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In This Issue

Research Summaries

Commodity Prices and the Terms of Trade

Paul Cashin

Fluctuations in world commodity prices and the terms of trade are among the most important external shocks affecting the macroeconomic performance and external balances of developing countries. This research summary selectively surveys IMF research on the stylized facts, and economic consequences, of movements in commodity prices and the terms of trade.

About 25 percent of world merchandise trade consists of primary commodities, and both long-term trends and short-term fluctuations in commodity prices are key determinants of developments in the world economy. Commodity price fluctuations, particularly in fuel and energy, transmit business cycle disturbances across countries and affect national rates of inflation. More than 50 developing countries depend on three or fewer commodities for more than half of their merchandise export earnings. IMF research on commodity prices has focused on better understanding the behavior of commodity prices.

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Reducing Structural Unemployment in Western Europe

Marcello M. Estevão

Unemployment rates surged in Western Europe in the 1970s and 1980s and have declined since the mid-1990s, though at different speeds across countries. In addition, the recent economic slowdown has not affected European labor markets with the same severity as previous downturns. Many studies have sought to show that structural factors likely underlie these developments, and to identify appropriate government responses to structural unemployment. This article selectively surveys recent IMF research on the topic.

IMF researchers have attempted to assess the role of labor market institutions in explaining variation in unemployment over time and across countries, with a focus on the potential for government policies to correct labor market rigidities. Debrun (2003) shows that structural unemployment rates would decline significantly in the long run if comprehensive labor market reforms were introduced in Europe.

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Commodity Prices and the Terms of Trade

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Cashin, McDermott, and Scott (1999a) examine the properties of commodity-price cycles, and find that price slumps last longer than price booms; prices typically rise faster in short-lived booms than they fall in long-lived slumps; the severity of price booms and slumps is unrelated to their duration; and the probability of ending a commodity-price slump or boom is independent of the time already spent in the slump or boom. Cashin and McDermott (2002) use 140 years of commodity-price data to confirm that, while there are long-run downward trends in real commodity prices, such trends are rather small and variable, especially in comparison with the large variability of commodity prices. They also find that commodity markets have exhibited changing patterns of price instability around this weak underlying trend, with price variability since the 1970s being much larger than variability observed during the preceding 100 years.

Cashin, Liang, and McDermott (2000) document that shocks to commodity prices are long lasting, with half-lives typically in excess of five years—important information for policymakers seeking to design institutional arrangements to smooth the effects of such shocks. Cashin, McDermott, and Scott (1999b) find that the prices of unrelated commodities do not move together on world commodity markets; however, movement in the prices of related commodities such as beverages (tea and coffee) and metals (copper and tin) do appear to be synchronized. In an analysis of seven centuries of commodity-price data, Rogoff, Froot, and Kim (2001) conclude that while commodity goods–market arbitrage works reasonably well, the volatility and persistence of deviations from the law-of-one-price in the twentieth century are similar to those of the Middle Ages.

IMF research has also examined the main economic fundamentals underpinning the behavior of non-oil commodity prices, highlighting the roles of world industrial production, the real U.S. dollar exchange rate, and world commodity supplies as key determinants of prices (Borenzstein and others, 1994; Borenzstein and Reinhart, 1994). Brunner (2002) explores the important effect of climatic variability—arising from El Niño and La Niña weather patterns—on commodity supplies and the evolution of world commodity prices.

Research has paid special attention to the macroeconomic effects of movements in the price of oil. IMF researchers have examined the economic consequences of sharp spikes in the price of oil (Bayoumi and others, 2000; Hunt, Isard, and Laxton, 2002); and the differential sectoral effects of oil price changes on wages and employment (Keane and Prasad, 1995). Recent studies have explored issues related to the domestic pricing of petroleum products (Federico, Daniel, and Bingham, 2001; Gupta and others, 2002) and the hedging of oil-price risk by governments of oil-exporting countries (Daniel, 2001). Davis, Ossowski, and Fedelino (2003) examine fiscal policy formulation and implementation in oil-producing countries.

Closely related to the price of primary commodities is the terms of trade, which measures the purchasing power of a country's export basket. IMF work in this area attempts to understand the channels through which terms of trade shocks affect external imbalances and the macroeconomic performance of low-income countries. Hoffmaister, Roldós, and Wickham (1998) show that terms of trade shocks have a much larger influence on fluctuations in output and the real exchange rate for the CFA franc countries of sub-Saharan Africa than they do for the non–CFA franc African countries. Cashin and McDermott (1998, 2003) find that temporary terms of trade shocks have a large effect on private saving and the current account balance. Several IMF papers have explored the correlation between shocks to the terms of trade and innovations in national consumption, investment, and output (Agénor, McDermott, and Prasad, 1999). Mendoza (1997) catalogs the large adverse effect of terms of trade variability on economic growth. Spatafora and Warner (1999) study the economic effects of terms of trade shocks on saving, investment, and the trade balance of oil-exporting countries.

