession examined was towards the end of almost two decades of economic contraction — an unusually long period of decline, and was also associated with a worsening of the health environment from more virulent malaria and the spread of HIV/AIDS. This drove up mortality rates amongst the under-fives and would also have affected nutrition.

Rates of recovery from crisis varied. Indonesia recovered remarkably quickly from the events of 1998, Mexico less quickly but with clear recovery, while Zambia's progress has been far slower and average incomes even a decade after the early 1990s had yet to get back to levels seen at the start of that decade.

4. Conclusions

Agricultural prices have fallen heavily since their peaks in the first half of 2008: some are already at the levels seen in early 2007 before the recent spike began. Thanks in part to economic downturn, prices are expected to continue falling in 2009. Prices of inputs such as fertiliser and oil, and ocean freight rates, have also come down; and by even larger fractions than those of outputs.

Evidence suggests that the spike was driven by an unusual confluence of short-term factors including harvest failures, high oil prices, accelerated US ethanol production, and policy responses to rising prices such as export limitations and restocking in tight markets. It was also superimposed on a medium term trend of rising real prices driven in part by the depreciating US dollar, rising aggregate demand and monetary expansion, and slow-down in cereal production since the mid 1980s, whereby consumption outstripped supply.

The economic downturn and outright recession in OECD countries can be expected to depress growth in the developing world, through reduced financial flows — investment in stock markets, banking capital, foreign direct investment and remittances, and through lower demand in markets pushing down commodity prices and reducing tourism receipts. Some countries will see their currencies depreciate as their current accounts weaken. While this will raise the threat of inflation it will also stimulate exports and depress demand for imports and so help correct trade imbalances.
Overall, the impacts will be almost certainly be deflationary. World Bank forecasts see reduced growth across all regions of the developing world, although growth will still be positive and recessions are not expected.

Wider variations in impacts can be expected from country to country, depending on economic structure, integration into global financial markets, and the strength of the economy as seen in foreign exchange reserves, fiscal deficits, and external debt. Marked differences between middle and low income countries are likely, with further differentiation depending on the trade balance in oil and foods.

Food security and nutrition depend on the incomes of the poor and local price levels of foods, as well as general health conditions. So many intermediate variables intervene that making ex ante predictions risks too much guessing. Hence here the experiences of Indonesia, Mexico and Zambia when facing economic recessions in the 1990s have been reviewed.
This shows the expected correlation between economic recession and rising rates of poverty. But there are some signs in these cases that the poor found ways to buffer themselves a little against hard times. Less obviously, the nutrition data for young children does not show any clear sign of deterioration in these economic crises, suggesting that while poverty and hardship may have intensified, long-term damage to the prospects of infants did not take place — or at least not a scale large enough to show up in national surveys.

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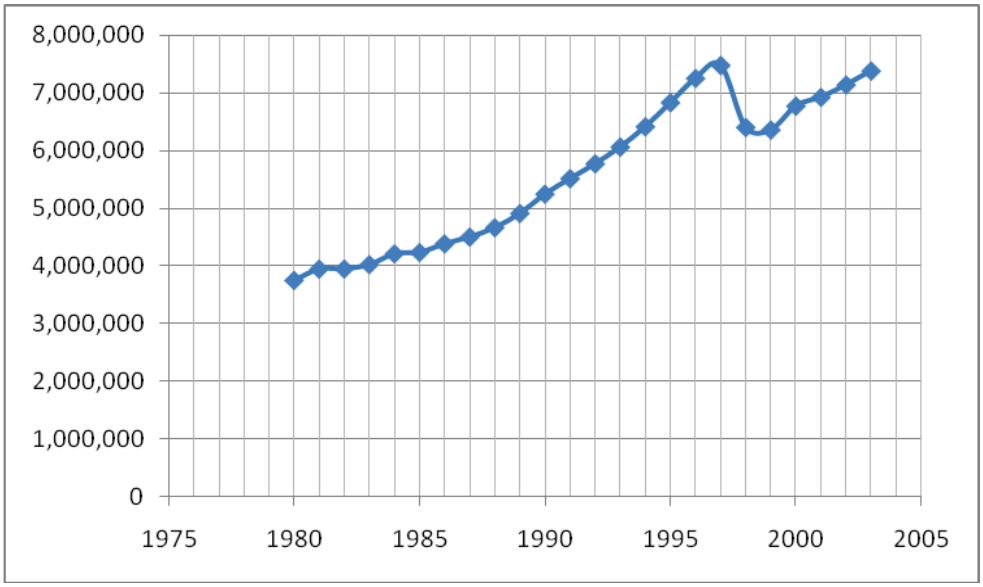
Appendix A: Country cases of economic recession

A1: Indonesia 1997–1998

A1.1 Background

Shortly before the Asian Financial Crisis of 1997, Indonesia[15] enjoyed the highest economic growth in South East Asia, low inflation, a modest current account deficit, rapid export growth, and increasing international currency reserves (Iriana & Sjöholm 2002). For almost three decades leading to 1997 it experienced sustained economic growth[16]. The financial crisis that hit in 1997, exacerbated by an El Niño induced drought, was a significant setback. In January 1998 the Rupiah collapsed dramatically. It strengthened after the mid year, but hovered around one quarter its pre-crisis standing for the next five years (Thomas & Frankenberg 2006). Interest rates behaved in a similar fashion to the exchange rate, quadrupling in an August 1997 spike and remaining volatile for the rest of the year (Thomas & Frankenberg 2006). The banking sector was hit extremely hard, and takeovers of several major banks by a government bank restructuring agency depressed both credit availability and investor confidence. Real GDP contracted by 13.7 percent in 1998, Suharto's New Order government (in power since the mid 1960s) fell, as did real wages—by about a third from August 1997 to August 1998 (Sumarto et al 2004).

Figure A1.1: Indonesia, GDP per capita (1980-2003), constant 2000 national currency



Source: IMF data.

A1.2 What caused the crisis?

The floating of the Thai currency and its subsequent fall triggered the regional crisis—but the Indonesian economy was by all accounts the hardest hit[17]. The magnitude of the impact came as a shock to many observers. Indonesia's macroeconomic fundamentals were relatively sound[18], and unemployment was not substantial. Krugman (1998) contended the currency crisis was a symptom rather than a cause, blaming financial excess and collapse. He focused on the boom-bust cycle that had occurred just before

