ABSTRACTS

30106

Policy Research Working Paper Series

Numbers 3348–3398

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The World Bank
Research Support Team
Development Economics
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Produced by the Research Support Team

Policy Research Working Paper Series

Abstracts

Numbers 3348–3398

3348. Standards and Agro-Food Exports from Developing Countries: Rebalancing the Debate

Steven Jaffee and Spencer Henson
(June 2004)

The proliferation and increased stringency of food safety and agricultural health standards is a source of concern among many developing countries. These standards are perceived as a barrier to the continued success of their exports of high-value agro-food products (including fish, horticultural, and other products), either because these countries lack the technical and administrative capacities needed for compliance or because these standards can be applied in a discriminatory or protectionist manner. Jaffee and Henson draw on available literature and work in progress to examine the underlying evidence related to the changing standards environment and its impact on existing and potential developing country exporters of high-value agricultural and food products. The evidence the authors present, while only partial, suggests that the picture for developing countries as a whole is not necessarily problemati c and certainly less pessimistic than the mainstream "standards-as-barriers" perspective. Indeed, rising standards serve to accentuate underlying supply chain strengths and weaknesses and thus impact differently on the competitive position of individual countries and distinct market participants. Some countries and industries are even using high quality and safety standards to successfully (re-)position themselves in competitive global markets. This emphasizes the importance of considering the effects of food safety and agricultural health measures within the context of wider capacity constraints and underlying supply chain trends and drivers. The key question for developing countries is how to exploit their strengths and overcome their weaknesses such that they are gainers rather than losers in the emerging commercial and regulatory context.

This paper—a product of the International Trade Department, Poverty Reduction and Economic Management Network—is part of a larger effort in the network to understand the challenges and opportunities facing developing countries associated with evolving international standards for food and other products. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Zeba Jetha, room MC2-414, telephone 202-458-4321, fax 202-522-7551, email address zjetha@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at sjaffee@ worldbank.org or shenson@uoguelph.ca. (43 pages)

3349. Kenyan Exports of Nile Perch: Impact of Food Safety Standards on an Export-Oriented Supply Chain

Spencer Henson and Winnie Mitullah
(June 2004)

Over the past decade, exports of fish and fishery products from developing countries have increased rapidly. However, one of the major challenges facing developing countries in seeking to maintain and expand their share of global markets is stricter food safety requirements in industrial countries. Kenyan exports of Nile perch to the European Union provide a notable example of efforts to comply with such requirements, overlaid with the necessity to overcome restrictions on trade relating to immediate food safety concerns. Although food safety requirements were evolving in their major markets, most notably the EU, most Kenyan exporters had made little attempt to upgrade their hygiene standards. Likewise, the legislative framework of food safety controls and facilities at landing sites remained largely unchanged. Both exporters and the Kenyan government were forced to take action when a series of restrictions were applied to exports by the EU over the period 1997 to 2000. Processors responded by upgrading their hygiene controls, although a number of facilities closed, reflecting significant costs of compliance within the context of excess capacity in the sector. Remaining facilities upgraded their hygiene controls and made efforts to diversify their export base away from the EU. Legislation and control mechanisms were also enhanced. Hygiene facilities at landing beaches were improved, but remain the major area of weakness. The Kenyan case illustrates the significant impact that stricter food safety requirements can have on export-oriented supply chains. It also demonstrates how such requirements can exacerbate existing pressures for restructuring and reform, while prevailing supply and capacity issues constrain the manner in which the supply chain is able to respond. In Kenya most of the concerted effort to comply with these requirements was stimulated by the sudden loss of market access in very much a "crisis management" mode of operation, illustrating the importance of responding to emerging food safety requirements in a proactive and effective manner.

This paper—a product of the International Trade Department, Poverty Reduction and Economic Management Network—is part of a larger effort in the network to understand the challenges and opportunities facing developing countries associated with evolving international standards for food and other products. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Zeba Jetha, room MC2-414, telephone 202-458-4321, fax 202-522-7551, email address zjetha@worldbank.org. Policy Research Working Papers are also posted on the Web at http:/econ.worldbank.org. The authors may be contacted at shenson@ uoguelph.ca or wvmitullah@swiftkenya. com. (86 pages)

3350. Cross-Sectional Analyses of Climate Change Impacts

Robert Mendelsohn, Ariel Dinar, Alan Basist, Pradeep Kurukulasuriya, Mohamed Ihsan Ajwad, Felix Kogan, and Claude Williams
(June 2004)

