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ABSTRACTS

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WPS #	*Author*	*Working Paper Title*	*Page*
Agricultural Policies			
1277	Steven Jaffee	Private Trader Response to Market Liberalization in Tanzania's Cashew Nut Industry	14
Debt and International Finance			
1248	Brian Aitken and Ann Harrison	Do Domestic Firms Benefit from Foreign Direct Investment? Evidence from Panel Data	1
1263	Stijn Claessens and Moon-Whoan Rhee	The Effects of Barriers on Equity Investment in Developing Countries	8
1266	Sudhakar Satyanarayan and Panos Varangis	An Efficient Frontier for International Portfolios with Commodity Assets	9
1279	Ying Qian and Ronald Duncan	Optimal Hedging Strategy Revisited: Acknowledging the Existence of Nonstationary Economic Time Series	15
Development Economics			
1271	F. Desmond McCarthy, J. Peter Neary, and Giovanni Zanalda	Measuring the Effect of External Shocks and the Policy Response to Them: Empirical Methodology Applied to the Philippines	12
Environment			
1260	George L. Van Houtven and Maureen L. Cropper	When Is a Life Too Costly to Save? Evidence from U.S. Environmental Regulations	6
1272	Shreekant Gupta, George Van Houtven, and Maureen L. Cropper	The Value of Superfund Cleanups: Evidence from U.S. Environmental Protection Agency Decisions	12
Finance and Private Sector Development			
1278	Ahmed Galal	Regulation and Commitment in the Development of Telecommunications in Chile	15
International Trade			
1249	Piritta Sorsa	Competitiveness and Environmental Standards: Some Exploratory Results	1
1254	Alexander J. Yeats	What Are OECD Trade Preferences Worth to Sub-Saharan Africa?	3
1274	Asad Alam	The New Trade Theory and Its Relevance for Developing Countries	13

WPS #	Author	Working Paper Title	Page
Macroeconomics and Growth			
1250	William Easterly	Explaining Miracles: Growth Regressions Meet the Gang of Four	1
1265	Miguel A. Kiguel and Stephen A. O'Connell	Parallel Exchange Rates in Developing Countries: Lessons from Eight Case Studies	8
Population			
1273	Lant H. Pritchett and Lawrence H. Summers	Desired Fertility and the Impact of Population Policies	13
Poverty and Human Resources			
1255	Lawrence Haddad, John Hoddinott, and Harold Alderman	Intrahousehold Resource Allocation: An Overview	4
1262	Martin Rama	Flexibility in Sri Lanka's Labor Market	7
1269	Alexis Panagides and Harry Anthony Patrinos	Union-Nonunion Wage Differentials in the Developing World: A Case Study of Mexico	11
1270	Martin Ravallion and Binayak Sen	How Land-Based Targeting Affects Rural Poverty	11
1275	Ricardo Barros, Louise Fox, and Rosane Mendonca	Female-Headed Households, Poverty, and the Welfare of Children in Urban Brazil	13
Public Economics			
1251	John F. Due	Excise Taxes	2
1256	Bjorn Larsen	World Fossil Fuel Subsidies and Global Carbon Emissions in a Model with Interfuel Substitution	4
1257	Louise Fox	Old-Age Security in Transitional Economies	5
1259	Robin Boadway, Sandra Roberts, and Anwar Shah	The Reform of Fiscal Systems in Developing and Emerging Market Economies: A Federalism Perspective	6
Trade Policy			
1253	J. Michael Finger and K. C. Fung	Can Competition Policy Control 301?	3
1261	Arvind Panagariya and Ronald Findlay	A Political-Economy Analysis of Free Trade Areas and Customs Unions	7
1264	J. Michael Finger	A Rock and a Hard Place: The Two Faces of U.S. Trade Policy Toward Korea	8
1268	Eliana La Ferrara, Gabriel Castillo, and John Nash	The Reform of Mechanisms for Foreign Exchange Allocation: Theory and Lessons from Sub-Saharan Africa	10

WPS #	*Author*	*Working Paper Title*	*Page*
1276	Ashoka Mody and Kamil Yilmaz	Is There Persistence in the Growth of Manufactured Exports? Evidence from Newly Industrializing Countries	14
1280	Wendy E. Takacs	The Economic Impact of Export Controls: An Application to Mongolian Cashmere and Romanian Wood Products	16

Transition Economies

1267	Zeljko Bogetic and Arye L. Hillman	The Tax Base in Transition: The Case of Bulgaria	9

Transport

1252	Rémy Prud'homme	On the Dangers of Decentralization	2

***World Development Report 1994* Background Papers**

1258	Richard Bird	Decentralizing Infrastructure: For Good or Ill?	5

ing, says Easterly. The Four Tigers are Tigers *because* their growth rate was high. The Four generally have large positive residuals in growth regressions, but Easterly argues that this is not surprising for observations that were known in advance to be at the top of the sample.

But growth regressions and, more generally, quantitative measures of "policies" are not very successful at picking out the Gang of Four as "most likely to succeed." Most observers before the "miracle" were pessimistic about East Asia.

The Four are not nearly as superlative in policies and other country characteristics as they are in per capita growth rates.

Large positive residuals such as those associated with the Four's high performance have historically been transitory. The stratospheric trajectory of the Four should be heading back toward earth soon, says Easterly.

What may be unusual about the Four's success is that they were all in one region. At least casually, the Asian successes look a lot like growth radiating from poles, with Japan followed by the Gang of Four, followed by China, Thailand, Malaysia, and Indonesia.

The great success of the Gang of Four does not imply a blanket endorsement of all their policies — they may have made mistakes that were more than offset by other good policies and, probably at least in part, by good luck.

It is disturbing how large and transitory the unexplained element is in economic success. Perhaps the best way to think about good policies is that they make success *likely* sooner or later.

When all is said and done, the story of the East Asian successes is consistent with the prosaic fundamentals: investment, education, financial depth, and low budget deficits. In these areas, the Four were above average.

This paper — a product of the Macroeconomics and Growth Division, Policy Research Department — was presented at NBER's fourth Annual East Asian Seminar on Economics in San Francisco in June 1993. The study was funded by the Bank's Research Support Budget under the research project "How Do National Policies Affect Long-Run Growth?" (RPO 676-66). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rebecca Martin, room N11-043, extension 39026 (39 pages).

1251. Excise Taxes

John F. Due
(February 1994)

Once a country has developed substantial domestic production — beyond agricultural commodities and those subject to traditional excises — there are strong arguments for moving to a sales tax rather than continuing to add excise taxes.

Due contrasts excise taxes with sales taxes, consumption taxes, licenses, stamp duties, and other indirect taxes. He describes different types of excises, their relative tax burdens, and how progressive and economically efficient they may be.

The main argument for traditional excise taxes, he says, is that they yield substantial revenue with relatively little complaint. A second justification is that the cost of the excessive use of commodities is borne by the purchasers, not by society at large. A third argument is to penalize people for a commodity's use (especially popular with commodities such as alcohol).

Arguments against traditional excises: They tend to be regressive, because of the low income elasticity of demand, and they place an unequal burden on families at given income levels. They deprive families of the funds for milk and other essential items, without reducing consumption of taxed goods. High rates tend to increase smuggling and illicit production, often of inferior, even dangerous, substitutes. And the case for them is not strong, resting as it often does on moral grounds. But excise taxes are sure to continue as they yield revenues and are generally more acceptable than other sources of revenue, such as income taxes.

Taxes on motor fuel and related motor vehicle levies are among the three most productive excises. They are justified as a charge for the use of roads, in lieu of tolls. In western Europe, they are seen as progressive, as reaching the people most able to pay — and incidentally as reducing road congestion. Criticism of such taxes centers on how best to attain desired goals — for example, sorting out the relative burdens on light and heavy vehicles.

