



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*



INTERNATIONAL FOOD  
POLICY RESEARCH INSTITUTE  
*sustainable solutions for ending hunger and poverty*  
Supported by the CGIAR

IFPRI Discussion Paper No. 00766

May 2008

## **Global Macroeconomic Developments and Poverty**

Eugenio Diaz Bonilla, Inter-American Development Bank

Markets, Trade and Institutions Division

## **INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE**

The International Food Policy Research Institute (IFPRI) was established in 1975. IFPRI is one of 15 agricultural research centers that receive principal funding from governments, private foundations, and international and regional organizations, most of which are members of the Consultative Group on International Agricultural Research (CGIAR).

## **FINANCIAL CONTRIBUTORS AND PARTNERS**

IFPRI's research, capacity strengthening, and communications work is made possible by its financial contributors and partners. IFPRI gratefully acknowledges the generous unrestricted funding from Australia, Canada, China, Finland, France, Germany, India, Ireland, Italy, Japan, Netherlands, Norway, Philippines, Sweden, Switzerland, United Kingdom, United States, and World Bank.

### **Published by**

## **INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE**

2033 K Street, NW

Washington, DC 20006-1002 USA

Tel.: +1-202-862-5600

Fax: +1-202-467-4439

Email: [ifpri@cgiar.org](mailto:ifpri@cgiar.org)

**[www.ifpri.org](http://www.ifpri.org)**

### **Notices**

<sup>1</sup> Effective January 2007, the Discussion Paper series within each division and the Director General's Office of IFPRI were merged into one IFPRI-wide Discussion Paper series. The new series begins with number 00689, reflecting the prior publication of 688 discussion papers within the dispersed series. The earlier series are available on IFPRI's website at [www.ifpri.org/pubs/otherpubs.htm#dp](http://www.ifpri.org/pubs/otherpubs.htm#dp).

<sup>2</sup> IFPRI Discussion Papers contain preliminary material and research results. They have not been subject to formal external reviews managed by IFPRI's Publications Review Committee but have been reviewed by at least one internal and/or external reviewer. They are circulated in order to stimulate discussion and critical comment.

Copyright 2008 International Food Policy Research Institute. All rights reserved. Sections of this material may be reproduced for personal and not-for-profit use without the express written permission of but with acknowledgment to IFPRI. To reproduce the material contained herein for profit or commercial use requires express written permission. To obtain permission, contact the Communications Division at [ifpri-copyright@cgiar.org](mailto:ifpri-copyright@cgiar.org).

## Contents

|  |     |
|--|-----|
| Acknowledgments  | vi  |
| Abstract   | vii |
| 1. Introduction  | 1   |
| 2. Macroeconomics and Poverty: Some Definitions                    | 3   |
| 3. A Half Century of World Macroeconomic Developments: An Overview | 9   |
| 4. Implications for Poverty: A Chronological Narrative             | 36  |
| 5. Some Policy Conclusions and Reflections                         | 45  |
| References   | 51  |

## List of Tables

|     |  |    |
|-----|--|----|
| 1.  | World macroeconomic indicators   | 9  |
| 2.  | Growth in GDP  | 11 |
| 3.  | Shares of world GDP of developing and developed countries                            | 12 |
| 4.  | Share of world GDP derived using various methods for aggregation                     | 13 |
| 5.  | Correlation of growth across developing regions, 1961–2006                           | 15 |
| 6.  | Inflation in developing countries (%)  | 18 |
| 7.  | Results of VAR with growth rates and prices, 1960–2006                               | 26 |
| 8.  | Price volatility (monthly)   | 28 |
| 9.  | Episodes of sudden stops   | 32 |
| 10. | Changes in health indicators in low- and middle-income countries (% change per year) | 36 |
| 11. | Poverty headcount, US\$1 per day (% change between measures)                         | 39 |
| 12. | Poverty and crisis (poverty headcount ratio)   | 40 |
| 13. | Financial crises and poverty   | 41 |
| 14. | Social impact of economic crises   | 42 |
| 15. | Change in growth in GDP per capita during recessions (%)                             | 46 |
| 16. | Change in commodity prices during recessions (%)                                     | 46 |
| 17. | Changes in interest rates during recessions (%)                                      | 47 |
| 18. | Change in U.S. real exchange rate during recessions                                  | 47 |
| 19. | Energy, population, and GDP  | 50 |

## List of Figures

|     |   |    |
|-----|---|----|
| 1.  | HDI ratio, developing countries over industrialized countries                       | 7  |
| 2.  | World growth  | 10 |
| 3.  | Growth trends   | 11 |
| 4.  | Impulse-response from VARs  | 14 |
| 5.  | Percentage of developing countries in recession                                     | 17 |
| 6.  | Real interest rates   | 19 |
| 7.  | Growth and inflation  | 21 |
| 8.  | World real prices for metals and oil  | 23 |
| 9.  | World real prices for agricultural products   | 23 |
| 10. | World agricultural prices, nominal indices (monthly, January 1957 to February 2008) | 24 |
| 11. | Terms of trade (median)   | 27 |
| 12. | U.S. real exchange rates  | 29 |
| 13. | Capital flows to developing countries (% GDP)                                       | 31 |
| 14. | Current account imbalances (% world GDP)  | 33 |
| 15. | Poverty headcount, US\$1 per day (%)  | 38 |
| 16. | Energy, agriculture, environment, and poverty                                       | 49 |

## **ACKNOWLEDGMENTS**

I would like to thank Joachim von Braun and Rajul Pandya-Lorch for our exchanges on these topics, the anonymous reviewers and editors for their comments, and all IFPRI staff that helped to put this paper together. Special thanks to Victoria del Campo for her comments and her help with data collection and analysis.

## ABSTRACT

In the second half of the 1990s, a series of developments led to a renewed academic and policy interest in the intersection of macroeconomic policy and poverty issues in developing countries. The focus of that work was *domestic* macroeconomic policies. This paper, however, focuses on the international dimension and discusses the links between *global* macroeconomic conditions and poverty in developing countries since the 1960s. Of course, when analyzing policy impacts, both domestic and international aspects must be considered. However, debates about domestic policies, macro or otherwise, and their impacts on poverty cannot provide an accurate analysis of developing countries' alternatives and predicaments if they ignore the role, in many cases overwhelming, of external factors. That is the story this paper tries to tell.

The objectives here are to present an overview of trends and cycles in the world economy, to summarize the events of the last half century in view of the current concerns about the likely economic slowdown in the United States and other industrialized economies, and to assess the possible repercussions on the rest of the world. The hope is that the paper will serve as background material for developing countries to better characterize potential scenarios and properly define policy options for the coming years, which look like they will be far less benign than the recent past.

**Keywords: macroeconomics, poverty, development, agriculture**





# 1. INTRODUCTION

In the second half of the 1990s, a series of developments led to a renewed interest in the intersection of macroeconomic policy and poverty issues. In 1996 the Heavily Indebted Poor Countries (HIPC) Initiative was launched, involving the International Monetary Fund (IMF), the World Bank, and other international financial institutions. The intent of the HIPC Initiative was to provide debt relief to low-income countries and thus open fiscal space to help finance their poverty reduction programs. In September 1999 the Bretton Woods institutions presented a new framework for poverty reduction strategies based on the preparation of national poverty reduction strategy papers (PRSPs). The strategies were supposed to be the basis for concessional lending by those institutions and for debt relief under the HIPC Initiative.<sup>1</sup> Both the IMF and the World Bank renamed their concessional facilities and instruments to emphasize the new poverty focus. These developments were part of the broader concern within the international community related to poverty alleviation that eventually led to the adoption of the Millennium Declaration containing the Millennium Development Goals during the UN Millennium Summit in September 2000.

The involvement of the IMF in the national PRSPs and the issue of debt sustainability after its reduction under various initiatives led immediately to the discussion of what type of domestic macroeconomic policies would help with poverty alleviation efforts. A flurry of analytical activity ensued in the international organizations, academia, and civil society, focusing on the intersection of macroeconomic and poverty issues (see, e.g., the May 2005 issue of *Development Policy Review*, which collected work done jointly by the International Food Policy Research Institute, the European Network on Debt and Development, the New Rules for Global Finance Coalition, and Oxfam International; Cornia [2006], which reflects a more critical view of the policy advice given by international organizations; and Mody and Pattillo [2006], based on work done mostly by IMF and World Bank staff).

Notwithstanding the current renewal of interest, concerns about the proper domestic macroeconomic policies for development and poverty reduction are not new. Rather, they have been a recurrent topic, albeit in varying formats, in the development debates from the 1950s and 1960s to the present: from the divergent views of structuralists and monetarists on inflation and the impact of IMF stabilization programs on development (see, e.g., Sunkel 1958; Prebisch 1961; Seers 1962; Felix 1965; Johnson 1984), to the debates about stabilization and structural adjustment programs by the Bretton Woods Institutions during the 1980s (see, e.g., Easterly 2003; Truman 2003), to the current discussions about macroeconomic policies and poverty.

The focus of most of the recent work has been *domestic* macroeconomic policies. At the same time, analysis of development and poverty issues has a long tradition of linking the evolution of domestic indicators to the level of integration with, and the conditions prevalent in, the *international* economy. The literature on colonialism and neocolonialism (see, e.g., Nkrumah 1965) emphasized the negative impact of direct colonial control that led to the extraction of the value of primary products in the periphery. The notion of the secular decline of the terms of trade of developing countries highlighted a more mediated economic mechanism that, through falling prices of primary exports, would lead to the impossibility of retaining the benefits of technical progress in developing countries (Prebisch 1950; Singer 1950).<sup>2</sup> In turn, the theory of dependency criticized the economically imbalanced and socially unequal structures created by “dependent capitalism” in developing countries (Dos Santos 1970; Cardoso and Faletto 1979).

Besides the issue of the impact of external conditions on trend growth (and its developmental “quality”), there were concerns about the impact of world volatility on variations or oscillations around that trend, mostly related to variable world commodity prices and trade flows but also linked to

---

<sup>1</sup> In 2005 the HIPC Initiative was supplemented with the Multilateral Debt Relief Initiative (MDRI) to accelerate progress towards the Millennium Development Goals. The MDRI was supposed to provide full debt reduction by the IMF, the International Development Association of the World Bank, and the African Development Fund, which in 2007 was joined by the Inter-American Development Bank.

<sup>2</sup> That outcome was considered the result of market structures in developed countries (characterized by industrial oligopolies and strong unions) that were clearly different from those of developing countries (characterized by smaller firms and surplus labor). The contrasting structures allowed developed countries to retain the benefits of technical progress, while developing countries had to surrender gains from productivity because of falling prices for their primary exports.

movements in capital flows. After experiencing the vagaries of world markets for commodities during the 19th and early 20th centuries, as well as the breakdown of the world economy resulting from two world wars and a subsequent deep recession, many developing countries turned to inward-oriented industrialization policies with the hope of diversifying their economies away from primary production, reducing external vulnerability, and stabilizing growth. Also, it has been argued that the ups and downs in capital flows from central countries to the rest of the world, at least since the second half of the 19th century, defined the episodes of growth and recession in countries in the periphery. According to this view, the two groups of countries evolved countercyclically, because when the main economies (the center) entered into recession, capital flowed out toward smaller countries (the periphery), which then experienced an economic boom. On the other hand, when the center was growing, it stopped or significantly slowed down the outflows of capital, which reduced growth or even generated crises in the formerly booming economies of the periphery (see, e.g., Fishlow 1985; Bordo 2006).

This paper focuses on the international dimension and discusses the links between global macroeconomic conditions and poverty in developing countries since the 1960s. But any discussion of the effects of policy must consider both domestic and international factors. More generally, in any evaluation of policy impacts, it is important to distinguish three levels that are not always properly differentiated: (1) the nature of the policy intervention, (2) the relevant domestic conditions, and (3) the conditions that prevail at the world level that can affect both (Díaz-Bonilla 2001). Therefore, the simple narrative of the external conditions (level 3) can only be seen as indicative, and the interactions with levels 1 and 2 must also be factored in. However, debates about domestic policies, macro or otherwise, and their impacts on poverty cannot provide an accurate analysis of developing countries' alternatives and predicaments if they ignore the role, in many cases overwhelming, of external factors. That is the story this paper tries to tell.

The objectives of the paper are to present an overview of trends and cycles in the world economy, to learn from the events of the last half century in view of the current concerns about the likely economic slowdown in the United States and other industrialized economies, and to assess the possible repercussions on the rest of the world. Poverty in developing countries has been influenced both by world trend growth (and its developmental quality) and by cycles and crises around that trend. It looks like the world may be entering another of the periodic episodes of economic deceleration. With its broad perspective, it is hoped that this paper will serve as background material for developing countries to better characterize potential scenarios and properly define policy options for the coming years, which look like they will be far less benign than the recent past.

Section 2 clarifies some conceptual and definitional issues. Then Section 3 describes the evolution of key global macroeconomic variables and speculates about the channels through which they may affect poverty. Section 4 presents a more integrated chronological narrative of world macroeconomic developments and poverty trends in developing countries. Finally, Section 5 concludes with some considerations about growth and poverty perspectives in developing countries, taking into account the short-term business cycle and long-term trends.

## 2. MACROECONOMICS AND POVERTY: SOME DEFINITIONS

### What Is the Macroeconomic Problem?

The distinction between growth (with policies acting on the aggregate supply, mainly in the medium to long term) and stabilization of cycles (with policies directed at aggregate demand, basically in the short run, to smooth out expansions and recessions) seems at first a natural way to organize the discussion about macroeconomic issues. If that dichotomy were accepted, the macroeconomic policy problem could be simply defined as the stabilization of the aggregate demand around the (independently determined) growth trend of the aggregate supply to avoid either unemployment (if there is a lack of aggregate demand compared to potential aggregate supply) or inflation and balance of payment problems (in case of excess of aggregate demand over supply). We could call the alignment of aggregate demand with aggregate supply the first macroeconomic problem.

However, as Stock and Watson (1988) have argued, focusing only on explanations of growth or trying only to understand cycles is the wrong approach if there are important interactions between those two aspects. Thus, it is not adequate to define the macroeconomic problem as just a question of how to align aggregate demand with an independently evolving aggregate supply. The interactions between growth and the cycle must be also considered.<sup>3</sup> Those interactions come from several factors, including the influence of macroprices—such as the terms of trade, exchange rate, interest rate, and average wages—on stabilization of the cycle and on growth policies.

The exchange rate plays a central role both in the nominal aspects related to the short-run management of the aggregate demand and in the real aspects affecting aggregate supply in the longer run. The dual role of the exchange rate is reflected in the two approaches that have been applied in developing countries to define the proper exchange rate policy. First, the “real exchange rate” approach emphasizes the influence of the exchange rate on production and trade (see Balassa 1977, 1985). Second, the “nominal anchor” approach highlights the role of the exchange rate in the inflationary process and its relationship with interest rates, capital flows, and asset accumulation. The duality of the exchange rate has been at the core of several problems of inconsistency in economic programs in many countries (see Corden 1990). Interest rates have a dual role as well. They not only influence aggregate demand in the short run but also affect the choices between savings and investment and, possibly, also between technological options, thereby determining long-term growth prospects. Similarly, wages can affect aggregate demand over the cycle, but they also have an effect on the capital/labor ratios, technological alternatives, and the decision to invest in human capital, all of which define aggregate supply trends. Finally, trends and volatility in the terms of trade have short-term effects on aggregate demand as well as longer-term effects on investment and growth.

Therefore, in addition to the alignment of aggregate demand with aggregate supply, a second macroeconomic policy issue is how “to get macroprices right” and reasonably predictable (to the extent that can be influenced by policy), avoiding misalignments and reducing uncertainty.

Economic crises, with their various fiscal, financial, trade, and social manifestations, are particularly dramatic indications of imbalances between aggregate demand and aggregate supply (the first macroeconomic policy problem) and of misalignments in macroprices (the second macroeconomic policy problem). Crises tend to affect long-term growth prospects and increase poverty through various channels. Therefore, crisis avoidance can be considered a third macroeconomic issue in its own right.

In summary, macroeconomic policies have implications both for smoothing the business cycle and for medium-to-long-term growth, and it is important to consider the three issues of (1) the proper alignment of aggregate demand and aggregate supply; (2) the level, stability, and sustainability of macroprices; and (3) avoidance of economic crises.

---

<sup>3</sup> The argument of Stock and Watson refers mainly to the U.S. economy. Similarly, Aguiar and Gopinath (2004) argue that for developing countries “the cycle is the trend.”

## Policy Objectives and Trade-Offs

All this has implications for the five general objectives of economic programs: (1) correcting unsustainable disequilibria in the balance of payments (i.e., attaining “external equilibrium”); (2) reducing or eliminating inflationary pressures (i.e., attaining “internal equilibrium”); (3) promoting microeconomic efficiency and correcting distortions; (4) maintaining sustainable economic growth (including adequate levels of employment); and (5) eliminating poverty and providing for the basic needs of the population.

Characteristically, short-run macroeconomic programs (usually called stabilization programs) emphasize the external and internal equilibrium (objectives 1 and 2), trying to ensure that the aggregate demand does not exceed some level (or trend growth) of aggregate supply beyond what can be financed externally on a sustainable basis. The economic policies included in these programs are mainly, but not only, monetary and fiscal measures.

On the other hand, medium-to-long-run development plans (sometimes called structural adjustment programs<sup>4</sup>) tend to underscore economic growth and efficiency (objectives 3 and 4). The expansion of the aggregate supply depends on the quantity, quality, and level of utilization of human, capital, and natural resources on technological aspects and on the efficiency (static and intertemporal) in the allocation of resources. Policies at this level focus on microeconomic issues (especially related to prices and the system of incentives), investment programs (in human and physical capital), and institutional development (including the adequate balance between the operation of markets and public sector intervention).

Additionally, as indicated earlier, the exchange rate and other macroprices play a central role both in the nominal aspects related to the short-run management of the aggregate demand and in the real aspects affecting aggregate supply in the longer run.

Objective 5 (elimination of poverty and satisfaction of social needs) focuses more on the structure and distribution of aggregate demand and supply. Macroeconomic/stabilization and structural adjustment/development policies have important distributive impacts, affecting how costs and benefits are allocated across individual and social groups. These distributive aspects may be crucial to the political and institutional sustainability of the whole economic program.

Because of the various elements involved in an economic program, there may exist a wide variety of complementarities between objectives and policies. For example, price stability allows the markets to better perform their intra- and inter-temporal allocation of resources and therefore fosters efficiency and growth. Real economic growth can ease inflationary pressures and help attain a more sustainable position in the external accounts on the one hand, and can alleviate the problems related to poverty and the satisfaction of basic needs on the other hand.

However, inconsistencies, incompatibilities, and unwanted side effects may also exist. Policies aimed at structural reform and growth in the long run may produce unintended destabilizing effects on the macroeconomic internal and external balance in the short run (and may be discontinued because of that). Also, policies attempting to restore macroeconomic stability can have undesirable side effects on growth. Further, both macroeconomic and structural adjustment policies may impact social conditions, poverty, and basic needs in ways that impose undue and unfairly distributed burdens on people. Those social costs may endanger the sustainability of the economic program (because of the political and social resistance they generate) or, if the program is sustained, it may impair the preservation and formation of human capital. As a result, not only would poverty deepen but also growth opportunities going forward would decline.

Therefore, impact analysis of domestic or international macroeconomic conditions and policies must be aware of these complexities and trade-offs in reaching any conclusion.

---

<sup>4</sup> “Structural adjustment” here consists of changes in the productive structure of the countries involved, expanding those sectors in which they have international comparative advantage (or where dynamic competitive advantages can be fostered) and reducing the activities considered inefficient or not competitive. For a different perspective of what structural adjustment adjusts, see Easterly (2005).

## Poverty and Income Distribution: Concepts and Issues

The ambiguity of concepts, definitions, and measures linked to poverty, income distribution, and other welfare indicators further complicates impact policy analysis.

### *Definitions of Poverty and Income Distribution*

An obvious difference in the definitions of both poverty and income distribution, which has implications for the debate about the impact of any policy stance, is whether the variables of interest are considered in absolute or relative terms. As Kanbur (2001) notes, using the different terms can lead to different conclusions: while the absolute number (headcount) of the poor has been increasing in some developing regions and countries, the percentage of the poor (incidence of poverty) over total population has been mostly declining in those regions and countries.<sup>5</sup> But there are other aspects to the absolute/relative distinction.<sup>6</sup> An *absolute* poverty line (which in itself can be used for headcount or incidence statements) does not change over the period being analyzed, reflecting some notion of a “natural” level of minimal consumption below which people are poor. By contrast, *relative* poverty lines change with mean income, the result of thinking about poverty not as absolute deprivation but as lacking some essentials as defined in a specific time and societal context (“social” deprivation).

Two absolute poverty lines are used in calculations of world poverty (Chen and Ravallion 2004): a “US\$1 per day” definition of poverty, which reflects conditions mostly in low-income developing countries, and a “US\$2 per day” definition, which refers mainly to middle-income developing countries.<sup>7</sup> Chen and Ravallion calculated a relative poverty line by combining a fixed poverty line and a country-specific component that increases with mean consumption in that country.<sup>8</sup> Each of the three lines gives a different picture of the evolution of poverty between the early 1980s and early 2000s: the headcount would have declined by about 400 million people in the US\$1-per-day definition, increased by some 300 million in the \$2-per-day case, and decreased by some 350 million according to the combined line. However, the incidence of poverty (percentage of poor among the total population) declined, albeit in different proportions, under all definitions over the same 1981–2001 period: from 40 percent to 21 percent (US\$1 per day), from 67 percent to 53 percent (US\$2 per day), and from 50 percent to 29 percent (relative).<sup>9</sup>

### *Measurement and Aggregation Issues*

Regarding measurement problems, poverty and income distribution indicators may vary significantly depending on whether market exchange rates or purchasing power parity (PPP) conversion rates are

---

<sup>5</sup> Other indicators of poverty include the poverty gap index (which measures the depth of poverty, or the degree to which the mean income of the poor differs from the established poverty line) and the squared poverty gap index (which tries to determine the severity of poverty by considering differences in income levels among the poor).

<sup>6</sup> Also, income distribution can be defined in absolute terms (the value gap between two incomes, say 9,000 pesos, as the difference between an income of 10,000 pesos and another of 1,000 pesos) or relative terms (the ratio of those two incomes, or 10:1 in this case). The problem is that, again, definitions of distribution-neutral growth based on absolute or relative terms do not coincide. Under the relative definition, if both incomes grow at say 5 percent, the ratio does not change, and it can be said that growth has been distribution neutral. However, with both incomes growing at 5 percent, the absolute gap has increased from 9,000 pesos to 9,450 pesos, which many would argue is not a distribution-neutral outcome (see the discussion in Ravallion 2003a). Consequently, some analysts like Dollar and Kraay (2001) consider it positive that policies promoting greater integration with the world economy (“globalization”) lead to growth in the poor groups that, according to their estimates, is similar to other higher income brackets (i.e., those policies are distribution-neutral in the relative sense); on the other hand, others argue that this result is a demonstration that globalization deteriorates income distribution based on an absolute measure of the gap (see, e.g., Wade 2004). As emphasized by Ravallion (2003a), this is a judgment or value issue rather than a pure definitional or measurement disagreement.

<sup>7</sup> Ahmed et al. (2007) suggest subdividing the US\$1 per day further into three categories: subjacent poor (living on between US\$0.75 and US\$1 per day), medial poor (living on between US\$0.50 and US\$0.75 per day), and ultra poor (living on less than US\$0.50 per day).

<sup>8</sup> The relative poverty line is defined as the larger of US\$1.08 per day and one-third of the mean daily private consumption per capita at 1993 purchasing power parity values (Chen and Ravallion 2004)

<sup>9</sup> Individual countries also calculate their own poverty lines (absolute or relative), which may differ from the standardized values used across countries by the World Bank.

used.<sup>10</sup> Although the PPP measure better captures the welfare equivalence of domestic consumption bundles, using the current exchange rate reflects more accurately the relative costs of the operations of various countries within the global economy, such as paying external debts, buying essential imports, being able to send and maintain diplomats and government representatives to the cities in industrial countries where international organizations operate, and so on (see Wade 2004).

A separate issue is whether to focus on countries or to consider the world as the proper unit of analysis to assess welfare improvements.<sup>11</sup> Those favoring a country focus argue that it does not help the poor in Sub-Saharan Africa to know that China has reduced poverty levels, and that countries are the proper unit of analysis because it is there where policies are defined and implemented (Wade 2004).<sup>12</sup> The global view, on the other hand, tries to consider the welfare of all individuals in a comparable manner.

### *Surveys and National Accounts*

Estimates using national accounts for mean consumption and distribution curves from household surveys yield larger declines in poverty than those using household surveys both for the mean and the distribution (Sala-i-Martin 2002a; see also Bhalla 2002, who argues that the Millennium Development Goal of cutting poverty in half by 2015 has already been achieved).

However, the use of national accounts has been criticized on the grounds that it is inconsistent to assume that household surveys, while failing to get the mean consumption right, are nonetheless properly capturing its distribution. Underestimation of mean consumption would also be presenting a less unequal picture of the distribution variable, considering that underreporting in household surveys is usually larger in higher-income households, with possible offsetting effects for poverty estimates if both aspects are considered together. Therefore, estimates that only adjust mean consumption (using national account estimates that have their own problems of estimation and also a different coverage) but accept the validity of the distribution curves would most likely underestimate global poverty and exaggerate the advances in reducing it (Ravallion 2003a, 2003b).

### *Human Development Measures*

Rather than using income or expenditure indicators,<sup>13</sup> as in the previous sections, a natural way of assessing whether people are doing better is to look at specific outcomes in human development. Health, education, and other social indicators have improved considerably since the 1950s, far more than in any previous period (Crafts 2000). These improvements have implications for assessing both poverty and distribution, sometimes providing different perspectives on what the trends are.