Cashin and Pattillo (2000) analyze the persistence of terms of trade shocks in the commodity-exporting countries of sub-Saharan Africa: even among these relatively similar economies, the widely differing nature of the composition of commodity exports results in terms of trade shocks that are rather variable in duration. About half of the African countries experience short-lived terms of trade shocks, while one-third of the countries experience permanent shocks. The speed of reversion has important implications for the desirability of financing, rather than adjustment to, terms of trade shocks. Kent and Cashin (2003) examine the terms of trade of both developed and developing countries. Their findings support the theoretical predictions of the intertemporal approach to the current account: the greater the persistence of terms of trade shocks, the greater the likelihood that the current account balance will move in the opposite direction as the shock.

Studies have analyzed terms of trade and commodity prices as fundamental determinants of real exchange rates in commodity-exporting countries. The poor empirical track record of economic fundamentals in explaining exchange rate movements has been highlighted by Rogoff (1996).

However, many countries are subject to large and frequent real commodity-price and terms of trade shocks, and recent IMF research has examined the real exchange rates of these "commodity currencies." Chen and Rogoff (2002) find that, for commodity-exporting developed countries, Australia, Canada, and New Zealand, the dollar price of commodity exports exhibits a strong influence on real exchange rates. Similarly, Cashin, Céspedes, and Sahay (2002) find that for many commodity-dependent low-income countries, the real price of commodity exports and real exchange rates move together in the long run. These empirical regularities are stunningly robust in a world where nothing seems to explain exchange rate movements over long periods.

Closely related research has evaluated the usefulness of purchasing power parity–based models in assessing the competitiveness of exchange rates in low-income countries. MacDonald and Ricci (2003) conclude that the most important determinant of the long-run behavior of the real effective exchange rate of South Africa is the real price of its main commodity exports. Conversely, other studies find that commodity prices are affected by movements in the real exchange rates of G-3 countries (Dupont and Juan-Ramon, 1996) and the nominal exchange rate regimes of developed countries (Cuddington and Liang, 2000; Liang, 1998).

The Commodities Unit of the IMF's Research Department provides information on primary commodity market developments. A bibliography of IMF research on commodity prices since 1991 is available at *http://www.imf.org/external/np/res/commod/bib.htm*. IMF commodity-price data are updated monthly and are available, from 1980 onward, at *http://www.imf.org/external/np/res/commod/index.asp.*

References

Agénor, Pierre-Richard, C. John McDermott, and Eswar Prasad, 1999, "Macroeconomic Fluctuations in Developing Countries—Some Stylized Facts," IMF Working Paper 99/35; also published in *World Bank Economic Review*, 2001, Vol. 14, No. 2, pp. 251–85.

Bayoumi, Tamim, Ximena Cheetham, Hali Edison, Benjamin Hunt, Peter Isard, Manmohan Kumar, Maitland MacFarlan, David Robinson, and Blair Rourke, 2000, "The Impact of Higher Oil Prices on the Global Economy," available at http://www.imf.org/external/pubs/ft/oil/2000/index.htm.

Borensztein, Eduardo, and Carmen Reinhart, 1994, "The Macroeconomic Determinants of Commodity Prices," *IMF Staff Papers*, Vol. 41, No. 2, pp. 236–61.

Borensztein, Eduardo, Mohsin Khan, Carmen Reinhart, and Peter Wickham, 1994, *The Behavior of Non-Oil Commodity Prices*, IMF Occasional Paper No. 112.

Brunner, Allan, 2000, "El Niño and World Primary Commodity Prices: Warm Water or Hot Air?" IMF Working Paper 00/203; also published in *Review of Economics and Statistics*, 2002, Vol. 84, No. 1, pp. 176–83.

Cashin, Paul, and C. John McDermott, 1998, "Terms of Trade Shocks and the Current Account," IMF Working Paper 98/177; also published in *Open Economics Review*, 2002, Vol. 13, No. 3, pp. 219–36.

———, 2002, "The Long-Run Behavior of Commodity Prices: Small Trends and Big Variability, " *IMF Staff Papers*, Vol. 49, No. 2, pp. 175–99.

Books from the IMF

Who Will Pay? Coping with Aging Societies, Climate Change, and Other Long-Term Fiscal Challenges

By Peter S. Heller

Aging populations. Weather shocks. Globalization. Rapid technological change. Security threats. Policymakers today confront a number of developments that threaten to burden public budgets for decades to come, or bankrupt some entirely. *Who Will Pay? Coping with Aging Societies, Climate Change, and Other Long-Term Fiscal Challenges* responds to a growing need for governments to address the potential longer-term fiscal consequences of global developments.

While the full fiscal impact of some phenomena, such as aging populations or climate change, may not be felt for some time, the potential fiscal consequences of many of these trends may be experienced by a country far sooner. Other developments—globalization, global inequalities, rapid technological change, and security threats—are already affecting national fiscal situations and will continue to do so as the significance of these profound developments increase over time. *Who Will Pay?* suggests that addressing the impact of long-term fiscal issues of a country requires a multipronged approach, which starts with a long-term focus on fiscal sustainability; innovative analytical techniques; strengthened budget procedures; less precommitting to expenditures; a stronger sustained aggregate fiscal position; and more global coordinating efforts.