Luxury excises tend to be applied to commodities and services with a high income-elasticity of demand, the assumption being that they will reach the people best able to pay them — achieving equity without relying on increased income taxes, which are difficult to enforce in developing countries and hurt incentives. A luxury excise tax, limited to certain items, is viewed as being progressive, which a sales tax rarely is.

But if various rates apply, compliance and administration become complex, and consumers may discriminate among closely related commodities. Moreover, the goods taxed are often widely used by lower income groups (sugar and kerosene are prime examples). For these reasons, many countries are introducing sales taxes, with few rates or a single rate (with exemptions), with simplified processing, and with less ambiguity about what is or is not taxed.

This paper — a product of the Public Economics Division, Policy Research Department — is part of a larger effort in the department to develop policy options to reform fiscal systems in developing countries. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37699 (38 pages).

1252. On the Dangers of Decentralization

Rémy Prud'homme
(February 1994)

Demand for decentralization is strong in most parts of the world. This close look at the negative side effects of improperly applied decentralization is not an attack on decentralization but an effort to prevent its misapplication — and to promote fuller understanding and wiser use of this potentially desirable policy.

Prud'homme highlights some of the dangers of decentralization:

- The benefits of decentralization in allocative efficiency are not as obvious as suggested by the standard theory of fiscal federalism. The assumptions of this theory are fragile.
- These doubtful benefits might carry a cost in production efficiency, but more empirical research is needed on this point. What is not doubtful is that decentralization runs counter to redistribution and stabilization.
- Decentralization makes redistributive policies, whether interpersonal or interjurisdictional, more difficult, if not impossible.

• Decentralization also makes macroeconomic stabilization programs more difficult to implement because subnational government fiscal policies can run counter to national policies. Serious drawbacks or potential drawbacks should be considered in designing any decentralization program.

The arguments Prud'homme develops make it easier to understand some of the real choices. These choices are not so much whether to decentralize in general but rather what functions to decentralize — in which sectors, and in which regions. Guidelines can be provided on this.

Often, the problem is not so much whether a certain service should be provided by a central, regional, or local government, since the service often has to be provided with the intervention of all three levels of government. The real challenge is how to organize the joint production of the service.

Decentralization refers simultaneously to a state and to a process. The virtues and dangers of decentralization are often discussed simultaneously for both concepts. This is a dangerous confusion because decentralization is path-dependent. What is desirable in a given country at a certain point in time depends on the present state of decentralization and the speed at which it has been reached.

Much more work, particularly empirical work, is needed — in reviews of decentralization (or centralization) experiences in general, as well as those encouraged or supported by the World Bank.

This paper — a product of the Transport Division, Transportation, Water, and Urban Development Department — is part of a larger effort in the department to investigate options for improving the management of public infrastructure. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact TWUTD, room S6-027, extension 31005 (36 pages).

1253. Can Competition Policy Control 301?

J. Michael Finger and K. C. Fung
(February 1994)

Competition policy is not an antidote to 301. To preserve the economic benefits of the open international trading system, it may be necessary to regress to a more primitive legal and political system.

Should fair trade rules be replaced by national or international competition rules? A familiar argument for doing so is that more rigorously enforced competition standards might eliminate the basis for the burgeoning number of antidumping cases of recent years.

A less familiar argument is that the implementation of internationally agreed competition standards might reduce the frequency with which the U.S. government uses section 301 of U.S. trade law. Section 301 lists foreign government toleration of systematic anticompetitive activities as one of the bases for taking retaliatory action against foreign exporters.

Finger and Fung found that of 82 "301" actions taken from 1975–92, in only three was the uncompetitive clause the basis for the complaint.

The authors found that a number of additional disputes involved allegations of foreign uncompetitive practices but were taken up through other mechanisms; extraterritorial application of U.S. antitrust law or direct negotiations sometimes capped by an understanding at the presidential level. These negotiations often included the threat of initiation of antidumping, "301," or other trade remedies cases. (The structural impediments initiative negotiations with Japan are the most familiar example.) In several of these cases, the foreign government agreed to and implemented more rigorous antitrust enforcement, but these actions seldom ended the dispute. The U.S. government pressed on for tangible evidence of increased U.S. export sales.

Finger and Fung conclude that removing the basis for these disputes -- alleged lax enforcement of competition policy -- did not remove the motive for them -- increased U.S. exports. Competition policy then is not the antidote for "301."

The last section of the paper reviews the compatibility of "301" with the preservation of open international trading system. Of 70 "301" cases (through December 31, 1992) that have led to policy changes, 52 have led to liberalizations, and only 18 have led to increased trade restrictions. Viewed from the point of view of results, the major shortcoming of "301" is that the United States is the only country whose policies do not come under its scrutiny.

This paper — a product of the Trade Policy Division, Policy Research Department — was prepared for discussion at a research seminar on "Approaches to Competition Policy in International Trade," held in St. Gallen, Switzerland, in September 1993. The study was funded by the Bank's Research Support Budget under the research project "Antidumping: Follow-up on Newly Emerging Issues" (RPO 678-16). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Minerva Pateña, room N10-013, extension 37947 (45 pages).

1254. What Are OECD Trade Preferences Worth to Sub-Saharan Africa?

Alexander J. Yeats
(February 1994)

The proposed Uruguay Round reductions in most-favored-nation tariffs will cause some African exports to be displaced by other suppliers. Aggressive reform of the African countries' own trade regimes appears to be the most effective way to counter the effects of the erosion of OECD preferences.

Some developing countries may experience *important trade losses* if tariffs are liberalized on a general most-favored-nation (MFN) basis. Sub-Saharan Africa appears to be especially vulnerable to this problem.

African countries receive important Lomé Convention preferences in the European Economic Community (EEC), under which duty-free treatment, or tariffs below MFN and generalized system of preference (GSP) rates, are applied to their exports. Other OECD countries normally apply GSP duties, or even more advantageous "least developed" country preferences to African exports.

The proposed Uruguay Round reductions in MFN tariffs will *erode those tariff preference margins* and cause some African exports to be displaced by other suppliers.

Yeats documents the importance to African countries of existing OECD preferences, particularly those of the EEC. More than 95 percent of all African-tariff-line products shipped to the EEC receive duty-free treatment, while other exporters of the same products face tariffs as much as 20 percentage points higher.

Similar favorable terms of preferential access also exist in Japan and the united States, although the preference margins are smaller than in the EEC.

Using a trade projection model developed by the World Bank and UNCTAD, Yeats estimates that eliminating EEC, Japanese, and U.S. MFN tariffs would cause African export losses of about $4 billion (estimated present value). The countries that seem to be most vulnerable to these adverse trade effects are Côte d'Ivoire, Ethiopia, Kenya, Malawi, Senegal, Uganda, and Zimbabwe.

What about the possibility that the losses African countries could experience from erosion of tariff preferences could be offset by the liberalization of nontariff measures? Yeats discounts this likelihood.

In general, few important OECD nontariff measures are applied to African products — most African textile and clothing exports are even excluded from Multifibre Arrangement restrictions. And those that are applied (such as eco-labeling or licensing requirements) do not restrict trade very much.

Yeats' observations accent the need for actions to offset the impact of Africa's loss of preferences as a result of the Uruguay Round. What offsetting actions are possible and appropriate? Aggressive reform of the African countries' own trade regimes appears to be the most effective way to counter the effects of the erosion of OECD preferences.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze and predict structural changes in trade and to identify factors affecting the exports of developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Jean Jacobson, room S7-037, extension 33710 (27 pages).

1255. Intrahousehold Resource Allocation: An Overview

Lawrence Haddad, John Hoddinott, and Harold Alderman
(February 1994)

Unitary models of household behavior are expedient for policymaking, but the costs of neglecting the collective nature of household decisionmaking and the process of intrahousehold allocation are often high.

The policy failures associated with inappropriate acceptance of unitary models of household behavior are more serious than those associated with inappropriate acceptance of collective models, contend Haddad, Hoddinott, and Alderman.