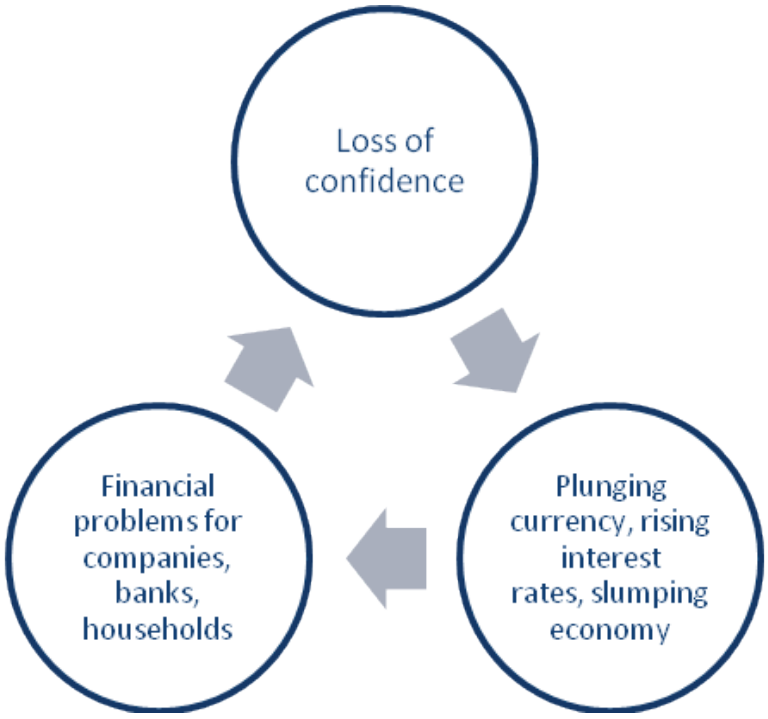
[15] Ranked the fourth most populous country in the world (after China, India, and the US)

[16] Moreover, average real GDP growth exceeded 7 percent per year between 1986 and 1996, life expectancy rose, infant mortality rates fell, school enrolment rates increased, and provision of basic infrastructure was improving (Sumarto et al 2004)

[17] The World Bank offered in June 1998: *No country in recent history, l*et al*one one the size of Indonesia, has ever suffered such a dramatic reversal of fortune*.

[18] Iriana & Sjöholm 2002 cited several who claimed the crisis could not be attributed to macroeconomic imbalances alone

the crisis—stock and land prices soared and then plunged (and indeed plunged further after the crisis), and attributed it largely to a consequence of bad banking.



Source: Figure adapted from Krugman (2008: 90).

Iriana & Sjöholm (2002) described contagion as a major channel through which the crisis was transmitted from Thailand, and identified investor behaviour[19] (as opposed to intrinsic macroeconomic vulnerability[20] or fundamental cross-country links[21]) as an important means of this contagion.

It is worth mentioning this did not take place in a political vacuum—uncertainty owing to concerns surrounding Suharto's successor, and a lack of transparency in linkages between government and business undoubtedly contributed to volatility. The case of Indonesia highlights dangers of underestimating a country's vulnerability to economic crisis based on macroeconomic standing alone.

A1.3 What were the social impacts in terms of poverty, nutrition, and vulnerable groups?

The extent of the impact on **poverty**, which increased in both rural and urban Indonesia—is visible in Figure A1.2. Another feature represented by Figure A1.2 is the *decrease* in inequality from 1996 to 1999 (as measured by the Gini coefficient). In a study using household level surveys, Thomas & Frankenberg (2006) confirmed decreasing inequality from 1997 to 1998. A comparison of changes in per capita expenditure across this period revealed the crisis impacted income of households across the spectrum. Declining inequality was attributed to a combination of severely truncated spending at the better-off end of the distribution[22], and a reduction in the mean owing in part to a fattening of the poor end.

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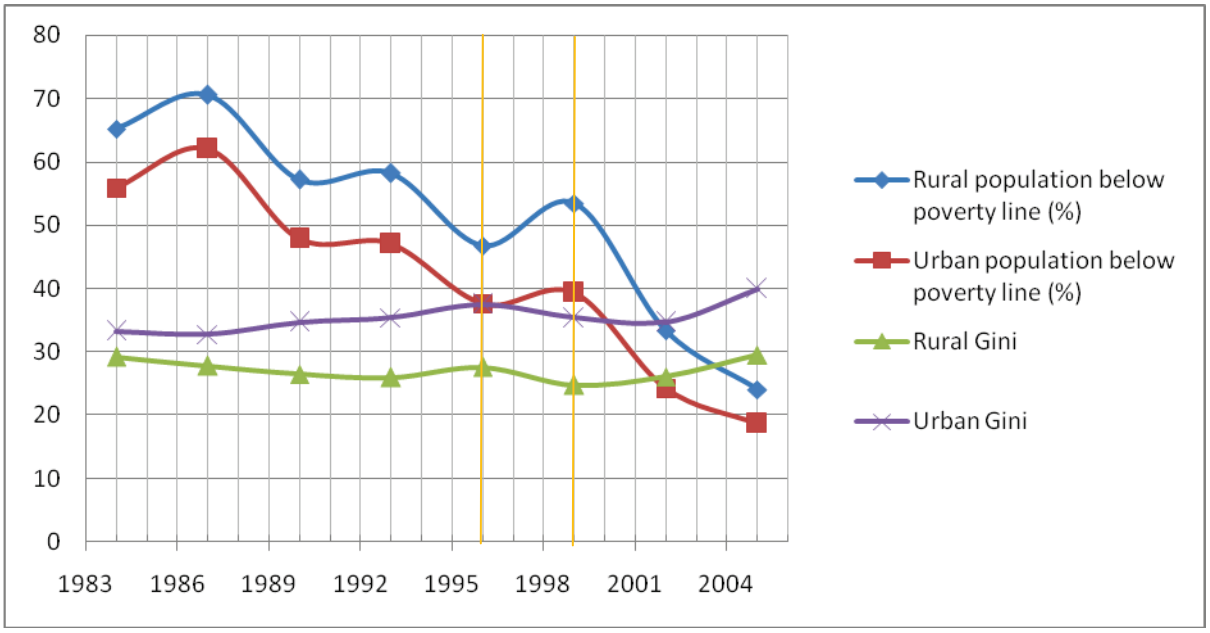
[19] One mechanism through which investor behaviour leads to contagion occurs whereby investors facing crisis-induced declines in equity prices try to improve liquidity through sale of assets in other countries—thereby spreading crisis. Another example is when banks attempt to reduce overall risk by not investing in countries 'related' to those with poor loan quality.

[20] Macroeconomic imbalances (such as real effective exchange rate appreciation, high current account deficits, and large debts) spell uncertainty for foreign investors and vulnerability for government revenues and export revenues

[21] Fundamental links across countries include: common shocks to commodity prices/ interest rates/ aggregate demand; trade links (reduced demand for trade partner exports); competitive devaluations (currency depreciation in one country reduces competiveness of another), and financial links (such as through reduced outflow of capital from crisis-affected countries to others that may be dependent on such capital)

[22] They make a case here for paying appropriate attention to demographic movements when analysing poverty impacts – for example, one coping strategy families adopted during the crisis was merging households together to exploit economies of