The authors explore the use of cross-sectional analysis to measure the impacts of climate change on agriculture. The impact literature, using experiments on crops in laboratory settings combined with simulation models, suggests that agriculture will be strongly affected by climate change. The extent of these effects varies by country and region. Therefore, local experiments are needed for policy purposes, which becomes expensive and difficult to implement for most developing countries. The cross-sectional technique, as an alternative approach, examines farm performance across a broad range of climates. By seeing how farm performance changes with climate, one can estimate long-run impacts. The advantage of this approach is that it fully captures adaptation as each farmer adapts to the climate they have lived in. The technique measures the full net cost of climate change, including the costs as well as the benefits of adaptation. However, the technique is not concern-free. The four chapters in this paper examine important potential concerns of the cross-sectional method and how they could be addressed, especially in developing countries. Data availability is a major concern in developing countries. The first chapter looks at whether estimating impacts using individual farm data can substitute using agricultural census data at the district level that is more difficult to obtain in developing countries. The study, conducted in Sri Lanka, finds that the individual farm data from surveys are ideal for cross-sectional analysis. Another anticipated problem with applying the cross-sectional approach to developing countries is the absence of weather stations, or discontinued weather data sets. Further, weather stations tend to be concentrated in urban settings. Measures of climate across the landscape, especially where farms are located, are difficult to acquire. The second chapter compares the use of satellite data with ground weather stations. Analyzing these two sources of information, the study reveals that satellite data can explain more of the observed variation in farm performance than ground station data. Because satellite data are readily available for the entire planet, the availability of climate data will not be a constraint. A continuing debate is whether farm performance depends on just climate normals—the average weather over a long period of time—or on climate variance (variations away from the climate normal). Chapter 3 reveals that climate normals and climate variance are highly correlated. By adding climate variance, the studies can begin to measure the importance of weather extremes as well as normals. A host of studies have revealed that climate affects agricultural performance. Since agriculture is a primary source of income in rural areas, it follows that climate might explain variations in rural income. This is tested in the analysis in Chapter 4 and shown to be the case. The analysis reveals that local people in rural areas could be heavily affected by climate change even in circumstances when the aggregate agricultural sector in the country does fine.

This paper—a product of the Agriculture and Rural Development Department—is the result of the first phase of the study "Climate and Rural Poverty: Incorporating Climate into Rural Development Strategies," funded by the Bank's Research Support Budget and the Agriculture and Rural Development Department. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Melissa Williams, room MC5-724, telephone 202-458-7297, fax 202-614-0034, email address mwilliams4@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at adinar@worldbank.org or majwad@worldbank.org. (99 pages)

3351. Belief Systems and Durable Inequalities: An Experimental Investigation of Indian Caste

Karla Hoff and Priyanka Pandey
(June 2004)

If discrimination against an historically oppressed social group is dismantled, will the group forge ahead? Hoff and Pandey present experimental evidence that a history of social and legal disabilities may have persistent effects on a group's earnings through its impact on individuals' expectations. In the first experiment, 321 high-caste and 321 low-caste junior high school male student volunteers in rural India performed the task of solving mazes under economic incentives. There were no caste differences in performance when caste was not publicly revealed, but making caste salient created a large and robust caste gap. When a nonhuman factor influencing rewards (a random draw) was introduced, the caste gap disappeared.

To test whether the low caste's anticipation of prejudicial treatment caused the caste gap, the authors conducted a second experiment that manipulated the scope for discretion in rewarding performance. When the link between performance and payoffs was purely mechanical, making caste salient did not affect behavior. Instead, it was in the case where there was scope for discretion and judgment in rewarding performance that making caste salient had an effect.

The results suggest that when caste identity is salient, low-caste subjects expect that others will judge them prejudicially. Mistrust undermines motivation. The experimental design enables the authors to exclude as explanations of the caste gap in performance socioeconomic differences and a lack of self-confidence by low-caste participants.

This paper—a product of Investment Climate, Development Research Group—is part of a larger effort in the group to understand social exclusion—why certain social groups in certain localities remain poor and disempowered, while others enjoy greater mobility and power. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anna Bonfield, room MC3-354, telephone 202-473-1248, fax 202-522-1152, email address abonfield@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. Karla Hoff may be contacted at khoff@worldbank.org. (52 pages)

3352. The Transition from Communism: A Diagrammatic Exposition of Obstacles to the Demand for the Rule of Law

Karla Hoff and Joseph E. Stiglitz
(June 2004)

In an earlier paper, Hoff and Stiglitz presented a mathematical exposition of a theory that demonstrated that mass privatization without institutions to limit asset-stripping may not lead to a demand for the rule of law ["After the Big Bang? Obstacles to the Emergence of the Rule of Law in Post-Communist Societies," *American Economic Review* 94(3), June 2004, pages 753–63]. This report makes the same argument in terms of simple diagrams. The central idea is that economic actions (to build value or strip assets) and political positions of individuals are interdependent. "Big bang" privatization may give individuals an interest in taking what they can quickly, rather than waiting for the establishment of property rights protection that would permit them to build more valuable assets. Asset stripping gives some of these individuals an interest in prolonging the absence of the rule of law so that they can enjoy the fruits of stripping without the constraint of government enforcement of property rights. Each individual, in attempting to influence society's choice of the environment, focuses on the impact on himself, not the impact on others. In choosing their economic actions, individuals ignore the effect of their economic decisions on how they themselves vote, how other people believe the system will evolve, and thus how others invest and vote. Thus, two distortions of individual behavior are associated with the public good nature of votes.