They support this claim with illustrations. Consider, for example, the effect of public transfers made to households. The unitary model predicts that the impact of such transfers is unaffected by the identity of the recipient because all household resources are pooled. With the collective model of the household, the welfare effects of a transfer may be quite different if the recipient is a man, say, rather than a woman.

Most of their arguments for the policy relevance of model choice are based on the failings of the unitary model rather than on the strengths of a particular collective model. As a set, collective models may resolve some of the anomalies that have accrued under the unitary model, but further work is necessary to improve their predictive power.

The authors admit to raising more questions than answers — which they regard as positive, considering that a conference in the late 1980s focused on whether it was even worthwhile going inside the "black box" of the household.

The response to that question was that it was worthwhile examining household behavior, but few more definite answers have emerged, for three reasons. First, by their nature, the results of gender and intrahousehold analyses are specific to cultures and difficult to generalize, although the process of analysis can be generalized. Second, there is a lack of consensus about which conceptual model of the household to use, both across and within social science disciplines. And third, the collection of many intrahousehold data sets is not driven by policy questions.

The challenge, the authors say, is to produce generalizable results useful for policy formulation. In that regard, it seems desirable to apply a common conceptual approach to the analysis of policy-oriented case studies from a regionally diverse set of countries.

Hypotheses about these studies could be developed and tested with and without the benefit of intrahousehold information to carefully measure the tradeoffs between the additional project and policy insights derived (and mistakes avoided) and the extra burdens of the analysis itself.

This paper — a product of the Poverty and Human Resources Division, Policy Research Department — is part of a larger effort in the department to monitor the impact of policy on poverty. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Cook, room N5-057, extension 33902 (89 pages).

1256. World Fossil Fuel Subsidies and Global Carbon Emissions in a Model with Interfuel Substitution

Bjorn Larsen
(February 1994)

World subsidies of fossil fuels are estimated at more than $210 billion. Removing such subsidies would reduce global carbon emissions by 7 percent.

Larsen presents a simple empirical framework for estimating the level of world fossil fuel subsidies and analyzing their implications for carbon dioxide emissions. Larsen extends Larsen and Shah (1992) by applying a simple model with interfuel substitution, using a more detailed sectoral data set that includes energy prices and consumption for an expanded sample of countries.

Larsen concludes that substantial fossil fuel subsidies prevail in a handful of large carbon-emitting countries. The fiscal implications for some countries are significant — as much as 10 percent of GDP in some countries.

World subsidies are estimated to be more than $210 billion, or 20 to 25 percent of the value of world fossil fuel consumption at world prices.

Removing such subsidies, Larsen estimates, would reduce national carbon emissions by more than 20 percent relative to baseline emissions in some countries. It would reduce global carbon emissions by 7 percent.

This paper — a product of the Public Economics Division, Policy Research Department — is an extension of Policy Research Working Paper 1002, "World Fossil Fuel Subsidies and Global Carbon Emissions," by Bjorn Larsen and Anwar Shah, October 1992. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37699 (24 pages).

1257. Old-Age Security in Transitional Economies

Louise Fox
(February 1994)

Pension reform has proved even more contentious an issue than privatization during the former communist countries' transition to a market-based economy.

The formerly communist countries in Eastern Europe and Central Asia (EECA) are undertaking their second great social experiment of the century: the transition from authoritarian central planning to a market economy. One of the many problems they face during the transition is what to do with their pension systems. Their problems are more complex than countries elsewhere at the same income level for three reasons. First, the systems are mature, with high and sharply rising dependency ratios. Second, pension coverage is more extensive than in most other middle-income countries, because of overindustrialization and the cclectivization of agriculture. Third, pension reform is being undertaken at the same time as other fundamental economic changes. The timing, sequence, and political economy of pension reform are complex.

Fox reviews the main feature of existing EECA pension systems, identifies the major reform issues and reform options, discusses obstacles to reform, and proposes a sequence for reform. She focuses primarily on the richer, older European countries of the EECA, where pension systems have matured.

Paradoxically, pensions are low in those countries, yet expenditures as a proportion of GDP are high. The main reason for this is the very low age of retirement, which means a short contribution period and a high dependency ratio. EECA governments must bring spending promises in line with a more realistic revenue ceiling.

What makes reform so difficult is that too many people have already retired. Especially during the transition, when there are few opportunities to acquire wealth and some intergenerational redistribution is needed, the retirees need a safety net, whether or not they deserve one on the basis of age alone. Fox's recommendations are designed to make the system more equitable and efficient for this group.

Four years after the fall of the Berlin Wall, pension reform has been elusive in EECA despite the severity of the problem. Fox identifies several reasons for this. First, the extent of the pension system crisis was not foreseen in the early days of the transition (except perhaps in Hungary). Indeed, some countries expanded entitlements to help induce the labor market to adjust. As the depth of the problem became clear, EECA countries have tried to formulate reform programs, but only Albania has passed legislation substantially reducing entitlements.

Another reason reform has proved difficult in EECA countries is that governments have tried to reduce the scope of the public pillar without providing an alternative to assure old-age security. Failure to begin developing other pillars (based on savings and insurance principles) to meet the active generation's needs for old-age security may have doomed reform efforts from the start.

This paper is a product of the Poverty and Human Resources Division, Policy Research Department. The study was funded by the Bank's Research Support Budget under the research project on "Income Security for Old Age: Conceptual Background and Major Issues" (RPO 677-45). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Elfreda Vincent, room N5-053, extension 82350 (43 pages).

1258. Decentralizing Infrastructure: For Good or for Ill?

Richard Bird
(February 1994)

Decentralization — or rather the realization that the optimal decisionmaking structure in the public sector is almost certainly noncentralized (polycentric) — may in principle yield a more efficient and equitable pattern of infrastructure investment and use than the overcentralized and unresponsive public sector found in many developing countries. But it will do so in practice only if it is properly implemented along the lines sketched in this paper.

Bird examines the many faces of infrastructure decentralization: the costs and benefits, the government structure (constraint or variable?), the "polycentric" approach, and how to make decentralization work (for whom?). He proposes basic principles and guidelines for policy design, for both small projects and large.

Broadly, these guidelines are summed up in a few propositions:

- In all countries, some critical infrastructure is provided through a decentralized political structure. Current trends make that likely to be more true in the future.
- Decentralization, however defined, in and of itself has no necessary implications for good or evil so far as infrastructure is concerned: its effects depend on the incentives various decisionmakers face.
- The key to ensuring that these incentives are conducive to "good" decisions (about design, siting, timing, finance, pricing, operation, maintenance, and use of infrastructure) is to ensure that those who made the decisions bear the financial (and political) consequences, as much as possible.
- Politically, this means that political leaders at all levels should be responsive and responsible to their constituents, and that those constituents are fully informed about the consequences of all decisions. Making politicians bear the consequences of their own mistakes is as close as one can get to a "hard" political budget constraint.
- Economically, it must be difficult for local residents to shift costs to nonresidents who do not receive benefits and to make local decisionmakers fully responsible to their citizens for the use they make of revenues collected from them (through local taxes), to users of infrastructure (local or otherwise) for the use made of the revenues they contribute (through user charges of various sorts), and to taxpayers in general for the use made of any transfers (or subsidized loans) they receive.
- Administratively, what such a system requires is a clear set of "framework" laws (on local budgeting, financial reporting, taxation, contracting, dispute settlement, rules to be followed in designing user charges, and so on), as well as adequate institutional support for localities to operate in this environment.

To the extent that these conditions are not met, the perverse incentives that too often exist because of the structure and finance of the public sector in many countries will probably be exacerbated by the current tendency to decentralize more and more decisions in the public sector.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for *World Development Report 1994* on infrastructure. Copies of

ment — is part of a larger effort in the department to understand the impact of labor market policies and institutions on economic performance. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Cook, room N5-057, extension 33902 (28 pages).