Figure A1.2: Indonesian trends in poverty and inequality

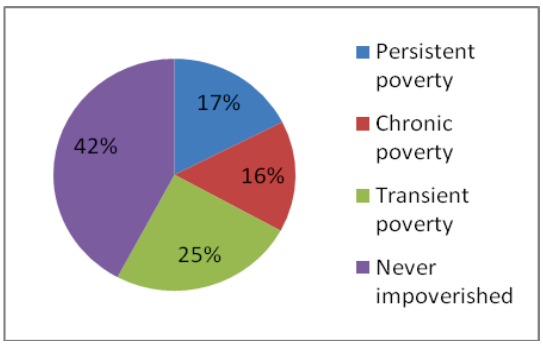


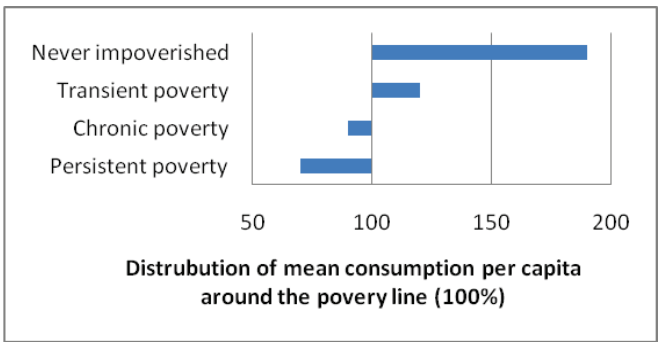
Source: World Bank data from PovcalNet.

Poverty and inequality snapshots like this one fail to capture important dynamic and distributional information. For example, over the period between December 1998 and May 1999, Widyanti et al (2001) found that although a measure of the poverty rate only increased from 36.2 to 36.5 percent, 20 percent of households in the sample moved in or out of poverty over the period. Suryadarma et al (2005) examined inequality between 1984 and 2002 and found that although it decreased overall in response to the crisis, it increased within the segment of the population below the poverty line. There are clear advantages to having a good understanding of poverty flux and distribution when designing targeted responses.

The figures below give a breakdown of poverty classification over the August 1998 – Oct 1999 period as determined by Widyanti et al (2001).[23]

Figure A1.3 Distribution of poverty types and their associated mean consumption levels





Source: Constructed with data from Widyanti et al (2001).

scale in consumption. This changes measures of per capita expenditure in a way that may be statistically misleading (for example, part of per capita consumption decline at the top of the distribution is attributable to increased household size)

[23] Jalan and Ravalion (2000) classified those always poor as 'persistent poor'. They split the sometimes poor by whether mean real per capita consumption fell above (transient poverty) or below (chronic poverty) the poverty line. For this particular case (Widyanti et al 2001), mean consumption for the transiently poor was about 20% above the poverty line, and for the chronically poor, about 10% below.

Suryahadi & Sumarto (2001) attributed the poverty rate increase largely to the increase in chronic impoverishment. This group comprised 20 percent of the poor pre-crisis but 35 percent by 1999. Measures of vulnerability also increased significantly over this time. There was a strong geographical component to this as well—certain provinces had higher chronic/transient poverty ratios, which increased in both rural and urban areas, although rates of chronic poverty were higher in rural areas and rates of transient poverty higher in urban areas.

Beyond this, a number of studies attempted to identify characteristics of individuals particularly vulnerable to poverty and/or damaging coping strategies, using household level panel data. This is useful from a policy perspective again in terms of targeting responses to optimise aid effectiveness. Box A outlines some key microeconomic impact findings of this Indonesian case:

Box A: Microeconomic impacts of the Asian Financial Crisis on Indonesia

- Share of household budget spent on food, especially staples, increased significantly and to the largest extent in the poorest segment of the population. Very large increases in budget share of staples (mostly rice) were recorded, partially offset by reductions in budget shares of meat—results that point to a decline in quality and quantity of diets. Changes in nutritional status of young children were trivial relative to changes in weight of adults—likely owing to increased energy use associated with working harder combined with forgoing food consumption to protect children's consumption (Thomas & Frankenberg 2006).
- Poverty rate and vulnerability in female headed households did not differ widely from male headed households. Chronic poverty and those highly vulnerable to poverty were actually slightly higher in male headed households (Suryahadi & Sumarto 2001).
- Women, particularly those with young children, worked longer hours.
- Levine & Ames (2003) concluded that children were well protected and that girls did not suffer more than boys during the crisis.
- Income declined substantially more than expenditure, pointing to asset depletion.
- Human capital investments in education and health also declined in a statistically significant way amongst the poorest. Reductions in health spending tend to impact young children, pregnant women, and the elderly.
- Thomas & Frankenberg (2006) found gender effects in education expenditure to be significant[24]. By the 2000 survey, most of the reductions in human capital investments were reversed. Cameron (2001) noted school attendance dropped slightly after the onset of the crisis, but subsequently rebounded to higher than pre-crisis levels—with primary enrolment very high. She also found that older children who missed school to work were working longer hours.

Long-term consequences remain to be seen, but there is some evidence that negative consequences may have been less than initially feared. Suryadarma et al (2005) estimated a 'distribution corrected'[25] growth elasticity of poverty for Indonesia and found that it reached its lowest levels in 15 years at the peak of the crisis[26]. They contended this might have been one reason why the country rebounded so quickly (between 1999 and 2002 the poverty rate decreased rapidly), although others have argued certain types of inequality increased over the period between 1961 and 2002[27].

[24] Young men 15-18 were the only group associated with increases in education shares—decreases in teenage female shares suggest sisters' making room for brothers' education budgets. There was also evidence of young children of both genders forgoing schooling to protect education budget of adolescent males. They suggested this coping strategy was employed because opportunity costs associated with interrupting primary education are lower than those associated with interrupting secondary education

[25] They deflated nominal household expenditure with a regional price index to account for differences in purchasing power across regions

[26] Sudjanda & Mishra (2004) found that during the 1990s, Indonesia's Gini coefficient was lower than those of many of its neighbours (Malaysia, Singapore, and the Philippines), and even lower than average Gini for high income countries.

[27] Frankema & Marks used Theil indices of sectoral income distribution and found inter- and intra-sector income inequality increased under Suharto, as did the informal sector share of the labour force.

As Levinsohn et al (1999) stated, "*What is clear is that the notion that the very poor are so poor as to be insulated from international shocks is simply wrong. Rather, in the Indonesian case, the very poor appear the most vulnerable.*"

A1.4 Nutritional effects

The medium term trend in child malnutrition, see Table A1.1, shows a slow but steady reduction in the fraction of infants who were underweight. There is no discernable impact of the 1998 recession on these statistics.

Table A1.1: Trend in prevalence of underweight infants in Indonesia, 1989–2003

	1989	1992	1995	1998	1999	2000	2001	2002	2003
< - 2 SD (Underweight)	37.5	35.5	31.6	29.5	26.4	24.6%	26.1	27.3	27.5
< - 3 SD (Severely underweight)	6.3	7.2	11.6	10.5	8.1%	7.5	6.3	8.0	8.3

Source: Susenas Data sets, Nutritional Status Component, 1989-2003, taken from Atmarita (2005: Table 2).

A1.5 What influence did policy measures have on this?