The authors use this framework to make one further point. Because of the interdependence between individuals' economic and political choices, demand for and opposition to the rule of law cannot be separated from macroeconomic policy. A too stringent macroeconomic policy can lower the returns to building value relative to stripping assets and thereby weaken the equilibrium demand for the rule of law. Macroeconomic policies and institutional evolution are not independent issues.

This paper—a product of Investment Climate, Development Research Group—is part of a larger effort in the group to understand how good governance emerges. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anna Bonfield, room MC3-354, telephone 202-473-1248, fax 202-522-1152, email address abonfield@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at khoff@worldbank.org or jes322@Columbia.edu. (23 pages)

3353. Implementing Decentralized Local Governance: A Treacherous Road with Potholes, Detours, and Road Closures

Anwar Shah and Theresa Thompson
(June 2004)

During the past two decades, a silent revolution in public sector governance has swept across the globe aiming to move decisionmaking for local public services closer to the people. The countries embracing and adapting to this silent revolution have had diverse motives and followed even more diverse approaches. Shah and Thompson attempt to present a stylized view of the motivations and approaches used to strengthen local governance.

The quest for the right balance—that is, appropriate division of powers among different levels of government—is not always the primary reason for decentralizing. There is evidence that the decentralization decision may have more to do with short-term political considerations than the long-run benefits of decentralization. To take stock of progress worldwide, the authors take a comparative look at developments in political, fiscal, and administrative decentralization for a selected group of countries.

Most of the decentralization literature deals with normative issues regarding the assignment of responsibilities among different levels of government and the design of fiscal transfers. The process of decentralization has not received the attention it deserves as the best laid plans can fail due to implementation difficulties. The authors revisit major controversies regarding preferred approaches to obtaining a successful outcome. Key approaches examined are big push versus small steps, bottom up versus top down, and uniform versus asymmetric decentralization.

Finally, the authors evaluate Indonesia's 1999 "big bang" decentralization program. The program should be commended for its achievements over a short period of time. However, incentives are lacking for local governments to be accountable and responsive to their residents.

This paper—a product of the Poverty Reduction and Economic Management Division, World Bank Institute—is part of a larger effort in the institute to disseminate ideas in strengthening responsive, responsible, and accountable public governance. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anwar Shah, room J4-403, telephone 202-473-7687, fax 202-676-9810, email address ashah@worldbank.org. Policy Research Working Papers are also posted on the Web at http:/econ.worldbank.org. Theresa Thompson may be contacted at tthompson@worldbank.org. (41 pages)

3354. Informal Export Barriers and Poverty

Guido G. Porto
(July 2004)

Porto investigates the poverty impacts of informal export barriers like transport costs, cumbersome customs practices, costly regulations, and bribes. He models these informal barriers as export taxes that distort the efficient allocation of resources. In low-income agricultural economies, this distortion lowers wages and household agricultural income, thereby leading to higher poverty. The author investigates the poverty impacts of improving export procedures in Moldova. This is a unique case study: poverty is widespread (half of the Moldovan population lives in poverty), the country is very open and relies on agricultural exports for growth, formal trade barriers are fairly liberalized, and informal export barriers are common and widespread. The author finds that improving export practices would benefit the average Moldovan household across the whole income distribution. For example, halving informal export barriers would cause poverty to decline from 48.3 percent of the population to between 43.3 and 45.5 percent, potentially lifting 100,000–180,000 individuals out of poverty.

This paper—a product of the Trade Team, Development Research Group—is part of a larger effort in the group to study the effects of trade on poverty. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Guido Porto, room MC3-335, telephone 202-473-8153, fax 202-522-1159, email address gporto@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. (38 pages)

3355. Infrastructure, Competition Regimes, and Air Transport Costs: Cross-Country Evidence

Alejandro Micco and Tomás Serebrisky
(July 2004)

The relevance of transport costs has increased as liberalization continues to reduce artificial barriers to trade. Countries need to adopt policies to "get closer" to global markets. Can improvements in infrastructure and regulation reduce transport costs? Is it worthwhile to implement policies designed to increase competition in transport markets? Focusing on air transport, which has increased its share in U.S. imports from 24 percent in 1990 to 35 percent in 2000, Micco and Serebrisky quantify the effects of infrastructure, regulatory quality, and liberalization of air cargo markets on transport costs. During the 1990s, the United States implemented a series of Open Skies Agreements, providing a unique opportunity to assess the effect that a change in the competition regime has on prices. The authors find that infrastructure, quality of regulation, and competition matter. In their sample, an improvement in airport infrastructure from the 25th to 75th percentiles reduces air transport costs by 15 percent. A similar improvement in the quality of regulation reduces air transport costs by 14 percent. Open Skies Agreements further reduce air transport costs by 8 percent.