1263. The Effects of Barriers on Equity Investment in Developing Countries

Stijn Claessens and Moon-Whoan Rhee
(March 1994)

Legal and other barriers limit foreign investors' access to emerging stock markets. Empirical evidence suggests that countries could lower the (risk-adjusted) cost of capital by removing formal barriers to such access.

Equity flows to developing countries climbed to an estimated $13 billion in 1992, four times the amount invested three years earlier. Investment increased partly because countries removed restrictions on foreign ownership, liberalized capital account transactions, and generally made foreign access to their markets easier.

Claessens and Rhee investigate how stock performance in emerging markets is affected by foreign investors' formal access to stocks (as measured by the International Finance Corporation's index of "investability").

To measure foreigners' access to emerging-market stocks, they use the investability index created by the IFC's Emerging Market Data Base. The IFC indexes should be a good indicator of changes in legal barriers over time or of the relative importance of those barriers across securities in one market at a given point in time, or across markets.

Using the Stehle (1977) model, Claessens and Rhee reject the hypothesis that emerging markets are integrated with world capital markets (for most emerging markets). They fail to reject the hypothesis that emerging markets are segmented (for all emerging markets).

Claessens and Rhee interpret this as legal and other barriers limiting foreign investors' access to emerging markets. They next investigate the relationship between stock performance and the investability index to determine the importance of legal barriers relative to other barriers.

They find a strong relationship between a stock's price-earnings ratio and its investability index, which suggests that formal barriers to foreigners' access has a negative effect on stock prices and thus raises the cost of capital for firms listed. Countries could lower the (risk-adjusted) cost of capital, they contend, by removing legal barriers to foreign investors' access to equity markets.

This paper — a product of the Debt and International Finance Division, International Economics Department — was prepared for the NBER conference on "Internationalization of Equity Markets," held in San Francisco in October 1993, and will be forthcoming in the conference volume published by the University of Chicago Press. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Faten Hatab, room H8-087, extension 35835 (40 pages).

1264. A Rock and a Hard Place: The Two Faces of U.S. Trade Policy Toward Korea

J. Michael Finger
(March 1994)

Current U.S. trade policy is domestic policy first and trade policy only secondarily. The importance of trade remedies and "301" in U.S. policy means that it is no longer most-favored-nation, but tailored to the politics and economics of each bilateral relationship. Its primary concern is to protect the interests of individual domestic constituents. What happens to foreigners is hardly more than fallout.

U.S. trade policy since the 1980s has been quite different from trade policy in the first two or three decades after World War II. Until the 1970s, U.S. trade policy was dominated by systemic concerns. Trade policy actions were subject to the discipline of constructing an open, stable, and nondiscriminatory system.

In contrast, for the past 10 or 15 years the main objective of trade policy actions has been to respond to the demands of various domestic constituents for greater access to foreign markets, or for reduced foreign access to the U.S. market.

When systemic concerns were strong, they helped discipline the actions the U.S. government would take to advance the interest of a particular constituent. But now, these constituent-supporting actions *are* U.S. trade policy.

To state the same point another way, the current objective of U.S. trade "policy" is to respond to each constituent's plea for the application of this or that regulatory instrument (antidumping, "301," and so on) — to respond in a way that will win that constituent's vote. "Policy" is now no more than a generic label for the accumulation of these responses.

Finger describes the accumulation of these responses. He tabulates U.S. trade actions in the 1980s, paying particular attention to actions against Korea. While Korean economic interests were advanced by restrictions on Korea's and other countries' exports of steel to the United States and the European Union (EU), the outcome, judged globally, was probably negative. Rent transfers to Korean and other exporters are, on a global basis, transfers from U.S. and EU users, and hence net to zero. That leaves only the efficiency effects, which David Tarr estimates to add up to a global loss of about $36 million a year, based on prices and the size of the industry in 1984.

The underlying theme, says Finger, is that these actions have no unifying discipline except to respond in a politically acceptable way to constituent pressures. These are responses to the politics and economics of specific situations, not the automatic or hands-off extension of nondiscriminatory standards that the still-popular rhetoric of a "rules-based" system would suggest.

This paper — a product of the Trade Policy Division, Policy Research Department — is part of a larger effort in the department to understand how the trade policies of industrial countries affect developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Minerva Pateña, room N10-013, extension 37947 (38 pages).

1265. Parallel Exchange Rates in Developing Countries: Lessons from Eight Case Studies

Miguel A. Kiguel and Stephen A. O'Connell
(March 1994)

Although a case can be made for using a dual exchange rate system as a temporary

option for dealing with a balance of payments crisis, experience shows that it does not work well in practice. Often it is used as a way to postpone the necessary macroeconomic adjustment instead of reducing its costs.

In parallel (dual) foreign-exchange markets — extremely common in developing countries — a market-determined exchange rate coexists with one or more pegged exchange rates.

Kiguel and O'Connell report the main lessons from a World Bank research project on how these systems work, based mainly on case studies in Argentina, Ghana, Mexico, Sudan, Tanzania, Turkey, Venezuela, and Zambia.

On the whole, the experiences were disappointing. Most countries tolerated high premiums for long periods, which harmed the allocation of resources and growth. The studies indicate no clear gains from prolonging a dual system.

The case for a dual foreign exchange system is stronger when the system is adopted as a temporary option to deal with a severe balance of payments crisis. Argentina, Mexico, and Venezuela resorted to a dual system at the time of the debt crisis, to smooth out the devaluation in the exchange rate to achieve the needed real depreciation. This helped to maintain limited control over domestic inflation, and avoided a sharp drop in real wages while protecting the balance of payments. In the longer term, not much was gained.

In the cases studied, the dual system was misused more often than not: it was used too long and the premium was higher than it should have been. Venezuela, for example, used the system for six years with an average 120 percent premium, Mexico for five years (average 30 percent), and Argentina for eight years (average 44 percent). In Argentina and Venezuela, the dual system was used to avoid macroeconomic adjustment while protecting international reserves. It is doubtful the macroeconomic gains (in terms of keeping equilibrium in the balance of payments and lower inflation) were greater than the costs in terms of misallocation of resources.

In Ghana and Tanzania, the dual exchange rate system was prolonged to maintain overvalued real exchange rates and expansionary macroeconomic polities. The large premium in those countries (at times more than 1,000 percent) shows the dramatic inconsistency between exchange rate policy and monetary and fiscal policies.

On determinants of the parallel exchange rate, the evidence indicates that macroeconomic fundaments (such as fiscal deficit, credit policies, and so on) matter most. In the short run the premium is driven by expectations about the evolution of these macroeconomic factors.

Overall, in the countries examined in the project, the existence of a parallel foreign exchange market generated fiscal losses. These losses resulted because the public sector was a net seller of foreign exchange at the official exchange rate. This means that unification has some pleasant fiscal arithmetic.

The experience with unification indicates that it usually takes place at the parallel exchange rate. Most countries unified to a crawling peg system, though some opted for floating exchange rates. Successful unification to a fixed exchange rate was less frequent, and it required strong adjustment in fiscal and monetary policies. Regarding speed, unification was quick in countries where the parallel system was used temporarily, and gradual in those where the system existed for long periods and with a tradition of widespread foreign exchange controls.

This paper — a product of the Macroeconomics and Growth Division, Policy Research Department — is part of a larger effort in the department to understand macroeconomic adjustment. The study was funded by the Bank's Research Support Budget under the research project "The Macroeconomic Implications of Foreign Exchange Markets in Developing Countries" (RPO 675-30). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Raquel Luz, room N11-059, extension 34303 (39 pages).

1266. An Efficient Frontier for International Portfolios with Commodity Assets

Sudhakar Satyanarayan and Panos Varangis (March 1994)

Including commodities and assets from emerging equity markets in investment portfolios produces significant risk / return benefits.

In recent years, the role of investment funds has increased in most commodity markets. Investment funds, which traditionally deal with financial markets, have been shifting between financial markets and commodity futures markets, as well as among commodity futures markets.