In brief, as William Easterly, Professor of Economics at New York University and Senior Fellow at the Center for Global Development, has said, "For too long, politicians, civil servants, and international organizations have had an obsessively myopic focus on this year's budget spending, revenues, and deficits. Peter Heller brings a breath of fresh air to this claustrophobic debate, arguing that we need to look ahead to the looming budgetary challenges posed by aging populations, global warming, AIDS, and other crises with severe fiscal implications."

IMF Staff Papers

Volume 51, Number 1

IMF Staff Papers, the IMF's scholarly journal, edited by Robert Flood, publishes selected high-quality research produced by IMF staff and invited guests on a variety of topics of interest to a broad audience, including academics and policymakers in IMF member countries. The papers selected for publication in the journal are subject to a rigorous review process using both internal and external referees. The journal and its contents (including an archive of articles from past issues) are available online at the **Research at the IMF** website at *http://www.imf.org/research.*

———, 2003, "Intertemporal Substitution and Terms-of-Trade Shocks," *Review of International Economics*, Vol. 11, No. 4, pp. 604–18.

———, and Alasdair Scott, 1999a, "Booms and Slumps in World Commodity Prices," IMF Working Paper 99/155; also published in *Journal of Development Economics*, 2002, Vol. 69, pp. 277–96.

———, 1999b, "The Myth of Comoving Commodity Prices," IMF Working Paper 99/169.

Cashin, Paul, and Catherine Pattillo, 2000, "Terms of Trade Shocks in Africa: Are They Short-Lived or Long-Lived?" IMF Working Paper 00/72; also Cashin, Paul, C. John McDermott, and Catherine Pattillo, "Terms of Trade Shocks in Africa: Are They Short-Lived or Long-Lived?" forthcoming in *Journal of Development Economics*, 2004.

Cashin, Paul, Luis Céspedes, and Ratna Sahay, 2002, "Keynes, Cocoa and Copper: In Search of Commodity Currencies," IMF Working Paper 02/223; also forthcoming in *Journal of Development Economics*, 2004.

Cashin, Paul, Hong Liang, and C. John McDermott, 2000, "How Persistent Are Shocks to World Commodity Prices?" *IMF Staff Papers*, Vol. 47, No. 2, pp. 177–217.

Chen, Yu-Chin, and Kenneth Rogoff, 2002, "Commodity Currencies and Empirical Exchange Rate Puzzles," IMF Working Paper 02/27; also published in *Journal of International Economics*, 2003, Vol. 60, No. 1, pp. 133–60.

Cuddington, John, and Hong Liang, 2000, "Will the Emergence of the Euro Affect World Commodity Prices?" IMF Working Paper 00/208.

Daniel, James, 2001, "Hedging Government Oil Price Risk," IMF Working Paper 01/185.

Davis, Jeffrey, Rolando Ossowski, and Annalisa Fedelino, 2003, *Fiscal Policy Formulation and Implementation in Oil-Producing Countries* (Washington: International Monetary Fund).

Dupont, Dominique, and V. Hugo Juan-Ramon, 1996, "Real Exchange Rates and Commodity Prices," IMF Working Paper 96/27.

Federico, Giulio, James Daniel, and Benedict Bingham, 2001, "Domestic Petroleum Price Smoothing in Developing and Transition Countries," IMF Working Paper 01/75.

Gupta, Sanjeev, Benedict Clements, Kevin Fletcher, and Gabriela Inchauste, 2002, "Issues in Domestic Petroleum Pricing in Oil-Producing Countries," IMF Working Paper 02/140.

Hoffmaister, Alexander, Jorge Roldós, and Peter Wickham, 1998, "Macroeconomic Fluctuations in Sub-Saharan Africa," *IMF Staff Papers,* Vol. 45, pp. 132–60.

Hunt, Benjamin, Peter Isard, and Douglas Laxton, 2001, "The Macroeconomic Effects of Higher Oil Prices," IMF Working Paper 01/14; also published in *National Institute Economic Review*, 2002, No. 179, pp. 87–103.

Keane, Michael, and Eswar Prasad, 1995, "The Employment and Wage Effects of Oil Price Changes: A Sectoral Analysis," IMF Working Paper 95/37; also published in *Review of Economics and Statistics*, 1996, Vol. 78, pp. 389–400.

Kent, Christopher, and Paul Cashin, 2003, "The Response of the Current Account to Terms of Trade Shocks: Persistence Matters," IMF Working Paper 03/143.

Liang, Hong, 1998, "The Volatility of the Relative Price of Commodities in Terms of Manufactures Across Exchange Regimes: A Theoretical Model," IMF Working Paper 98/163.

MacDonald, Ronald, and Luca Ricci, 2003, "Estimation of the Equilibrium Real Exchange Rate for South Africa," IMF Working Paper 03/44.

Mendoza, Enrique, 1997, "Terms-of-Trade Uncertainty and Economic Growth," *Journal of Development Economics*, Vol. 54, No. 2, pp. 323–56.

Rogoff, Kenneth, 1996, "The Purchasing Power Parity Puzzle," *Journal of Economic Literature*, Vol. 34, No. 2, pp. 647–68.