A broad social safety net initiative comprising a number of programmes (funded by the state budget and loans from WB, ADB, and bilateral donors) was implemented in response to the crisis. Programmes fell under five broad categories:

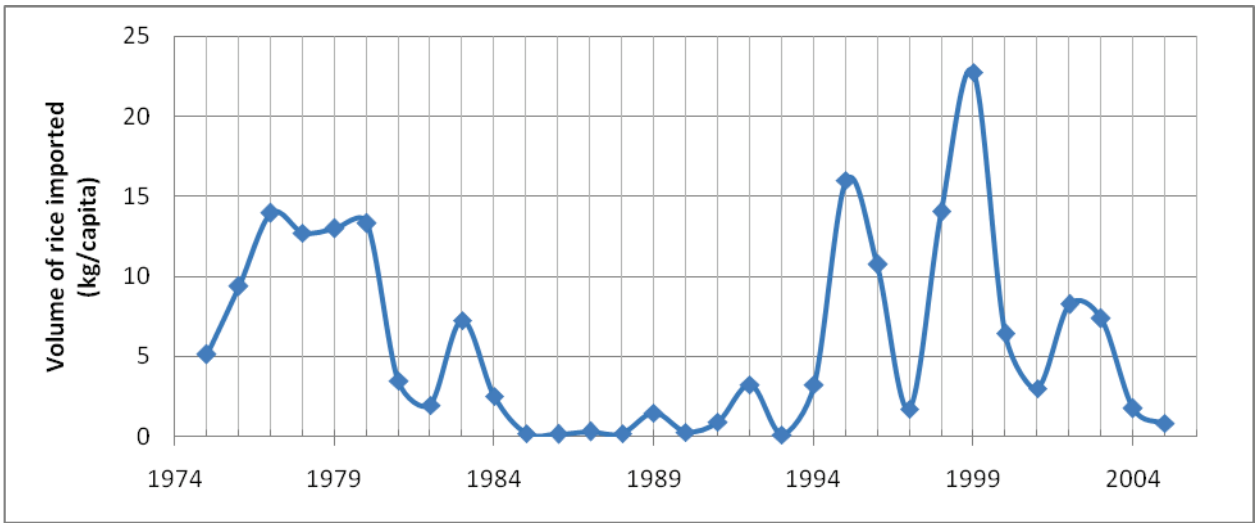
- Food security through sales of subsidized rice to targeted households;
- Employment creation through labour programmes in government departments;
- Education scholarship / block grants;
- Health subsidies for a variety of services including supplemental feeding; and
- Community funds in block grants to villages or for public works (Sumarto et al 2004).

The initiative was criticised for slow implementation (programmes were launched early 1998 but many did not begin until mid year) and also for inefficiencies in targeting and inadequate coverage. The subsidized rice programme had the highest participation rates (between 40 and 56 percent), and was the only one Sumarto et al (2004) found to have a statistically significant impact on reducing vulnerability to poverty, despite having suffered "leakage" to non-poor beneficiaries. They found administrative lists compiled to identify poor households for this programme were not closely related to shocks in household expenditures owing to the crisis. Employment creation programmes using weak self-selection mechanisms were better targeted to both expenditure levels and shocks.

A1.6 What were the impacts on the agricultural sector of the broader economy?

Indonesia's financial crisis fell hard on the heels of a long drought. Rice production in 1998 was 11 percent below the official target—more than 90 percent attributed to the reduction in planting owing to the drought. The financial crisis and devaluation of the rupiah pushed up input prices (seeds and fertilizer) and further reduced the rice harvest (FAO). Despite dazzling achievements in rice self sufficiency over the 1980s, the country fell back on imports and food aid. Figure A1.4 shows per capita trends in rice importation.

Figure A1.4: Per capita kg of rice imported by Indonesia



Source: FAOSTAT (Per capita values computed by dividing import quantity by estimated population).

General rate of inflation was at 78 percent in 1998, but food prices soared by 118 percent (Sumarto et al 2004). In terms of crisis impacts, the agricultural sector (as a relatively US dollar-independent sector) fared better than dollar dependent sectors such as construction, industry, and banking which were unable to finance imports and service dollar-denominated debt (Sunderlin et al 2000). Even in this context, the fact remains that sectoral distribution of poverty is highly skewed towards the agriculture sector, which contained the highest proportion of poor and vulnerable—both before and after onset of the crisis. By 1999 more than half the sector's population was classed as vulnerable to poverty—much higher than the industrial and services sectors with 30 and 20 percent respectively (Widyanti et al 2001).

At a community level, Thomas & Frankel (2006) found that agricultural communities in rural areas and those with a higher fraction of households operating farm businesses in urban areas experienced positive income effects from the crisis, although they point out the results may not be robust to changes in measures of inflation—a particularly difficult factor to measure with confidence given its heterogeneity and variability.

A1.7 What policy measures influenced this?

Indonesian policy to improve farm sector earnings was heavily rooted in a combination of import independency and growth in export oriented crops. At the time of the crisis, policy makers emphasised focus on export-oriented agriculture as a growth strategy.

The justification was that agricultural-export commodity producers could see a windfall from higher market prices that would not be neutralised by higher costs of living. On a macro level, Indonesia's agricultural sector did perform relatively well after the crisis (compared to other crisis affected states). On a household level, Sunderlin et al (2000) found that despite three quarters of farmers surveyed having export-commodity income, only one fifth reported benefits post-crisis, compared to two-thirds who reported faring worse. They concluded that over-reliance on a few crop types and reduced real purchasing power had negative consequences for farmer welfare—and also led to environmental degradation through increased rate of forest clearing for farm purposes[28]. Programmes focusing on diversification of crops and farmer income sources were recommended as a means of mitigating future commodity price shocks and also reducing environmental damage of forest clearing brought on by economic insecurity (Sunderlin et al 2000). Validity of this policy option holds under situations of increasing and decreasing agricultural commodity prices.

[28] Twenty million people live in or near Indonesia's natural forests

A1.8 Lessons from the Indonesian experience:

- Macroeconomic fundamentals may not clearly indicate vulnerability to financial crises
- Geopolitical and environmental context is highly relevant
- Poorly targeted interventions implemented after the onset of a crisis are not good enough