---

<sup>10</sup> Problems also arise related to the various PPP exchange rates used. When the World Bank recalculated its poverty estimates, moving from constant 1985 PPP dollars to constant 1993 PPP dollars, past estimates for global poverty changed significantly, leading to substantial increases in past poverty incidence rates in countries of Sub-Saharan Africa, and large decreases in Latin America, the Middle East, and North Africa, even though the historical survey data in local currency had not been changed. The differences occurred in estimates for the same country, and the same year, with the same national data, and the only difference was that a new PPP exchange rate was being used (Deaton 2001). Different calculations for consumer price indices, PPP exchange rates (with different methodologies, not just updates in the underlying data), and consumption baskets to carry out those comparisons are also sources of strong disagreements. Recently, the International Comparison Program, which is coordinated by the World Bank and produces PPP estimates for 100 developing countries, has adjusted the conversion rates for several countries, including China and India (see <http://www.worldbank.org/data/icp>).

<sup>11</sup> This debate has been more acute with respect to whether or not global income distribution has improved. Noting that inequality across countries, as well as within them, seems to have increased in the last decades, some researchers conclude that world inequality has increased (see, e.g., United Nations Development Programme 1999). However, Sala-i-Martin (2002a, 2002b) argues that analyzing income distribution using the world as the unit of analysis rather than countries shows that trends both for income distribution (using a variety of indicators) and poverty have improved since the 1980s. From a worldview, these results are driven basically by China's income growth.

<sup>12</sup> However, more recently it has been argued that China's high growth and related high demand for commodities have also been pulling up growth rates in Africa and other developing countries, which presumably has also helped with poverty alleviation.

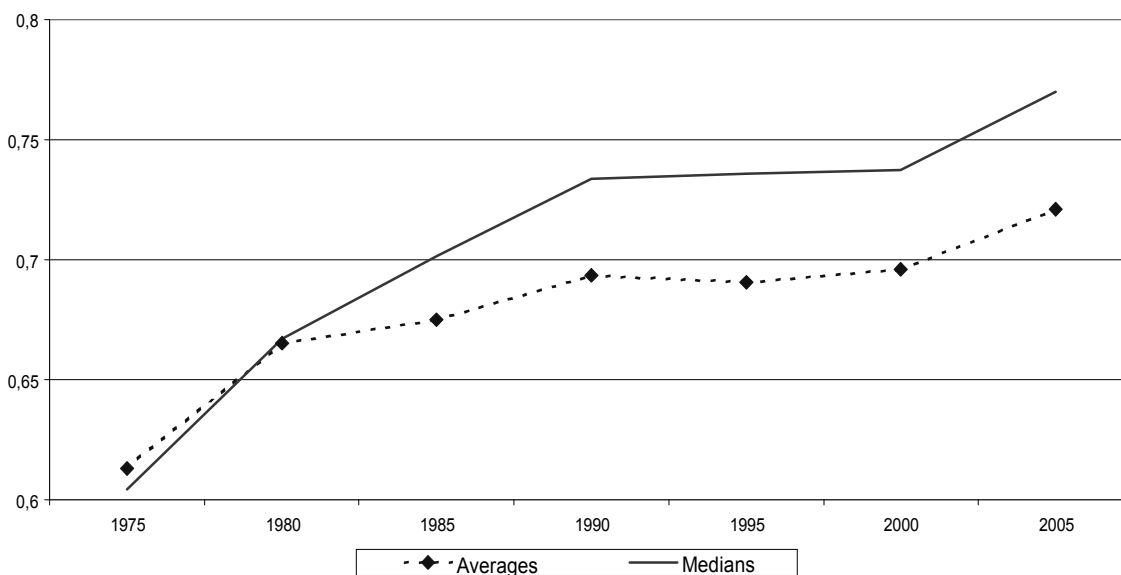
<sup>13</sup> These measures include mostly private income and expenditures, which raises the issue that cuts (or increases) in those public services that are supplied free may not be captured in those indicators (see Kanbur 2001).

For instance, using economic or income indicators gives the impression that developing countries have lost ground against developed countries as a whole, but using more comprehensive measures of human welfare, such as the Human Development Index (HDI) of the United Nations, shows an apparent global convergence in standards of living, with the gap between the richest and poorest countries declining both proportionately and absolutely between 1975 and 2005 (Figure 1; Crafts [2000] finds the same convergence in a longer time perspective).<sup>14,15</sup>

Life expectancy, however, declined after the 1980s in Sub-Saharan Africa and in some former republics of the Soviet Union. In total 35 countries have suffered declines in life expectancy since 1980, most as a consequence of the AIDS epidemics. Additionally, these are still average figures for countries and therefore may miss distributive problems within countries.

A measure that better captures the level and distribution of poverty (as well as a more accurate indicator of food problems than average food availability) is the number of malnourished children under age five. Between the 1970s and the mid-1990s, the number declined by about 37 million, and the incidence of malnutrition dropped from 47 percent to 31 percent (Smith and Haddad 2000). Other studies show further declines in incidence and number until the mid-2000s (de Onis et al. 2004). Yet the number of malnourished children under age five has actually increased in Sub-Saharan Africa, and the incidence of malnutrition is still very high there and in South Asia.

**Figure 1. HDI ratio, developing countries over industrialized countries**



Source: United Nations Development Program (2007).

<sup>14</sup> The HDI includes incomes (up to a certain level), literacy, and life expectancy. However, the index has a built-in bias toward convergence because it contains physical limits for life expectancy and mathematical limits for the percentage of literacy, and the income levels are transformed into a logarithmic index with a ceiling of US\$40,000, under the assumption that achieving a respectable level of human development does not require unlimited incomes.

<sup>15</sup> In a related approach Becker et al. (2003) address the issue of whether world inequality has changed in the last decades by combining GDP per capita with life expectancy, arguing that a proper measure of income should consider the time frame within which it has been received, and that life cycle income, as opposed to annual income, should then be used.



### *Where Does All This Leave Us?*

This brief review of concepts and data shows some of the complexities involved in assessing the impact of macroeconomic conditions and policies (or any policy for that matter) on poverty and income distribution. To better focus the analysis in this paper Sections 3 and 4 will mostly use the standard measure of poverty of US\$1 and US\$2 per day (Chen and Ravallion 2004), supplemented with references to other indicators (such as the HDI) or disaggregated health, education, and malnutrition indicators.<sup>16</sup>

---

<sup>16</sup> Whatever the data may show, perhaps more relevant for the debate about the evolution of poverty are people's beliefs about what the trends in poverty and inequality are. *Voices of the Poor*, a "participatory research initiative" conducted by the World Bank (1999) in preparation for the 2000–2001 World Development Report, suggests that vulnerable populations felt that life had become more insecure and unpredictable than in previous decades because of uncertainty about production and employment, health problems, and increases in crime and violence, among other concerns. However, as discussed later in this report, those years were periods of economic turmoil in various developing countries. Other more recent opinion polls tend to paint a more positive picture, with the phase of the economic cycle always influencing perceptions. Also, Deaton (2001) notes that even when people are experiencing large increases in real incomes, they may not feel they are better off because they adapt their expectations upward. Thus, actual increases in material well-being may not lead to subjective perceptions of improvements, providing a skeptical background for any debate on poverty, income distribution, or well-being in general, irrespective of the facts.

### 3. A HALF CENTURY OF WORLD MACROECONOMIC DEVELOPMENTS: AN OVERVIEW

Global macroeconomic conditions affect the level, composition, and volatility of growth in developing countries, which in turn have important implications for poverty alleviation. Those global economic conditions are in good measure defined by the policies of the industrialized countries—particularly the United States, whose business cycle has strongly influenced global economic performance since it emerged as the world’s largest economy after World War II. In turn, the impact of those modifications in global conditions on developing countries depends both on the size of the shock (such as the change in interest rates or commodity prices) and the structural characteristics and policies of the developing countries.

This section presents an overview of global macroeconomic developments during the last five decades and tries to outline the channels through which they influence poverty trends in developing countries.

**Table 1. World macroeconomic indicators**

| Indicator                           | 1960s | 1970s | 1980s | 1990s | 2000s |
|-------------------------------------|-------|-------|-------|-------|-------|
| World                               |       |       |       |       |       |
| GDP growth (% per year)             | 5.4   | 4     | 3     | 2.7   | 3     |
| GDP per capita growth (% per year)  | 3.4   | 2.1   | 1.3   | 1.2   | 1.7   |
| Trade growth (% per year)           | 7.6   | 6.4   | 4.7   | 6.2   | 6.7   |
| Trade as a share of GDP (%)         | 24.5  | 32.2  | 37.6  | 41.3  | 48.6  |
| Developing countries                |       |       |       |       |       |
| Total growth (% per year)           | 4.9   | 5.3   | 3.4   | 3.4   | 5.2   |
| Per capita growth (% per year)      | 2.7   | 3.1   | 1.4   | 1.8   | 3.9   |
| Share in recession (%)              | 28.5  | 29    | 40.6  | 35.8  | 18.9  |
| Capital inflows (% GDP)             | na    | 1.25  | 1.06  | 1.44  | 1.11  |
| Consumption volatility              | 0.91  | 0.78  | 1.03  | 0.80  | 0.64  |
| Inflation (% per year) <sup>a</sup> |       |       |       |       |       |
| Industrialized countries            | 4.9   | 8.7   | 6.2   | 2.8   | 2     |
| Developing countries                | 4.9   | 16.2  | 36.7  | 36.1  | 5.8   |
| Interest rates (%)                  |       |       |       |       |       |
| Nominal <sup>b</sup>                | 6     | 8.4   | 10.6  | 5.5   | 3.2   |
| Real <sup>c</sup>                   | 1     | −0.3  | 4.1   | 2.7   | 1.1   |

Sources: IMF (2007b); World Bank (2007).

Notes: Growth is aggregated at market exchange rates. Consumption volatility data represent a median of the five-year rolling average of standard deviation/average growth for developing countries. For the 1960s, data cover various years. For the 2000s, data on GDP, trade growth, interest rates, and inflation are for 2000–2006. na = not available.

<sup>a</sup> Consumption index.

<sup>b</sup> London Interbank Offered Rate, 6-month dollar deposits.

<sup>c</sup> Using industrialized-country inflation rates.

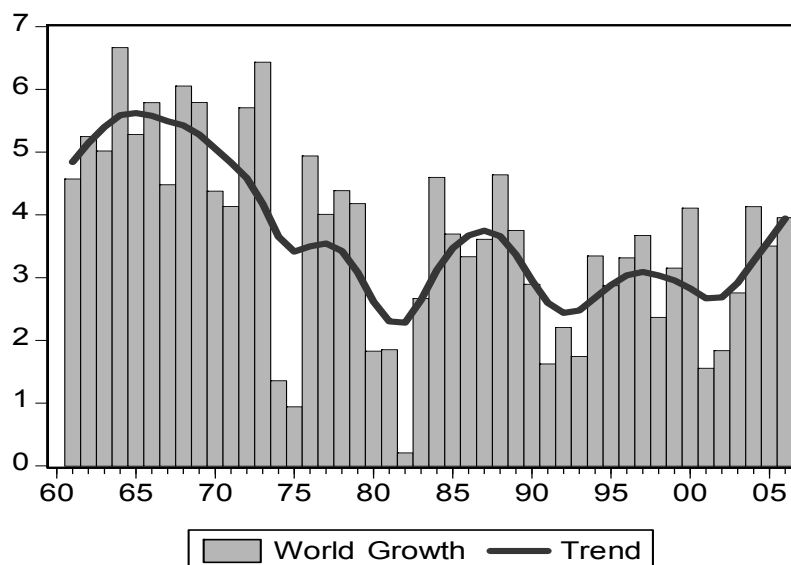
An obvious observation is that world macroeconomic conditions have changed significantly over the last decades (Table 1), affecting developing countries in diverse ways. The evolution of those key variables is discussed in the following sections. The structure of each subsection is similar, starting with a discussion of the evolution of the variable of interest and ending with some considerations about their possible links to poverty developments.

#### Growth

Average world economic growth has declined in every decade since the 1960s, when it reached 5.4 percent total and 3.4 percent per capita, but it seems to have picked up somewhat in the first half of the 2000s compared with the 1990s (see Table 1). In particular, world GDP growth per capita has gone up in

the first half of the 2000s, helped in part by declines in population growth, but without reaching the levels of the 1960s and 1970s for the world as a whole. Figure 2 shows the cycles in world growth over the last half a century.<sup>17</sup>

**Figure 2. World growth**



Source: World Bank (2007).

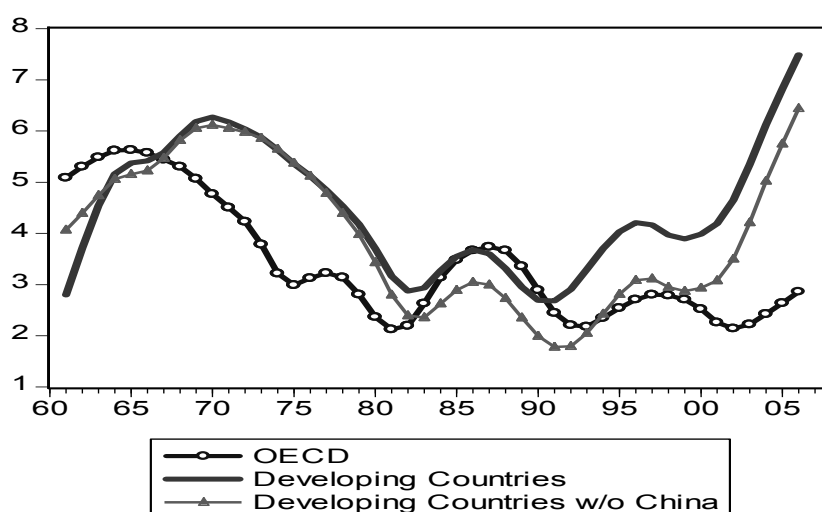
The sustained growth of the 1960s and early 1970s ended with the first oil crisis of the mid-1970s. Since then, the world economy has had three cycles with strong decelerations at the beginning of the 1980s, 1990s, and 2000s. The current growth cycle is now threatened by economic deceleration in the United States and other industrialized countries.

Figure 3 separates the trends in total growth of the industrialized countries from those of developing countries with and without China.<sup>18</sup> This disaggregation shows that the acceleration in world economic growth during the 2000s is clearly the result of the performance of developing countries, where total growth (at 5.6 percent) is comparable to the average in the 1970s (5.4 percent), while growth per capita is at the highest point of the series: 4.2 percent in the 2000s compared with 3.2 percent in the 1970s (see Table 2).

<sup>17</sup> The trend is calculated using the Hodrick-Prescott filter (power 4; smoothing parameter 6.25). The aggregation is at market exchange rates. The IMF also calculates a world growth variable, aggregated using PPP exchange rates as weights. The world growth variable calculated with PPP weights shows higher world growth rates than at market exchange rates because it gives more weight to fast-growing developing countries such as China (see the discussion of the differences in GDP shares using market exchange rates or PPP conversion factors later in this report). This study used market exchange rates, considering that growth impulses from trade and financial flows are transmitted at market, not PPP, rates.

<sup>18</sup> Excluding India also does not make much of a difference.

**Figure 3. Growth trends**



Source: World Bank (2007).

Note: OECD = Organization for Economic Co-operation and Development

**Table 2. Growth in GDP**

| Region                     | 1960s | 1970s | 1980s | 1990s | 2000–2006 | 1960s–1970s | 1980s–2000s |
|----------------------------|-------|-------|-------|-------|-----------|-------------|-------------|
| <b>Total</b>               |       |       |       |       |           |             |             |
| East Asia & Pacific        | 3.8   | 7.2   | 7.7   | 8.2   | 8.3       | 5.6         | 8.1         |
| East Asia without China    | 5.2   | 7.1   | 5.4   | 5.2   | 5.3       | 6.2         | 5.3         |
| Latin America & Caribbean  | 5.3   | 5.7   | 1.8   | 2.9   | 3.2       | 5.5         | 2.6         |
| Middle East & North Africa | 8.8   | 6.0   | 2.2   | 4.3   | 4.0       | 6.8         | 3.5         |
| South Asia                 | 4.2   | 3.0   | 5.7   | 5.4   | 6.5       | 3.6         | 5.8         |
| South Asia without India   | 4.9   | 3.2   | 5.2   | 4.4   | 5.2       | 4.0         | 4.9         |
| Sub-Saharan Africa         | 4.6   | 4.1   | 2.2   | 2.0   | 4.5       | 4.3         | 2.7         |
| Developing countries       | 5.0   | 5.4   | 3.3   | 3.4   | 5.6       | 5.2         | 4.0         |
| Industrialized countries   | 5.5   | 3.7   | 3.0   | 2.5   | 2.4       | 4.5         | 2.6         |
| <b>Per capita</b>          |       |       |       |       |           |             |             |
| East Asia & Pacific        | 1.6   | 5.0   | 6.0   | 6.8   | 7.4       | 3.4         | 6.7         |
| East Asia without China    | 2.6   | 4.6   | 3.4   | 3.4   | 3.9       | 3.7         | 3.5         |
| Latin America & Caribbean  | 2.5   | 3.2   | -0.3  | 1.2   | 1.8       | 2.8         | 0.8         |
| Middle East & North Africa | 5.9   | 3.1   | -0.7  | 2.0   | 2.2       | 3.9         | 1.0         |
| South Asia                 | 1.8   | 0.6   | 3.4   | 3.3   | 4.7       | 1.2         | 3.7         |
| South Asia without India   | 2.4   | 0.7   | 2.8   | 1.9   | 2.9       | 1.5         | 2.5         |
| Sub-Saharan Africa         | 2.0   | 1.2   | -0.8  | -0.6  | 2.0       | 1.6         | 0.0         |
| Developing countries       | 2.7   | 3.2   | 1.4   | 1.8   | 4.2       | 3.0         | 2.2         |
| Industrialized countries   | 4.3   | 2.9   | 2.3   | 1.8   | 2.4       | 3.6         | 2.0         |

Source: World Bank (2007).

Several points in Figure 3 are worth noting. First, during the 1960s and 1970s, the inflexion in the growth trend for developing countries was preceded by the decline in growth in industrialized countries. In fact, applying Granger's test of causality shows that changes in growth in industrialized countries led those in developing countries up to the mid-1990s. Second, the business cycles of industrialized and developing countries appear more synchronized in the world deceleration of the early 1980s and early 1990s; however, the slowdown that occurred at the world level and in industrialized countries in the early

2000s clearly took place after the decline in growth that affected developing countries in the late 1990s, when they suffered a series of financial crises, particularly in Asia and Latin America and the Caribbean (LAC). Unlike in the previous period, Granger’s causality tests during the 1990s and 2000s show strong two-way influences between growth in developed and developing countries. Third, the trends of developing countries with and without China, which did not differ much in the 1960s and 1970s, began to show a widening gap beginning in the 1980s. Fourth, cycles in industrialized countries during the last three decades took place around a more stationary path; developing countries, on the other hand, although clearly affected by a deceleration in the late 1990s and early 2000s, appear nonetheless on an upward trend, reaching new heights in the second half of the 2000s. As mentioned earlier, this upward path is threatened by the current deceleration in United States and other industrialized countries.

Developing regions show important heterogeneity in growth patterns, both across geographical areas and periods (see Table 2). The high growth rates, total and per capita, that LAC, Sub-Saharan Africa (SSA), and the Middle East and North Africa (MENA)<sup>19</sup> had during the 1960s and 1970s decelerated to 1 percent or less for the period 1980–2005. On the other hand, East and South Asia have experienced accelerations in both total and per capita economic growth since the 1980s. Even when China and India are not included in the totals, those regions have approximately maintained (East Asia) or increased (South Asia) their per capita growth rates from the 1980s through the 2000s compared with the 1960s and 1970s, and those rates have stayed above the averages of other developing regions.

The different growth rates have changed the way the different groups of countries participate in the world economy. Table 3 provides a perspective based on economies calculated at market exchange rates.

**Table 3. Shares of world GDP of developing and developed countries**

| Region                     | Percentage of World GDP (market exchange rates) |       |       |       |       |      |
|----------------------------|---|-------|-------|-------|-------|------|
|                            | 1960s   | 1970s | 1980s | 1990s | 2000s | 2006 |
| East Asia & Pacific        | 4.7   | 4.0   | 3.6   | 4.2   | 6.3   | 7.5  |
| China                      | 3.3   | 2.6   | 1.9   | 2.4   | 4.6   | 5.5  |
| Europe & Central Asia      | na  | na    | na    | 3.7   | 3.8   | 5.2  |
| Latin America & Caribbean  | 5.7   | 6.1   | 5.7   | 5.9   | 5.6   | 6.1  |
| Middle East & North Africa | na  | 1.5   | 1.9   | 1.2   | 1.4   | 1.5  |
| South Asia                 | 3.3   | 2.3   | 2.1   | 1.7   | 2.1   | 2.4  |
| India                      | 2.5   | 1.8   | 1.7   | 1.3   | 1.6   | 1.9  |
| Sub-Saharan Africa         | 2.1   | 2.2   | 1.9   | 1.2   | 1.2   | 1.5  |
| Low & middle income        | 23.5  | 22.7  | 21.5  | 17.8  | 20.5  | 24.2 |
| High income                | 76.5  | 77.3  | 78.5  | 82.2  | 79.5  | 75.8 |
| United States              | 37.0  | 29.8  | 29.1  | 26.8  | 29.5  | 27.4 |
| Non-U.S.                   | 39.5  | 47.5  | 49.4  | 55.4  | 50.0  | 48.4 |
| World                      | 100   | 100   | 100   | 100   | 100   | 100  |

Source: World Bank (2007).

na: not available.

Since the 1960s, the shares of world GDP of developing and developed countries measured in current dollars, using the categories defined by the World Bank, has remained approximately constant: 18–24 percent for developing (low- and middle-income) countries versus 76–82 percent for industrialized (high-income) countries. Within developing countries in the 2000s, East Asia and the Pacific (EAP) gained share, LAC and MENA stayed about the same, and South Asia (SA) and SSA lost share in the world economy. The United States has declined from its high participation in the 1960s but has since

<sup>19</sup> This paper primarily follows the country aggregates defined in the World Development Indicators of the World Bank. The other developing regions are East Asia and the Pacific (EAP) and South Asia (SA). The category of “low- and middle-income countries” is taken here to represent all developing countries. The world total is completed with the category “high-income countries” (which is divided into the high-income countries of the Organization for Economic Co-operation and Development and the rest).

stayed around 27–30 percent of world GDP. By contrast, other high-income countries, including the European Union, Japan, and Canada, gained share.

This perspective changes somewhat when other methods for aggregation are used. The three main alternatives are constant U.S. dollars, current PPP dollars, or constant PPP dollars. Table 4 presents the comparison for 2000s and 2006 (the last year with data), using the last two columns of Table 3 and comparing those numbers with data with constant U.S. dollars and constant PPP dollars.

**Table 4. Share of world GDP derived using various methods for aggregation**

| Region                     | Percentage of World GDP |      |                      |      |                      |      |
|----------------------------|-------------------------|------|----------------------|------|----------------------|------|
|                            | Current US\$            |      | Constant US\$ (2000) |      | Constant PPP Dollars |      |
|                            | 2000s                   | 2006 | 2000s                | 2006 | 2000s                | 2006 |
| East Asia & Pacific        | 6.3                     | 7.5  | 6.4                  | 7.4  | 17.0                 | 19.2 |
| China                      | 4.6                     | 5.5  | 4.6                  | 5.5  | 12.9                 | 15.0 |
| Europe & Central Asia      | 3.8                     | 5.2  | 3.0                  | 3.3  | 6.5                  | 6.8  |
| Latin America & Caribbean  | 5.6                     | 6.1  | 6.2                  | 6.4  | 7.7                  | 7.5  |
| Middle East & North Africa | 1.4                     | 1.5  | 1.5                  | 1.5  | 3.0                  | 3.0  |
| South Asia                 | 2.1                     | 2.4  | 2.1                  | 2.4  | 7.1                  | 7.7  |
| India                      | 1.6                     | 1.9  | 1.6                  | 1.9  | 5.7                  | 6.3  |
| Sub-Saharan Africa         | 1.2                     | 1.5  | 1.1                  | 1.2  | 2.4                  | 2.4  |
| Low & middle income        | 20.5                    | 24.2 | 20.3                 | 22.1 | 43.7                 | 46.9 |
| High income                | 79.5                    | 75.8 | 79.7                 | 77.9 | 56.3                 | 53.1 |
| United States              | 29.6                    | 27.4 | 30.4                 | 30.1 | 20.6                 | 19.7 |
| Non-U.S.                   | 50.0                    | 48.5 | 49.3                 | 47.8 | 35.7                 | 33.4 |
| World                      | 100                     | 100  | 100                  | 100  | 100                  | 100  |

Source: World Bank (2007).

In PPP measures, the difference between developing and industrial countries is closer to 45 percent versus 55 percent, suggesting that many developing countries, by maintaining undervalued market exchange rates, appear smaller than they would have if PPP conversion factors had been used. However, the PPP factors have recently been adjusted and could change again. In constant U.S. dollars, developing countries reach only 20–22 percent of world GDP. The devaluation of the U.S. dollar and the consequent shrinking of its economy relative to other countries whose currencies have recently appreciated is not reflected in the constant-U.S.-dollar measure (the World Bank uses exchange rates of 2000, which is before the subsequent dollar decline; see Section 3.5).

Which measure is more appropriate? It depends on the application. The advantage of using current U.S. dollars is that financial flows, trade in goods and services, international aid, remittances, and so on take place in current dollars of a particular year. Further, the cross impacts of the economic performance of some countries on others take place in current dollars (or equivalent currencies). The disadvantage is that changes in valuation of exchange rates generate movements in world participation that later may be reversed without the underlying economies having changed much in terms of their basic strength. Regardless, in all the measures, developed countries have a larger participation in the world economy than do developing countries. Particularly when current or constant U.S. dollars are used, the difference in sizes of the economies is significant.