———, Kenneth Froot, and Michael Kim, 2001, "The Law of One Price Over 700 Years," IMF Working Paper 01/174.

Spatafora, Nikola, and Andrew Warner, 1999, "Macroeconomic and Sectoral Effects of Terms-of-Trade Shocks—The Experience of the Oil-Exporting Developing Countries," IMF Working Paper 99/134.

Reducing Structural Unemployment *(continued from page 1)*

In addition, a more competitive labor market, the author argues, allows the economy to react more quickly to interest rate changes, which facilitates countercyclical monetary policies. Using data for 21 OECD countries and focusing on the wide range of experiences within the European Union, Garibaldi and Mauro (2002) show that a policy package including low dismissal costs and low taxation is significantly associated with high net employment growth and can account for a substantial share of cross-country differences in labor market performance.

Other studies analyze more specific policies, such as tax reforms aimed at increasing take-home pay, lowering labor costs, and ameliorating the negative work incentives of generous benefit systems. Prasad (2003) uses microeconomic data to shed light on the work disincentive effects of the German tax and transfer system. Lockwood, Sløk, and Tranœs (2000) show that changes in the extent to which the income tax system provides for progressive rates can affect wage setting, though the exact impact will differ depending on workers' initial income levels. In practice, key tax parameters do not seem to have changed significantly in most European countries in the 1990s. For instance, Estevão (2001) shows that tax reforms in Belgium did little to lower the wedge between labor costs and take-home pay, or to affect wage bargaining.

Active labor market policies have also been considered important tools to lower structural mismatches between labor demand and supply by either increasing workers' productivity or improving the job search process. Using data for a panel of 15 developed countries, Estevão (2003a) finds that business employment rates rise in response to increases in expenditures on active labor market policies such as targeted direct subsidies to job creation, though expenditures on training do not seem to have a significant impact. He also shows that the positive contribution of active labor market policies partly results from wage moderation, maybe because the unemployed remain more attached to the labor market. Of course, a thorough cost-benefit analysis of active labor market policies would also consider their impact on the fiscal budget.

While government policies may help reduce structural unemployment, they may backfire if they are not well thought out. That might be the case with work-sharing policies, which are typically proposed on the grounds that the hours of work needed to produce a certain output level could be shared by more people if the standard workweek were reduced. Most theoretical work has emphasized potential fallacies behind this argument, though Erbas and Sayers (2001) suggest that workweek reduction laws could increase employment in the short run, if combined with employment subsidies. De Coninck and Estevão (2003) use microeconomic data and the characteristics of the 35-hour workweek laws in France to show that they significantly increased the transition probability from employment to unemployment of workers directly affected by them, that is, employees of large firms who were forced to adopt the new workweek in February 2000. However, large subsidies to the employment of low-wage earners did protect them from the negative effects of the law, proving that increased labor costs can be counteracted by significant government transfers.

Governments often resort to direct employment in an effort to reduce unemployment rates. Demekas and Kontolemis (2000) develop a model of the labor market with endogenous unemployment and government and private sector employers competing for workers but making employment and wage decisions on the basis of different objective functions. They find that governments' direct hiring could be counterproductive because of its impact on wage and employment decisions by private sector employers and workers. Alesina, Danninger, and Rostagno (2001) study the Italian case and conclude that nationally set

IMF Study on Hawala

Informal Funds Transfer Systems: An Analysis of the Informal Hawala System

Mohammed El Qorchi, Samuel Muzele Maimbo, and John F. Wilson

Since the September 11, 2001, terrorist attacks in the United States, there has been renewed public interest in informal funds transfer (IFT) systems. Press coverage, which often focused on the putative connection between the IFT systems and terrorist financing activities, helped to increase the level of official concern about such systems' susceptibility to financial abuse. Some national financial regulators began examining existing regulations and, in some cases, designing, developing, and implementing new financial sector policies, including those that address IFT systems. Such actions led to a need to better understand the historical context within which informal funds transfer systems have evolved; the operational features that make the systems attractive; the fiscal and monetary implications for remitting and recipient countries; and the regulatory and supervisory responses to its current usage.

This paper presents the findings, analyses, and conclusions of a study on the operational characteristics of the informal "hawala" system, which is used predominantly in the Middle East and South Asia and refers broadly to money transfers that occur in the absence of, or parallel to, formal banking sector channels. Drawing on the experience of selected countries in Asia, Europe, and the Middle East, the study found that IFT transactions can

- reduce the reliability of statistical information available to policymakers;
- affect the composition of broad money and thus could have indirect effects on monetary policy;
- influence exchange market operations by affecting the supply and demand for foreign currency; and
- have negative fiscal implications for remitting and receiving countries.

This study was issued as IMF Occasional Paper No. 222.