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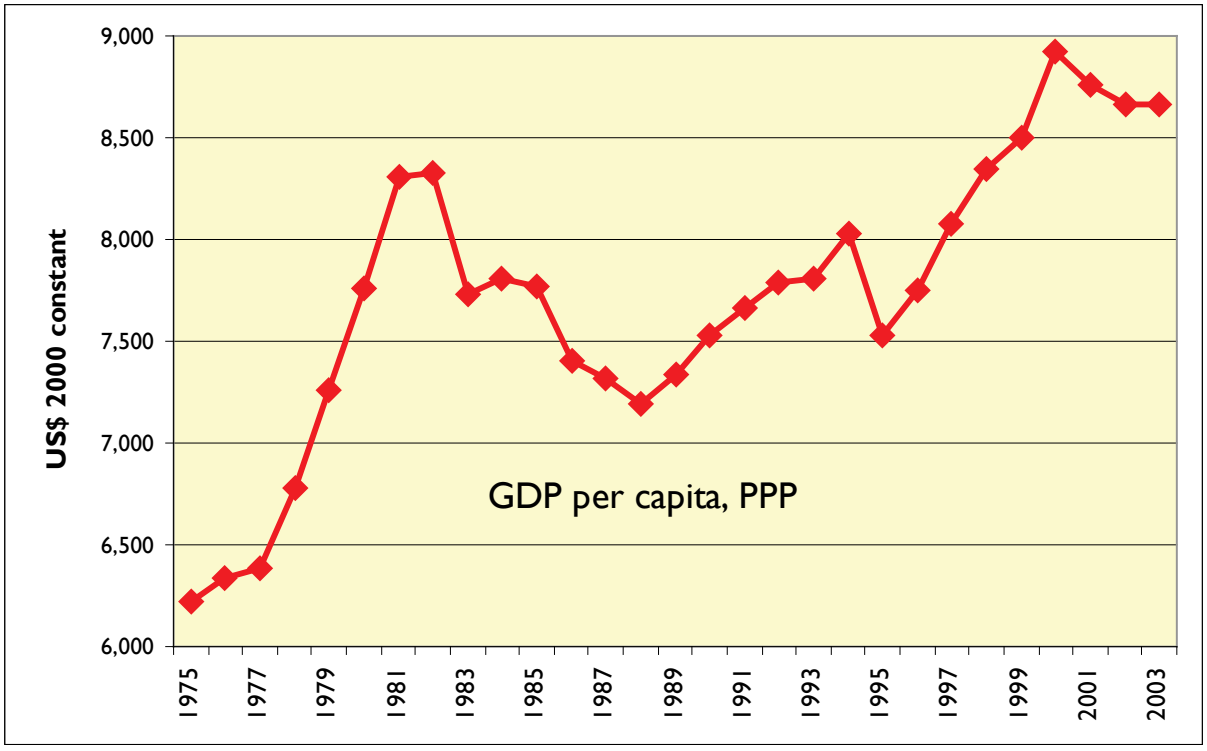
A2: Mexico

A2.1 The economic recession of 1995

After the debt crisis broke in 1982, requiring drastic measures to cope, Mexico's strategy had been to stabilise the macro-economy — mainly matters of getting inflation down and cutting fiscal deficits, and over the medium term to liberalise the economy with privatisation of state corporations an important part. The peso was pegged to the US dollar to help control inflation and give foreign investors confidence.

Figure A2.1: Mexico Gross Domestic Product per capita, 1975 to 2003



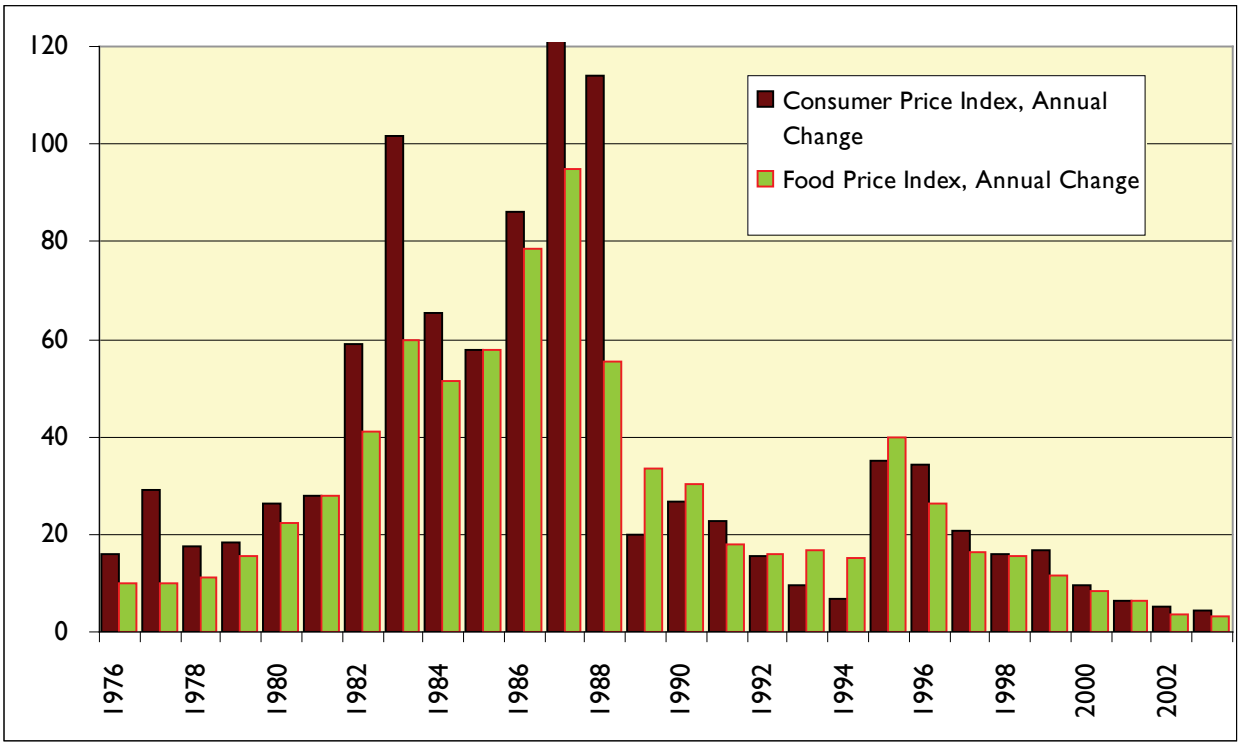
Source: World Development Indicators, World Bank.

Tough adjustments after 1982 saw incomes falling, but the late 1980s and early 1990s saw a return to economic growth. But partly owing to continuing inflation — see Figure A2.2, the real exchange rate appreciated, by about 30%, from 1989 to late 1993.

Current account deficits started to mount — getting to 7% of GDP of by 1992/94. Net capital inflows, however, squared the circle; although the funds went into consumption rather than investment, and displaced domestic savings.

In 1994 things went awry: US interest rates rose making Mexico less attractive for investors. There were mounting fears about the vulnerability of the economy that were exacerbated by political concerns of which the Chiapas uprising in January 1994 and the assassination of presidential candidate Colosio later in the year were the main examples. Net capital inflows slowed sharply and the current account deficit had to be covered from reserves that began to fall. Since it was an election year, the government was reluctant to devalue and only after the ruling party had secured the election of its candidate, in December, was the peso floated, at which time the reserves were down to one month's imports. For lack of convincing government programme to deal with the current account crisis, the peso depreciated rapidly, losing 50% of its value against the US dollar by the end of 1995.

Figure A2.2: Mexico inflation, 1976 to 2003



Source: World Development Indicators, World Bank.

A rescue package worth US$50 billion was put together with the US leading. This was accompanied by tighter control of government spending and money. The year 1995 saw a sharp recession: GDP fell in 1995 by almost 7%. The devaluation meant that inflation, which had only a few years earlier been brought down towards single digits ballooned to 35% in 1995.