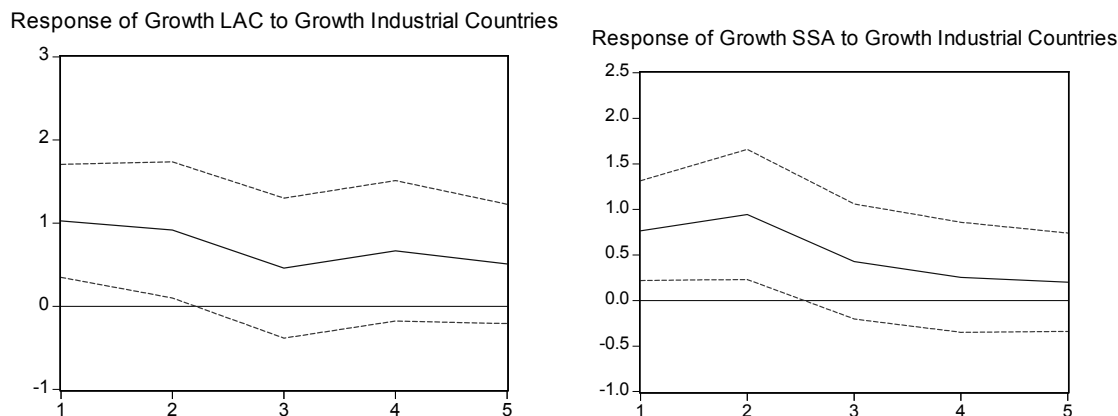
A relevant question in this regard is, what is the relationship between growth in industrialized countries and developing countries? Sir Arthur Lewis, in his Nobel lecture in 1979 (later published in the *American Economic Review*), noted that during the previous hundred years, growth in developing regions depended on the rate of growth in the developed world, and he was concerned about the impact of the evident slowing down of the industrialized countries during the late 1970s (see Figure 3). Goldstein and Kahn (1982) analyzed the period with different statistical approaches and found that growth in industrialized countries was indeed related to growth in developing countries but that additional factors weakened the link, including other developments in the world economy and domestic policies in developing countries. Goldstein and Kahn finished their analysis before the deep economic downturn of

the early 1980s, when clearly the recession in the United States and other industrialized countries had extremely negative effects in all developing countries.

During the mid-1990s Hoffmaister and Samiei (1996) looked mostly at the traditional trade linkages and noted that at least some regions of the developing world, such as many Asian developing countries, have become less influenced by the business cycle in the developed countries. After that paper was written, the issue of linkages across economies gained momentum with the 1997 Asian Crisis but was more focused on financial aspects.

As an indicative experiment, Figure 4 shows the results of a simple bivariate vector autoregression (VAR) linking growth in industrial production in the main industrialized countries and overall growth in each one of the developing regions for the period 1960–2006.<sup>20</sup> The impulse-response curves (with 5 percent confidence bands around them) are shown for LAC and SSA, the only two regions where the impact is statistically significant. It is also clearly positive and economically relevant: growth of 1 percent in industrial activity in developed countries leads to growth of about 0.3 percent for LAC; for SSA growth is somewhat less, at about 0.22 percent.<sup>21</sup> For the other regions (MENA, SA, and EAP), the impulse-responses are not statistically significant.

**Figure 4. Impulse-response from VARs**



Sources: The index of industrial production is from IMF (2007b); growth for the developing regions is from World Bank (2007). Notes: The VARs are run with three lags. The identification uses the Cholesky decomposition, with the ordering starting with the industrial countries. The impulse-response is the result of the impact of a shock of one standard deviation (positive) on the variables of interest, based on the estimated VAR equations. The solid blue line is the impulse-response and the dotted red lines are the confidence intervals.

The fact that the regions are aggregates of countries certainly mutes the effects that would be more precisely identified at the country level. Also, industrial countries may have different impacts on different regions. For instance, the 2007 IMF World Economic Outlook uses panel regressions from 1970–2005 to estimate “growth spillovers” (IMF 2007a). The IMF found that U.S. growth has a larger impact on LAC, with 1 percent growth in the United States leading to somewhat less than 0.25 percent for the region, close to the estimate calculated using a simple VAR for all industrialized countries (Figure 4). The European Union affects the economic performance of Africa in particular, with a relationship of 1 percent to 0.25 percent (also similar to the simple VAR in Figure 4). Japan does not seem to affect either of those developing regions, and it has only a small influence on Asia. In general, Asia seems to be more influenced by its own internal dynamics, although the United States, Europe, and Japan, in that order,

<sup>20</sup> It is customary to use *industrial* growth in developed countries (which is supposed to have a stronger linkage with developing countries through tradables) instead of *total* growth (which mixes growth of tradables and nontradables) to run causality analyses. However, total growth is used for developing countries.

<sup>21</sup> These numbers come from comparing the value of one standard deviation in industrial production (about 3 percentage points) with the impact coefficients shown in Figure 4.

appear to have some influence; however, the coefficients are far smaller than in the case of the United States and LAC or the European Union and Africa (IMF 2007a).

It can also be argued that to the extent that trade and financial integration has been advancing, the impact of industrialized growth on developing countries (and probably vice versa) may be increasing—a point that the IMF also notes in its 2007 World Economic Outlook (IMF 2007a). In fact, VARs similar to those reported here (but run only for the period 1990–2006 without China and India) indicate positive links between growth in industrialized countries and the developing regions. Also, as previously mentioned, Granger’s causality tests cannot reject the null of the two-way influence between developing countries and industrialized growth.

What are the relationships among different developing countries in terms of growth? Table 5 shows simple pair-wise correlations.

**Table 5. Correlation of growth across developing regions, 1961–2006**

| Region | 1961–2006  |           |            |            |            |
|--------|------------|-----------|------------|------------|------------|
|        | LAC        | SSA       | MENA       | EAP        | SA         |
| LAC    | 1.000000   | 0.480684* | 0.188488   | 0.002044   | -0.331036* |
| SSA    | 0.480684*  | 1.000000  | 0.171261   | 0.075852   | 0.006000   |
| MENA   | 0.188488   | 0.171261  | 1.000000   | -0.374294* | -0.174486  |
| EAP    | 0.002044   | 0.075852  | -0.374294* | 1.000000   | 0.255175   |
| SA     | -0.331036* | 0.006000  | -0.174486  | 0.255175   | 1.000000   |

| Region | 1990–2006 |           |            |            |           |
|--------|-----------|-----------|------------|------------|-----------|
|        | LAC       | SSA       | MENA       | EAP        | SA        |
| LAC    | 1.000000  | 0.161801  | 0.118376   | 0.393225*  | 0.187692  |
| SSA    | 0.161801  | 1.000000  | 0.119558   | -0.070949  | 0.591196* |
| MENA   | 0.118376  | 0.119558  | 1.000000   | -0.428050* | 0.081765  |
| EAP    | 0.393225* | -0.070949 | -0.428050* | 1.000000   | 0.213471  |
| SA     | 0.187692  | 0.591196* | 0.081765   | 0.213471   | 1.000000  |

Source: Calculations by the author using data from World Bank (2007).

\* Significant at 10% or better.

Looking at the whole period (1961–2006), the LAC and SSA regions have the largest positive correlation coefficients between them, and those correlations are significant. MENA appears also positively correlated with those two regions, but with smaller and nonsignificant coefficients. On the other hand, negative correlations appear between MENA and EAP and between LAC and SA, and both negative links appear statistically significant. One possible interpretation is that oil price shocks affected EAP negatively but MENA positively, while food price shocks, which helped LAC, coincided with weather events in SA that affected agriculture and overall growth in that region, particularly in the 1970s.

The negative correlation between LAC and SA disappears if the sample is restricted to 1990–2006, but the co-movement between MENA and EAP persists. In the last two decades, the strongest positive correlations appear to have been between LAC and EAP on the one hand and between SSA and SA on the other. LAC and EAP, with middle-income countries integrated in world financial markets, suffered sequential financial crises during the 1990s (as discussed later), while SSA and SA, with mostly lower-income countries less integrated in capital markets, were spared from those events but shared the common buoyancy of developing countries during the 1990s and 2000s (see Figure 3).



In summary, the issue of the synchronization of the business cycle across countries is a topic of intense debate (see, e.g., IMF 2007a). Two factors define the nature of the co-movements among economies: (1) the clear increase in trade and financial links (e.g., Table 1 shows the increase in the share of trade on GDP; for the increase in financial links, see Prasad et al. 2003), which should lead to increased co-movements;<sup>22</sup> and (2) the size of the common shocks; that is, the larger the common shocks, the larger the synchronization. For instance, during the 1960s—a period of lower world shocks and comparatively less economic integration—countries appeared less correlated than during the 1970s and 1980s, when large world shocks were experienced. During the 1990s and 2000s, countries appeared more correlated than in the 1960s because of greater trade and financial integration but less correlated than in the 1970s and 1980s as a result of smaller world shocks (IMF 2007a).

The business cycle of the United States is still at the center of world fluctuations because of the size of the U.S. economy and its openness in trade and financial variables: each one of the world decelerations since 1974–1975 coincided with U.S. recessions (not so in the 1960s, however). Besides world synchronization, regional co-movements appear to have increased, particularly within Asia and Latin America.

The more specific question for this paper is, what is the relationship between growth and poverty? In general, analyses of those links have focused on the implications of domestic growth, not world growth. However, the previous paragraphs have established that there is a nontrivial amount of co-movement between world growth, led by industrialized countries (which still represent about 75 percent of world GDP at market rates), and developing countries performance.

At the country level the general consensus is that, all things equal, higher trend growth leads to lower poverty (see Dollar and Kraay 2001; Ravallion 2001). But distribution also matters. An important level of inequality at the beginning of an economic acceleration will reduce the impact of neutral growth, which will take longer to reduce poverty by a given percentage. Whatever the initial inequality, the behavior of distribution during the growth spell also matters: although poverty declines with growth that is distributionally pro-poor, or at least neutral, a worsening distribution could easily wipe out those gains. Therefore, growth is important for poverty reduction, but both the initial income distribution and changes in that distribution are also crucial (Bourguignon 2002, 2004; Ravallion 2004). A crucial development question in this regard is how the three components of that triangle interact with each other (Bourguignon 2004).

This is related to the composition, social and sectoral, of growth: if it centers on sectors or activities that use labor and assets of the poor, growth will improve income distribution and have a larger positive impact on alleviation of poverty and hunger. For many low-income developing countries, where agriculture continues to be very important for production, employment, and exports, and where most of the poor work, agricultural development is crucial for poverty and hunger alleviation.

High and sustained growth also helps strengthen the fiscal position of governments, and those public resources can be used to finance policies and programs that favor the poor. On the other hand, low growth punctuated by crises weakens the fiscal position of countries and may lead to cuts in public programs in support of economic growth, social need, and the poor. In general, it is crucial not only to sustain high average trend growth, distributionally neutral or pro-poor, but also to avoid economic crises that might inflict long-lasting damage to the already low levels of human and physical capital of the poor and vulnerable (Lipton and Ravallion 1995). The issue of crises is discussed next.

## **Volatility and Crises**

Besides average growth performance, volatility of growth is an important consideration for poverty alleviation. Table 1 shows the volatility in aggregate consumption for developing countries<sup>23</sup> Figure 5

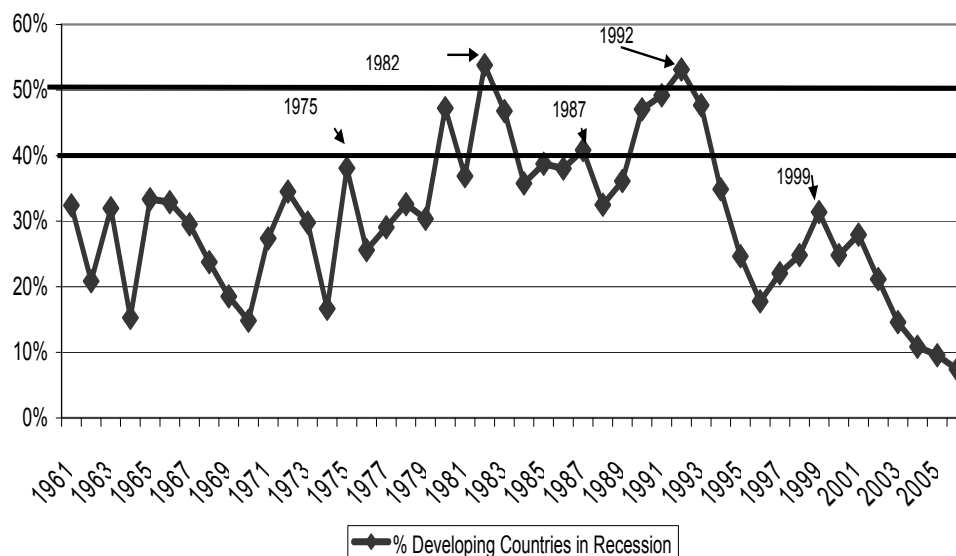
---

<sup>22</sup> It has been argued that not all trade increases co-movements equally: intraindustry trade increases synchronization more significantly than does interindustry trade.

<sup>23</sup> Volatility of GDP, or consumption growth, is calculated as the five-year moving average of the standard deviation of growth of the respective variable divided by the five-year moving average of its mean. This is done for every developing country. Then the median over all developing countries is calculated for every year, and averages are taken for the decade.

shows the proportion of developing countries with zero or negative growth each year from 1961 to 2005, measured in GDP per capita (see also the decade averages in Table 1).

**Figure 5. Percentage of developing countries in recession**



Source: Calculations by the author using data from World Bank (2007).

The largest number of developing countries in recession occurred at the time of global slowdowns—in 1975, 1982, and 1992. The exception is 1999, in which a slowdown occurred but the number of developing countries in recession anticipated the world deceleration of 2001–2002 (see Figures 2 and 5). The proportion of developing countries in recession peaked in 1982 and 1992 (the latter still influenced by the breakdown of the Soviet Union) at more than 50 percent. The proportions in 1975 were just below 40 percent and in 1999 and 2001 around 30 percent. It is interesting to note that 1987, not a year of world deceleration, shows percentages of developing countries in recession above both the years around the mid-1970s and early 2000s; the main reason appears to be the collapse in commodity prices that occurred in the mid-1980s (as discussed later).

It is also important to know the depth of the recession when discussing poverty alleviation. The average growth decline for the countries in recession was about  $-5.5$  percent in the mid-1970s and  $-6.7$  percent in the early 1980s. In the early 1990s, influenced by the breakdown of the Soviet Union, it dropped to  $-8.6$  percent, and finally, the recession of the early 2000s was the mildest in terms of the number of countries involved (see Figure 5), and the average decline was smaller in absolute value at  $-4.9$  percent.

Clearly, volatility and countries in recession increased during the 1970s, peaking in the recessions of the early 1980s and early 1990s, but they have been declining since then. In fact, during the 2000s, developing countries have experienced the lowest volatility (measured in terms of both consumption volatility and number of countries in recession) for the half century analyzed here (see Table 1 and Figure 5).

What are the links connecting volatility and poverty? A crisis reduces growth at the time as well as afterward to the extent that it affects installed capital. Moreover, the recurrence of a crisis increases uncertainty, reducing investment and therefore future capital. A crisis also tends to leave a legacy of public and private debt, weakening fiscal accounts and financial systems, which may constrain public and private aggregate demand going forward.

Not only does volatility tend to reduce growth (Kose et al. 2005), affecting poverty through that channel, but also it appears to negatively affect poverty more directly. For instance, higher unemployment

and its persistence over time deteriorate human capital. Improvements in health, nutrition, and education indicators are usually slowed down or reversed by a crisis, with its negative impact on the human capital of the poor and its contribution to the persistence of poverty (Dercon and Hoddinott 2005). Declines in the human capital of the poor also affect the performance of the economy, which is an economic justification for the provision of publicly funded safety nets (Lustig 2000).

Crises may also compromise the limited productive capital of the poor if, for instance, assets like livestock must be sold to help small farmers face economic shocks (Lipton and Ravallion 1995). Macroeconomic crises limit the possibilities for the poor to self-insure individually or through communal schemes (Dercon 2005). Also the poor may lack the educational skills to shift activities, and depend more heavily on public services that could be affected by economic crises.

Crises can also worsen income distribution, making it more difficult for the growth recovery to reduce poverty (Lustig 2000).<sup>24</sup> A high degree of income or consumption volatility can also cause poverty traps, not only because of the irreversible negative impact that crises can have on the human capital of the poor but also because the risky environment leads the poor to engage in low-return activities.

The negative effect of volatility on poverty seems to be more noticeable in the low-income developing countries of Africa but has also affected middle-income countries suffering from financial crises. For Latin America, the Inter-American Development Bank (1995) estimates that if LAC had a level of macroeconomic stability similar to industrialized countries, the poverty headcount would have been reduced by one-quarter.

The different growth and volatility patterns over time in different developing regions have resulted unequal performance in terms of poverty reductions. Currently, stronger economic growth and lower volatility appear to have contributed to further reductions in poverty in many developing countries (see Section 4).

## Inflation and Interest Rates

In the last decades the world economy has gone through what has been called “the rise and fall of inflation” (IMF 1996), with a parallel cycle for nominal and real interest rates (see Table 1). Along with the reduction in growth volatility during the last years (which included both developing and industrialized countries), the decline in inflation and interest rates has led some to call the period since the 1990s the “Great Moderation” (Bernanke 2004).

In all developing regions, as in the industrialized world, inflationary pressures have abated since the mid- to late 1990s, going back to levels more comparable to those of the 1960s (see Table 1). There are, however, clear differences across regions, with LAC and Africa showing higher inflationary pressures than Asia and the Middle East (Table 6).

**Table 6. Inflation in developing countries (%)**

| Region                      | 1960s | 1970s | 1980s | 1990s | 2000–2005 |
|-----------------------------|-------|-------|-------|-------|-----------|
| Africa                      | 5.1   | 12.6  | 17.2  | 25.9  | 8.3       |
| Asia                        | 3.6   | 10.3  | 9.0   | 8.1   | 2.7       |
| Latin America and Caribbean | 6.6   | 31.5  | 91.1  | 130.5 | 7.9       |
| Middle East                 | 3.7   | 10.6  | 18.7  | 11.9  | 5.7       |

Source: IMF (2007b).

Asia experienced only mild increases, more in line with inflationary developments in the industrialized world, converging during the 2000s to rates below 3 percent annually. Inflation peaked during the early 1990s in LAC and Africa: the highest rate was 460 percent in the year 1990 in LAC and

<sup>24</sup> However, Epaulard (2003) did not find asymmetric effects of growth on poverty—that is, negative growth did not increase poverty by more than positive growth would have reduced it.

about 32 percent in 1992 in Africa. As a result, the whole decade of the 1990s showed the highest inflation rates, with 130.5 percent in LAC and 25.9 percent in Africa. In Asia, however, the highest inflation was during the 1970s (10.3 percent), with a peak in 1974 of about 30 percent.

Nominal interest rates were also increasing during the 1970s and early 1980s, but in the second half of the 1970s, prices were going up faster than nominal interest rates, leading to negative real interest rates (average for the decade was 8.4 percent for nominal interest rates but  $-0.3$  percent in real terms; see Table 1). In the early 1980s, after the second oil shock, several industrialized countries, particularly the United States, turned toward restrictive monetary policies. Nominal interest rates were raised substantially above inflation rates, leading to high real interest rates (10.6 percent and 4.1 percent, respectively on average for the 1980s, with a peak of about 6–8 percent in real terms in the early 1980s; Figure 6<sup>25</sup>). This policy change led to the recession of the early 1980s (world growth in 1982 was the lowest of the five decades considered here; see Figure 1).

**Figure 6. Real interest rates**



Source: Calculated by the author from IMF (2007b).

Since then, both short- and long-term interest rates have been declining on trend, but with the short-term rates showing the cycles influenced by monetary conditions defined mostly by the policy stance of the Federal Reserve. In addition to the clear case of the 1980s, subsequent events of monetary tightening have usually generated negative financial and growth repercussions in developing countries (as discussed later in this section). During the early 2000s U.S. monetary policy was strongly expansionary (leading to negative short-term rates during that period). These policies have slowly been reversed since the mid-2000s: real short-term interest rates have been increasing again to about 2 percent in real terms, while the real U.S. prime rate jumped to about 4 percent (see Figure 6). This tightening of monetary policy and monetary conditions affected the housing sector in the United States and put in motion the events that are at the heart of the current slowdown in U.S. growth.

The behavior of both inflation and interest rates has important implications for growth and poverty alleviation. It is usually recognized that world interest rates (mostly influenced by U.S. monetary conditions) have direct effects on the business cycle, growth and crises in developing countries (Calvo et

<sup>25</sup> Figure 6 shows the evolution of short- and long-term real interest rates, represented respectively by the one-year U.S. dollar London Interbank Offered Rate (LIBOR) and the 10-year U.S. bond rate. The figure also includes the U.S. prime rate in real terms. The deflator is inflation measured by the U.S. Consumer Price Index.

al. 1993; Uribe and Yue 2003). High real and nominal rates tend to depress growth; and because of changes in monetary policy conditions, sudden upward adjustments in industrialized countries have been at the root of many of the financial crises that afflicted developing countries during the last decades.

Regarding changes in prices, episodes of hyperinflation or very high inflation, such as those that occurred in several LAC countries in the 1980s and 1990s, were accompanied by large increases in poverty. At the same time, it has been argued that lower inflation tends to benefit the poor because they usually have nominal incomes that adjust slowly and do not have access to financial instruments that protect them from price increases. For instance, using household data for 38 countries, Easterly and Fischer (2001) found that inflation is a real problem for the poor, both in their perception (the poor are more likely to mention inflation as a concern) and in reality (several measures of welfare of the poor are negatively correlated with inflation in general, and high inflation lowers the share of the bottom quintile and the real minimum wage and increases poverty; see also Cardoso 1992). However, using nonlinear estimation methods, Epaulard (2003) found no clear impacts of inflation on poverty, except in the cases of high inflation (her estimated threshold is an yearly inflation of about 80 percent) interacting with declines in growth (in her estimates, high inflation with growth does not affect poverty).

The two conclusions are not necessarily contradictory, depending on the period and circumstances considered. In fact, nonlinearities and context may be important to determine the proper relationships between inflation and poverty. The negative impact of inflation on poverty may appear a reasonable conclusion in developing countries with large percentages of informality in labor markets and relatively high levels of inflation, as has been the case until very recently, particularly for LAC and Africa. However, given the recent decline in inflation in developing countries, the current debate about its interaction with poverty should also include the potential impact on growth and employment of domestic anti-inflationary policies, as it has usually been the case in industrialized countries (see, e.g., Powers 1995).<sup>26</sup> The question is whether the domestic macroeconomic policies used to reduce inflation are simultaneously slowing growth and increasing unemployment in a way that could more than compensate for the positive impact of lower inflation on poverty.

The relationship between growth and inflation has long been debated. In monetary theory the predictions have been that inflation has no effect on growth (money is super-neutral; Sidrauski 1967); that inflation may have a positive impact on growth (Tobin 1965, who assumed that money was a substitute for capital); and that inflation and growth are negatively linked (Stockman [1981], using a cash-in-advance model in which money was complementary to capital). With inconclusive theory the issue has been analyzed empirically, both in industrialized and developing countries. In industrialized countries the discussion has centered on the slope and (the possibly nonlinear) shape of the Phillips curve, linking unemployment and inflation basically in the short run. In the case of developing countries, earlier studies found a negative correlation between inflation and growth (Fischer 1993), but it was shown that the results depended mostly on outliers and thus were not robust (Levine and Zervos 1993).

Other authors have argued that the search for a significant link between growth and inflation is bound to fail because the relationship appears to be nonlinear, with different interactions between inflation and growth at different levels of those variables. Several researchers have attempted to estimate the relationship between inflation and growth using nonlinear specifications, asking whether (1) there are “threshold” effects (e.g., that inflation must reach some minimum before the negative impact on growth becomes serious) and (2) there is a “kink” in the relationship (i.e., a variable that may be positively related to growth up to some levels of inflation).

For instance, some researchers conducting studies of developing countries before the generalized period of disinflation in the second half of the 1990s, such as Dornbusch and Fischer (1991), argued that the negative impact of inflation on growth happened at higher levels of inflation (a “threshold” effect) that they estimated to be above the range of 15–30 percent, the limit of what they called “moderate inflation.” With more-formal methods, Fisher (1993) found other thresholds: below 15 percent the impact of

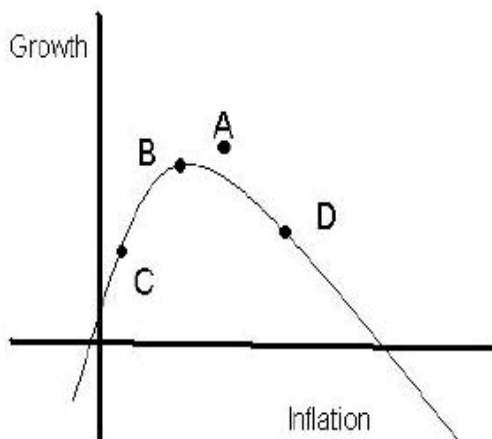
---

<sup>26</sup> As already noted, the debate about growth and inflation that arose between the structuralist and monetarists of the 1950s and 1960s revolved around a similar controversy, until the steady increases in prices during the 1970s and 1980s clearly showed the need to control inflation.

inflation on growth was negative but small; from 15–40 percent there was a strong negative effect of inflation on growth; and over 40 percent the impact was negative but again tended to be small because the main damage to growth happened in the previous threshold.

Other studies have found a different nonlinear relationship characterized by a period in which growth and inflation are *positively* correlated, then an inflexion point is reached (a “kink”), and afterward the relationship turns negative (Figure 7).

**Figure 7. Growth and inflation**



Different studies offer a range of estimates of the levels of growth and inflation where the inflexion in the curve takes place (such as point B). The estimates usually go from 2.5–19 percent, with most estimates between 5 and 15 percent (see Bruno and Easterly 1995; Sarel 1996; Ghosh and Phillips 1998; Burdekin et al. 2000; Khan and Senhadji 2001; Drukker et al. 2005; Pollin and Zhu 2005; Li 2006). If that is the case, a policy of inflation targeting that sets the goal too low (i.e., in the curve to the left of B) would be paying a price in reduced growth, affecting employment and perhaps poverty, depending on the relationship between employment opportunities and the cost of living for the poor. As mentioned earlier, the estimates of Epaulard (2003) suggest that the linkages between poverty and inflation may be nonlinear, with the negative impacts of inflation manifesting themselves only at higher levels. However, as estimated by the growth-inflation literature, the thresholds or kinks beyond which negative effects set in appear at levels far lower than those estimated by Epaulard.