Visiting Scholars

Rawi Abdelal; Harvard Business School
Reena Aggarwal; Georgetown University
Ernest Bamou; University of Yaoundé, Cameroon
Paul Bergin; University of California at Davis
Ehsan Choudhri; Carleton University, Canada
Lawrence Christiano; Northwestern University
Giancarlo Corsetti; University of Rome III, Italy
Michael Devereux; University of British Columbia, Canada
Abiodun Folawewo; University of Ibadan, Nigeria
Jordi Gali; CREI, Spain
Pierre-Olivier Gourinchas; Princeton University
Milton Iyoha; University of Benin, Nigeria
David Leblang; University of Colorado
Christopher Meissner; University of Cambridge, United Kingdom
Marcus Miller; University of Warwick, United Kingdom
Enrico Minelli; CORE, Belgium
Eliud Moyi; Ministry of Finance & Planning, Kenya
Moses Muriithi; Kenyatta University, Kenya
Ousmanou Njikam; University of Yaoundé II, Cameroon
Oluwakemi Okuwa; Development Policy Centre, Nigeria
Carmen Reinhart; University of Maryland
Christopher Sims; Princeton University
Federico Sturzenegger; Universidad Torcuato Di Tella, Argentina
Nathan Sussman; Hebrew University, Israel
Lars Svensson; Princeton University
Alex Taylor; Cambridge University, United Kingdom
Mark Taylor; Warwick University, United Kingdom
Robert Townsend; University of Chicago
Rafael Wouters; National Bank of Belgium, Belgium

wages for public employees make public sector employment especially attractive in the south of Italy, where private sector job opportunities are relatively scarce. According to the authors, this leads the south to be caught in an equilibrium of dependency in which public jobs are a critical source of disposable income and private sector opportunities fail to materialize. A system is perpetuated in which public employment is used to redistribute income and reduce regional disparities but the deep causes for geographic disparities are not resolved.

More generally, several studies have found low mobility of workers across regions to be an important dimension of labor market rigidity for several European countries. Mauro, Prasad, and Spilimbergo (1999) analyze the Spanish and Italian cases and broader evidence on the extent of the problem in a panel of countries. Estevão (2003b) examines regional disparities in Belgium, which are particularly pronounced because of cultural and linguistic differences, and shows how they affect labor market dynamics. Institutional changes toward linking wage determination and unemployment benefits to local labor market conditions and away from highly centralized arrangements, better matching between vacancies and job-searchers across regions through more efficient employment agencies, and more flexible housing markets to spur migration are among the main policy suggestions coming out of this line of research.

The structure of wage bargaining and social benefits has also been analyzed. Thomas (2002) argues that the costs resulting from lack of wage flexibility across sectors and regions—necessary to smooth labor market adjustments—outweigh the benefits of wage bargaining centralization, including increased wage sensitivity to changes in unemployment. At the same time, Horvath (2001) points out that the system of centralized bargaining in Norway was instrumental to relatively tranquil labor market relations, strong employment growth, and record low unemployment. Thakur and others (2003) document how changes in wage bargaining centralization are related to labor market performance in Sweden, taking into account other macroeconomic policies enacted in each period.

Other papers have shown that structural changes in wage bargaining were probably at the heart of medium-term variations in unemployment rates. Decressin and others (2001) conclude that wage moderation during bargaining (defined as a downward shift in the negative equilibrium relationship between real wages adjusted for technological improvements and the unemployment rate—a “wage curve”) likely was an important reason for labor market improvements in France, Spain, and Italy during the 1990s. Such a shift constitutes a reversal of the trend observed in the 1970s and 1980s, when European trade unions seemed to either misperceive the room created for wage growth by changes in technology or had a higher preference for wages rather than employment. Estevão and Nargis (2002) use French microeconomic data to estimate downward shifts in the wage curve and provide more rigorous evidence of an improving trade-off between wages and unemployment in France in the 1990s. Detragiache and Estevão (2002) extend this analysis and show that the observed change in the wage curve will curb equilibrium unemployment further as firms increase investment to reestablish optimal long-run capital-labor ratios.

References

Alesina, Alberto, Stephan Danninger, and Massimo Rostagno, 2001, “Redistribution Through Public Employment: The Case of Italy,” *IMF Staff Papers*, Vol. 48, No. 3, pp. 447–73.

De Coninck, Raphaël, and Marcello Estevão, 2003, “The 35-Hour Workweek in France: Who Suffered from It?” IMF Working Paper, forthcoming, December.

Debrun, Xavier, 2003, “Unemployment and Labor Market Institutions: Why Reforms Pay Off,” in *World Economic Outlook, April 2003: Growth and Institutions* (Washington: International Monetary Fund).

Decressin, Jorg, Marcello Estevão, Philip Gerson, and Christoph Klingen, 2001, "Job-Rich Growth in Europe," in *Selected Euro-Area Countries: Rules-Based Fiscal Policy and Job-Rich Growth in France, Germany, Italy and Spain*, IMF Country Report No. 01/203, pp. 36–80.

Demekas, Dimitri, and Zenon Kontolemis, 2000, "Government Employment and Wages and Labour Market Performance," *Oxford Bulletin of Economics and Statistics*, Vol. 62, No. 3, pp. 391–415.

Detragiache, Enrica, and Marcello Estevão, 2002, "Wage Moderation and Long-Run Unemployment in France," in *Labor Market Developments and Related Policies: Consequences for Long-Run Unemployment, the Budget, Inflation, and the Business Cycle*, IMF Country Report No. 02/249, pp. 4–12.