A2.2 Poverty impacts

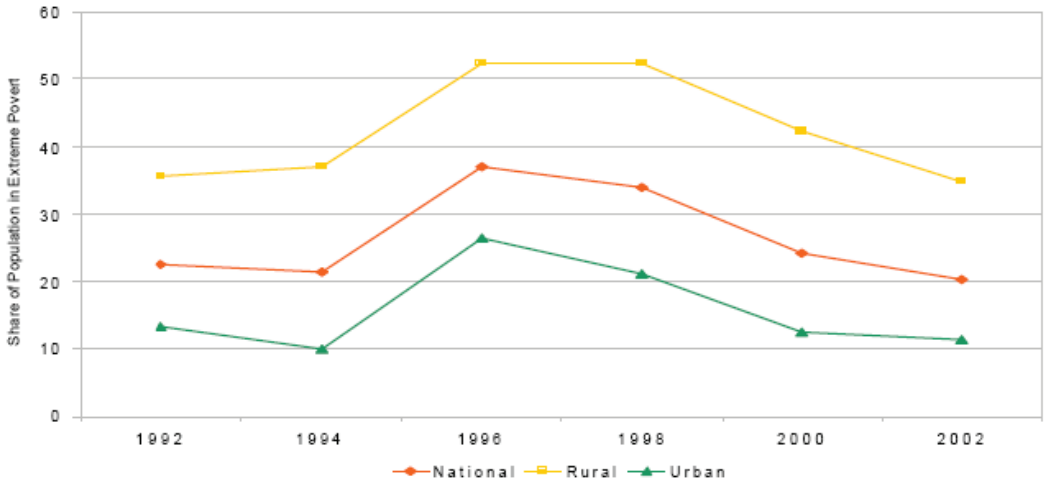
Between 1994 and 1996 there was sharp reduction in labour incomes, falling by 15% a head. More people were looking for jobs, especially amongst the poorest quintile of the population. The impact was less severe for the poor than for the average, with their labour earnings dropping by 7% a head. It seems the poor were protected to some extent by their strenuous efforts to get additional work, and since their earnings were already low, there was little room for them to be further reduced (Zepeda et al. 2007).

For both moderate and extreme levels, poverty rose, as it did in both urban and rural areas: see Figure A2.3. On average between 1992 and 1996 poverty rose from 53% to 70% of the population and food poverty increased from 23% to 37%.

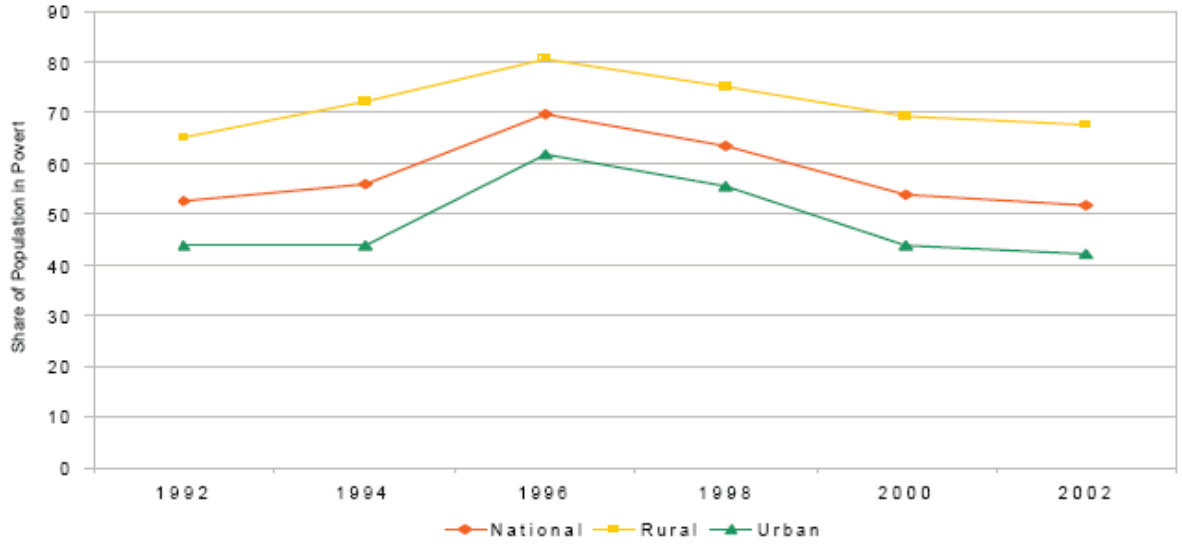
From 1996 the economy recovered, as reflected in increased earnings and falling rates of poverty, although it took until 2002 before poverty rates fell to the levels seen in 1992.

Figure A2.3: Mexico, Poverty from 1992 to 2002

a) Extreme Poverty (food-based poverty line)



b) Moderate Poverty (assets-based poverty line)



Source: WB staff estimates using the methodology of the Technical Committee for Poverty Measurement.

Source: World Bank (2004).

A2.3 Impacts on nutrition

No clear spike in malnutrition of children is evident. National surveys, see Table A2.1, show clear and substantial improvements in child nutrition for the twenty years spanning 1979, 1989, and 1999. Indeed, the largest falls occur during the 1990s, despite the crisis.

Rural data allow comparison of the situation in 1996 before and immediately after the crisis. The percentage of children underweight and wasted rises slightly, but stunting declines. This suggests that any harm to children may have been short-term.

Table A2.1: Mexico, nutrition 1979 to 1999

Children aged under five years	Sample size	Underweight % Weight for age		Stunted % Height for age		Wasting % Weight for height	
		< -3DE	< -2DE*	< -3DE	< -2DE*	< -3DE	< -2DE*
National surveys	8011	1,2	7,5	5,6	17,7	0,6	2,0
ENN 1999	7422	2,9	14,2	9,1	22,8	1,1	6,0
ENN 1988	11498	ND	21,9	15,2	26,7	ND	ND
ENAL 1979 Rural sample surveys	31601	4,2	16,9	15,1	33,9	2,3	7,0
ENAL 1996	14903	3,7	16,6	16,6	35,3	2,0	5,6
ENAL 1989							

Source: FAO (2003).

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A3: Zambia

A3.1 What Caused an Economic Recession in the 1990s?