Although the growth-inflation and poverty-inflation debates relate mostly to domestic policies and not necessarily to global developments, domestic inflation can obviously result from external economic shocks in the form of increases in world prices of commodities (e.g., oil or food) or changes in capital flows, foreign aid, or remittances. These external shocks could force a sudden devaluation of the domestic currency and thus have an impact on domestic inflation. The sudden increases in food prices associated with those external shocks (which of course can include noneconomic factors) can interact with other factors and worsen the plight of the poor. For instance, it has been noted that Ethiopia and Sudan, among other countries, experienced large increases in food prices during the famines of the 1980s and 1990s, which had devastating effects on the poor, who have limited income and assets and for whom food is a large share of their expenditures (von Braun et al. 1999; see also Section 3.4).

In summary, the continuous reductions in inflation and interest rates (on average for the 2000s, nominal interest rates have been 3.2 percent and real interest rates 1.1 percent, with inflation lower than in the 1960s for the industrialized countries; see Table 1) should have been positive for growth and poverty

alleviation in the 2000s.<sup>27</sup> However, the current increases in interest rates and the sudden increases in commodity prices imply a more difficult scenario for the poor going forward.

## Commodity Prices

Many of the poorest developing countries, as well as several middle-income countries, depend on exports of a relatively small number of commodities. Therefore, price developments in products exported from those countries tend to have a large impact on their production, trade balance, incomes, employment, fiscal accounts, and poverty.

Commodity world prices experienced important changes over the past five decades (see Figures 8 and 9 for real prices<sup>28</sup>). During the 1960s and 1970s, prices of agricultural products (particularly food and beverages), stayed high in real terms. Oil prices jumped significantly during the mid-to-late 1970s. As previously mentioned, in the early 1980s the world macroeconomic environment changed markedly: there was a switch from expansionary to contractive monetary policies in key industrialized countries, leading to a sharp decline in world growth.

In the case of agricultural prices, besides slumping world growth, declines in the 1980s were also associated with expanded public support of agricultural production mostly in industrialized countries, particularly the European Union through the Common Agricultural Policy; changes in the U.S. Farm Bill of 1985; the 1980s debt crises in developing countries; the agricultural transformation in China; the expansion of the Green Revolution in many developing countries; and the breakup of the Soviet Union. All these developments added to the supply side and/or weakened the demand side of agricultural markets, leading to the collapse of agricultural prices in the mid-1980s (see Borensztein et al. 1994; Díaz-Bonilla 1999).

The decline in the prices of commodities did not happen immediately with the deceleration of the world economy in the early 1980s for two different reasons, one related to agricultural commodities and the other to oil.

Regarding agricultural commodities, the U.S. Farm Bill of 1980, expecting levels of inflation that later did not materialize, established high nominal values of domestic support prices. Because of the operational aspects of how the U.S. Department of Agriculture managed and accumulated stocks, that farm bill actually acted as a demand buffer, providing support to world real prices. That was modified significantly in the 1985 farm bill, which began to unload in world markets the stocks previously accumulated and started an export subsidy trade war, supposedly aimed at the European Union but in fact depressing many agricultural world prices.

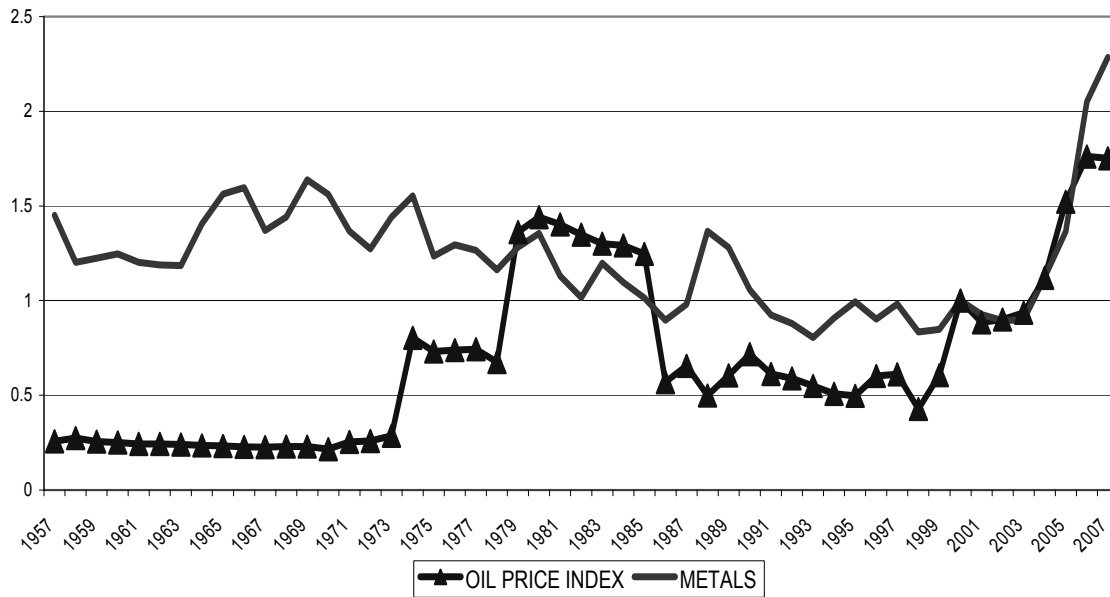
In the case of oil, from early 1982 to late 1985, OPEC had supply restrictions, with Saudi Arabia acting as a supply buffer. That arrangement broke down by early 1986 because of lack of discipline among the members of the cartel, and because of increased production in countries outside OPEC (Kilian 2006).

---

<sup>27</sup> The caveats about the nonlinear relationships between inflation-growth and inflation-poverty must be kept in mind. These non-linear estimations suggest that inflation may be pushed too low, affecting growth, with unclear effects on poverty. This is somewhat subtler than the old debates between Keynesians and monetarists about whether there is a trade-off between inflation and unemployment.

<sup>28</sup> Data in the charts are deflated by the export unit value of industrialized countries. The index can then be interpreted as the capacity of the commodities considered to buy the bundle of export goods from developed countries. Another common deflator is the U.S. Consumer Price Index, which would indicate the capacity of commodities to buy the consumer basket of the United States. But because an important component of that basket includes nontradable items, it seems more appropriate to use the first deflator, as it is the case in Figures 8 and 9.

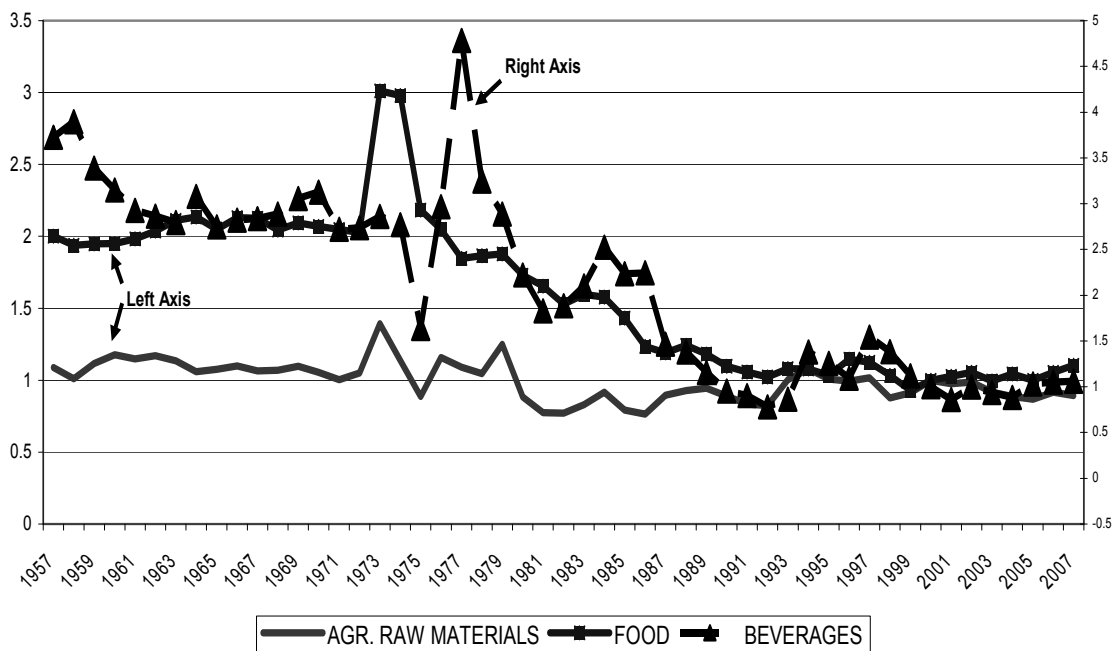
**Figure 8. World real prices for metals and oil**



Source: IMF (2007b).

Note: Index, 2000 = 1; deflated by export unit value of industrialized countries.

**Figure 9. World real prices for agricultural products**



Source: IMF (2007b).

Note: Index, 2000 = 1; deflated by export unit value of industrialized countries.

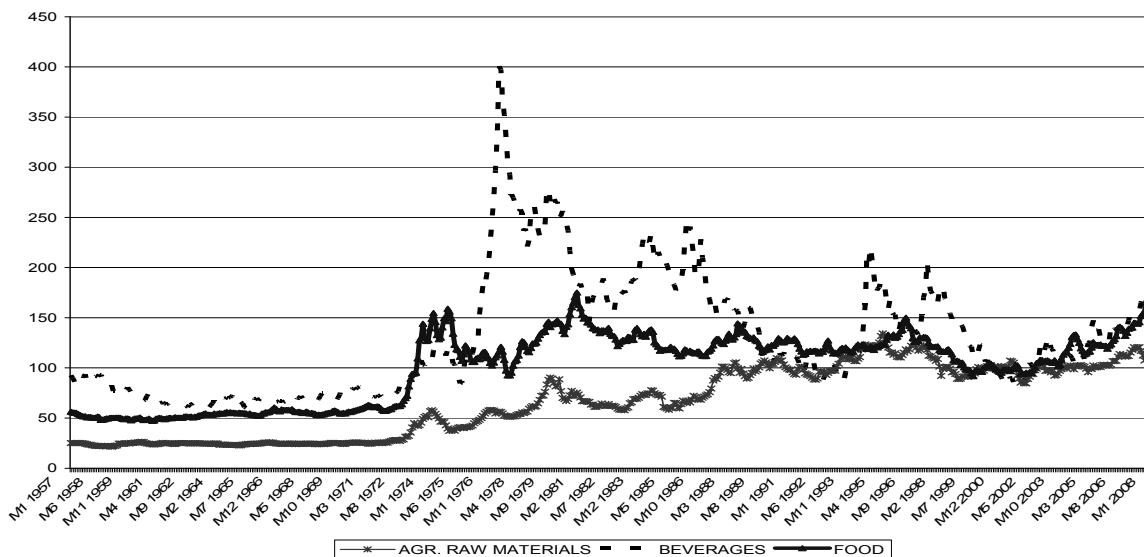


In summary, the general weakness in world demand meant that when the United States stopped acting as a demand buffer for agricultural products and Saudi Arabia stopped acting as a supply buffer for oil, the result was a generalized decline of commodity prices in the mid-1980s. Countries that had borrowed against expectations of high commodity prices during the 1970s, mainly in LAC and Africa, were first hit by changes in macroeconomic conditions early in the decade and then by the collapse of commodity prices in the mid-1980s. Those countries entered a period of debt distress and economic crises during that period that increased poverty (as discussed later in this section).

In the 1990s real prices of many commodities were about half the levels of the 1960s and 1970s or less, and they remained on that lower plateau for much of the 1990s and early 2000s. Once the world resumed growth after the deceleration in the early 2000s, nominal prices of many commodities began to climb. Some commodities, like metals and oil, experienced both nominal and real gains, surpassing the peaks achieved in the 1970s (Figure 9).

For agricultural goods, however, the story was different. Although by 2007 *nominal* prices had increased significantly, and some commodities (e.g., food and agricultural raw materials) had gone back to previous heights (Figure 10), the prices in *real* terms (at least at the level of annual averages and with the deflator used here) had stayed clearly below the 1970s highs (see Figure 8). Besides the resumption of world growth and greater demand from developing countries (see Section 3.1), higher nominal prices for food and agricultural items have been also influenced by competition with crops oriented to energy use (which in addition are subsidized in main industrial countries), weather patterns, and financial speculation (von Braun 2007). Early 2008 saw further increases in the U.S. dollar prices of several agricultural products, linked in part to changes in U.S. monetary policy that led to further declines in the value of its currency, investments by commodity funds seeking short-term gains and hedges against inflation, and changes in trade policies of several key producers that restricted exports to maintain their domestic markets supplied. Nonetheless, most real prices have stayed, so far, below the 1970s levels.

**Figure 10. World agricultural prices, nominal indices (monthly, January 1957 to February 2008)**



Source: IMF (2007b).

The analysis of the impacts of the changes in world commodity prices on poverty in developing countries is complex. First, although primary commodities represent an important component of production, employment, and trade in many developing countries, the percentage has been constantly declining. In the 1960s and 1970s, food, agricultural raw materials, ores and metals, and fuels represented 80–90 percent of total exports in the aggregate for all developing countries, but by the early 2000s manufactured products accounted for about two-thirds of the total exports of developing countries as a

whole (UNCTAD 2004). Primary products, however, still represented about 60–70 percent of exports in some developing regions, such as Africa, in the early 2000s.

Second, the structure of trade in commodities differs greatly among developing countries on exports and imports and in net trade. For instance, according to the World Trade Organization (WTO 2007), LAC as a whole had positive net trade in agricultural products, minerals, and fuels; Africa showed positive net trade in fuels and minerals but negative net trade in agricultural products, similar to the former republics of the Soviet Union; the Middle East displayed negative net trade in agricultural products and minerals but positive net trade in fuels; and Asia had negative trade balances in all three categories. Of course, the regional aggregates conceal important differences across countries.

Third, although some level of co-movement occurs across all commodities, the correlation between the prices of products varies. For instance, the current perception of the generalized commodity boom benefiting developing countries has to be qualified: the increases in prices of metals and oil have clearly been more pronounced than those for agricultural products, for which real prices have stayed, in the aggregate, below the higher levels of the 1960s and 1970s, at least until before the second half of 2007 (see Figures 8, 9, and 10).

Fourth, the positive social impact of growth based on ores and metals or energy products seems to be lower than for other commodities (Sachs and Warner 1995; Tsangarides et al. 2000). However, these general effects also depend on specific country effects. For instance, ores and metals represent a high share of merchandise exports in Chile (46 percent) and Peru (41 percent). But Chile has shown a better growth and poverty reduction performance than Peru (4.4 percent growth and 2 percent of poverty headcount during the 2000s for Chile, versus 4 percent and 14 percent, respectively, for Peru).

Fifth, the macroeconomic cross effects of increases in prices must be considered: current high prices of metals and energy may have contributed to the appreciation of the real exchange rates in several countries, affecting tradable commodities, including agricultural products, as apparently happened in the 1970s in SSA during another period of high commodity prices (Díaz-Bonilla and Reza 2000).

Finally, regarding agricultural commodities, the extent to which agricultural production is able to spread income generation opportunities across large numbers of people (say, by numerous family farms as opposed to concentrated and highly mechanized plantations) changes with the commodities produced and the prevalent production structures. Also, some agricultural products (like cereals and dairy products) may affect not only incomes and employment but also consumption for the poor, while others (like coffee or sugar) may only (or mainly) affect incomes and employment. Therefore, the net effect on poverty may vary by product. For instance, von Braun (2007) argues that the current increases in world prices of several food items will have mostly a negative impact on the poor, to the extent that the potentially positive employment effects will be more than compensated by the higher cost of living.

The issue of the trend and volatility of world commodity prices and their impact on developing countries has a long history in development theory from the Prebisch–Singer theory of the declining terms of trade, going through the price stabilization schemes of the 1970s, to the current debates about whether higher or lower commodity prices are good for poverty alleviation. Of course, the main issue in any exercise that tries to link changes in prices to variations in development variables is to differentiate commodities, countries, and social groups.

Simply as an indicative exercise, Table 7 shows the results of a VAR with growth rates and the five nominal price indices for oil, metals, food, beverages, and agricultural raw materials for the period 1960–2006. The results presented correspond to the impulse-response from prices (one standard positive shock) to growth, with the direction of the direct impact indicated by a positive or negative sign or zero. This simple exercise was done at the level of regions as defined by the World Bank, which of course hides the significant heterogeneity within them (and partly explains the low statistical significance). Also, the length of the period covered demands a more disaggregated analysis by subperiods to test for possible breaks. Nonetheless, the results suggest some patterns.

**Table 7. Results of VAR with growth rates and prices, 1960–2006**

| Region                       | Oil | Metals | Food | Beverages | Agricultural Raw Materials |
|------------------------------|-----|--------|------|-----------|----------------------------|
| East Asia and Pacific        | 0   | +      | 0    | –         | +                          |
| Latin America and Caribbean  | +   | +      | +    | +         | +                          |
| Middle East and North Africa | +   | 0      | –    | 0         | –                          |
| South Asia                   | 0   | +      | –    | –         | –                          |
| Sub-Saharan Africa           | +   | +      | 0    | +         | –                          |

Source: Calculations by the author based on data from IMF (2007b) and World Bank (2007).

Note: Shaded areas significant at 5%.

The chart clearly shows the variety of experiences among the developing regions, with LAC benefiting across the board from increases in prices, although only two results are significant at 5 percent. The only other significant impulse-response is the negative impact of the price of agricultural raw materials on MENA. That region has a positive response to increases in oil prices (although the *t* statistic is only 1.6 for the impact year). After LAC, the largest number of positives is in SSA, which benefits from increases in the prices of oil, metals and beverages; growth is not affected by changes in food prices and appears somewhat negatively impacted by increases in prices of agricultural raw materials. EAP is positively influenced by the prices of metals and agricultural raw materials. SA appears negatively affected by increases in prices of agricultural products, but the results are not statistically significant, and the numerical values of the impulse-responses (not shown) appear small.<sup>29</sup>

In a disaggregated study using a country-based export price for the specific basket of commodities produced and sold in world markets, Deaton and Miller (1995) found positive impacts on growth and investments in a sample of 32 SSA countries. In their estimation about 20 percent of the growth decline in those countries from 1970–1975 to 1980–1985 can be attributed to the fall in world prices. The World Bank (2000a), in an analysis of the commodity price cycle of the 1990s that separated oil and nonoil exporters in SSA, found that growth in the nonoil-exporting countries of Sub-Saharan Africa has not been affected. The primary reason cited for that finding was that even if the prices of SSA exports declined, the loss was partly offset by lower import prices of energy and other products. In a related work, Birdsall and Hamoudi (2002) show that the positive correlation found by Dollar and Kraay (2001) between growth and “globalizing” economies is related to two situations: the countries performing worse were commodity dependent, and the collapse in prices reduced both growth and the value of the variable interpreted as a proxy for openness, creating a misleading correlation.<sup>30</sup> Birdsall and Hamoudi recalculated the growth equation developed by Dollar and Kraay, using a dummy for “commodity-dependent countries” to show that the estimated growth effect of the “openness” variable becomes statistically insignificant (with a value of the coefficient that is less than half the original estimate).

Looking at a subset of commodities in a sample of 56 developing countries during the period 1970–1993, Collier (2005) calculated substantial losses from falls in world agricultural prices. The price declines reduced GDP growth by around 1.4 percent per year over the period, output at the end of the period was around 5.6 percent lower than before the price shock, and the total loss of output as a

<sup>29</sup> A possible reason for that correlation is that negative global weather effects, which affected agricultural and total growth in South Asia, also led to high world prices for food products, particularly in the 1960s and 1970s.

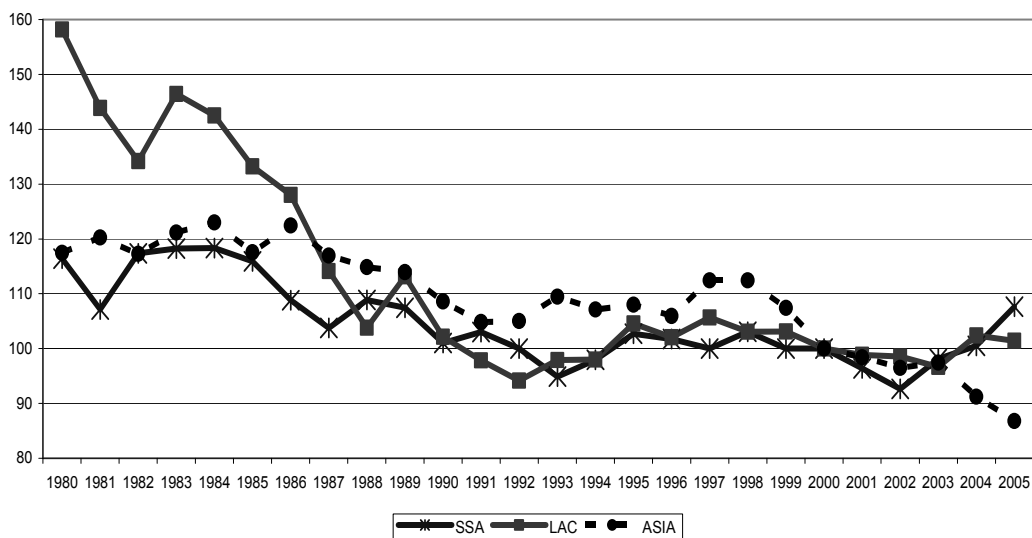
<sup>30</sup> In the equation developed by Dollar and Kraay, the numerator of the trade/GDP variable is defined as exports (*X*) plus imports (*M*), and GDP is defined as domestic absorption (*D*) plus exports minus imports. Then the variable is  $(X + M) / (D + X - M)$ . Countries hit by declines in the prices of their main exports are also forced to cut imports (given a certain level of sustainable financing of the trade deficit), which reduces the value of the numerator. If, as usually happens, financing of the trade deficit also dries up because lenders see the decline in export values that is the implicit collateral, then the trade deficit declines, which means that the value of  $(X - M)$  increases, pushing the value of the denominator up. Decline in exports and import contraction also affects *D* negatively, but usually the absolute value of the changes in *X*, *M*, and the trade deficit are bigger than the decline in *D*, forcing the trade/GDP variable down. Therefore, the collapse in export prices has caused declines or stagnation in the “globalization” variable and of the growth rate.

percentage of initial annual income was around 14 percent. Collier also argues that because of the negative multiplier effects and the types of activities affected, including those in the nontradable sector, agricultural export price shocks are likely to be substantially borne by groups at high risk for poverty.

The drop in agricultural prices in the 1980s had also important implications for rural development in many developing countries. Delgado et al. (1998) have shown that an agricultural-led growth strategy may have larger dynamic multipliers for the rest of the economy than other alternatives in poor developing countries. Further, Eastwood and Lipton (2001) have highlighted the positive links between agricultural growth and poverty reduction. Depressed world prices of many food products during the 1980s and 1990s appear to have discouraged investments in the rural sectors of many developing countries. As a result, those countries became dependent on cheap subsidized food from abroad, and many of them, including various SSA countries, changed from net food exporters into net importers by discouraging the domestic production of staples and close substitutes. Low food prices may have also pushed several developing countries into a more extreme specialization in tropical products, increasing their external vulnerability and reinforcing a net food import position that could have been avoided or mitigated under a different set of relative prices. The lack of rural dynamism also contributed to an increase in rural migration to the cities and fostered premature or excessive urbanization in many developing countries. The World Bank and other development banks cut the amounts they would loan to agricultural and rural development projects, a move that was apparently influenced in part by low world agricultural prices that reduced the expected returns of future projects and depressed the actual results of evaluated projects (Lipton and Paarlberg 1990).<sup>31</sup>

Another approach to analyzing the relationship between prices and development, rather than focusing on commodities, looks at the evolution of the terms of trade, which combines commodity prices and other goods and services, as exports and imports. Tsangarides et al. (2000) found that variable to be positively correlated with the income of the lowest quintile of the population in a panel regression of 85 countries (20 developed and 65 developing). Figure 11 shows the median of the net barter terms of trade for a sample of countries in LAC, SSA, and Asia.<sup>32</sup>

**Figure 11. Terms of trade (median)**



Source: World Bank (2007). Note: The median comprises 39 countries for SSA, 17 for LAC, and 11 for Asia.

<sup>31</sup> The World Bank sharply curtailed its agricultural lending, including for integrated rural development, as the decade of the 1980s progressed: it declined (in constant 2001 U.S. dollars) from about \$5 billion and some 30 percent of total World Bank lending in the late 1970s and first half of the 1980s, to \$3 billion and 10–15 percent of total lending in the second part of the 1980s. By the early 2000s agricultural lending had declined further to about \$1.5 billion and 7 percent of total World Bank loans. Similar trends occurred in other multilateral institutions and individual donors.

<sup>32</sup> Terms of trade are defined as price of exports divided by price of imports, calculated from national accounts.

The influence of the decline in commodity prices in the 1980s, particularly since the mid-1980s, is more pronounced in the median terms of trade of LAC, followed by SSA. Asia's terms of trade were more stable during the 1980s and 1990s. The recovery in commodity prices after the lows that coincided with the recession of the early 2000s are reflected more in the increases in the terms of trade of SSA and less in those of LAC. The terms of trade in Asia appear to have been affected negatively rather than positively by the recent increases in commodity prices. This is in line with Asia as a region being a net importer of commodities and an exporter of manufactured goods, while SSA remains a significant producer of commodities and has a larger percentage of metals and oil in its basket of exports. LAC is in an intermediate position, with more agricultural products than SSA (which at least until 2005, the year of the last data available for terms of trade, had not benefited from the increases that happened later), and less manufactured goods than Asia.

Finally another characteristic of commodity prices is volatility. This affects consumption and investment decisions of economic agents, with potential negative effects on welfare and growth. It also tends to complicate public sector macroeconomic management in many developing countries that depend on taxes on commodities, directly or indirectly, to finance significant percentages of public revenues. Table 8 shows changes in volatility using monthly data for the nominal indices calculated by the IMF for oil, metals, food, agricultural raw materials, and beverages.