Erbas, S. Nuri, and Chera L. Sayers, 2001, "Can a Shorter Workweek Induce Higher Employment? Mandatory Reductions in the Workweek and Employment Subsidies," *International Tax and Public Finance*, Vol. 8, No. 4, pp. 485–509.

Estevão, Marcello, 2001, "The Effect of Tax Changes on Belgium Employment," in *Belgium: Selected Issues*, IMF Country Report No. 01/45, pp. 24–40.

———, 2003a, "Do Active Labor Market Policies Increase Employment? New Evidence from OECD Data," IMF Working Paper, forthcoming, December.

———, 2003b,"Regional Labor Market Discrepancies in Belgium," *Reflets et Perspectives de la Vie Èconomique*, Vol. 42, No. 1, pp. 95–114.

———, and Nigar Nargis, 2002, "Wage Moderation in France," IMF Working Paper 02/151.

Garibaldi, Pietro, and Paolo Mauro, 2002, "Anatomy of Employment Growth," *Economic Policy: A European Forum*, Vol. 34, pp. 69–113.

Horváth, Balász, 2001, "Emerging Challenges to the Norwegian Labor Market Framework," in *Norway: Selected Issues*, IMF Country Report No. 01/34, pp. 38–58.

Lockwood, Ben, Torsten Sløk, and Torben Tranœs, 2000, "Progressive Taxation and Wage Setting: Some Evidence for Denmark," *Scandinavian Journal of Economics*, Vol. 102, No. 4, pp. 707–23.

Mauro, Paolo, Eswar Prasad, and Antonio Spilimbergo, 1999, *Perspectives on Regional Unemployment in Europe*, IMF Occasional Paper No. 177 (Washington: International Monetary Fund).

Prasad, Eswar, 2003, "What Determines the Reservation Wages of Unemployed Workers? New Evidence from German Micro Data," IMF Working Paper 03/4.

Thakur, Subhash, Michael Keen, Balázs Horváth, and Valeri Cerra, 2003, *Sweden's Welfare State: Can the Bumblebee Keep Flying?* (Washington: International Monetary Fund).

Thomas, Alun, 2002, "The Costs and Benefits of Various Wage Bargaining Structures: An Empirical Exploration," IMF Working Paper 02/71.

Fourth Annual IMF Research Conference

Capital Flows and Macroeconomic Cycles

The fourth in a series of annual research conferences was held at the IMF headquarters in Washington, D.C., on November 6–7, 2003. A more detailed program and links to these papers can be found at *www.imf.org/external/pubs/ft/staffp/2003/00–00/arc.htm*.

Real Effects of Financial Integration
J. Imbs (LBS)

Are Immigrant Remittance Flows a Source of Capital for Development?
R. Chami (IMF), C. Fullenkamp (Duke University), and S. Jahjah (IMF)

Testing the Portfolio Channel of Contagion: The Role of Risk Aversion
F. Broner (University of Maryland) and G. Gelos (IMF)

Capital Account Liberalization, Investment, and the Invisible Hand
A. Chari (University of Michigan) and P. Henry (Stanford University)

Procyclical Government Spending in Developing Countries: The Role of Capital Market Imperfections
Alvaro Riascos (Banco de la República Colombia) and Carlos Végh (UCLA and IMF)

The Trilemma in History: Policy Choices for Exchange Rates, Monetary Policies, and Capital Mobility
M. Obstfeld (University of California, Berkeley), J. Shambaugh (Dartmouth College), and A. Taylor (University of California at Davis)

Accounting for Consumption Volatility Differences
H. Wolf (Georgetown University)

Exchange Rate Policy and Management of Official and Private Capital Flows in Africa
E. Buffie (Indiana University), S. O'Connell (Swarthmore College), C. Adam (Oxford University), and C. Pattillo (IMF)

A Gravity Model of Sovereign Lending: Trade, Default, and Credit
A. Rose (University of California, Berkeley) and M. Spiegel (Federal Reserve Bank of San Francisco)

How Private Creditors Fared in Emerging Debt Markets, 1970–2000
C. Klingen (IMF), B. Weder (University of Mainz), and J. Zettelmeyer (IMF)

The Mundell-Fleming Lecture
Current Account Imbalances: History, Trends, and Adjustment Mechanisms
Sebastian Edwards (UCLA)

Panel Discussion
Capital Flows Cycles: Old and New Challenges
Zanny Minton-Beddoes (moderator, *The Economist*)
Agustín Carstens, Deputy Managing Director, IMF
Jeffry Frieden (Harvard University)
Peter Garber (Deutsche Bank)
Morris Goldstein (Institute for International Economics)

Country Study

Greece

Athanasios Vamvakidis

Greece became the twelfth member of the euro area in January 2001. Substantial progress in macroeconomic stabilization and structural reforms, as well as temporary factors, have led growth to accelerate from an annual average of 1.3 percent in 1990–95 to 3.6 percent in 1996–2003. However, Greece faces considerable challenges ahead: sustaining fast growth, progressing with fiscal consolidation, reforming the pension system, reducing inflation, improving competitiveness, safeguarding the financial sector amid fast credit growth, and increasing employment. Recent IMF research has focused on these challenges.