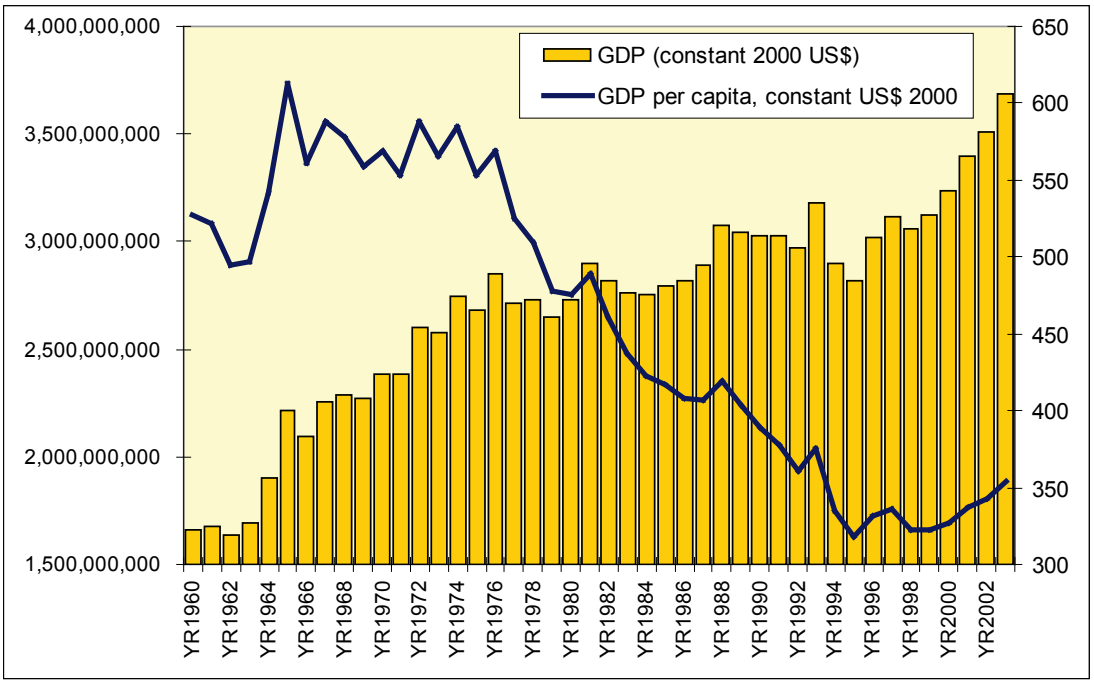
From 1975 Zambia faced collapsing copper price, conflict in neighbouring countries and the severe repercussions of the first oil shock. After the collapse of the copper price government kept borrowing externally to maintain levels of consumption. Between 1983 and 1985 a first attempt was made to implement an IMF/World Bank Structural Adjustment Programme (SAP) with strong conditions attached. This was soon abandoned by the government which re-imposed numerous controls in May 1987 after political discontent had resulted in food riots in the Copperbelt (end of 1986).

As the economy continued to decline the government had little option but to enter into new negotiations with the IMF. In June 1989 it decontrolled all consumer goods prices except maize and in early 1990 the government and the IMF drew up a new Policy Framework Paper outlining the economic policies to be pursued between 1990 and 1993. As part of this framework, the government increased the prices of high grade maize meal by over 100 percent in June 1990.
The government's agreement to hold elections in 1991 undermined its commitment to implement painful reforms and in June 1991 it requested the IMF to postpone a scheduled round of reduction of maize meal subsidies. The IMF refused and suspended all financial disbursements to Zambia. Inflation rose sharply as the government printed money to fund civil service pay increases and to fund the election campaign.

By the early 1990s real consumption per person had fallen by two-thirds over 15 years. More worrying still was the decline in certain social indicators:

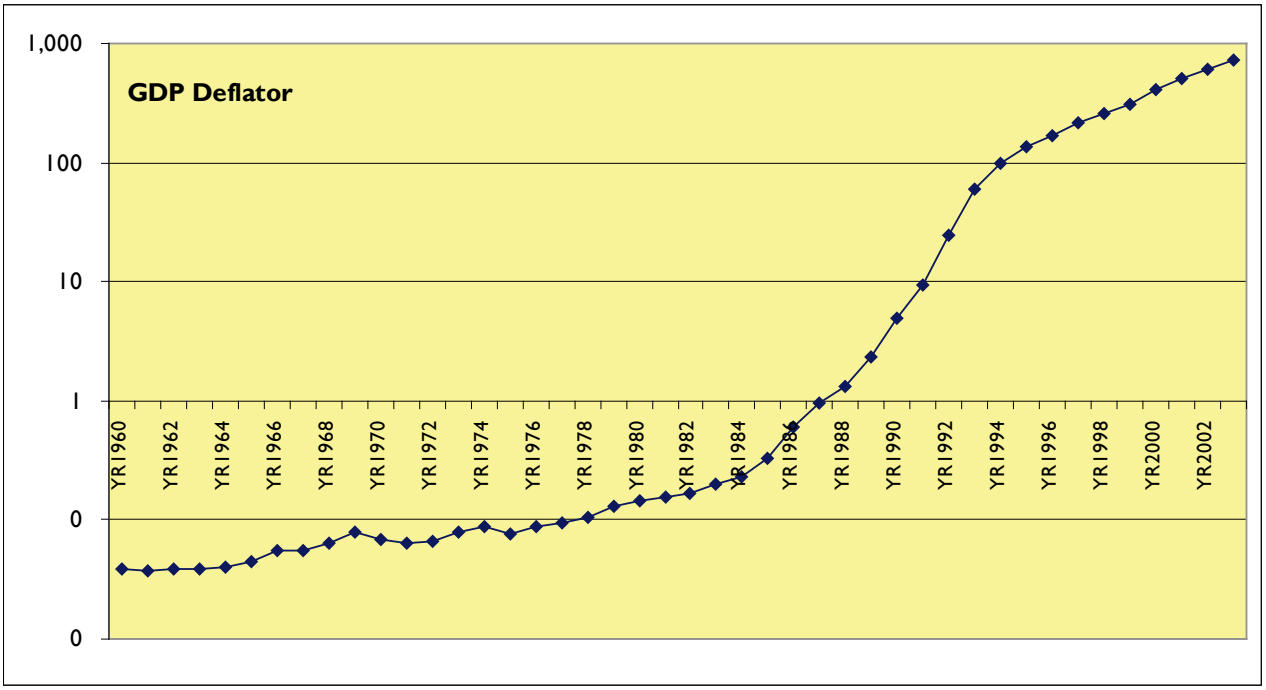
- gross enrolment rates in primary schools showed a downturn after 1985;
- infant mortality rose to 107 during 1987–91;
- a higher percentage of children under 5 years of age were stunted or wasted in 1990–91 than in 1970–71.

Figure A3.1: Zambia, Gross Domestic Product, 1960 to 2003



Source: World Development Indicators, World Bank. GDP/capita data not provided for early years, so the series has been computed by dividing GDP by the estimated population.

Figure A3.2: Zambia, Inflation from 1960 to 2003



Source: World Development Indicators, World Bank. Note: scale is logarithmic.

A3.2 Economic policy reforms since 1991.

The Movement for Multi-Party Democracy (MMD) government was elected on a platform of major reforms designed to release the economy from controls and facilitate market-based growth to include exchange rate liberalisation, tax reform and expenditure restructuring, the removal of many subsidies including the maize meal and fertiliser subsidies, the decontrol of agricultural prices, the privatisation of agricultural marketing and the introduction of user fees in health and education. The economic reforms initiated in 1989 included the abolition of NAMBOARD and the de-monopolisation in 1990 of agricultural marketing.