**Table 8. Price volatility (monthly)**

| Decade             | Oil  | Metals | Agricultural Raw Materials | Beverages | Food |
|--------------------|------|--------|----------------------------|-----------|------|
| 1960s              | 1.3  | 15.6   | 2.8                        | 6.0       | 5.5  |
| 1970s              | 84.9 | 28.1   | 36.4                       | 46.6      | 30.4 |
| 1980s              | 31.5 | 23.2   | 18.8                       | 17.4      | 11.2 |
| 1990s              | 21.5 | 13.0   | 11.7                       | 25.3      | 9.2  |
| 2000s <sup>a</sup> | 43.5 | 53.3   | 10.2                       | 19.2      | 15.9 |

Source: IMF (2007b).

Note: Volatility is standard deviation over average for decade, times 100.

<sup>a</sup> Includes 2000 to 2007.

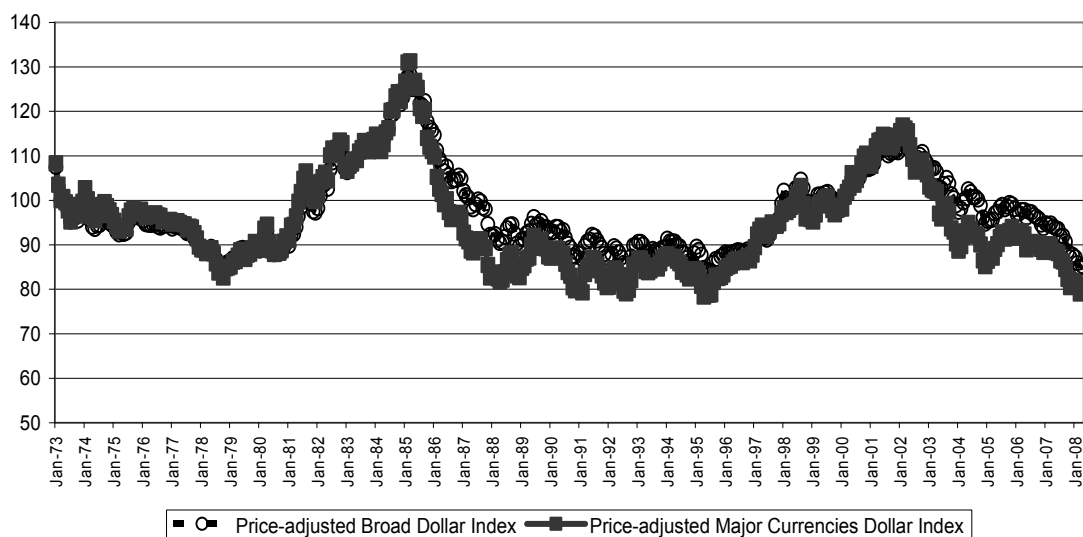
The table shows that price volatility increased sharply in the 1970s and then declined in the 1980s and 1990s, never allowing prices to reach the stability of the 1960s. During the 2000s, as can be inferred from Figures 8, 9, and 10, an important increase has occurred in the volatility of oil and metals prices. This is not generally the case for all agricultural products: basically the index of nominal prices for *food* products is the one that has increased in level and volatility. Transmitting better prices to poor producers in rural areas could spur rural investment and overall growth in developing countries; at the same time, however, sudden increases in the prices of basic staples could hurt the poor who are net food buyers and have occupations that may not immediately benefit from the employment and growth multiplier effects of higher prices.

## Exchange Rates

Another important aspect of global macroeconomics is the behavior of the dollar relative to other currencies. With the end of the Bretton Woods system of fixed exchange rates in the first half of the 1970s, nominal and real exchange rates in major countries changed significantly. In particular, the U.S. dollar underwent two long cycles of appreciation and depreciation (Figure 12), while the behavior of the euro was the opposite (not shown).<sup>33</sup>

<sup>33</sup> The reference to the euro includes the equivalent basket before the new currency was created.

**Figure 12. U.S. real exchange rates**



Source: U.S. Federal Reserve (2008).

Notes: This chart shows the index of the real effective exchange rate calculated by the Federal Reserve for major world currencies and for a broader basket of currencies. The index is calculated such that an increase (decrease) is an appreciation (depreciation) of the dollar in relation to a set of other currencies.

After several years of declining value during the 1970s, the U.S. dollar started a cycle of appreciation in the late 1970s that peaked in March 1985 and then declined until the late 1990s. Along the upward trend various developing countries linked to the dollar could not sustain the peg and had to devalue. This increased the burden of the U.S. dollar-denominated external debt that had accumulated during the previous period of lower inflation rates and higher commodity prices of the late 1970s. That burden, along with the decline in growth and the increase in real interest rates, led to the 1980s debt crisis that affected mostly Latin American and African developing countries.

The second cycle of appreciation of the U.S. dollar started in early 1996 and continued up to the first quarter of 2002, when a downturn began and has yet to end. Along the upward trend, that pattern was repeated, with various developing countries that had exchange rates tied to the U.S. dollar abandoning their pegs in a sequence of financial crises: Mexico in 1995, several East Asian countries in 1997, Russia in 1998, Brazil in 1999, and Argentina in 2001.

A main debate now is how much the dollar will have to decline, and against what currencies, to close the U.S. current account deficit. From peak to bottom in the 1980s the decline in the real exchange rate (against major currencies) was about 40 percent (measured from the peak), and by the end of 2007 the decline had been about 32 percent. The U.S. current account deficit in the 1980s, however, was a smaller percentage of both its own and the world's GDPs (see Section 3.6). For instance, Obstfeld and Rogoff (2004) argue that the dollar decline might end up resembling the collapse of the 1970s, when the United States abandoned the Bretton Woods system, rather than the more orderly decline of the 1980s. A study from the McKinsey Global Institute (Farrell et al. 2007) projects that an additional depreciation of 30 percent from the January 2007 levels would be needed to close the current account by 2012 (this estimate assumes that growth continues on trend; if growth declines, the exchange rate correction required to close the external gap would be smaller).

The currencies against which the devaluation occurs also matter, given that several developing countries, mostly in Asia and many oil-producing countries, and Japan appear to be defending specific targets for their nominal or real bilateral U.S. exchange rates. That behavior is slowing the overall process of adjustment and putting additional pressure on currencies that float more freely. The gap between the real exchange rate index against major currencies (which has a larger percentage of floaters in its

composition) and the broad index (which includes more U.S. partners, several of which actively manage their bilateral exchange rates instead of letting them float more freely) reflects those differences in policies by U.S. trade partners.

Besides the link between the cycles of the dollar and financial crises in developing countries (with their impact on poverty), another issue is whether the cycle of the dollar against other currencies is related to variations in the dollar prices of commodities. Mundell (1999) has argued that there is a clear association between those cycles: when the dollar appreciates the nominal dollar commodity prices (not only agriculture) decline and vice versa. Frankel (1984, 2006) points to the negative correlation between real interest rates and commodity prices.

In fact, U.S. monetary policies affect both real interest rates and the exchange rate: an expansive monetary policy, as happened in the late 1970s and early 1990s, depreciated the dollar against foreign currencies and turned real interest negative, favoring high prices for commodities. A somewhat similar configuration has taken place in the early 2000s. Conversely, with the monetary tightening of the early 1980s, real interest rates increased significantly, the U.S. dollar appreciated, and dollar commodity prices declined. A qualitatively similar, but quantitatively less pronounced, cycle happened in the 1990s.

In summary, monetary policies in the United States and the correlated behavior of the U.S. dollar have significant implications for commodities prices, as well as for world conditions that may lead to financial crises and ultimately increase poverty in vulnerable countries.

## Capital Flows and Debt

To better understand the implications of changes in financial flows, it is important to remember the basic equation of the balance of payments (usually measured in a foreign currency, such as the U.S. dollar):

$$\text{Current account (CA)} + \text{Capital account (KA)} = \text{Change in official reserves (dOR)}$$

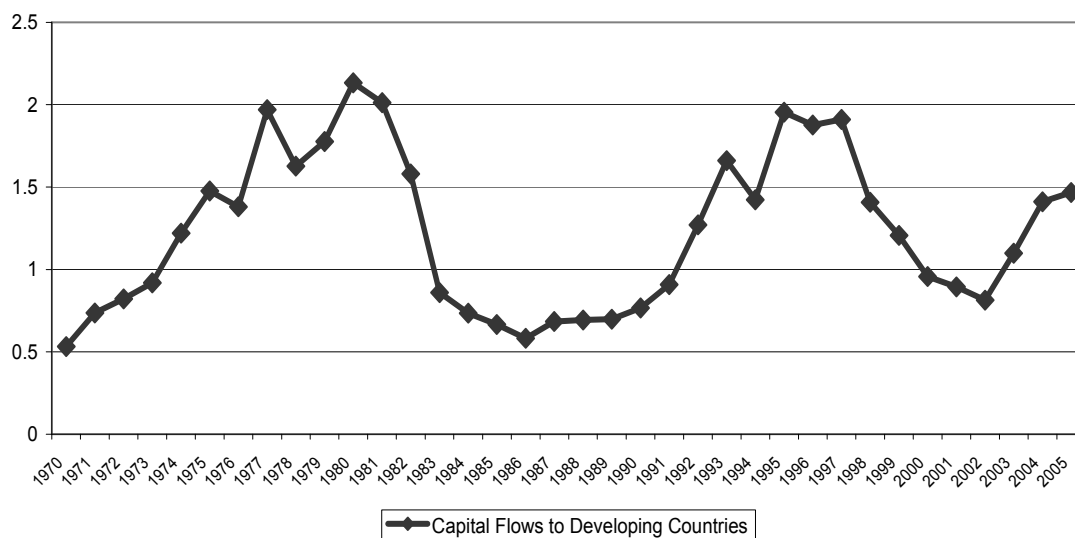
where CA consists of the trade balance, payments related to capital (like interests and profits), payments related to labor (like remittances), and other transfers to or from a country (such as donations); KA includes various types of lending, borrowing, and net investment; and dOR is the change (d) in value of official reserves (OR) held by the monetary authority.

This accounting identity must be fulfilled, although that can happen in various ways. In fact, the configuration of CA, KA, and dOR has shown significant variation across countries and over time. First, a country may have a negative CA for several reason. For instance, a trade deficit may not be compensated by other components of the CA (which is the case in the United States); a country may have high interest payments on its debt, even though it has a trade surplus (as was the case in many developing countries during the debt crisis of the 1980s); nonreimbursable foreign aid and remittances from abroad may help finance (or create) trade deficits and cover interest payments on external debt (which may be the case of many low-income countries now); and so on for several other possible combinations of the various components of the CA. The implications for the world economy are very different for the different examples just mentioned. For example, in the first case the United States, through the trade deficit, is contributing to aggregate demand for the rest of the world. In the second case developing countries are adding to world aggregate supply, while in the third they increase aggregate demand (but the magnitudes are marginal).

Second, a country with a negative CA (for whatever reason) might simultaneously have inflows of capital (a positive KA; i.e., the country is borrowing from the rest of the world) and declines in OR (i.e., the country is using accumulated assets to finance the negative CA). At the other extreme, a country might have positive CA and KA, which means that OR is increasing (for example, China has increased reserves from below US\$200 billion in the early 2000s to an estimated US\$1,500 billion by 2007). That accumulation of OR is usually held in assets denominated in U.S. dollars (such as U.S. government bonds) or other global currencies, which means that the increases in OR in a country imply the financing of the CA of the country that issues the assets in which the reserves are invested.

Another implication of the balance of payment and monetary accounts is that increases in OR, typically held by the central banks or similar monetary authorities, usually lead to the expansion of the domestic money supply. The value of net monetary expansion depends on the use (or not) of parallel sterilization policies that could absorb part of the increases in money supply through measures such as issuing domestic bonds or similar instruments (which implies a financial cost for the Central Bank), or by increasing reserve requirements at the banking system (which is a financial cost for the banks that may be passed on to the depositors and/or borrowers). Capital flows to developing countries have gone through two cycles (see Figure 13).<sup>34</sup>

**Figure 13. Capital flows to developing countries (% GDP)**



Source: IMF (2007a, box 4.2).

Note: The chart includes public and private debt, foreign direct investment, and portfolio flows measured as a percentage of GDP.

The first cycle peaked in the early 1980s at more than 2 percent of the combined GDP for developing countries; it then declined during the debt crisis of the 1980s to a minimum of 0.6 percent of GDP in 1986. The second cycle began in the early 1990s, peaked in 1995 at about 2 percent, and dropped again during the sequence of developing-country crises of the late 1990s and early 2000s, reaching a low of 0.8 percent of GDP in 2002. In the early 2000s capital flows to developing countries began to increase again. It remains to be seen how the latest cycle will play out over the next years.

The ebb and flow of capital flows to developing countries have been associated with financial crises in developing countries, first during the 1980s and again in the 1990s, when expanded capital flows led to a more volatile world economic environment (as reflected in the already-mentioned crises in Mexico, Asia, Russia, Brazil, and Argentina).

The behavior of capital flows has several implications for the economy, tradable sectors (like agriculture), and the poor. Capital inflows usually affect growth and investment positively; but they also tend to expand domestic money supply and increase the price of nontradables, with appreciation of the domestic currency more likely than would be the case without the flows. Consequently, a positive growth and investment effect might result from capital inflows, but on the other hand the overvaluation of the domestic currency could hurt tradable sectors.

An additional factor to consider is that capital flows can experience sudden stops and even reversals, which might lead to depreciation of the domestic currency, banking and fiscal crises (when

<sup>34</sup> It must be noted, however, that the largest value of capital flows in the last decades have been among industrialized countries.



domestic private and public debt in dollars is widespread), and sharp declines in growth (Calvo 2003). Table 9 shows the large magnitude of some of those episodes in the 1980s and 1990s.<sup>35</sup>

**Table 9. Episodes of sudden stops**

| Country     | Years     | % GDP |
|-------------|-----------|-------|
| Argentina   | 1982–1983 | 20    |
| Argentina   | 1994–1995 | 4     |
| Chile       | 1981–1983 | 7     |
| Chile       | 1990–1991 | 8     |
| Ecuador     | 1995–1996 | 19    |
| Hungary     | 1995–1996 | 7     |
| Indonesia   | 1996–1997 | 5     |
| Malaysia    | 1993–1994 | 15    |
| Mexico      | 1981–1983 | 12    |
| Mexico      | 1993–1995 | 6     |
| Philippines | 1996–1997 | 7     |
| Venezuela   | 1992–1994 | 9     |
| Korea       | 1996–1997 | 11    |
| Thailand    | 1996–1997 | 26    |
| Turkey      | 1993–1994 | 10    |
| Average     |           | 11.1  |
| Mean        |           | 9     |

Source: Calvo (2003).

Although the devaluation associated with the capital outflow improves relative prices for tradable products such as agriculture, overall growth declines affect products that depend on domestic market incomes, and banking and fiscal crises can negatively impact the supply side of various products (through credit constraints and cuts in public investments) and consumer demand. Moreover, domestic production could be affected by increases in prices of imported inputs.

Therefore, capital inflows and outflows to developing countries have been associated with expansions and crises in those countries. During the upswing, the impact on the poor will depend on their position in the economy and the nature of the growth process generated by those capital inflows. In principle, the urban poor and those working in nontradable sectors would benefit more than the rural poor during periods of growth associated with continued inflows of capital. The latter could be hurt by the appreciation of the domestic currency, which reduces local agricultural exports and increases imports of agricultural goods competing with domestic production. However, if growth is sustained by stable capital inflows, benefits might accrue to all the poor, albeit in different degrees, depending on the quality of growth generated. A source of debate is whether different classes of capital have different impacts on growth and poverty (see, e.g., Prasad et al. 2003).

When changes in financial markets lead to sudden outflows of capital and a decline in growth, the welfare of the urban poor and those working in nontradable sectors tends to suffer the most; but deep crises, usually accompanied by unemployment and inflationary spikes tend to affect all poor. Nonetheless, important differences across different groups and countries may exist. For instance, Bresciani et al. (2002)

<sup>35</sup> The percentage reported is the absolute value of the reversal in the current account of the balance of payment relative to the GDP of the country; for instance, if the country had a deficit in the current account of 5 percent of GDP before the crisis, and after that event had a surplus of 3 percent, the reversal would be 8 percent of GDP.

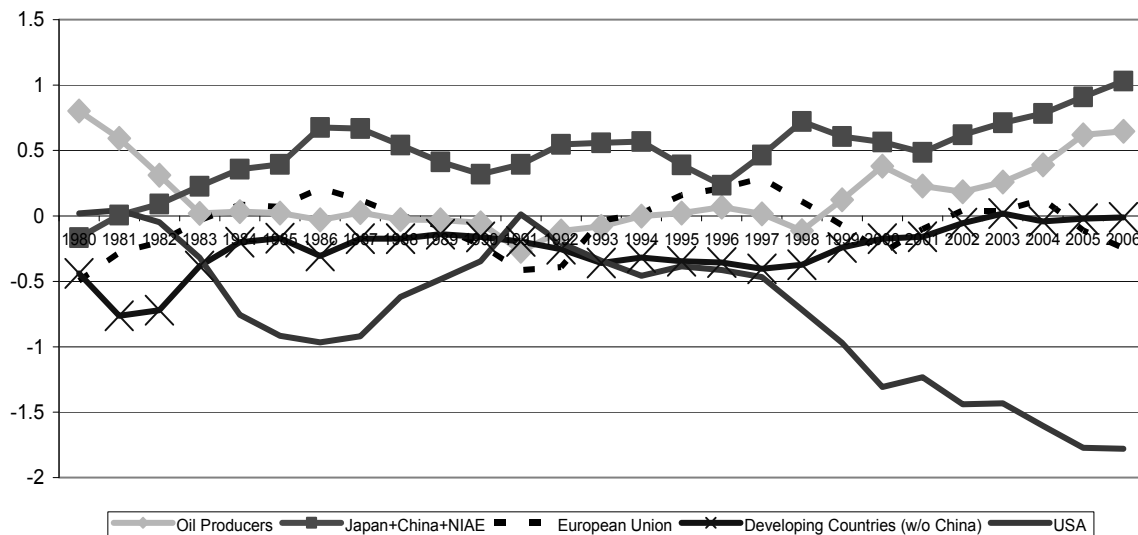
studied the impact of the East Asian financial crisis on farmers in Indonesia and Thailand using household surveys and found differentiated impacts on farmers' incomes and distribution, even though shocks to both countries looked roughly similar. For instance, poor farmers in Thailand were more affected by the crisis than were those in Indonesia, in part because Thai farmers relied more on urban activities to supplement their incomes, and because those activities suffered more from the financial crisis.<sup>36</sup> On the other hand, farmers in both countries who specialized in export crops benefited from the currency devaluation.

Financial crises have also had important effects on world commodity markets. The 1997 devaluations in Asia led to the contraction of demand for agricultural products in world markets, while those in Brazil and Argentina expanded world supplies, leading to the decline of world agricultural prices at the end of the 1990s and the beginning of the 2000s (IMF 1999; see also Langley 2000; Langley et al. 2000; Shane and Liefert 2000). The impact was not limited to commodity markets. Most of the capital flowing out of crisis countries largely went to developed countries, mainly the United States. The world is still trying to work out the imbalances associated with those capital flows, as discussed in the next section.

### Current Accounts and External Imbalances

The origin and use of the funds at the world level can be seen from changes in current accounts (Figure 14).

**Figure 14. Current account imbalances (% world GDP)**



Source: IMF (2007b).

Notes: Because of lack of complete data in international transactions the numbers do not necessarily add up at the world level. NIAE = newly industrialized Asian economies.

During the late 1970s and early 1980s, developing countries (excluding China<sup>37</sup>) had a negative CA and were absorbing external capital that was mostly provided by the positive CA of the oil producers, which also financed the smaller current account deficit of the European Union through the recycling of petrodollars. In the 1980s the United States began to increase its current account deficit, financed mostly

<sup>36</sup> A greater impact on those rural populations that were more dependent on urban employment was also observed in the 1980s crisis in LAC, where migration toward the cities was stopped and even reversed in several countries.

<sup>37</sup> Developing countries in Figure 14 do not include China and oil exporters. Also, Hong Kong, Singapore, Korea, and Taiwan, labeled the newly industrialized Asian economies (NIAE) are considered separately.

by Japan and to a smaller degree by Europe.<sup>38</sup> The CA deficit of the United States has been driven basically by the trade deficit, and the implication is that this country has been imparting positive impulses to world growth through expanded aggregate demand. Developing countries (excluding China) reduced their deficit in current account significantly: countries in LAC and Africa were forced to adjust by the need to cope with the 1980s debt crisis, while the decline in real prices of oil reduced or eliminated much of the CA surplus of oil-producing countries.

During the first half of the 1990s, both developing countries (excluding China) and the United States were absorbing capital from Japan and Europe. The reversal of capital flows and the corresponding adjustment of the CA in developing countries was associated with the already-mentioned sequence of financial crises in the 1990s. By the end of the 1990s and since, the United States has been receiving flows from Asia (Japan, China, and the newly industrialized Asian economies) and oil exporters, while the other developing countries as a whole and the European Union have basically been in balance.

As a consequence, the U.S. CA deficit has lately reached close to 2 percent of the world GDP, a level unprecedented in modern history. During the previous cycle of high CA deficits, the U.S. imbalance peaked at 1 percent of world GDP in the mid-1980s. The recessions in the early 1980s and early 1990s, along with adjustments in the real exchange rate, were crucial in restoring balance in the CA for the United States. However, during the last recession in the early 2000s, the CA imbalance did not disappear. The reason why the adjustment did not happen was that the recession of the early 2000s was milder than previous ones (no “expenditure reduction” occurred), and it coincided with a strong real appreciation of the U.S. currency (no “expenditure switching” occurred). Moreover, the CA deficit not only did not disappear but continued to increase.

The recent evolution of global (im) balances has reflected important changes in economic conditions, both in developed countries (particularly the United States) and developing countries. Before the last cycle, low real interest rates in industrialized countries usually meant that capital was flowing toward the developing countries. However, in the 2000s capital flows have been going from China, oil exporters, and some other developing countries toward industrialized countries (excluding Japan), mainly the United States. This is very different from the behavior that led to the debt crises of the 1980s and 1990s. Although in the environment of high commodity prices of the 1970s, many developing countries borrowed in expectation of sustained export incomes, in the 2000s those countries have been improving their fiscal and external accounts, reducing their debts and increasing the availability of savings for the rest of the world. For instance, the East Asian countries that experienced the collapse of 1997 did not go back to the high investment levels that existed before the Asian crisis, when investments were financed by negative current accounts. Rather, they decreased investments and turned to positive current accounts, adding to world’s excess net savings. The accumulation of foreign exchange reserves associated with positive current accounts in China and other developing countries, including oil exporters, has also led to expansionary domestic monetary policies in those countries, which sustained their growth.

What led to these changes in the origins and destinations of flows and of the resulting imbalances. Various researchers have suggested a diversity of reasons. Bracke et al. (2008) analyze several explanations, which they divide into two general categories: structural and cyclical explanations. Roubini (2006) lists 10 possible explanations. This discussion can be simplified using the definition of national accounts, in which a deficit in the current account of the balance of payments is an excess of domestic investment over domestic savings. Then we have four general explanations of the imbalances (and combinations thereof): the United States has decreased savings; the United States has increased investments; the surplus countries have increased savings; and/or the surplus countries have reduced investments.

The decline in U.S. savings may have resulted from a policy decision. The tax cuts introduced in 2001 switched the nation’s fiscal position from a surplus of 2.5 percent of GDP in 2000 to a deficit of 3.5 percent of GDP in 2004, a decline of 6 percent of GDP that could lead to the deterioration of the CA, the so-called twin deficit argument (Roubini 2006). Private U.S. savings have also declined. Among the

---

<sup>38</sup> In Figure 14 Japan is combined with China and the NIAE. During that period it was basically Japan the country that generated the surpluses. Large surpluses in the CA of China and the NIAE happened later.

reasons suggested are (1) that the period of Great Moderation gave U.S. consumers a sense of stability and reduced uncertainty, which required less savings on their part (Fogli and Perri 2006); and (2) that the perception of higher wealth resulting from the appreciation (or bubbles) in the U.S. housing and stock markets, and perhaps lower labor income generation, have led consumers to borrow from those assets to finance consumption. On the investment side, the United States may have gone through a process of overinvestment in housing (but this seems a subordinate phenomenon, not the driver).

The hypotheses regarding increased savings in surplus countries vary depending on the type of country considered. In Japan the increase may be related to demographics, whereas in developing countries that are not oil exporters, the cause may be the lack of social security systems (which forces people to save individually) or the structure of financial systems that do not provide adequate domestic vehicles for savings (and therefore a percentage is invested abroad). But there is a public sector counterpart in increased savings, linked to self-insurance to avoid the kinds of financial crises that occurred in the second part of the 1990s. This requires accumulation of official reserves. For instance, Aizenman and Lee (2005) tested the importance of self-insurance against economic crises generated by sudden stops and capital flight versus mercantilist objectives in the accumulation of reserves, and they found evidence in support of the first interpretation.<sup>39</sup> A more mercantilist interpretation is the notion that developing countries (particularly in Asia) have kept the exchange rate undervalued as a development strategy (as in the Bretton Woods II hypothesis advanced by Dooley et al. [2003]), which has led also to accumulation of foreign reserves (i.e., increasing savings that are invested in international assets). In the case of oil-producing countries, the public and private sectors may have been surprised by income growth and have not yet adjusted expenditures patterns; or they are considering those increases in income temporary and are therefore saving them.

Other explanations may be separate from the overall balance of savings and investment and are linked to its composition. Some argue that financial globalization has allowed some investors to diversify their portfolios and invest abroad; this is particularly true for the United States, which is the main supplier of “safe” assets (see IMF 2005; Roubini 2006; Bracke et al. 2008).