The popularity of investing in emerging capital markets is as high as it has been since World War I. By 1913, nearly half of a typical equity portfolio was invested in emerging markets. Today, one in every four dollars invested in foreign equity markets goes to emerging markets.

Both commodity futures and emerging capital markets are growing in popularity because they allow risk reduction through portfolio diversification.

Satyanarayan and Varangis analyze the benefits of including commodity futures and assets from emerging markets in an investment portfolio.

They also try to calculate the optimal composition of assets. The calculated optimal weights show that a considerable proportion of an investment portfolio could be invested in commodity futures and emerging market assets. The weights calculated are higher than those funds usually used, signifying the potential for further expansion of these assets in a portfolio.

Finally, including commodity futures and assets from emerging markets in investment portfolios produces a significant risk/return benefit.

This paper — a product of the International Trade Division, Policy Research Department — is part of a larger effort in the department to explore the role of commodities as assets. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Gustafson, room S7-033, extension 33732 (30 pages).

1267. The Tax Base in Transition: The Case of Bulgaria

Zeljko Bogetic and Arye L. Hillman (March 1994)

Economies in transition may be better off not *imitating the tax structures of mature western market economies. Lower taxes and strong administration with well-publicized penalties for evasion may be the best route to a broader, more equitable tax base that increases revenue without reducing incentives for private enterprise.*

The transition from socialism characteristically reduces existing tax revenues at

the same time that it increases the need for government spending. An increasing need for revenue combined with an eroding tax base creates a transition-related fiscal gap and a challenge for tax policy.

The solution, say Bogetic and Hillman, is not to lay a heavier tax burden on new private firms. The issue is how to meet revenue needs *without* inhibiting private sector development. Large-scale tax evasion in the private sector — the de facto outcome in Bulgaria and in many other transitional economies — may be a good incentive for development of private enterprise, but it is illegal and inequitable to wage-earners and salaried workers .

The chief means of increasing tax revenue are to (1) reduce tax rates to decrease the benefit of evasion, (2) improve tax administration (to increase tax coverage and better detect evasion), and (3) increase penalties for evasion. These three measures effectively decrease the benefits and increase the cost of tax evasion to economic agents.

It takes time to improve tax administration, however. Given administrative limitations, what should the tax structure be? Bogetic and Hillman contend that an administratively feasible system designed to encourage development of the private sector during the transition should:

- Be simple, not complex or oversophisticated.
- Be administratively implementable with current resources.
- Impose a low tax burden on all economic agents.
- Rely on broad tax bases with minimum exemptions.
- Begin the long-term improvement of tax administration.
- Limit the severity of tax penalties in the transition from an authoritarian to a democratic regime.

In theory, reducing the cost of compliance and increasing the expected cost of noncompliance should reduce tax evasion and increase tax revenues. In practice, small businesses and self-employed citizens tend to evade taxes, providing an effective zero tax base. The government has little to lose from reducing taxes on the self-employed but, to be equitable, it should reduce taxes for everyone. As a general rule, say Bogetic and Hillman, economies in transition should impose *lower* tax burdens than are imposed in mature western market economies. Low tax rates may counter the traditional lack of trust in government by citizens in formerly socialist economies. It may also reduce the perception of "exploitation" by giving the impression of a more modest government consistent with the dynamic private sector led economy.

This paper — a product of the Country Operations 1 Division, Europe and Central Asia, Country Department I — is part of a larger effort in the region to study public finance issues in southern European countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Faith Smith, room H5-247, extension 36072 (33 pages).

1268. The Reform of Mechanisms for Foreign Exchange Allocation: Theory and Lessons from Sub-Saharan Africa

Eliana La Ferrara, Gabriel Castillo, and John Nash
(March 1994)

The paper provides an analysis of the mechanisms for foreign exchange allocation used in trade policy reform and an assessment of their effectiveness. The case is strong for avoiding delay in moving to full currency convertibility in dismantling or modifying foreign exchange controls. Movement to a unified free market for exchange would be facilitated by changes in policies and in donor practices, so exchange can be channeled through private sellers.

Administrative exchange allocation has been common in developing countries, especially in Sub-Saharan Africa. Steps to dismantle or modify these control mechanisms have been carried out through transitional schemes. La Ferrara, Castillo, and Nash draw lessons from Sub-Saharan Africa's historical experience useful both to African and former socialist economies:

- Exchange regime reform should be given highest priority for its role in reducing anti-export bias. Although many Sub-Saharan countries have attempted to reform their allocation mechanisms, only a few have made the transition to market allocation (virtually convertible currency, at least on the current account). Failure to do so is the major shortcoming of most adjustment packages.
- Both gradual and rapid approaches have succeeded. On purely economic grounds (given the problems of such intermediate steps as auctions), speed is preferable but it is not always politically or institutionally feasible.
- The transition must be accompanied by a coherent set of fiscal and monetary policies and a willingness to allow the exchange rate to seek a true market-clearing level.

Some lessons regarding the specific mechanisms, discussed in approximate order of their proximity to convertibility, are as follows:

The most rudimentary transition mechanism is the *own-funds scheme,* which is no more than a beginning of reform. Own-funds schemes should be accompanied by liberalization of the rules governing exports, or illegal exports and the black market premium may increase.

Export retention schemes can minimize the adverse effects on exporters of foreign exchange shortages, reduce the implicit export tax, and fund a legal private exchange market. But the retained funds must be saleable, the retention rates substantial, and traditional exports must be included to adequately fund the legal private exchange market.

Open general licensing (OGL) and similar schemes can be a useful intermediate step in liberalizing import and exchange allocation regimes. But in practice the benefits are limited by two features. First, consumer goods competing with local production, whose imports were restricted the most, have usually been excluded, at least initially. Moreover, OGL has no endogenous price-setting mechanism for the exchange rate. The OGL rate should generally be connected to, but lower than, the parallel rate.

An *auction* incorporates a pricing mechanism, which is an important advantage. But the pricing mechanism must be allowed to work, which has not always been the case. Auction rules should be clear (should not allow discretionary disqualification of bids, for example), should minimize participation costs, and allow wide participation. Marginal, rather than the more common Dutch, pricing system is preferred. The use of a reservation price may reduce volatility but may also impede the full disbursement of funds.

The shortcomings of transitional schemes to dismantle or modify foreign exchange controls become more important the longer they are in place. A strong case can be made for avoiding delay in moving to full currency convertibility.

This paper — a product of the Trade Policy Division, Policy Research Depart-

ment — is part of a larger effort in the department to examine problems in adjustment in Sub-Saharan Africa. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Nellie Artis, room N10-031, extension 38010 (59 pages).

1269. Union-Nonunion Wage Differentials in the Developing World: A Case Study of Mexico

Alexis Panagides and Harry Anthony Patrinos
(March 1994)

Overall, the union-nonunion wage gap is 10.4 percent. Unionized women and indigenous people earn more than their nonunion counterparts, and the collective bargaining strength of organized labor in the northern states is considerably weaker than elsewhere in the country.

Union-nonunion wage differentials have been extensively studied by labor economists, but for lack of data on the developing world the study has been confined largely to the industrial world. This paper is one of the first attempts to empirically examine those differentials in a developing country.

Panagides and Patrinos find that union-nonunion wage differentials in Mexico have many of the same attributes and show many of the same patterns as those in industrial nations. But there are marked differences.

Based on a household survey in 1989, Panagides and Patrinos find that:

- Overall, the union-nonunion wage gap is 10.4 percent.
- Unions have a positive impact on the earnings of employed women and indigenous people.
- Organized labor in Mexico's northern states is considerably weaker in collective bargaining strength than it is elsewhere in Mexico.

This paper — a joint product of the Human Resources Operations Division, Latin America and the Caribbean, Country Department II, and the Education and Social Policy Department — is part of a larger effort in the Bank to investigate labor markets and labor market institutions in developing economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Ian Conachy, room S10-022, extension 33669 (35 pages).