A3.3 The Macroeconomic Effect

Both 1990 and 1991 saw declines in GDP driven by substantial declines in the mining and quarrying sector. Severe drought in 1992 caused collapse of agricultural value-added by one third. Further declines in mining and manufacturing output in 1993, 1994 and 1995 resulted in negative GDP growth in each of those years; mining and quarrying output and manufacturing production both declined by almost one third between 1992 and 1996.

Performance on inflation over the decade has been slightly better than that on growth — see Figure A3.2 above. The decade started with high inflation accelerating to a peak of almost 200 % in 1993 due to excessive monetary expansion. Thereafter, introduction of high real interest rates on Treasury bills along with implementation of cash budgeting brought inflation down to 55 % in 1994 and subsequent tight monetary policy reduced inflation to around 25 % in 1998.

Export performance in the 1990s has also been mixed. Total exports (f.o.b.) fell by over 30 % between 1990 and 1998. This reduction was caused principally by a collapse of metal exports by almost half over this period. Copper, which has always been Zambia's largest and most important export, collapsed in value from over US$1 billion in 1990 to US$430 million in 1998. The volume of copper exports fell by 42 % in the face of a continuing downward trend in copper prices.

By contrast cobalt prices more than trebled between 1990 and 1997, doubling the value of cobalt exports between 1990 and 1998. The value of non-metal exports has more than trebled since 1991.

Thus the decline of some heavy industrial activities appears to be complemented by growth of more competitive exports better reflecting Zambia's comparative advantage.

Employment: The formal sector only employed 17 % of the labour force in 1991 and, despite the 46 % increase in the labour force, formal sector employment has declined by 15 % now constituting less than 10 % of employment. Most of this decline has resulted from major restructuring in the mining and manufacturing sectors which commenced in 1992. Declining employment in the formal sector displaced a large number of workers into the informal sector.

A3.4 The Microeconomic Effect

The initial difficulties encountered in liberalising the maize marketing system resulted in the near collapse of maize marketing and fertiliser and credit provision to some rural areas between 1993 and 1995 with strong negative impact upon poverty in rural areas. However, this impact is likely to have been greatest for households who are large net producers of maize (hence among the better off in rural areas). This explains the substantial equalisation of the rural expenditure distribution between 1991 and 1996 — see Table A3.1.

The provision of inputs and marketing services by the private sector after the withdrawal of most public provision generated a strong growth in rural areas between 1996 and 1998 leading to a substantial reduction in all poverty measures. However, the beneficiaries of this growth have principally been those with access to inputs, transport and marketing services. Consequently, the observed growth has been accompanied by an increase in inequality between the two years.
In urban areas, the poor suffered substantial losses resulting from the escalating inflation between 1991 and 1993. The severe recession which resulted hit urban areas hard. The negative effect of stabilisation was reinforced by the almost simultaneous removal of subsidies on mealie meal. Furthermore, employment in the parastatal sector fell by one third between 1992 and 1996 with no commensurate increase in any other part of the formal sector. The combined effect of stabilisation, subsidy removal and parastatal restructuring gave rise to the dramatic increase in urban poverty between 1991 and 1996.

To understand how reforms affected poverty and inequality in Zambia household data from three nationally representative surveys (covering 1991, 1993, 1996, and 1998) were analysed (McCulloch et al., 2000) to determine trends in poverty and inequality and examine different roles played by growth and distributional change in the evolution of poverty. The key microeconomic indicators derived by the analysis of these data showed the following:

- Decline of over 20 % in real mean expenditure between 1991 and 1996, with most of this fall coming from a sharp and (statistically significant) fall of over a fifth in the mean expenditure of households in urban areas. By contrast, between 1996 and 1998 the national mean per adult equivalent consumption expenditure increased by over a third. Most of this increase resulted from a large increase of 62 % in rural mean expenditure.
- The poverty headcount using the upper poverty line was 69.5 % in 1991 – this had risen to over 80 % by 1996. The poverty gap and the squared poverty gap (measuring the depth of poverty) followed a similar pattern, increasing between 1991 and 1996 and decreasing between 1996 and 1998.
- Substantial change in the geographical prevalence of poverty in Zambia over the 1990s. In 1991 poverty was far more prevalent in rural areas than in urban areas; (poverty headcount in rural areas for the upper poverty line was almost 90 % while in urban areas it was 47 %); however increase in urban poverty over the decade combined with the improvement in the rural standard of living between 1996 and 1998 has resulted in a rural poverty headcount of 77 % compared with an urban poverty headcount of 63 % in 1998.
- The damaging impact of the contraction in mean expenditure was counteracted by the improvement in the distribution between 1991 and 1996. The decline in the poverty gap and the

squared poverty gap in rural areas between 1991 and 1996 can be seen to result in roughly equal measure from growth and an equalising shift in the distribution.

Table A3.1: Zambia. Poverty, inequality, and other social indicators 1991 to 1998

	Real Private Consumption Per Capita (constant 1995 US$)	Net Primary School Enrolment Rate	U5 Child Malnutrition	U5 Child Mortality
1991	362	73	40%	192 per 000
1998	266	66	42%	202 per 000
Change (%)	- 27%	- 7%	+ 2 % points	10 per 000
Poverty Headcount	**Urban**	**Rural**	**National**	**Poverty Severity Index**
1991	47	88	70	31
1996	62	90	80	31
1998	59	86	76	26
	Change in mean pc exp.	**Change in poverty headcount**		
1991 - 1996	*- 25.70*	*+ 14.90*		
1996 - 1998	+13.20	- 4.90		
Consumption Inequality (Gini)	**Urban**	**Rural**	**National**	
1991	0.47	0.62	0.59	
1996	0.44	0.48	0.50	
Change (% points)	- 0.03	- 0.14	- 0.09	

Source: McCulloch et al (2000), Christiansen et al (2003).

A3.5 Nutrition

The evidence is mixed. While some data series showing rising levels of child malnutrition during the 1990s, surveys of rural children show that between 1992 and 1996 nutrition improved albeit by a small margin.

Table A3.2: Zambia nutrition data 1991 to 2001–02

	Proportion of children under 3 years underweight (‹ 2 SDs) Rural	Proportion of children stunted
1991		40
1992	30.8	
1996	29.9	
1998		42
2001/02 (2)	31.7	

Source: Rural data from Demographic & Health Surveys; National data reported by Christiansen et al (2003).

Under five mortality rose in the 1990s, partly as a consequence of economic decline and poverty, but partly also owing to epidemiological factors such as the spread of more resistant strains of malaria and of HIV/AIDS. (Garenne & Gakusi 2006)

A3.6 Conclusion

Poverty increased dramatically in urban areas between 1991 and 1996 because of the recession induced in part by the structural reforms undertaken and decreased substantially between 1996 and 1998 in rural areas due to rapid growth. It is therefore important that in countries like Zambia characterised by such high levels of income inequality, policy focuses on pro-poor growth, with investment in key public goods (e.g. improvements in rural marketing, extension services and infrastructure) and — in urban areas — the need to develop more effective safety-nets for the urban poor to counter the strong pressures of a regime of strong fiscal stability.

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