All these developments have kept world real interest rates low, even though the United States and other industrialized countries have turned to relatively more restrictive monetary policies since mid-2004. This has been called the “Greenspan conundrum”: although the Federal Reserve was increasing short-term interest rates, long-term rates were holding steady or even falling. Low real interest rates fueled the housing cycle now playing out mainly in the United States, and they contributed to the expansion of leveraged financial operations mostly in vehicles and instruments that were assumed to be off the balance sheet for the normal banking system. The sharp downturn in the housing cycle and its repercussions in financial markets (including the deleveraging of those parallel operations) are the main threats against the continuation of the current expansion.

For poverty the implications of these developments are related to the possible impact on growth, inflation, interest rates, commodity prices, and capital flows of the appropriate management (for which a proper interpretation and prioritization of causes is crucial) or disorderly unwinding of those imbalances.

---

<sup>39</sup> Although the variables associated with the mercantilist motive are statistically significant, Aizenman and Lee found that the economic impact in accounting for reserve accumulation is minimal compared with the precautionary motive.

## 4. IMPLICATIONS FOR POVERTY: A CHRONOLOGICAL NARRATIVE

The previous sections discussed individual variables and the channels through which they can influence poverty outcomes. This section tries to pull together a chronological narrative focusing on trends in poverty and human development indicators.

### The 1960s and 1970s

The 1960s and 1970s were years of high growth (both in developed and developing countries), moderate inflation, low (and even negative) real interest rates, accelerated expansion of trade, and high real prices of commodities. The economic buoyancy of those years was based on expansionary Keynesian macroeconomic policies in many countries, and stable exchange rates coupled with the liberalization and increase of world trade as a result of the success of the sequence of GATT rounds of trade negotiations. LAC, Africa, and the Middle East were the fastest-growing regions in the 1960s, and they continued to grow strongly during the 1970s, although East Asia began to overtake all developing regions. Rents from natural resources financed, in various degrees, the development of the industrial sector and the expansion of the welfare state in many developing countries. After the first oil crisis, developed countries in the 1978 Bonn Summit reiterated their intention to maintain pro-growth policies. This approach only exacerbated inflationary pressures and eventually led to a more drastic tightening in the 1980s. In the case of the developing countries, the notion of recycling petrodollars was promoted by the international community as part of the general effort to maintain world aggregate demand, which allowed many developing countries to borrow against export revenues considered ample because of high commodity prices. All this contributed to world growth but also set the stage for the dramatic changes in the monetary policies of the industrialized countries and the developing countries' debt crises of the 1980s.

The world macroeconomic configuration of this period helped developing countries in general, and those years saw important improvements in indicators of human development. The Human Development Index (HDI) calculated by United Nations shows an important jump from 1975 to 1980, followed by decelerations (see Figure 1). Table 10 shows that advances in life expectancy and decreases in infant mortality happened faster during the 1960s and 1970s.

**Table 10. Changes in health indicators in low- and middle-income countries (% change per year)**

| Indicator        | 1960s | 1970s | 1980s | 1990s | 2000s |
|------------------|-------|-------|-------|-------|-------|
| Life expectancy  | 2.3   | 0.7   | 0.5   | 0.2   | 0.3   |
| Infant mortality | -2,8  | -2,3  | -2,3  | -1,3  | -2,1  |

Source: Calculations by the author based on data from World Bank (2007).

Of course, part of the reason for the strong improvements is that it is easier to make progress starting from the less-advanced levels of the 1950s. Yet the combination of higher growth also facilitated the public sector investments in health and sanitation that allowed those gains in human capital.

Regarding poverty in the period from the 1960s to the early 1980s, the World Bank (1990) reported “considerable progress in reducing the incidence of poverty, a more modest reduction in the number of poor, and achievement of somewhat better living standards for those who remained in poverty.” The data were not as comprehensive as those collected beginning in the 1980s. Nonetheless, using household surveys from 11 countries (Brazil, Colombia, Costa Rica, India, Indonesia, Malaysia, Morocco, Pakistan, Singapore, Sri Lanka, and Thailand) representing 50 percent of the poor in developing countries, the World Bank estimated that during the period covered the incidence of poverty declined significantly from an (unweighted) average of 46 percent to 24 percent and that the number of poor in the countries covered had declined by almost 60 million during that period (World Bank 1990, tab. 3.2).<sup>40,41</sup>

<sup>40</sup> The 1990 World Bank study used country-specific poverty lines, whereas the more recent estimations by the World Bank

The cumulative impact of the breakdown of the Bretton Woods system of fixed but adjustable exchange rates in 1973 and the oil shocks of the second half of the 1970s set the stage for the drastic changes in world macroeconomic conditions in the 1980s.

## The 1980s

After the second oil crisis at the end of the 1970s, inflation jumped to two digits in industrialized countries. In the late 1970s and early 1980s, a series of elections in key industrialized countries brought new governments that changed the focus of policies from trying to sustain growth through Keynesian policies to fighting inflation using monetarist approaches. The expansionary policies of the previous decades were reversed. As previously noted, real interest rates jumped significantly higher, growth dropped sharply, and by the mid-1980s commodity prices in real terms collapsed and continued declining into the 1990s. The radical change in world macroeconomic conditions after the second oil shock increased the vulnerability of African and LAC countries, which had borrowed against expectations of high commodity prices. Africa and LAC entered a period of debt distress and economic crises that increased poverty.

It is true that some of the policies followed by those countries hampered the possibility of an easy adaptation to the new circumstances (for instance, by leaving those regions with comparatively small export bases that were very dependent on primary commodities, and greatly expanded external debts). But at the same time, the size of the 1980s shocks was such that a painful process of adjustment was unavoidable even with more appropriate policies.

Consequently, during the 1980s and part of the 1990s, many developing countries, mainly in Africa and Latin America, went through a painful process of fiscal adjustments to reduce the external debt accumulated and public sector imbalances. The discussions around structural adjustment programs, which unilaterally or as a condition of loans by international financial institutions reduced public expenditures in many developing countries, were part of the efforts to confront deteriorated circumstances in world macroeconomic variables.

On the other hand, Asian countries in general adjusted earlier and more efficiently to the economic shocks (Balassa 1989), but they also had lower levels of indebtedness to start with. This was in part the result of their being generally less resource abundant (of course with some exceptions, such as Indonesia) and therefore could not borrow much in international markets during the time of high commodity prices. Additionally, in the 1970s the turmoil of the Vietnam War reduced the attraction of that region for private sector lending. Over time, however, the relatively more resource-constrained and increasingly primary importers of Asia began to gradually specialize in manufacturing goods and eventually became the main recipients of capital flows. Because of this combination of factors, the region was less affected by, and may even have benefited in the aggregate from, the decline in prices of commodities in the 1980s (Díaz-Bonilla and Reca 2000).

The heterogeneity of the performances of Asia on the one hand and Africa and LAC on the other was then in part related to the different policy reactions to different economic conditions in the 1980s. However, the decline in world export shares by Africa and LAC also reflect the greater dependence of these regions on industrial countries for their exports of agricultural products compared with Asia, and the changes in sectoral and trade agricultural policies in rich countries that undermined agricultural and agroindustrial production and exports in LAC and Africa.

Another important development was the displacement of the Cold War confrontation from Asia in the 1950s and 1960s to Africa (and Central America) around the 1980s. In the case of Africa, economic

---

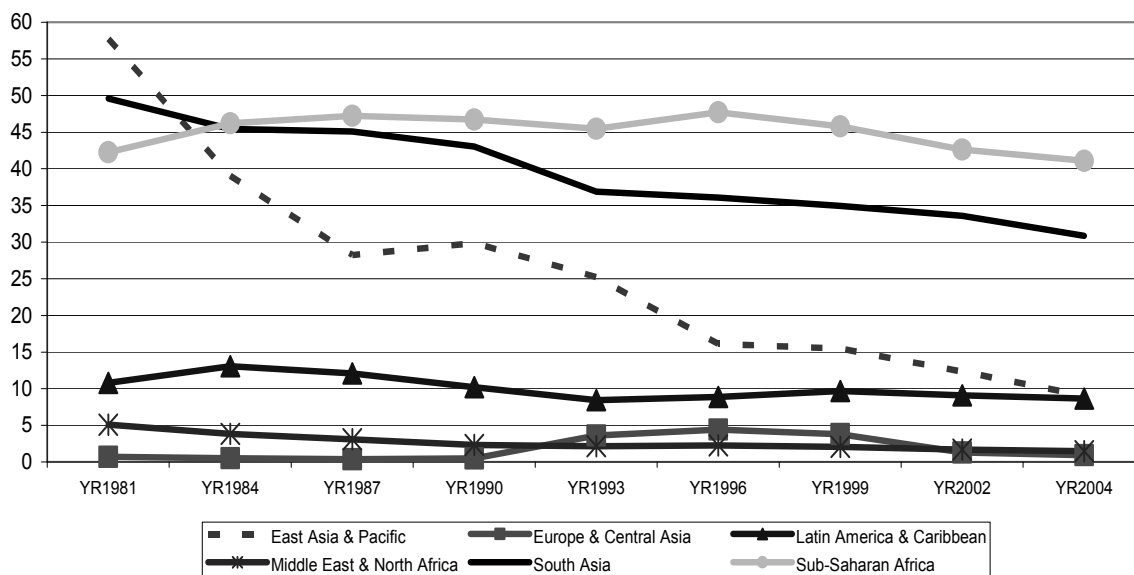
use worldwide poverty lines as well as country-specific ones (see Chen and Ravallion 2004)

<sup>41</sup> Current critics of globalization tend to focus on the 1980s and later. Although there have been less recent criticisms of the 1960s and 1970s, which, from the vantage point of several decades past, appear to have been periods of faster growth in developing countries in general, with declines in poverty and improvements in welfare. The issue of poverty alleviation during the 1960s and 1970s, however, was heatedly debated at the time, with many well-known economists arguing that high growth during those years was not benefiting the poor. It was not coincidental that in 1974 the World Bank published "Redistribution with Growth" (Chenery et al. 1974)

growth and exports, which began to decline during the difficult transition from colonial rule to independence in the 1960s and 1970s, subsequently declined further in parallel with the expansion of the Cold War to the African continent. The East–West conflict appears to have hit Africa particularly hard, reinforcing and militarizing preexisting ethnic divisions and later, at the end of the Cold War, creating further rounds of regional instability, when the factions that had been armed during the first phase used those weapons against each other, usually in the context of a struggle to control natural resources (see, e.g., Messer et al. 1998). Therefore, Africa seems to have suffered a triple shock in the 1980s—a macroeconomic and debt crisis, a commodity crisis, and a geopolitical crisis—with devastating effects that are still being felt in the region (Díaz-Bonilla and Reza 2000).

Poverty and welfare indicators in the 1980s show a deceleration of improvements in HDI (see Figure 1) and life expectancy and infant mortality (see Table 10). But the impact is clearer in poverty trends, whose behavior in the 1980s was consistent with the overall economic growth performance of the developing regions. World Bank global data on poverty (see Chen and Ravallion 2004) show that in this period poverty dropped significantly in East Asia and South Asia, regions that were clearly outperforming other developing countries in growth rates, but increased in LAC and SSA, which were still burdened by the consequences of the reversals in world macroeconomic conditions (Figure 15 and Table 11). The periods of increases in poverty, or of negligible improvements (the shaded areas with bold numbers in Table 11), only occurred in LAC and SSA.

**Figure 15. Poverty headcount, US\$1 per day (%)**



Source: World Bank (2007).

**Table 11. Poverty headcount, US\$1 per day (% change between measures)**

| Region                     | 1981 | 1984  | 1987  | 1990  | 1993  | 1996  | 1999  | 2002  | 2004  | Average change |
|----------------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|----------------|
| East Asia & Pacific        | na   | -32.4 | -27.6 | 5.7   | -15.4 | -36.0 | -4.2  | -20.2 | -26.7 | -19.6          |
| Europe & Central Asia      | na   | -26.5 | -31.0 | 30.6  | 676.6 | 22.8  | -14.5 | -66.3 | -26.6 | 70.7           |
| Latin America & Caribbean  | na   | 21.3  | -7.5  | -15.7 | -17.4 | 5.3   | 9.0   | -6.0  | -4.9  | -2.0           |
| Middle East & North Africa | na   | -24.8 | -19.0 | -24.6 | -8.3  | 4.3   | -6.9  | -18.6 | -13.3 | -13.9          |
| South Asia                 | na   | -8.3  | -0.7  | -4.6  | -14.3 | -2.2  | -3.2  | -3.9  | -8.1  | -5.7           |
| Sub-Saharan Africa         | na   | 9.3   | 2.2   | -1.1  | -2.7  | 4.9   | -4.1  | -6.9  | -3.6  | -0.2           |
| Low & middle income        | na   | -18.5 | -12.2 | -0.2  | -10.8 | -11.3 | -2.5  | -8.9  | -10.1 | -9.3           |
| <b>US\$2/day</b>           |      |       |       |       |       |       |       |       |       |                |
| East Asia & Pacific        | na   | -9.0  | -11.2 | 1.8   | -6.7  | -19.3 | -6.0  | -15.5 | -12.2 | -9.8           |
| Europe & Central Asia      | na   | -14.6 | -21.6 | 39.8  | 283.9 | 8.7   | 3.3   | -30.6 | -24.0 | 30.6           |
| Latin America & Caribbean  | na   | 13.3  | -8.3  | -11.2 | -8.2  | 4.8   | 0.3   | -2.2  | -10.5 | -2.8           |
| Middle East & North Africa | na   | -12.2 | -5.3  | -10.5 | 1.9   | 6.2   | 0.6   | -10.7 | -6.6  | -4.6           |
| South Asia                 | na   | -1.7  | -0.5  | -1.1  | -4.0  | -0.1  | -2.1  | -0.8  | -3.3  | -1.7           |
| Sub-Saharan Africa         | na   | 3.3   | 0.5   | -0.4  | -1.2  | 0.4   | -0.8  | -2.7  | -2.5  | -0.4           |
| Low & middle income        | na   | -4.1  | -5.5  | 0.1   | -2.2  | -6.6  | -2.3  | -6.5  | -6.2  | -4.2           |

Source: World Bank (2007).

The negative effects of various shocks on poverty are more visible at the country level. In Africa a typical case has been the evolution of Côte d'Ivoire in the second part of the 1980s. After a mild economic recovery in 1984–1986, the economy in that country suffered a severe recession as a result of sharp declines in the international prices of cocoa and coffee in 1987. Public investment expenditures fell from 18 percent of GDP in 1978–1983 to only 3 percent in 1988–1991. Average consumption per capita measured from household surveys dropped by more than 20 percent, and poverty increased from 34 percent in 1986 to 48 percent in 1988 (Kamanou and Morduch 2005)

In the case of LAC, there were also important negative effects on poverty during the crises of the 1980s. Table 12 shows the changes in poverty and GDP on selected countries.<sup>42</sup> The average poverty headcount ratio increased from about 34 percent to 40 percent, with the differences per country going as high as 15 and 18 percentage points in the cases of Argentina in 1985 and Peru in 1988, respectively.

<sup>42</sup> The poverty measures are calculated with domestic poverty lines. As previously mentioned, the latter do not necessarily coincide with the ones calculated by the World Bank using standardized lines for all countries.



**Table 12. Poverty and crisis (poverty headcount ratio)**

| Country                          | Year of Crisis | Before the Crisis |        | Year of Crisis |   | After the Crisis |        | After-Crisis GDP per Capita  |                                  |   |
|----------------------------------|----------------|-------------------|--------|----------------|---|------------------|--------|------------------------------|----------------------------------|---|
|                                  |                |                   |        |                |   |                  |        | Compared with Year of Crisis | Compared with Year before Crisis |   |
| Argentina (Greater Buenos Aires) | 1985           | 10.1              | (1980) | 20.6           | + | 25.2             | (1987) | +                            | +                                | – |
| Argentina (Greater Buenos Aires) | 1989           | 25.2              | (1987) | 34.6           | + | 35.0             | (1990) | +                            | +                                | – |
| Chile (Metropolitan areas)       | 1982           | 40.3              | (1980) |                |   | 48.60            | (1987) | +                            | +                                | – |
| Costa Rica                       | 1982           | 29.6              | (1981) | 32.3           | + | 29.7             | (1983) | +                            | +                                | – |
| Dominican Republic               | 1985           | 37.3              | (1984) |                |   | 38.2             | (1986) | +                            | +                                | – |
| Dominican Republic               | 1990           | 35.7              | (1989) |                |   | 39.5             | (1992) | +                            | +                                | – |
| Guatemala                        | 1982           | 65.0              | (1980) |                |   | 68.0             | (1986) | +                            | –                                | – |
| Mexico                           | 1986           | 28.5              | (1984) |                |   | 32.6             | (1989) | +                            | +                                | + |
| Panama                           | 1983           | 40.6              | (1980) |                |   | 44.0             | (1986) | +                            | –                                | – |
| Panama                           | 1988           | 44.0              | (1986) |                |   | 50.0             | (1989) | +                            | –                                | – |
| Peru                             | 1983           | 46.0              | (1979) |                |   | 52.0             | (1986) | +                            | +                                | – |
| Peru (Urban)                     | 1988           | 32.2              | (1985) |                |   | 50.0             | (1991) | +                            | –                                | – |
| Uruguay                          | 1982           | 11.0              | (1981) |                |   | 15.0             | (1986) | +                            | –                                | – |
| Venezuela                        | 1983           | 25.7              | (1982) | 32.7           | + | 34.8             | (1985) | +                            | –                                | – |
| Venezuela                        | 1989           | 40.0              | (1988) | 44.4           | + | 41.5             | (1990) | +                            | +                                | – |

Source: Lustig (2000).

In terms of the impacts on other social variables, Paxson and Schady (2004) found that the 1988–1992 crisis in Peru led to increases in infant mortality and obvious deterioration in nutritional conditions among children, but Schady (2004) looking at the same crisis, found no negative effects on schooling and even suggested the possibility of an increase in attendance among children affected by the crisis because of the lack of employment opportunities (the impact on the quality of school work is unclear but may have deteriorated because of the crisis).

### The 1990s

During the second part of the 1980s, the United States continued to ease its monetary policy, particularly after the 1987 stock market crash, which eventually led to the boom and bust associated mainly with the housing market and the crises of the U.S. system of mortgage banks in the late 1980s (showing some parallelisms with the current situation in the U.S. real state and financial markets). The oil price spike associated with the first Gulf War also contributed to the downturn at the beginning of the 1990s. At the same time, during the late 1980s and early 1990s, the breakdown of the former Soviet Union and a period of inflation and political unrest in China affected growth in those countries. As shown in Table 11, the only places where poverty increased in 1990 were the countries in eastern European and Central Asia linked to the former Soviet bloc. Although to a far lesser degree, poverty also increased in East Asian countries affected by the growth slowdown and inflationary developments in China and the impact of higher oil prices seen throughout the region. Poverty problems in the former Soviet republics and countries in the Soviet bloc continued during the rest of the 1990s. The American recession at the end of

the 1980s, weak economic performance in many developed countries, and low real interest rates and declines in asset yields in industrialized countries, sent capital flowing back to developing countries in the first half of the 1990s, with Asia becoming now a more prominent destination.

When the economy recovered from the recession of the early 1990s, monetary policies in industrialized countries began to focus more on the risk of inflation. From early 1994 to mid-1995, the U.S. monetary authorities initiated a period of tightening, increasing the federal funds rate about 300 basis points. The dollar, which had weakened in the previous years during the period of slow growth and low returns to assets, changed course and began to appreciate. Various middle-income countries that have currencies pegged to the dollar, particularly in LAC and Asia, began to lose external competitiveness. However, resorting to devaluation to restore competitiveness was not that simple given the level of indebtedness in hard currency and the impact that a devaluation would have on the balance sheet of debtors and on the financial sector that had intermediated those hard-currency loans. The main difference from the crises of the 1980s (when international banks intermediated petrodollars mainly to the public sector) was that in the 1990s there was an increasing component of debt in the hands of the private sector. The devaluation was eventually forced by the reversal of capital flows to developing countries. A second wave of debt crises erupted in developing countries, first in Mexico in 1995 and then in East Asia, Russia, Brazil, and Argentina, in that order. World conditions, which had improved in the mid-1990s, deteriorated again, leading to the world slowdown of early 2000s.

The sudden emergence of financial crises and the subsequent disruption of the economies of many Asian and Latin American countries had both direct and indirect effects on the poor. Figure 15 and Table 11 show that in the aggregate the percentage of poor people increased somewhat in LAC and SSA and declined very slowly in Asia in the late 1990s.

Those values are for the aggregates, and improving trends in China tended to mask what was happening in other countries, like Indonesia, the Philippines, and Thailand. A more disaggregated analysis focusing on the countries that suffered the financial crises shows that the economic disruptions had clear negative impacts on poverty (Table 13). The median share of poor people living on US\$1 per day in those countries increased from 5.2 percent before the crises to 7.3 percent after; the median share of people living on US\$2 per day jumped from 23 percent to almost 28 percent.

**Table 13. Financial crises and poverty**

|               | Percentage of Population |       |
|---------------|--------------------------|-------|
|               | Before                   | After |
| US\$1 per day |                          |       |
| Average       | 7.0                      | 7.7   |
| Median        | 5.2                      | 7.3   |
| US\$2 per day |                          |       |
| Average       | 30.3                     | 33.1  |
| Median        | 23.0                     | 27.8  |

Source: World Bank (2007).

Note: Closest data point before and after crisis, usually within a two-year window. The crises included are Mexico (1995), Russia (1998), Indonesia (1997), Philippines (1997), Thailand (1997), Brazil (1999), and Argentina (2001).

Fallon and Lucas (2002) summarize a variety of economic and social indicators before and after the Asian crisis in Indonesia, Korea, Malaysia and Thailand and document the important increases in poverty after the financial turmoil, although they note that the severity of poverty increases is not necessarily correlated to the depth of the economic crisis, and the impact varies by urban and rural areas.

Besides the immediate impact on poverty, another issue is whether there were other more-lasting effects on the human capital of the poor as a result of reductions in health and education investments by households and the public sector. Table 14 summarizes changes in relevant indicators for a sample of

crises in LAC countries. Investments in the social sector and education declined in all countries considered. Further, health indicators such as infant mortality, deaths from anemia and pneumonia, and protein intake show deterioration after the crisis analyzed.

In a study of health and education indicators in Asian countries after the 1997 crises, Fallon and Lucas (2002) concluded that public spending declined. In some countries, like Indonesia, the use of health facilities also dropped, as did some nutritional indicators, such as body mass in adults (although measures related to children's health did not fall). Frankenberg et al. (2003) found that important declines in per capita consumption in Indonesia took place (falling 23% between 1997 and 1998), but food consumption dropped less (about 9%).

Looking at other welfare indicators such as HDI (see Figure 1) and life expectancy and infant mortality (see Table 10), it is clear that during the 1990s, for developing countries as a whole, the rate of improvement slowed down or was nonexistent.

**Table 14. Social impact of economic crises**

|                               | <b>Argentina (1995)</b>   | <b>Dominican Republic (1990)</b>   | <b>Mexico (1995)</b>   | <b>Venezuela (1994)</b>  |
|-------------------------------|---|--|--|--|
| <b>Main crisis indicators</b> | - GDP per capita fell 4.2% in 1995 and private per capita consumption fell 6.4%   | - GDP per capita fell 7.6% in 1990 and private per capita consumption fell 13.9%   | - GDP per capita fell 8.1% in 1995 and private per capita consumption fell 11.5%   | - GDP per capita fell 4.6% in 1994 and private per capita consumption fell 8.3%  |
| <b>Labor markets</b>          | - Average real wage fell 1.1% in 1995<br>- Urban open unemployment rate rose from 11.5% in 1994 to 17.5% in 1995  | - Minimum urban real wages fell 3% in 1991   | - Average real wage increased 3.7% in 1994 but decreased 13.5% in 1995<br>- Urban open unemployment rate rose 2.6 percentage points between 1994 and 1995 (3.7% to 6.3%); in 1997 it fell back to its 1994 level | - Average real wage fell 15.7% in 1994 and 4.6% in 1995<br>- Urban open unemployment rate rose from 6.8% in 1993 to 8.9% in 1994   |
| <b>Social spending</b>        | - Social spending as a share of total expenditure rose from 65.2% in 1994 to 66.8% in 1995; as a percentage of GDP it increased from 18.1% to 18.6% in the same period<br>- Education spending as a percentage of GDP rose from 3.7% in 1994 to 4.0% in 1995; meanwhile, health spending as a percentage of GDP rose from 1.9% to 2.0% in the same period | - Social spending as a percentage of total expenditures decreased from 39.6% in 1989 to 36.6% in 1990, and as a percentage of GDP decreased from 6.6% to 4.7% in the same period<br>- Spending on education as a percentage of GDP decreased from 1.5% in 1989 to 1.2% in 1990; spending on health as a percentage of GDP decreased from 1.2% to 1.1% in the same period | - Social spending as a percentage of GDP decreased from 9.0% in 1994 to 6.8% in 1995<br>- Education spending as a percentage of GDP decreased from 3.9% in 1994 to 3.6% in 1996                                  | - Real per capita social expenditure in 1990–1991 was 9.0% of GDP; in 1996–1997 it fell to 8.4%<br>- Spending on education as a percentage of GDP rose from 3.9% in 1993 to 4.4% in 1995 |

**Table 14. Continued**

|                             |   |   |   |  |
|-----------------------------|---|---|---|--|
| <b>Health and Nutrition</b> | - Per capita daily protein intake decreased 3.8% in 1995; in 1996 it increased 1.9%<br>- Deaths from pneumonia and influenza rose nearly 6% in 1995 | - Number of infants aged 6–11 months suffering from chronic malnutrition rose from 9.6% in 1986 to 17% in 1991<br>- Per capita daily protein intake decreased 6.8% in 1990; the next year it increased 4.6% | - Mortality from anemia increased in children under 1, from 6.3 deaths per 100,000 live births in 1993 to 7.9 in 1995, and in children between the ages of 1 and 4 from 1.7 to 2.2 deaths per 100,000 respectively. | - The per capita daily protein grams intake decreased 4.2% in 1993, 2.9% in 1994 and 0.5% in 1995. |
| <b>Education</b>            | - Total primary enrollment growth declined from 2.2% in 1993 to 0.62% in 1996   | - Total primary enrollment declined from 97.1% in 1988 to 96.6% in 1990.  | - Total primary enrollment growth was 0.44% in 1994 and it fell to 0.35% in 1995  | - Total primary enrollment declined from 94.4% in 1993 to 91.7% in 1995.                           |

Source: Lustig (2000).