1270. How Land-Based Targeting Affects Rural Poverty

Martin Ravallion and Binayak Sen
(March 1994)

Under ideal conditions, and not allowing for administrative costs, redistribution from land-rich to land-poor households would reduce poverty in rural Bangladesh by only a small amount. By itself, land-based redistribution would be an inadequate attack on rural poverty.

Transfers to the rural land-poor are widely advocated and used in attempts to reduce rural poverty. Such transfers are believed to be productive, in that the final gain to the poor exceeds the initial transfer. The evidence cited most often to support this view is the negative correlation between output per acre and the size of the holding. In other words, small farms appear to be more productive.

There are reasons to question that evidence, however, say Ravallion and Binayak Sen. It is unclear, for example, how much differences in productivity are really attributed to unmentioned differences in land quality (someone might be given a larger plot of poor land so that a living can be made from it). Other factors also constrain the impact on poverty of land-based targeting, notably incentive constraints (whereby the "land-rich" alter their behavior to gain from the policy) and political economy constraints (whereby the land-rich undermine the policy by creating political pressure for tradeoffs).

To inform the debate, Ravallion and Sen quantify the *potential* gains from land-based targeting under seemingly ideal conditions, incorporating only a limited set of constraints on such a policy. Their aim is to quantify gains to the poor from a benchmark policy designed to characterize the probable upper-bound on real-world outcomes.

A key constraint on such schemes is that targeting is done on the basis of landholding class alone. Ignoring productivity differentials, the relevant indicator in making transfers is a suitably defined poverty measure for each landholding class.

The more general formulation Ravallion and Sen offer calls for two indicators: the marginal productivity of transfers (assumed to be proportional to current output per acre on owned land) and a poverty measure (derived from a standard poverty profile).

After applying this approach to new data for rural Bangladesh, they find that landholding class is a relevant indicator for targeting. Under ideal conditions, redistribution from land-rich to land-poor households will reduce aggregate poverty in rural Bangladesh (even without productivity effects). And transfers from an external budget would have the greatest impact on poverty if they were concentrated on landless, marginal farmers. Moreover, productivity effects (consistent with the relationship between farm size and productivity in Bangladesh) imply an additional impact on rural poverty when transfers are made from land-rich to land-poor households.

But the gains are modest, even if one postulates virtually unheard-of powers of redistribution across landholding classes. Depending on the initial conditions of agricultural technology, and the relative productivity effects among the landless, they estimate that the *maximum* impact on rural poverty from land-based targeting under revenue neutrality is equivalent to a uniform lump-sum transfer of between Tk 10 and Tk 20 per person per month — or between 2.5 percent and 5 percent of rural mean consumption.

This is under ideal circumstances, putting aside the constraints mentioned, and with no consideration for administrative costs. Real-world circumstances will entail even less impact on poverty. One must hope, for the sake of Bangladesh's poor, that targeting the land-poor with such redistribution is not all that is done to attack rural poverty.

This paper — a product of the Poverty and Human Resources Division, Policy Research Department — is part of a larger effort in the department to provide policymakers with better information on the likely benefits to the poor from targeted schemes for fighting poverty. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Cook, room N5-057, extension 33902 (34 pages).

1271. Measuring the Effect of External Shocks and the Policy Response to Them: Empirical Methodology Applied to the Philippines

F. Desmond McCarthy, J. Peter Neary, and Giovanni Zanalda
(March 1994)

How can the governments in Eastern European and developing countries reduce their vulnerability to such shocks? What are appropriate policy responses? Here is a method for measuring the effect of external shocks on the current account, applied to the Philippines.

Economies benefit from international trade, but joining the world market also exposes them to external shocks. How can the governments in Eastern European and developing countries reduce their vulnerability to such shocks? What are appropriate policy responses?

McCarthy, Neary, and Zanalda examine how external shocks (such as commodity price changes, variations in global demand, and fluctuating interest) affect economic performance, and how those effects are mitigated by the right policy responses at the right time.

They introduce a methodology for measuring the effect on current account of external shocks and apply it for the Philippines. They rationalize balance of payments responses to external shocks and domestic policies in a theoretical model of a small open economy.

Did the Philippines choose the appropriate policies when faced with balance of payments disequilibrium?

Among comparable Asian countries, the Philippines in 1970 enjoyed a relatively high per capita income that has since failed to keep pace. Why?

Adverse shocks did not help, but other countries in the region experienced similar shocks and performed better. The Philippines relied heavily on external flows, which fueled an investment boom. Given low real interest rates at the time, this seemed a reasonable approach — but there were two flaws to it.

First, the investments were poorly conceived, were mismanaged, failed to produce appropriate returns, and became a burden on the state. One large nuclear power plant has yet to yield a return.

Second, with so many external resources available, the government ignored the need for meaningful structural reform, especially in trade and public sector finance. Inefficient allocation of public resources and distortionary trade policies can absorb more than all the gains from favorable shocks.

When external conditions improved in the mid-1980s, the Philippines could not take advantage of them because of its heavy external debt and its cumbersome trade regime. Had authorities introduced structural reform (liberalizing trade, strengthening public finance, and freezing up factor markets), the economy could have more easily absorbed the impact of unfavorable shocks.

In 1991, the IMF gave the Philippines a stand-by credit. Authorities are now addressing some structural problems by liberalizing the exchange rate, removing import tariffs, and restructuring the public sector, including the Central Bank. Perhaps this will allow more sustainable growth and an economy that can more readily absorb external shocks.

This paper — a product of the Office of the Vice President, Development Economics — is part of a larger effort in the Bank to analyze external shocks, policy response, and economic performance. The study was funded by the Bank's Research Support Budget under the research project "Economic Shocks and the Global Environment" (RPO 677-75). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Mila Divino, room S9-049, extension 33739 (47 pages).

1272. The Value of Superfund Cleanups: Evidence from U.S Environmental Protection Agency Decisions

Shreekant Gupta, George Van Houtven, and Maureen L. Cropper
(March 1994)

The U.S. Environmental Protection Agency (EPA) has considered both cost and permanence in choosing among alternatives for cleaning up contaminated soil. But the EPA is willing to pay large sums to incinerate contaminated soil rather than cap it or put it in a landfill. Are the benefits of incineration worth it?

Under the Superfund law, the U.S. Environmental Protection Agency (EPA) is responsible for inspecting hazardous waste sites and for putting those with the most serious contamination problems on a national priorities list. The EPA then oversees the cleanup of these sites, suing potentially responsible parties for the costs of cleanup when possible, and funding the cleanup of "orphaned" sites out of the Superfund, money raised taxing chemical and petroleum products.

The Superfund program is controversial. Cleanups are costly and it is unclear whether the benefits of cleanup, especially the relative benefits of more permanent cleanup, are worth the costs. At many sites, imminent danger of exposure to contaminants can be removed at low cost. What raises the cost of cleanup is the decision to clean up the site for future generations — to incinerate contaminated soil, for example, or to pump and treat an aquifer for 30 years.

To shed light on this debate, the authors infer the EPA's willingness to pay (or have others pay) for more permanent cleanups at Superfund sites. They do so by analyzing cleanup decisions for contaminated soils at 110 Superfund sites.

They find that, other things being equal, the EPA was more likely to choose less expensive cleanup options. But, holding costs constant, the EPA was more likely to select more permanent options, such as incinerating the soil instead of capping it or putting it in a landfill. The EPA was willing to pay at least twice as much for onsite incineration of contaminated soil as it was for capping the soil.

Has the EPA chosen more permanent Superfund cleanups in areas where residents are predominantly white and have high incomes? The authors find no evidence that the percentage of minority residents near a site influences the choice of cleanup selected. But offsite treatment was more likely at sites with higher incomes.

This paper — a joint product of the Pollution and Environmental Economics Division, Environment Department, and the Environment, Infrastructure, and Agriculture Division, Policy Research Department — is part of a larger effort in the Bank to promote efficient pollution control in developing countries by examining the U.S. experience with environmental regulation. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anna Maranon, room N5-033, extension 39074 (33 pages).