Vamvakidis (2003) attributes the acceleration of economic growth in Greece since the mid-1990s to considerable progress on both macroeconomic stabilization—fiscal consolidation and reducing inflation—and structural reforms—liberalizing product markets and privatization. However, temporary factors, such as the substantial decline in interest rates to euro-area levels, with a large, but temporary impact on consumption (Halikias, 1999), spending for the 2004 Olympics, and sizable EU transfers, have also played an important role.

Using a production function approach and an econometric growth model, Vamvakidis and Zanforlin (2002) suggest that further progress in macroeconomic and structural reforms may be needed to sustain the convergence speed of recent years. (Greece's per capita GDP is now 59 percent of the euro-area average.) Growth prospects could also be improved by enhancing research and development activities and broadening the use of information technology, areas on which spending in Greece, although increasing substantially during the 1990s, remains well below levels in other industrial countries (Vamvakidis, 2001b).

Fast growth in Greece since the mid-1990s has not led to major employment gains. Greece's unemployment rate increased to almost 12 percent by 1999, before declining to about 9 percent by mid-2003. Moreover, Greece's employment rate has remained broadly unchanged for the last 20 years and is still well below the EU average. Lutz (2001) attributes the poor labor market performance to Greece's rigid labor market structure, with high minimum wages, strict employment protection legislation, and shortcomings in the educational system. These factors have hindered adjustment to shocks such as declining agricultural sector employment, rising female participation rates, immigration, and a halt to the rapid growth in public employment. Thus, long-term unemployment increased, especially among the women and the young. Recent reforms have facilitated using flexible labor contracts—part-time employment and fixed-term contracts. Nevertheless, bolder steps could help ameliorate the key structural weaknesses in the labor market.

The general government deficit-to-GDP ratio was cut from double digits in the early 1990s to 1.2 percent by 2002, but nondeficit-related transactions remain substantial and Greece's public sector debt-to-GDP ratio, at 105 percent, is one of the highest in the EU. Moreover, in the absence of reforms, the projected increase in age-related spending in Greece will be higher than in any other EU country in the next five decades. Against this background, IMF research has focused on the elements of a strategy for long-run fiscal sustainability. Lutz (2002) provides an overview of the pension system in Greece, comparing its structure to that of other EU countries, examining recent reforms, discussing spending pressures and their sensitivity to demographic and macroeconomic assumptions, and considering some policy reform options. Allan (1999) examines how developing the accounting framework, identifying fiscal risks, and assessing the sustainability of fiscal policy could improve the fiscal information system and aid fiscal policy. Lutz (2003) analyzes Greece's exceedingly complex tax system, reviews the 2002 reforms aimed at simplifying it, and discusses options for further reforms.

Inflation has fallen considerably since the mid-1990s, but remains above the euro-area average by about 1.5 percentage points. IMF research on inflation has focused on explaining this differential and providing a framework for projections. Swagel (1999a and 1999b) estimates a VAR model of inflation in Greece, and suggests that Balassa-Samuelson effects explain about 1 percentage point of the inflation differential between Greece and the rest of the euro area. Kieler (2001a) estimates a number of models, ranging from single-equation to VAR models, shedding light on inflation prospects and risks following a substantial easing of monetary conditions associated with euro-area entry.

The external current account deficit has increased substantially since the mid-1990s, to more than 6 percent of GDP since 2000. Kieler (2001b) reviews the effects of euro-area entry on Greece's current account deficit based on MULTIMOD simulations. The results suggest that lower interest rates would be expected to lead deficits to rise some-what above their historical norm. However, the observed increases have been larger than expected, raising potential issues regarding competitiveness. Using simulations from a number of models, Billmeier (2003) finds that the widening of the current account deficit in Greece since the mid-1990s has been driven by both monetary-union-related developments and temporary factors such as Greece's relatively advanced cyclical position. The author suggests that large current account deficits may persist because of a deterioration in competitiveness and losses in market shares, risks from a further euro appreciation, the decrease of EU transfers over the medium term, and increased competition from new EU entrants.

A far-reaching liberalization of the heavily regulated Greek banking sector started during the 1990s, increasing competition, reducing interest rate spreads, and improving bank profitability. The liberalization of the sector and the fall of interest rates to euro-area levels contributed to considerable expansion of credit, though from very low levels. Vamvakidis (2001a) analyzes these developments, reviews progress in bank supervision and internal risk management procedures, and examines key issues facing the Greek banking system in the process of far-reaching restructuring.

References

Allan, William, 1999, "Improving Information on Risk and Sustainability of Fiscal Policy," in *Greece: Selected Issues*, IMF Country Report No. 99/138.

Billmeier, Andreas, 2003, "The Sustainability of the Greek External Current Account Deficit," in *Greece: Selected Issues*, IMF Country Report No. 03/157.

Halikias, Ioannis, 1999, "Interest Rate Convergence and Household Consumption: How Important Is the Income Effect?" in *Greece: Selected Issues*, IMF Country Report No. 99/138.