## The 2000s

In the late 1990s the U.S. monetary authorities switched to more expansionary monetary conditions after the collapse of an important hedge fund but reversed that switch at the end of the 1990s because of concerns about inflation. Influenced by the monetary cycle, the United States went through a period of overinvestment, particularly in the technology sector. The unraveling of the technology boom and the events of September 11, 2001, led to the slowdown in early 2000s in the U.S. and world economies.

The easing of U.S. monetary conditions started before 9/11, but after that it was reinforced and sustained until 2004 at nominal levels not seen since the 1950s, and even then interest rates were held down for far shorter periods. The effective federal funds rate was about 1.4 percent (nominal) for the period from December 2001 to December 2004, similar to the nominal rates from mid-1954 to the second half of 1955 and again during part of 1958. However, in the 2000s, rates were kept low for about three years, whereas in 1954–1955 they lasted only about 15 months and in 1958 just 10 months. This strong (and, some have argued, exaggerated) monetary impulse eventually led to the economic acceleration that the United States and the world have experienced since the early 2000s. The continuous expansion of the U.S. trade deficit (reflected in the widening current account deficit; see Figure 14) and low interest rates supported global growth and pushed up real prices of several commodities, particularly metals and energy.

Strong growth and lower inflation and volatility during the 2000s have meant that poverty (as a percentage of the population) has continued to decline further in all developing regions (see Figure 15 and Table 11). The world poverty measures for 2002 and 2004 are the only two years since the early 1980s, when the World Bank began to compile global poverty rates with a common methodology, that show declining values for the headcount poverty percentages of all developing regions at the same time. Also the HDI, after being flat during the 1990s, increased again (see Figure 1) in those years, and the rate of improvement in life expectancy and infant mortality accelerated (see Table 10).

The very accommodative U.S. monetary policy began to be reverted by mid-2004, putting in motion the events that led to the housing and related credit events of 2007 in several industrialized countries. Critics of Federal Reserve policies have argued that keeping rates so low for so long created the necessary conditions for the rise of the housing bubble and its subsequent breakdown when monetary policies had to be tightened because of inflationary pressures.<sup>43</sup>

<sup>43</sup> For instance, Taylor (2007) argues that the Federal Reserve should have raised the federal funds rate from 1.75 percent in 2001 to 5.25 percent by mid-2005 on a more constant path, when in fact the Fed cut the rate to 1 percent in 2003 and started to raise it in 2004, only reaching 5.25 percent in mid-2006. According to Taylor, a faster tightening of the monetary policy would have moderated the housing boom and subsequent bust. It would have peaked earlier at about 1.8 million housing starts and then declined more gently, rather than going up to 2.1 million in 2006 and then dropping to below the levels of 2001.

A related and, at least until recently, less appreciated development has been the emergence in the last decade of a parallel banking and financial structure (which some have called the “shadow banking system”) marked by short-term borrowing and long-term lending using securitized financial vehicles on both ends (Hamilton 2007). This parallel institutional structure has been promoted by the core banking system as a way of avoiding strict capital conditions and regulations with the argument that by using instruments from capital markets (instead of simply taking shorter-term deposits to make longer-term loans), risk is more efficiently allocated. These operations were supposed to remain off the banking sector balance sheet, and they used securitized financial instruments (some of which were based on housing mortgages) instead of deposits and loans. That parallel system amplified the availability of liquidity, which was already ample because of Federal Reserve policies, providing further support to U.S. and global growth.

The unraveling of the housing market and the tightening in U.S. monetary policies since late 2004 (which had ramifications all over the world) put the shadow banking system under stress, generating the equivalent of a run on those parallel institutions (i.e., people wanting to get the money out, or at least not renewing the securitized short funding that fueled the expansion of the system). Because that parallel financial structure was not, in the end, truly independent from the core banking system (which owned or guaranteed in several degrees those related institutions), the turmoil has lately moved back to the main banks, and a reversal in expansionary credit conditions is taking place (Hamilton 2007). This is in part related to the fact that mark-to-market accounting rules (adopted more widely after the accounting frauds of the late 1990s) seem to have been forcing banks to raise more capital or deleverage faster than would have been the case under historical-value accounting rules. Some critics argue that the widespread application of mark-to-market rules generates accounting losses that weaken unfairly the capital base of the banks, considering that the current low values of many assets are related to liquidity problems and uncertainty rather than to fundamentals.

The credit crunch and the financial turmoil in industrialized economies have increased the many uncertainties related to imbalances in the world economy and the sustainability of world growth patterns. The possibility of a strong world deceleration reopens questions about the impact of global macroeconomic events on growth and poverty in developing countries.

## 5. SOME POLICY CONCLUSIONS AND REFLECTIONS

Growth cycles and volatility in the world economy, with its strong effects on developing countries during the last decades, have been greatly influenced by policies in industrialized countries that determine global macroeconomic conditions, such as interest rates, capital flows, and commodity prices. In turn, these developments have important repercussions on poverty in developing countries. Analyzing poverty trends in those countries without considering the state of the world business cycle overlooks one of the main determinants of the economic conditions that affect poverty outcomes. Cross-section or panel regressions that arbitrarily average variables over three to five years without properly considering the turning point of the business cycle will most likely draw erroneous, or at least imprecise, implications about the impact of structural and policy variables on poverty. Going forward, it is important to think about future developments in the cycle but also longer-term trends of the global economy and their consequences for poverty.

### Cyclical Issues

Regarding the cycle, the main global macroeconomic issue is whether and how the adjustment in the U.S. current account will take place, with its corresponding correction in the surplus countries. As mentioned earlier, restoring CA balance in a deficit country requires both adjustments in aggregate demand relative to aggregate supply (expenditure reducing) and a movement toward production of more tradables than nontradables, linked to adjustments in the real exchange rate and relative domestic prices (expenditure switching). An opposite correction is needed in surplus countries.

A cooperative adjustment that maintains world growth would require a combination of expansion of domestic demand in China, Japan, oil-producing countries, and various developing countries, along with adjustments (appreciation) in their exchange rates. The European Union seems to have advanced more in this adjustment through its demand expansion and appreciation of the euro. On the other side of the rebalancing equation, the United States would have to increase domestic savings from households and the government (reducing somewhat domestic demand), and the real exchange rate would have to depreciate.

The potential for a disorderly and traumatic adjustment is also present. The rebalancing could result from a strong recession in the United States (internal adjustment), as happened in the early 1980s and early 1990s; or it could happen if external investors and financiers of the U.S. current account deficit stop or reduce significantly their demand for dollar-denominated assets (external adjustment). In the benign scenario the demand in the rest of the world expands and the dollar depreciation is slow, but in the traumatic scenario U.S. demand drops far more and the dollar requires a further depreciation against those currencies that are now floating more freely against it (like the euro).

The traumatic scenario could be worsened if the current financial crisis and credit crunch continues to deepen. If that were to happen, monetary accommodations by the Federal Reserve and other central banks in industrialized countries would not prevent a sharp upward repricing of risk, leading to higher effective interest rates for world debtors, and further declines in investment and consumption. The current mark-to-market accounting practices could lead to what has been called “regulatory bankruptcy,” in which banking institutions that could have weathered the financial turmoil under the previous accounting rules would be forced to close, furthering the credit crunch.

Other than the orderly scenario, without a spreading financial crisis in industrial economies, all other alternatives will negatively affect growth in the rest of the world and increase poverty in developing countries.

To give a sense of the possible scenarios, it is useful to look back at the world’s four strong decelerations (“recessions”<sup>44</sup>) since the 1960s: in 1974–1975, 1980–1982, 1991–1993, and 2001–2002 (see Figure 2). Each one of those events was associated with a recession in the United States. (The two

---

<sup>44</sup> The quotation marks indicate that negative growth never occurred at the world level, although the cycles are clear in Figure 2.

U.S. recessions in the early and late 1960s, although somewhat visible in the height of the bars in Figure 2, did not pull down world growth like those from the 1970s onward.)

What happened during those years? Tables 15 through 18 show the difference between the average value of the variable of interest for the three years before the crisis ( $X_{t-3}$ ) and during the crisis ( $X_t$ ). For instance, using GDP growth, if it was on average 3 percent in the three previous years and declined to -2 percent on average during the years of the crisis, then the reported variable is -5 percent (-2 percent - 3 percent). The variables are GDP growth per capita, prices of commodities, interest rates, and the U.S. multilateral real exchange rate.

In terms of GDP growth (per capita), economic declines appear to be generalized, except in the case of the early 1990s (Table 15). The LAC region that had suffered its own recession somewhat earlier was by the early 1990s already rebounding from those lows. This pulled up growth rates for the aggregate of low- and middle-income countries, but excluding LAC the aggregate for the other regions (not shown) was negative.

**Table 15. Change in growth in GDP per capita during recessions (%)**

| Region                         | 1974–1975 | 1980–1982 | 1991–1993 | 2001–2002 |
|--------------------------------|-----------|-----------|-----------|-----------|
| Low- & middle-income countries | -0.5      | -1.7      | 0.1       | -0.2      |
| High-income countries          | -4.7      | -3.0      | -2.2      | -1.8      |
| United States                  | -5.1      | -4.2      | -1.6      | -2.8      |
| World                          | -4.1      | -2.8      | -1.7      | -1.4      |

Source: Calculations by the author based on data from World Bank (2007).

Table 16 shows indices of nominal prices for groups of commodities, plus (in the lower line) the index of export prices for developing countries (low- and middle-income countries as defined by the World Bank). The behavior of commodity and export prices can be separated into two main cases. In the first two recessions, most (but not all) prices were increasing: there were the oil shocks and generalized inflationary pressures. In the last two events prices were declining, with the exception of oil in 2001–2002. Oil had been negatively affected in the late 1990s by the sequence of financial crises in developing countries and by the early 2000s was already rebounding, propped up by different geopolitical events.

**Table 16. Change in commodity prices during recessions (%)**

| Commodity                                  | 1974–1975 | 1980–1982 | 1991–1993 | 2001–2002 |
|--|-----------|-----------|-----------|-----------|
| Food                                       | 6.7       | 10.5      | -7.1      | -8.7      |
| Beverages                                  | -21.7     | -30.0     | -24.2     | -38.0     |
| Agricultural raw materials                 | -1.0      | -10.4     | -0.5      | -5.3      |
| Metals                                     | 14.4      | 18.8      | -26.9     | -7.6      |
| Average crude price                        | 99.5      | 83.8      | -0.8      | 46.9      |
| Index for low- and middle-income countries | 10.4      | 1.1       | -12.4     | -20.3     |

Source: Calculations by the author based on data from IMF (2007b).

The behavior of interest rates can also be separated into two main cases (Table 17). In the recessions/decelerations of the mid-1970s and early 1980s, inflation was an issue (see Table 16) and there was a tightening of monetary policy (more in the 1980s than in the 1970s). By contrast, in the 1990s and 2000s, interest rates were cut to counter the slowdown created by a specific overinvestment cycle that was unwinding (in the first case related to housing, as is currently the case, and to technology investments in the second case).

**Table 17. Changes in interest rates during recessions (%)**

|                          | 1974–1975 | 1980–1982 | 1991–1993 | 2001–2002 |
|--------------------------|-----------|-----------|-----------|-----------|
| 3-month U.S. LIBOR       | 1.8       | 5.8       | –4.1      | –3.1      |
| 1-year U.S. LIBOR        | na        | 3.9       | –4.0      | –3.0      |
| Federal funds            | 2.2       | 5.8       | –4.2      | –2.7      |
| Treasury bill            | 1.7       | 4.6       | –3.5      | –2.6      |
| 3-year government bonds  | 1.5       | 4.7       | –2.8      | –2.0      |
| 10-year government bonds | 1.4       | 4.4       | –1.7      | –0.8      |
| Bank prime loan rate     | 3.0       | 6.8       | –3.2      | –2.7      |

Source: Calculations by the author based on data from IMF (2007b).

Note: LIBOR = London interbank offered rate; na = not available.

Finally, changes in the multilateral U.S. real exchange rate (calculated by the Federal Reserve) are shown in Table 18. The U.S. dollar was depreciating in the 1980s, about even in the 1990s, and appreciating in the 2000s. As previously noted, the U.S. external deficit was closed during the recessions of the early 1980s and early 1990s (through a mix of recession and devaluation, at least in the 1980s), but it expanded even further through the slowdown of the early 2000s and afterward (because of the mild nature of that U.S. recession and the U.S. dollar appreciation). Another development related to the U.S. dollar was that the appreciation of the 2000s contributed to the sharp decline in commodity prices (measured in U.S. dollars).

**Table 18. Change in U.S. real exchange rate during recessions**

| 1974–1975 | 1980–1982 | 1991–1993 | 2001–2002 |
|-----------|-----------|-----------|-----------|
| na        | –14.9     | 1.5       | 7.4       |

Source: Calculations by the author based on data from U.S. Federal Reserve (2008).

Note: na = not available.

Characterizing the world recession that is likely approaching is made difficult by the current convergence of both inflationary pressures (requiring monetary tightening, as in the 1970s and 1980s) and an unwinding investment cycle with widespread fragility of the banking and financial systems in the United States and other countries (requiring monetary easing, as in 1990s and 2000s). If a recession hits the United States, will developing countries, which are growing fast, be able to sustain the economic activity for the world as a whole? That seems doubtful, given that the proportion of world GDP of developing countries (at market rates) is about 25 percent. This is a recovery from the lower share after the crises of the 1980s but not higher than the shares of the 1960s and 1970s, when declines in economic activity in industrial countries finally forced growth in developing countries down (see Figure 3).

A relevant issue going forward is that, at the global level, there are no international institutions that can enforce a cooperative and coordinated policymaking process to unwind the current imbalances and help with the financial crisis. IMF discussions focusing on the possibility of strengthened economic policy surveillance might lead to a cooperative result, but currently the IMF does not have the instruments or the governance system needed to design and implement such an outcome. The same applies to other multilateral bodies, such as an expanded Group of Seven or the Financial Group of 20.

In monetary policy, central banks in industrialized countries have cooperated in providing liquidity since mid-2007, when the financial crisis started. But the Federal Reserve has been more aggressive in reducing interest rates, apparently more concerned about growth slowdown, while the European Central Bank has been more cautious, fearing the possibility of acceleration in inflation. The Federal Reserve risks a scenario similar to what happened after the first oil shock in the mid-1970s, when inflationary pressures were exacerbated by pro-growth policies, which then forced a more dramatic



monetary tightening in the late 1970s and early 1980s. The European Central Bank, in turn, may well contribute to deepening the credit crunch if its concern about inflation leads it to tighten further. How these scenarios unfold will determine which way the world economy goes, but the true alternative, in the absence of better coordination of world policies, seems to be a milder recession now (2008–2009) or a deeper economic dislocation later (2010–2011).

Given all these macroeconomic uncertainties and challenges what can developing countries do? Basically, they should be preparing for a downturn in the world business cycle in the relatively near future, similar to a combination of the 1980s and 1990s global slowdowns. At the macroeconomic level it is important to try to smooth the business cycle and, particularly, to avoid economic crises if developing countries want to reduce poverty and hunger. To that effect, developing countries should do the following:

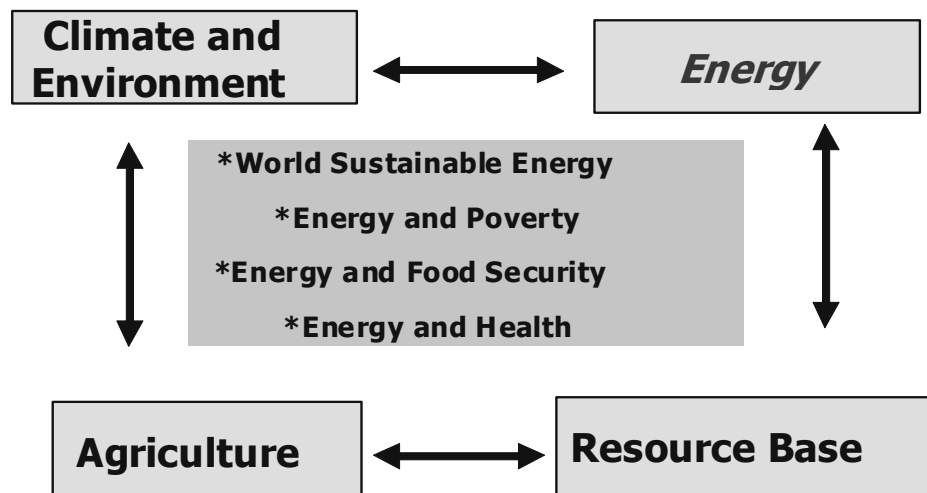
- Strengthen the fiscal position of the public sector, reducing public sector debt ratios. Additional resources from high commodity prices should be used countercyclically to set up safety nets for the poor and vulnerable.
- Avoid rigid and appreciated real exchange rates that could lead to trade imbalances and excessive accumulation of external debt.
- Maintain reasonable levels of reserves in the central banks as a precaution against possible global turbulence that could lead to declines in growth and commodity prices and could stop or revert capital flows to developing countries.

In general, many developing countries seem to have been following these policies more closely than in previous cycles that ended in debt crises in the 1980s and 1990s. However, even if this downturn is properly managed, developing countries face more difficult challenges for poverty alleviation in the medium to long term.

### **Longer-Term Trends**

So far this paper has discussed global macroeconomic conditions and poverty mostly from the point of view of the business cycle around some trend. Moving now to the consideration of longer-term world trends, the main challenges for development and poverty appeared linked to the interaction of energy issues, agriculture, the resource base, and the climate and environment. This complex set of issues affect various dimensions of the poverty equation (Figure 16).

**Figure 16. Energy, agriculture, environment, and poverty**



At the center of that equation are the challenges related to energy and its use in maintaining growth on a sustainable basis and helping to alleviate poverty. For instance, the International Energy Agency (2004) calculates that to reach the Millennium Development Goals in 2015, about 600 million people who now lack electricity should have access to it. It was also estimated that in 2002, about 2.3 billion people used biomass for cooking and heating, with the negative impact on their health (mainly but not only through respiratory diseases), time available for other economic activities, and the environment. The negative impacts of the current approaches to energy production and utilization on global warming, water availability, and extreme climate events, particularly in Africa and South Asia, with the negative implications for food security and malnutrition, has been documented as well (IPCC 2007)

All these issues are linked to the energy equation. It should be noted that the materialization of the prospective economic slowdown will reduce demand for energy, alleviating the currently tight markets for those products in the short run but negatively affecting poverty through other channels. On the other hand, if the current policy efforts in the United States and other industrialized countries succeed in avoiding a global recession in 2008–2009, continuation of high world growth will most likely lead to further increases in energy prices. In the past, although it has been common to characterize oil shocks as supply side events, more-careful analyses show that the price jumps have been basically linked to very supportive demand conditions. Without the latter, supply disruptions would not have had the same price impact (Kilian 2006).

In turn, higher energy prices can trigger directly, or through the policy reaction in key countries aimed at lowering inflation, a future growth slowdown. This will also have negative implications for poverty in developing countries. It should be remembered that oil prices were about US\$20 per barrel in 2001, at the beginning of the current growth cycle, but reached close to US\$100 per barrel by the end of 2007. As in the 1970s, the current period of relatively high growth, now mostly fueled by developing countries, may lead to an additional price shock to energy products, with negative impacts for welfare and poverty in many developing countries. The nominal price of oil during the cycle between 1970 and 1980 increased by a factor of 20, and in the current cycle (of about the same length) the increase so far has been by a factor of 5. It should also be noted that the use of energy per capita at the world level has increased from about 1,490 kg of oil equivalent per capita in 1970 to about 1,800 kg in the mid-2000s, and the world's population has grown in the same period from about 3.6 billion to some 6.6 billion people.

Even without further acceleration of world growth, potential imbalances in world energy markets in the next few years are looming, with the International Energy Agency (2007) projecting a significant tightening of demand and supply by 2012. By then OPEC's excess supply capacity, which at its current level of less than 5 percent of global demand is low from a historical perspective, is projected to go below 2 percent. This would set the stage for any comparatively small supply disruption to generate strong upward price adjustments.

In the longer term, the requirements are even more daunting. Table 19 shows the evolution of population, GDP, and nonfood and food energy requirements from the 1950s–1960s to 2004, with long-term projections for 2050 under some variations of current trends. The three data points are separated by about half a century.

**Table 19. Energy, population, and GDP**

|                             | 1950–1960 | 2004  | 2050          |
|-----------------------------|-----------|-------|---------------|
| Population (million)        | 2500      | 6400  | 9000/10000    |
| GDP (million US\$, 1990)    | 5300      | 36000 | 105000/115000 |
| Non Food energy (exajoules) | 90        | 460   | 800/900       |
| Food energy (exajoules)     | 10        | 28    | 39/43         |

Source: Calculations by author based on World Bank (2006).

In terms of energy sources, the supply of coal is more than adequate to meet the world's requirements, but of course there is the problem of greenhouse emissions, and as yet there are no viable energy alternatives for transportation, which is projected to increase with more population and economic activity. Over time, the implications of energy consumption for climate change may carry significant consequences for developing countries. The combination of issues surrounding energy use, economic development, poverty alleviation, and climate change is also affected by a market coordination failure of global proportions (Stern 2006), and, similarly to the shorter-term macroeconomic imbalances, that problem has no widely accepted international mechanism for resolution.

Therefore, for the longer term the prospects for economic development and poverty and hunger alleviation in developing countries are directly tied to the fair resolution of another type of imbalance: how to make sure that the world's population has adequate access to energy resources, including food production as a source of human energy. Needed at the world level is an integrated consideration of energy balances, including the food-derived energy required to maintain human life and economic activity.

In institutional terms, resolving this imbalance requires coordinated work on the successor treaty to the Kyoto Agreement. A crucial factor in development and poverty alleviation is developing countries undertaking the needed policy analysis to prepare for those negotiations and to make sure that their interests are represented. Another important factor is international financing for the investments in technology needed for clean electricity, clean transportation, and agriculture.

Those longer-term issues are beyond the scope of this paper, which has focused basically on short- to medium-term macroeconomic imbalances and the world business cycle. Regarding the latter, the paper has highlighted the global coordination failure in macroeconomic matters as a central world governance issue, with crucial implications for poverty alleviation. At the same time, it is also clear that, for the medium to long term, a second key topic of world governance is how to solve the market and institutional failures associated with energy issues, which over time will be more relevant for poverty trends in developing countries than the question of how to solve the shorter-term global macroeconomic imbalances. Building a world economy that is macroeconomically stable, based on sustainable energy, and capable of ensuring the benefits of progress to everyone requires that humankind properly address those two crucial issues of global governance.

## REFERENCES

- Aguiar, Mark, and Gita Gopinath. 2004. *Emerging market business cycles: The cycle is the trend*. NBER Working Paper No. 10734, National Bureau of Economic Research, Cambridge, MA.
- Ahmed, Akhter U., Ruth Vargas Hill, Lisa C. Smith, Doris M. Wiesmann, and Tim Frankenberger. 2007. *The world's most deprived characteristics and causes of extreme poverty and hunger*. IFPRI 2020 Vision Discussion Paper No. 43, International Food Policy Research Institute, Washington, DC.
- Aizenman, Joshua, and Jaewoo Lee. 2005. *International reserves: Precautionary versus mercantilist views, theory and evidence*. NBER Working Paper No. 11366, National Bureau of Economic Research, Cambridge, MA.
- Balassa, Bela. 1977. Revealed comparative advantage revisited: An analysis of relative export shares of the industrial countries, 1953–1971, *Manchester School of Economics and Social Studies* 45: 327–344.
- . 1985. *Change and challenge in the world economy*. New York: St. Martin's Press.
- . 1989. Outward orientation. Chapter 31 in *Handbook of development economics*, vol. 2, ed. H. Chenery and T. Srinivasan. New York: North-Holland.
- Becker, Gary, Tomas J. Philipson, and Rodrigo R. Soares. 2003. *The quantity and quality of life and the evolution of world inequality*. NBER Working Papers 9765, National Bureau of Economic Research, Cambridge, MA.
- Bernanke, Ben S. 2004. The great moderation. Remarks at the meetings of the Eastern Economic Association, Washington, DC, February 20, 2004.  
<http://www.federalreserve.gov/BOARDDOCS/SPEECHES/2004/20040220/default.htm>.
- Bhalla, Surjit. 2002. *Imagine there's no country: Poverty, inequality and growth in the era of globalization*. Washington, DC: Institute for International Economics.
- Birdsall, Nancy, and Amar Hamoudi. 2002. *Commodity dependence, trade, and growth: When "openness" is not enough*. Working Paper No. 7, Center for Global Development, Washington, DC.
- Bordo, Michael. 2006. *Sudden stops, financial crises, and original sin in emerging countries: Déjà vu?* NBER Working Paper No. 12393, National Bureau of Economic Research, Cambridge, MA.
- Borensztein, Eduardo, Mohsin S. Khan, Peter Wickham, and Carmen Reinhart. 1994. *The behavior of non-oil commodity prices*. Occasional Paper No. 112, International Monetary Fund, Washington DC.
- Bourguignon, François. 2002. The growth elasticity of poverty reduction: Explaining heterogeneity across countries and time periods. In *Inequality and growth theory and policy implications*, ed. Theo S. Eicher and Stephen J. Turnovski. Cambridge, MA: MIT Press.
- . 2004. The poverty-growth-inequality triangle. Paper presented at the Indian Council for Research on International Economic Relations, World Bank, February 4, 2004.  
[http://povlibrary.worldbank.org/files/15185\\_ICRIER\\_paper-final.pdf](http://povlibrary.worldbank.org/files/15185_ICRIER_paper-final.pdf).
- Bracke, Thierry, Matthieu Bussière, Michael Fidora, and Roland Straub. 2008. *A framework for assessing global imbalances*. Occasional Paper No. 78, European Central Bank, Frankfurt, Germany.
- Bresciani, Fabrizio, Gershon Feder, Daniel O. Gilligan, Tongroj Onchan, and Hanan G. Jacoby. 2002. Weathering the storm: The impact of the East Asian crisis on farm households in Indonesia and Thailand. *World Bank Observer* 17, no. 1: 1–20.
- Bruno, Michael, and William Easterly. 1995. *Inflation crises and long-run growth*. NBER Working Paper No. 5209. National Bureau of Economic Research, Cambridge, MA.
- Burdekin, Richard, Arthur Denzau, Manfred Keil, Thititthep Sithiyot, and Thomas Willett. 2000. *When does inflation hurt economic growth? Different nonlinearities for different economies*. Working Paper No. 2000-22, Claremont McKenna College, Claremont, CA. <http://econ.claremontmckenna.edu/papers/2000-22.pdf>.
- Calvo, Guillermo. 2003. Explaining sudden stop, growth collapse, and BOP crisis: The case of distortionary output taxes. Special issue, *IMF Staff Papers* 50: 1–20.