1273. Desired Fertility and the Impact of Population Policies

Lant H. Pritchett and Lawrence H. Summers
(March 1994)

Desired levels of fertility account for 90 percent of differences across countries in total fertility rates. Reducing the demand for children — for instance by giving girls more education — is vastly more important to reducing fertility than providing more contraceptives or family planning services.

Ninety percent of the differences across countries in total fertility rates are accounted for solely by differences in women's reported desired fertility. Using desired fertility constructed from both retrospective and prospective questions, together with instrumental variables estimation, it is shown this strong result is not affected by either ex-post rationalization of births nor the dependence of desired fertility on contraceptive access or cost. Moreover, despite the obvious role of contraception as a proximate determinant of fertility, the additional effect of contraceptive availability or family planning on fertility is quantitatively small and explains very little cross country variation. These empirical results are consistent with theories in which fertility is determined by parent's choices about children within the social, educational, economic, and cultural environment parents, and especially women, face. They contradict theories that assert a large causal role for expansion of contraception in the reduction of fertility.

This paper — a product of the Office of the Vice President, Development Economics — is part of a larger effort to investigate the impact of population policies. An edited version of this paper will appear in the March 1994 volume of the *Population and Development Review*. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Cook, room N5-057, extension 33902 (85 pages).

1274. The New Trade Theory and Its Relevance for Developing Countries

Asad Alam
(March 1994)

The new trade theory provides new rationale for government intervention in trade. But a host of economic and political economy criticisms and certain identifying features of developing countries severely undermine its relevance for developing countries.

Recent developments in trade theory — the result of applying models that embody imperfect competition and increasing returns to scale — suggest an activist role for government in trade policy and threaten to undermine the case for trade liberalization.

But the new modelling of international trade lacks theoretical robustness. It is particularly sensitive to assumptions about competitive behavior and the number of firms. Economists' criticism also focuses on the size of the excess profits that oligopolistic firms are alleged to earn, the partial equilibrium nature of the analysis, and the identification of the market failure and the choice of instrument.

The normative prescriptions that arise from the new trade theory are also criticized in terms of political economy issues: the potential for foreign retaliation, inefficient government intervention, special interests' capture of policy, the problem of moral hazard, and possibly inimical redistributive effects.

The limits of the new trade theory are particularly acute for developing countries because of their small economies, their limited ability to shift profits, the nature of their trade, and the greater chance for special interests to capture trade policy. Paradoxically, empirical work has shown that the gains from trade are much bigger under imperfectly competitive markets which actually strengthens the case for trade liberalization.

This paper — a product of the Africa Regional Office, Office of the Chief Economist — is part of a larger effort in the region to understand the application of recent trade-theoretic developments to developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Asad Alam, room D8-056, extension 87380 (28 pages).

1275. Female-Headed Households, Poverty, and the Welfare of Children in Urban Brazil

Ricardo Barros, Louise Fox , and Rosane Mendonca
(March 1994)

Female-headed households — a growing segment of Brazilian households — are a heterogenous group that defies stereotyping. While most are not poor, a large number of the poor, especially children, live in these households. The most effective antipoverty intervention is to focus on raising the income of the working women in these households. Special effort is also needed to encourage children in these households to stay in school.

Barros, Fox, and Mendonca analyze the characteristics and behavior of households headed by women in urban Brazil and identify some of the consequences for child welfare on the growth of these households. Among their findings:

- Households headed by women are a heterogeneous group, which varies strongly by region — as does the extent of poverty among them. Such households are more common in the northeast and increase with urbanization.
- Households headed by women are not, on average, a "vulnerable group" in Brazil, as some are quite well off. The subset of such households that are very poor is quite vulnerable. Households headed by women tend to be poorer in the northeast, especially around Recife, than in Porto Alegre in the south, where there is virtually no gap.
- Less than half the households headed by women contain dependent children, and only a third are headed by the stereotypical "single mother." When there are children in households headed by women, especially households headed by single mothers, the income gap is greater than in other households.

As a proportion of households in Brazil, households headed by women and containing children represent only 3.4 percent of urban households, but this group tends to be poor, which is worrisome for child outcomes. Poor children tend to live in households headed by women.

These households are poor not because there are more children or fewer adults but because women earn less than men. Women heading households do not earn less than other women — on the contrary.

However, if female heads of households earned as much as male heads of households, the average income in households headed by women would be above that for other households and fewer single mothers would be poor.

The best interventions to eliminate poverty in this group are those that focus on:

- Ending wage discrimination.
- Ending occupational segregation.

Interventions that focus on raising skill levels and educational attainment for the whole workforce, including women, would also help alleviate absolute poverty, although not necessarily relative income differences. "Workfare" or public employment policies would not help this group since most already participate in the labor force.

Programs targeted to this group would not be particularly progressive, given the heterogeneity and income spread among these households. But the results do suggest the need for special interventions for children in households headed by women, given those children's tendency to stay out of school.

This paper — a product of the Office of the Director, Policy Research Department — is part of a larger effort in the department to analyze behavioral characteristics of vulnerable groups. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Kay Binkley, room E-1243, extension 81143 (46 pages).

1276. Is There Persistence in the Growth of Manufactured Exports? Evidence from Newly Industrializing Countries

Ashoka Mody and Kamil Yilmaz
(March 1994)

Asymmetry in the income elasticity of demand, and the observed persistence of exports, suggest that long-term buyer-supplier relationships lead to the creation of "insiders" and "outsiders" in the world market for manufactured goods — a condition that tends to perpetuate itself.

Price and income elasticities estimated from a country's export demand function are used both to predict and to prescribe effective export strategies. But the focus on elasticities has led to the neglect of an important empirical regularity: a strong persistence in the growth rate of a country's exports.

Mody and Yilmaz shift the spotlight to this phenomenon and describe the degree and pattern of persistence.

They find that a country's exports are influenced not only by the elasticities, but also by the quality of its transactional infrastructure (proxied by the penetration of telecommunications).

More important, when world income rises, exports rise relatively uniformly for different country groups. As world income contracts, the decline in exports is greater and is especially sharp for certain countries.

Mody and Yilmaz infer from this asymmetry in income elasticity of demand, and from the observed persistence of exports, that long-term buyer-supplier relationships lead to the creation of "insiders" and "outsiders" in the world market for manufactured goods, a condition that tends to perpetuate itself.

This paper — a product of the Trade Policy Division, Policy Research Department — is part of a larger effort in the department to study the factors which directly or indirectly affect the export performance of less developed countries. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Minerva Pateña, room N10-013, extension 37947 (43 pages).

1277. Private Trader Response to Market Liberalization in Tanzania's Cashew Nut Industry

Steven Jaffee
(March 1994)

Since 1991, the Tanzanian government has moved to liberalize the market for cashew nuts to reverse a long-term decline in this important traditional export industry. Although the liberalization process has been confusing and nontransparent, and although problems of logistics, finance, and protected vested interests remain, some positive results are evident — and the future prospects for the recovery of the industry and for the returns to participating farmers and traders are favorable.

Between World War II and the early 1970s, Tanzania developed one of the world's largest cashew nut industries. In 1973–74, marketed production reached 145,000 tons (about 30 percent of world production), with cashews providing an important source of income to some 250,000 farmers and being the country's fourth largest source of foreign exchange. This trade was originally developed and organized by private traders (of Indian and Arab origin), although in the 1960s a multitiered marketing system — involving local cooperative societies, regional cooperative unions, and a marketing board — was imposed, with private traders gradually removed from the marketing system.

Despite a buoyant international market, Tanzania's cashew nut industry underwent a steady and massive decline through the 1970s and 1980s. Jaffee examines the factors that contributed to this downward spin: Tanzania's villagization program, a decline in real producer prices, and inefficiencies in cooperative and marketing board crop collection and downstream activities. With the decline in production, living standards in the main cashew-growing regions worsened, and most of the large-scale, donor-funded, government-owned processing factories became "white elephants."