Lutz, Mark, 2001, "Greece Labor Market—Grappling with High Unemployment," in *Greece: Selected Issues*, IMF Country Report No. 01/57.

———, 2002, *Greece: Selected Issues—An Overview of Pension Reform*, IMF Country Report No. 02/58.

———, 2003, "Tax Reform in Greece—Cleaning the Augean Stables," in *Greece: Selected Issues*, IMF Country Report No. 03/157.

Kieler, Mads, 2001a, "Inflation Risks in the Wake of Euro-Area Entry," in *Greece: Selected Issues and Statistical Appendix*, IMF Country Report No. 01/57.

———, 2001b, "Monetary Union Membership and Greece's External Current Account," in *Greece: Selected Issues and Statistical Appendix*, IMF Country Report No. 01/57.

Swagel, Phillip, 1999a, "Inflationary Implications of EMU-Related Monetary Easing: An Econometric Estimate," in *Greece: Selected Issues*, IMF Country Report No. 99/138.

———, 1999b, "The Contribution of the Balassa-Samuelson Effects on Inflation: Cross-Country Evidence," in *Greece: Selected Issues*, IMF Country Report No. 99/138.

Vamvakidis, Athanasios, 2001a, "The Greek Banking Sector at the Time of EMU Entry: Recent Developments and Challenges Ahead," in *Greece: Selected Issues and Statistical Appendix*, IMF Country Report No. 01/57.

———, 2001b, "The New Economy in Greece," in *Greece: Selected Issues and Statistical Appendix*, IMF Country Report No. 01/57.

———, 2003, "The Convergence Experience of the Greek Economy in the EU: Lessons for EU Accession Countries," in *Successes and Failures in Real Convergence*, National Bank of Poland, Conference Proceedings, forthcoming.

———, and Luisa Zanforlin, 2002, *Selected Euro-Area Countries: The Determinants of Growth—The Experience in the Southern European Economies of Greece and Portugal*, IMF Country Report No. 02/91.

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Workshop on Macroeconomic Challenges in Low-Income Countries

Summary by Rodney Ramcharan

The Macroeconomic Studies Division of the IMF's Research Department organized a workshop on the macroeconomic challenges facing low-income countries on October 23–24. IMF and academic researchers discussed their ongoing work on macroeconomic policies, IMF programs, aid, market access, debt, and growth. The program and papers are available at http://www.imf.org/external/np/res/seminars/2003/lic/index.htm. *The following papers were presented at the workshop.*

The Consistency of IMF Programs
Reza Baqir (IMF), Rodney Ramcharan (IMF), and Ratna Sahay (IMF)
The objectives on growth, inflation, and the current account are jointly met in only 8 percent of IMF programs. While growth objectives are more likely to be achieved if the fiscal targets are met, there appears to be a conflict in meeting the net foreign assets and growth objectives.

Political Foundations of the Resource Curse
Thierry Verdier (Delta), James Robinson (UC-Berkley), and Ragnar Torvik (NUST)
Why do resource windfalls lead to worse economic performance? Resource booms provide politicians with more resources to influence the outcome of elections and distort resource allocations. However, the overall impact on economic outcomes depends on the strength of domestic institutions.

Sovereign Borrowing by Developing Countries: What Determines Market Access?
Gaston Gelos (IMF), Ratna Sahay (IMF), and Guido Sandleris (Columbia University)
Why do some countries never have market access, others sometimes, and the rest always? Traditional measures of a country's global links are not as important as vulnerability to shocks and the quality of policies and institutions in explaining market access.

New Data, New Doubts: Revisiting Aid, Policies, and Growth
William Easterly (NYU), Ross Levine (University of Minnesota), and David Roodman (Center for Global Development)
The influential finding by Burnside and Dollar (2000) that aid in the presence of good policies is associated with higher growth rates is questioned and found not to be robust to the inclusion of more recent data.

Macroeconomics and Inequality
Humberto Lopez (World Bank)
Improving education and infrastructure and lowering inflation leads to both higher growth and lower income inequality. Financial development, trade openness, and decreases in the size of government also lead to faster growth, but they are associated with higher inequality.

When Is Debt Sustainable?
Aart Kray (World Bank) and Vikram Nehru (World Bank)
The initial debt burden, the quality of polices and institutions, and shocks explain a substantial fraction of the cross-country and time-series variation in the frequency of debt distress.

Conditional Aid, Sovereign Debt, and Debt Relief
Tito Cordella (IMF), Giovanni Dell'Ariccia (IMF), and Ken Kletzer (UC-Santa Cruz)
Is debt relief the best instrument to increase the consumption by the poor in HIPC countries? Under the assumption that the preferences of the poor and donors are similar but differ from the recipient governments, donors could force recipient governments to redistribute to the poor by forgiving interest payments but keeping the stock of debt as leverage.

Is There a Case for Sterilizing Aid Inflows?
Alessandro Prati (IMF), Thierry Tressel (IMF), and Ratna Sahay (IMF)
Large aid flows in the past have led to small real exchange rate appreciation, but the effects could be large if there was a substantial stepping up of aid. A theoretical model identifies the conditions under which preventing a real appreciation through sterilizing policies improves welfare.