- Calvo, Guillermo, Leonardo Leiderman, and Carmen M. Reinhart. 1993. Capital inflows to Latin America: The role of external factors. *IMF Staff Papers* 40 (March):108–151.
- Cardoso, Eliana. 1992. *Inflation and poverty*. NBER Working Paper No. 4006, National Bureau of Economic Research, Cambridge, MA.
- Cardoso, Fernando Henrique, and Enzo Faletto. 1979. *Dependency and development in Latin America*. Berkeley: University of California Press.
- Chen, Shaohua, and Martin Ravallion. 2004. *How have the world's poorest fared since the early 1980s?* Policy Research Working Paper No. 3341, World Bank, Washington, DC.
- Chenery, Hollis, Montek S.A. Ahluwalia, C.L.G. Bell, John H. Duloy, and Richard Jolly. 1974. Redistribution with growth. In Part III, Chapter 7, of *The macroeconomic repercussions of agricultural shocks and their implications for insurance*, ed. Paul Collier. Helsinki, Finland: UNU-WIDER.
- Collier, Paul. 2005. The macroeconomic repercussions of agricultural shocks and their implications for insurance. Chapter 7 in *Insurance against poverty*, ed. Stefan Dercon. Oxford: Oxford University Press.
- Corden, W. Max. 1990. *Exchange rate policy in developing countries*. Policy Research Working Paper No. 412, World Bank, Washington, DC. [http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/1990/04/01/000009265\\_3961001165700/Rendered/PDF/multi0page.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/1990/04/01/000009265_3961001165700/Rendered/PDF/multi0page.pdf).
- Cornia, Giovanni A., ed. 2006. *Pro-poor macroeconomics: Potential and limitations*. London: Palgrave Macmillan.
- Crafts, Nicholas. 2000. *Globalization and growth in the twentieth century*. IMF Working Paper No. 00/44, International Monetary Fund, Washington, DC.
- Deaton, Angus. 2001. Counting the world's poor: Problems and possible solutions. *World Bank Research Observer* 16, no. 2: 125–147.
- Deaton, Angus, and Ronald Miller. 1995. International commodity prices, macroeconomic performance and politics in Sub-Saharan Africa. *Princeton Studies in International Economics* 79.
- Delgado, Christopher J., Jane Hopkins, and Valerie A. Kelly with Peter Hazell, Anna A. McKenna, Peter Gruhn, Behjat Hojjati, Jayashree Sil, and Claude Courbois. 1998. *Agricultural growth linkages in Sub-Saharan Africa*. IFPRI Research Report No. 107, International Food Policy Research Institute, Washington, DC.
- de Onis, Mercedes, Monika Blössner, Elaine Borghi, Richard Morris, and Edward A. Frongillo. 2004. Methodology for estimating regional and global trends of child malnutrition. *International Journal of Epidemiology* 33, no. 6: 1260–1270.
- Dercon, Stefan, ed. 2005. *Insurance against poverty*, Oxford: Oxford University Press.
- Dercon, Stefan, and John Hoddinott. 2005. Health, shocks, and poverty persistence. In Part III of *Against poverty insurance*, ed. Stefan Dercon. Oxford: Oxford University Press.
- Development Policy Review*. 2005. Theme issue: Analysing macro-poverty linkages. Vol. 23, no. 3.
- Díaz-Bonilla, Eugenio. 1999. South American wheat markets and MERCOSUR. In *The economics of world wheat markets*, ed. J.M. Antle and V.H. Smith. Oxfordshire, UK: CABI.
- . 2001. Globalization, poverty, and food security. In *Putting globalization to work for the poor*. Panel discussion at Sustainable Food Security for All by 2020, IFPRI 2020 Vision Conference, September 4–6, Bonn, Germany. [http://www.ifpri.org/2020conference/PDF/summary\\_diaz-bonilla.pdf](http://www.ifpri.org/2020conference/PDF/summary_diaz-bonilla.pdf).
- Díaz-Bonilla, Eugenio, and Lucio Rea. 2000. Trade and agroindustrialization in developing countries: Trends and policy impacts. *Agricultural Economics* 23, no. 3: 219–229.
- Dollar, David, and Art Kraay. 2001. *Growth is good for the poor*. Working Paper No. 2587, World Bank Development Research Group, Washington, DC.
- Dooley, Michael, David Folkerts-Landau, and Peter Garber. 2003. *An essay on the revived Bretton Woods system*. NBER Working Paper No. 9971, National Bureau of Economic Research, Cambridge, MA.

- Dornbusch, Rudiger, and Stanley Fischer. 1991. *Moderate inflation*. NBER Working Paper No. 3896, National Bureau of Economic Research, Cambridge, MA.
- Dos Santos, Theotonio. 1970. The structure of dependence. *American Economic Review* 16: 231–236.
- Drukker, David, Pere Gomis-Porqueras, and Paula Hernandez-Verme. 2005. *Threshold effects in the relationship between inflation and growth: A new panel-data approach*. [http://gemini.econ.umd.edu/cgi-bin/conference/download.cgi?db\\_name=MWM2005&paper\\_id=54](http://gemini.econ.umd.edu/cgi-bin/conference/download.cgi?db_name=MWM2005&paper_id=54).
- Easterly, William. 2003. IMF and World Bank structural adjustment programs and poverty. Chapter 11 in *Managing currency crises in emerging markets*, eds. Michael P. Dooley and Jeffrey A. Frankel. Chicago: University of Chicago Press.
- . 2005. *What did structural adjustment adjust? The association of policies and growth with Repeated IMF and World Bank adjustment loans*. Working Paper 11, Center for Global Development, Washington DC. <http://www.cgdev.org/content/publications/detail/2779>.
- Easterly, William, and Stanley Fischer. 2001. Inflation and the poor. *Journal of Money, Credit and Banking* 33, no. 2: 160–178.
- Eastwood, Robert, and Michael Lipton. 2001. Pro-poor growth and pro-growth poverty reduction: What do they mean? What does the evidence mean? What can policymakers do? Paper presented at the Asia and Pacific Forum on Poverty, Manila, Philippines.
- Epaulard, Anne. 2003. *Macroeconomic performance and poverty reduction*. IMF Working Paper No. 03/72, International Monetary Fund, Washington, DC.
- Fallon, Peter, and Robert Lucas. 2002. The impact of financial crises on labor markets, household incomes, and poverty: A review of evidence. *World Bank Research Observer* 17, no. 1: 21–45.
- Farrell, Diana, Susan Lund, Alexander Maasry, and Sebastian Roemer. 2007. *The US imbalancing act: Can account the current deficit continue?* McKinsey Global Institute.
- Felix, David. 1965. Monetarists, structuralists, and import-substituting industrialization: A critical appraisal. *Journal Studies in Comparative International Development* 1, no. 10: 137–153.
- Fischer, Stanley. 1993. The role of macroeconomic factors in growth. *Journal of Monetary Economics* 32: 485–512.
- Fishlow, Albert. 1985. Lessons from the past: Capital markets during the 19th century and the interwar periods. *International Organization* 39: 383–439.
- Fogli, Alessandro, and Fabrizio Perri. 2006. *The “Great Moderation” and the US external imbalance*. CEPR Discussion Paper 6010, Centre for Economic Policy Research, London.
- Frankel, J. 1984. Commodity prices and money: Lessons from international finance. *American Journal of Agricultural Economics* 66, no. 5: 560–566.
- . 2006. The effect of monetary policy on real commodity prices. NBER Working Paper No. 12713, Cambridge, MA.
- Frankenberg, Elizabeth, James P. Smith, and Duncan Thomas. 2003. Economic shocks, wealth, and welfare. *Journal of Human Resources* 38, no. 2: 280–321.
- Ghosh, Atish, and Steven Phillips. 1998. *Inflation, disinflation, and growth*. IMF Working Paper 98/68, International Monetary Fund, Washington, DC.
- Goldstein, Morris, and Mohsin Kahn. 1982. *Effects of slowdown in industrial countries on growth in non-oil developing countries*. IMF Occasional Paper No. 12, International Monetary Fund, Washington, DC.
- Hamilton, James. 2007. Borrowing short and lending long. Econbrowser, Analysis of Economic Conditions and Policy. [http://www.econbrowser.com/archives/2007/09/borrowing\\_short.html](http://www.econbrowser.com/archives/2007/09/borrowing_short.html).
- Hoffmaister, Alexander W., and Hossein Samiei. 1996. *Have north-south growth linkages changed?* IMF Working Paper No. 96/54, International Monetary Fund, Washington, DC.
- Inter-American Development Bank. 1995. *Informe del progreso económico y social en Latinoamérica y el Caribe*. Washington, DC.

- Intergovernmental Panel on Climate Change (IPCC). 2007. Climate change 2007: Impacts, adaptation and vulnerability. Working group II contribution to the intergovernmental panel on climate change fourth assessment report. Summary for policymakers, approved at the 8th Session of Working Group II of the IPCC, Brussels.
- International Energy Agency. 2004. World Energy Outlook. Paris, France.
- . 2007 (July). Medium-term oil market report. Paris.
- International Monetary Fund (IMF). 1996, 1999, 2005, 2007a. World economic outlook. Washington, DC.
- . 2007b. International Financial Statistics. <http://www.imfstatistics.org/imf/>. Database accessed through subscription.
- Johnson, Omotunde. 1984. *Country ownership for reform programmes and the implications for conditionality*. G24 Research Paper No. 35, Intergovernmental Group of Twenty-four on International Monetary Affairs, United Nations, New York. [http://www.unctad.org/en/docs/gdsmdpbg2420052\\_en.pdf](http://www.unctad.org/en/docs/gdsmdpbg2420052_en.pdf).
- Kamanou, Gisele, and Jonathan Morduch. 2005. Measuring vulnerability to poverty. Chapter 8 in *Insurance against poverty*, ed. Stephan Dercon. Oxford: Oxford University Press.
- Kanbur, Ravi. 2001. *Economic policy, distribution and poverty: The nature of disagreements*. Rome: International Fund for Agricultural Development. <http://www.ifad.org/poverty/lecture.pdf>.
- Khan, Moshen, and Abdelhak Senhadji. 2001. Threshold effects in the relationship between inflation and growth. *IMF Staff Papers* 48, no. 1: 1–21.
- Kilian, Lutz. 2006. *Not all oil price shocks are alike: Disentangling demand and supply shocks in the crude oil market*. CEPR Discussion Paper No. 5994, Centre for Economic Policy Research, London, UK.
- Kose, M. Ayhan, Eswar Prasad, and Marco Terrones. 2005. Growth and volatility in an era of globalization. Special issue, *IMF Staff Papers* 52: 31–63.
- Langley, Suchada, ed. 2000. *International agriculture and trade reports: International financial crises and agriculture*. Washington, DC: U.S. Department of Agriculture, Economic Research Services.
- Langley, Suchada, Marcelo Giugale, William Meyers, and Charles Hallahan. 2000. International financial volatility and agricultural commodity trade: A primer. *American Journal of Agricultural Economics* 82: 695–700.
- Levine, Ross, and Sara Zervos. 1993. *Looking at the facts: What we know about policy and growth from cross-country analysis*. Policy Research Working Paper No. 1115, World Bank, Washington, DC.
- Lewis, Arthur W. 1980. The slowing down of the engine of growth. *American Economic Review* 70, no. 4: 555–564.
- Li, Min. 2006. Inflation and economic growth: Threshold effects and transmission mechanisms. Paper presented at the Midwest Macroeconomics Meetings, Iowa City, IA. <http://economics.ca/2006/papers/0176.pdf>.
- Lipton, Michael, and Robert Paarlberg. 1990. *The role of the World Bank in agricultural development in the 1990s*. Washington, DC: International Food Policy Research Institute.
- Lipton, Michael, and Martin Ravallion. 1995. Poverty and policy. In *Handbook of development economics*, vol. 3, ed. Jere Behrman and T.N. Srinivasan. Amsterdam: North-Holland.
- Lustig, Nora Claudia. 2000. *Crises and the poor: Socially responsible macroeconomics*. Working Paper No. 108, Inter-American Development Bank, Sustainable Development Department, Poverty and Inequality Advisory Unit, Washington, DC.
- Messer, Ellen, Marc Cohen, and Jashinta D’Costa. 1998. *Food from peace: Breaking the links between conflict and hunger*. IFPRI 2020 Vision Discussion Paper No. 24, International Food Policy Research Institute, Washington DC.
- Mody, Ashoka, and Catherine Pattillo, eds. 2006. *Macroeconomic policies and poverty reduction*. New York: Routledge.
- Mundell, Robert. A pro-growth fiscal system. 1999. In *The rising tide: The leading minds of business and economics chart a course toward higher growth and prosperity*. New York: John Wiley and Sons.
- Nkrumah, Kwame. 1965. *Neo-colonialism: The last stage of imperialism*. New York: International.

- Obstfeld, Maurice, and Kenneth Rogoff. 2004. *The unsustainable U.S. current account position revisited*. NBER Working Paper No. 10869, National Bureau of Economic Research, Cambridge, MA.
- Paxson, Christina, and Norbert Schady. 2004. Child health and the 1988–1992 economic crisis in Peru. Policy Research Working Paper No.3260. World Bank, Washington DC.
- Pollin, Robert, and Andong Zhu. 2005. *Inflation and economic growth: A cross-country non-linear analysis*. Working Paper Number 109, Political Economy Research Institute, University of Massachusetts, Amherst, MA.
- Powers, Elizabeth T. 1995. Inflation, unemployment, and poverty revisited. *Economic Review of the Federal Reserve Bank of Cleveland* 2: 2–13. <http://clevelandfed.org/Research/Review/1995/95-q3-powers.pdf>.
- Prasad, Enwar, Kenneth Rogoff, Shang-jin Wei, and M. Ayhan Kose. 2003. *Effects of financial globalization on developing countries: Some new evidence*. IMF Occasional Paper No. 220, International Monetary Fund, Washington, DC.
- Prebisch, Raul. 1950. *The economic development of Latin America and its principal problems*. New York: United Nations.
- . 1961. *Economic development or monetary stability: A false dilemma*. *Economic Bulletin for Latin America* 6, no. 1: 1–25.
- Ravallion, Martin. 2001. Growth, inequality and poverty: Looking beyond averages. *World Development* 29, no. 11: 1803–1815.
- . 2003a. *The debate on globalization, poverty and inequality: Why measurement matters*. Working Paper No. 3038, World Bank Development Research Group, Washington, DC.
- . 2003b. Measuring aggregate welfare in developing countries: How well do national accounts and surveys agree? *Review of Economics and Statistics* 85, no. 3: 645–652.
- . 2004. *Pro-poor growth: A primer*. Policy Research Working Paper No. 3242, World Bank, Washington, DC. [http://siteresources.worldbank.org/INTPGI/Resources/15174\\_Ravallion\\_PPG\\_Primer.pdf](http://siteresources.worldbank.org/INTPGI/Resources/15174_Ravallion_PPG_Primer.pdf).
- Roubini, Nouriel. 2006. My latest paper on global imbalances for the IMF meetings in Singapore. RGE Monitor. <http://www.rgemonitor.com/blog/roubini/146183>.
- Sachs, Jeffrey, and Andrew M. Warner. 1995. *Natural resource abundance and economic growth*. NBER Working Paper No. 5398, National Bureau of Economic Research, Cambridge, MA.
- Sala-i-Martin, Xavier. 2002a. *The disturbing “rise” of global income inequality*. NBER Working Paper No. 8904, National Bureau of Economic Research, Cambridge, MA.
- . 2002b. *The world distribution of income (estimated from individual country distributions)*. NBER Working Paper. No. 8933, National Bureau of Economic Research, Cambridge, MA.
- Sarel, Michael. 1996. Nonlinear effects of inflation on economic growth. *IMF Staff Papers* 43, no. 1: 199–215.
- Schady, Norbert. 2004. Do macroeconomic crises always slow human capital accumulation? *World Bank Economic Review* 18, no.2: 131–154.
- Seers, Dudley. 1962. A theory of inflation and growth in under-developed economies based on the experience of Latin America. *Oxford Economic Papers* 14: 173–195.
- Shane, Matthew, and William Liefert. 2000. The international financial crisis: Macroeconomic linkages to agriculture. *American Journal of Agricultural Economics* 82: 682–687.
- Sidrauski, Miguel. 1967. Rational choice and patterns of growth in a monetary economy. *American Economic Review* 57: 534–544.
- Singer, Hans. 1950. The distribution of gains between investing and borrowing countries. *American Economic Review* 40: 473–485.
- Smith, Lisa, and Lawrence Haddad. 2000. *Explaining child malnutrition in developing countries: A cross country analysis*. Research Report No.111, International Food Policy Research Institute, Washington, DC.



- Stern, Nicholas. 2006. *Stern review on the economics of climate change*. [http://www.hm-treasury.gov.uk/independent\\_reviews/stern\\_review\\_economics\\_climate\\_change/stern\\_review\\_report.cfm](http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm).
- Stock, James S., and Mark Watson. 1988. Variable trends in economic time series. *Journal of Economic Perspectives* 2, no. 3, 147–174.
- Stockman, Alan C. 1981. Anticipated inflation and the capital stock in a cash-in-advance economy. *Journal of Monetary Economics* 8: 387–393.
- Sunkel, Osvaldo. 1958. La inflación chilena: un enfoque heterodoxo. *El Trimestre Económico* 25, no. 4: 570–599.
- Taylor, John. 2007. Housing and monetary policy. Paper presented at the Federal Reserve Bank of Kansas City's economic symposium, Jackson Hole, Wyoming.  
<http://www.stanford.edu/~johntayl/Housing%20and%20Monetary%20Policy--Taylor--Jackson%20Hole%202007.pdf>.
- Tobin, James. 1965. Money and economic growth. *Econometrica* 33, no. 4: 671–684.
- Truman, Edwin M. 2003. Comment to William Easterly. In Chapter 11 of *Managing currency crises in emerging markets*, ed. Michael P. Dooley and Jeffrey A. Frankel. Chicago: University of Chicago Press.
- Tsangarides, Charalambos G., Dhaneshwar Ghura, and Carlos A. Leite. 2000. *Is growth enough? Macroeconomic policy and poverty reduction*. IMF Working Paper No. 02/118, International Monetary Fund, Washington, DC.
- United Nations Conference on Trade and Development (UNCTAD). 2004. *UNCTAD handbook of statistics, 2004*. Geneva, Switzerland.
- United Nations Development Program. 1999. *Human development report 1999: Globalization with a human face*. New York.
- . 2007. Human development index trends. *Human development report 2007/2008*. New York.  
<http://hdrstats.undp.org/indicators/10.html>.
- U.S. Federal Reserve. 2008. *Foreign exchange rates: Summary measures of the foreign exchange value of the dollar*. <http://www.federalreserve.gov/releases/H10/summary/>.
- Uribe, Martin, and Vivian Z. Yue. 2003. *Country spreads and emerging countries: Who drives whom?* NBER Working Paper No. 10018, National Bureau of Economic Research, Cambridge, MA.
- von Braun, Joachim. 2007. *The world food situation: New driving forces and required actions*. IFPRI Food Policy Report No. 18, International Food Policy Research Institute, Washington, DC.
- von Braun, Joachim, Tesfaye Teklu, and Patrick Webb. 1999. *Famine in Africa: Causes, responses, and prevention*. Baltimore: Johns Hopkins University Press.
- Wade, Robert Hunter. 2004. Is globalization reducing poverty and inequality? *World Development* 32, no. 4: 567–589.
- World Bank. 1990. *World development report*. Washington, DC.
- . 1999. *Voices of the poor*.  
<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/0,,contentMDK:20622514~menuPK:336998~pagePK:148956~piPK:216618~theSitePK:336992,00.html>.
- . 2000a. *Global economic prospects*. Washington, DC.
- . 2007. World development indicators. Washington, DC. Database accessed through subscription.
- World Trade Organization (WTO). 2007. International trade statistics.  
[http://www.wto.org/english/news\\_e/news07\\_e/its\\_nov07\\_e.htm](http://www.wto.org/english/news_e/news07_e/its_nov07_e.htm).





## RECENT IFPRI DISCUSSION PAPERS

For earlier discussion papers, please go to [www.ifpri.org/pubs/pubs.htm#dp](http://www.ifpri.org/pubs/pubs.htm#dp).  
All discussion papers can be downloaded free of charge.

765. *Economic partnership agreements between the European union and African, Caribbean, and Pacific countries: what is at stake for Senegal.* Valdete Berisha-Krasniqi, Antoine Bouet and Simon Mevel, 2008.
764. *Marriage behavior response to prime-age adult mortality: Evidence from Malawi.* Mika Ueyama and Futoshi Yamauchi, 2008.
763. *Impacts of inventory credit, input supply shops, and fertilizer microdosing in the drylands of Niger.* John Pender, Tahirou Abdoulaye, Jupiter Ndjeunga, Bruno Gerard, and Edward Kato, 2008.
762. *Plant genetic resources for agriculture, plant breeding, and biotechnology : Experiences from Cameroon, Kenya, the Philippines, and Venezuela.* José Falck-Zepeda, Patricia Zambrano, Joel I. Cohen, Orangel Borges, Elcio P. Guimarães, Desiree Hautea, Joseph Kengue, and Josephine Songa, 2008.
761. *How change agents and social capital influence the adoption of innovations among small farmers: Evidence from social networks in rural Bolivia.* Mario Monge, Frank Hartwich, and Daniel Halgin, 2008.
760. *Gender difference in the long-term impact of famine.* Ren Mu and Xiaobo Zhang, 2008.
759. *Rural innovation systems and networks: Findings from a study of Ethiopian smallholders.* David J. Spielman, Kristin E. Davis, Martha Negash, and Gezahegn Ayele, 2008.
758. *A Tale of two countries: Spatial and temporal patterns of rice productivity in China and Brazil.* Liangzhi You, 2008.
757. *Must conditional cash transfer programs be conditioned to be effective? The impact of conditioning transfers on school enrollment in Mexico.* Alan de Brauw and John Hoddinott, 2008.
756. *From the ground up: Impacts of a pro-poor community-driven development project in Nigeria.* Ephraim Nkonya, Dayo Phillip, Tewodaj Mogues, John Pender, Muhammed Kuta Yahaya, Gbenga Adebawale, Tunji Arokoyo, and Edward Kato, 2008.
755. *Child labor and schooling responses to production and health shocks in Northern Mali.* Andrew Dillon, 2008.
754. *Decentralization, local government elections and voter turnout in Pakistan.* Kamiljon T. Akramov, Sarfraz Qureshi, Regina Birner, and Bilal Hasan Khan, 2008.
753. *Regional biotechnology regulations: Design options and implications for good governance.* Regina Birner and Nicholas Linacre, 2008.
752. *The rise of supermarkets and their development implications: International experience relevant for India.* Thomas Reardon and Ashok Gulati, 2008.
751. *Investing in African agriculture to halve poverty by 2015.* Shenggen Fan, Michael Johnson, Anuja Saurkar, and Tsitsi Makombe, 2008.
750. *Accelerating growth and structural transformation: Ghana's options for reaching middle-income country status.* Clemens Breisinger, Xinshen Diao, James Thurlow, Bingxin Yu, and Shashidhara Kolavalli, 2008.
749. *Seed value chains for millet and sorghum in Mali: A state-based system in transition.* Lamissa Diakité, Amadou Sidibé, Melinda Smale, and Mikkel Grum, 2008.
748. *The impact of CAFTA on employment, production and poverty in Honduras.* Samuel Morley, Eduardo Nakasone, and Valeria Piñeiro, 2008.
747. *Asian-driven resource booms in Africa: Rethinking the impacts on development.* Clemens Breisinger and James Thurlow, 2008.
746. *Trading millet and sorghum genetic resources: Women vendors in the village fairs of San and Douentza, Mali.* Melinda Smale, Lamissa Diakité, Brahim Dembélé, Issa Seni Traoré, Oumar Guindo, Bouréma Konta, 2008.
745. *Determinants of smallholder commercialization of food crops: Theory and evidence from Ethiopia.* John Pender and Dawit Alemu, 2007.
744. *Benefit-cost analysis of Uganda's clonal coffee replanting program: An ex-ante analysis.* Samuel Benin and Liangzhi You, 2007.

**INTERNATIONAL FOOD POLICY  
RESEARCH INSTITUTE**

**[www.ifpri.org](http://www.ifpri.org)**

**IFPRI HEADQUARTERS**

2033 K Street, NW  
Washington, DC 20006-1002 USA  
Tel.: +1-202-862-5600  
Fax: +1-202-467-4439  
Email: [ifpri@cgiar.org](mailto:ifpri@cgiar.org)

**IFPRI ADDIS ABABA**

P. O. Box 5689  
Addis Ababa, Ethiopia  
Tel.: +251 11 6463215  
Fax: +251 11 6462927  
Email: [ifpri-addisababa@cgiar.org](mailto:ifpri-addisababa@cgiar.org)

**IFPRI NEW DELHI**

CG Block, NASC Complex, PUSA  
New Delhi 110-012 India  
Tel.: 91 11 2584-6565  
Fax: 91 11 2584-8008 / 2584-6572  
Email: [ifpri-newdelhi@cgiar.org](mailto:ifpri-newdelhi@cgiar.org)