With the industry on the brink of collapse, in 1991 the government announced the liberalization of the cashew nut market, permitting private firms to once again buy and sell the nuts. According to Jaffee, the reform process has been characterized by confusion, uncertainty, and latent government controls and interventions, though the industry shows some signs of recovery. Based on a recent survey, Jaffee examines the liberalization process — including its implementation at the national and local levels, the private sector response to renewed trading opportunities, and the resultant patterns of competition, price discovery, and marketing channel formation.

The liberalization experience in Tanzania's cashew nut industry offers interesting insights for other Sub-Saharan African countries where uncertainty remains about the appropriate roles (if any) for marketing boards in liberalized markets, about the ability of cooperatives to compete in such markets, and about the ability of indigenous firms to take advantage of the new trading opportunities.

In Tanzania, neither the cooperatives nor the marketing board have fared well in the liberalized market. Although a relatively large number of private traders have recently entered into cashew buying and selling, successful entry into export marketing has proven viable only for a small number of companies. Their char-

acteristics: medium to large in scale, diversified across commodities, involved in trading and agroindustry, not indigenous, and with strong financial and trading links abroad.

This paper — a product of the Agricultural Policies Division, Agriculture and Natural Resources Department — is part of a larger effort in the department to assess the division of responsibilities between the public and the private sector in providing agricultural services and agricultural marketing activities. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cicely Spooner, room N8-041, extension 32116 (42 pages).

1278. Regulation and Commitment in the Development of Telecommunications in Chile

Ahmed Galal
(March 1994)

The private sector won't invest in asset-specific activities in telecommunications unless there is a well-designed, clearly delineated set of regulations as well as mechanisms for conflict resolution. At the same time, for regulatory reform to succeed and be credible, it must have the support of the private sector and be consistent with the country's political and judicial systems.

Over six decades, Chile experimented with three regulatory regimes and ownership patterns for its telecommunications sectors, each with radically different investment patterns.

Until 1970, Chile relied on private ownership and rate-of-return regulation, but excess demand persisted.

In the 1970s, Chile relied on public ownership of two regulated monopolies, but the sector grew even more slowly than before.

After 1982, Chile deregulated some market segments, introduced benchmark regulation, and returned to private ownership. The new regulatory regime and privatization doubled the number of lines in service in only four years.

Galal explains investment behavior as a function of the solutions to two contracting problems: between government and the firm, and between government and interest groups.

Galal concludes that regulatory rules on pricing, entry, and conflict resolution mechanisms are critical for investing in such asset-specific utilities as telecommunications. More important, the outcome of regulatory reform depends on a match between reform and both the prevailing political and judicial systems and interest-group politics.

According to Galal, Chile satisfactorily resolved the two contracting problems in the 1980s. Chile's new regulations are reasonably efficient and very specific about how tariffs are to be calculated, how entry is to be governed, and how conflicts are to be resolved. The rules are embodied in a law that is relatively difficult to change (because the legislature is multiple-party) and easy to enforce (because the judicial system is independent). The impetus for reform came from the emergence of a new private entrepreneurial class, whose growth depends on modern telecommunications services.

This paper — a product of the Finance and Private Sector Development Division, Policy Research Department — was presented at a World Bank conference on "Institutional Foundations of Utility Regulation," held in Washington, DC in April 1993. The study was funded by the Bank's Research Support Budget under research project "Regulations: Institutions and Economic Efficiency" (RPO 676-94). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Bill Moore, room N9-055, extension 38526 (40 pages).

1279. Optimal Hedging Strategy Revisited: Acknowledging the Existence of Nonstationary Economic Time Series

Ying Qian and Ronald Duncan
(March 1994)

The optimal portfolio model for hedging commodity price and exchange rate risks is extended to nonstationary economic time series data. The new approach corrects the problem of unstable solutions often found with earlier models using economic time series that are nonstationary.

Recognizing that a country's commodity prices, foreign exchange rates, and export earnings are related, earlier studies developed an optimal portfolio model based on an integrated approach. But the estimates were inefficient because they assumed that the time series data used in the model were stationary. As a result, the model produced unstable solutions that were sensitive to exogenous changes.

Many economic time series — including aggregate consumption, national income, exchange rates, interest rates commodity prices, and volume of trade — are nonstationary (drift over time). A shock to the nonstationary series has a permanent effect. Problems of nonsense regression or spurious regression can arise when performing regression with nonstationary series.

To correct the problem, Qian and Duncan used Engle and Granger's (1987) vector error correction (VEC) specification in the optimal portfolio estimation process. The VEC approach expands the application of the optimal portfolio model to nonstationary economic time series data.

They apply the new approach to data for Papua New Guinea in an analysis of optimal hedging of commodity price and exchange rate risks using commodity-linked bonds and varying the mix of foreign-currency-dominated borrowings.

They find the time series of commodity prices and foreign exchange rates to be nonstationary. When the VEC approach is applied, the results are comparable to those from the earlier study where the nonstationarity was ignored.

The optimal portfolio of commodity-linked bonds and foreign currency borrowings derived from the new model shows more significant risk reduction (measured by ex-ante risk reduction) and less sensitivity to changes in assumption about the real interest rate.

In addition, establishing the cointegration relationships among the commodity prices and foreign exchange rates makes it easier to develop economic intuition in explaining the composition of the optimal portfolio.

The VEC's most significant advantage, however, is the stability achieved in the optimal portfolio solutions to changes in assumptions because of the superior long-run properties of the cointegration and error-correction representation.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to investigate the feasibility and benefits of using risk management instruments by primary commodity producers and exporters in developing countries. Copies of the paper are

available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sarah Lipscomb, room S7-062, extension 33718 (40 pages).

1280. The Economic Impact of Export Controls: An Application to Mongolian Cashmere and Romanian Wood Products

Wendy E. Takacs
(March 1994)

Export controls can transfer significant profits from raw materials producers to the processing industries, causing significant net losses to an economy and a substantial net decrease in export earnings.

Countries sometimes use export controls on raw materials to encourage domestic processing. The motivation is usually to assure raw materials at low prices for domestic industries, although exports are sometimes controlled in an attempt to increase export earnings (by promoting exports of higher value-added processed goods rather than raw materials).

The problem is, export controls hurt raw material producers and cause economic distortions that result in net losses to the country. The impact of raw material export controls on total export earnings is ambiguous: the decline in raw material exports when production is discouraged by lower prices may outweigh the effect of increased exports of processed goods.

Takacs develops a simple partial equilibrium model of export controls on raw materials to investigate the impact of export restrictions and to estimate the potential magnitude of the transfers between groups and the net costs of the export-control regimes.

Her estimates of the magnitude of transfers and costs of export controls on raw cashmere (in Mongolia) and wood products (in Romania) indicate that the transfers and costs may be substantial.

She finds that (under reasonable assumptions about elasticities of supply) export controls can transfer significant profits from the raw materials producers to the processing industries, causing significant net losses to the economy and a substantial net decrease in export earnings.

Quantitative export controls will be even more distortive if processing industries have any monopsony (single-buyer) power. This is quite likely in developing countries with small industrial bases — or in economies in transition, where central planning has left a legacy of very large firms in highly concentrated industries.

With monopsony power in the processing industry, both output and exports of final products can be reduced by quantitative export controls on raw material inputs. The quantitative control bestows effective monopsony power on the processing firm and encourages it to exploit this monopsony power by reducing output. If the raw materials could be freely exported, processors would not be able to effectively exercise monopsony power.

This paper — a product of the Trade Policy Division, Policy Research Department — is a synthesis of background material prepared for the joint UNDP/World Bank Trade Expansion Program which provides technical and policy advice to countries that want to reform their trade regimes. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Minerva Pateña, room N10-013, extension 37947 (27 pages).