This paper—a product of the Finance and Private Sector Development Division, World Bank Institute—is part of a larger effort in the institute to increase understanding of infrastructure regulation. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Gabriela Chenet-Smith, room J3-304, telephone 202-473-6370, fax 202-676-9874, email address gchenet@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at alejandromi@iadb.org or tserebrisky@worldbank.org. (36 pages)

3356. Where Do We Stand on Transport Infrastructure Deregulation and Public-Private Partnership?

Antonio Estache and Tomás Serebrisky
(July 2004)

The evolution of transport public-private partnerships (PPPs) in industrial and developing countries since the early 1990s seems to be following a similar path: private initiatives work for a while, but after a shock to the sector takes place, the public sector returns as regulator, owner, or financier. After a while the public sector runs into problems and eventually finds a hybrid solution to ensure the survival of the sector. Estache and Serebrisky review the effectiveness of transport infrastructure deregulation from three angles: efficiency, fiscal, and users' viewpoint. They emphasize the difficulties and strong political commitments required to make the reforms sustainable and argue that governments willing to make corrections to the reform path are faced with the need to address recurrent and emerging issues in transport systems: tariff structure, quality (timetable, safety, and environment), access rules for captive shippers, the trend toward rebundling and decrease in intrasectoral competition, multimodalism, and the stimulus through yardstick competition.

This paper—a product of the Finance and Private Sector Development Division, World Bank Institute—is part of a larger effort in the institute to increase the understanding of infrastructure regulation. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Gabriela Chenet-Smith, room J3-304, telephone 202-473-6370, fax 202-676-9874, email address gchenet@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at aestache@worldbank.org or tserebrisky@worldbank.org. (27 pages)

3357. Poverty in the Brazilian Amazon: An Assessment of Poverty Focused on the State of Pará

Dorte Verner
(July 2004)

The states in the Brazilian Amazon have made progress in reducing poverty and improving social indicators in the past decade. Despite this progress, the poverty rate in the Amazon is among the highest in Brazil. As of 2000, rural poverty is the greatest challenge. In Pará, not only is the headcount poverty rate of 58.4 percent in rural areas more than 55 percent higher than headcount poverty in urban areas, but poverty is much deeper in rural areas. The fall in infant mortality and adult illiteracy corroborate the improvement in measured income poverty. Census data from 2000 and 1991 reveal that Pará was a net exporter of people during the 1990s, while it was a net importer during the 1980s. In 2000, the Gini coefficient for Pará, as in the Amazon as a whole, was 0.60. The poverty profile reveals that indigenous peoples experience a higher poverty incidence than other groups.

Census 2000 data reveal that living in rural areas in Pará does not by itself affect the probability of being poor. Individual and household characteristics are more important than geographical location. The largest statistical differences in poverty reduction between rural and urban areas are found in the effect of education, sector of employment, gender, and family size. National household survey data (PNAD) from 2001 reveal that living in urban areas in Pará does not by itself affect the probability of falling below the poverty line in urban areas in Brazil. The strongest poverty correlates are education, experience, race, rural location, gender, and labor market association.

This paper—a product of the Social Development Family Sector Unit, Latin America and the Caribbean Region—is part of a larger effort in the region to reduce poverty and increase social inclusion. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Grissel Prieto, room I6-226, telephone 202-473-6346, fax 202-676-0199, email address gprieto@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at dverner@worldbank.org. (66 pages)

3358. The Impact of Coffee Market Reforms on Producer Prices and Price Transmission

Ekaterina Krivonos
(July 2004)

Krivonos evaluates the impact of coffee sector reforms during late 1980s and early 1990s on coffee growers in the main coffee producing countries. Earlier evidence suggests that the reforms increased the share of producer prices in the world price of coffee. She tests this hypothesis with the help of cointegration analysis, and the results show that in most countries the long-term producer price share has indeed increased substantially after the liberalization. Moreover, the results suggest that the reforms induced a closer cointegrating relationship between grower prices and world market prices. Finally, estimation of an error-correction model reveals that short-run transmission of price signals from the world market to domestic producers has improved, such that domestic prices adjust faster today to world price fluctuations than they did prior to the reforms. However, there is some evidence of asymmetries in the way positive and negative world price changes are transmitted to domestic markets.

This paper is a product of the Trade Team, Development Research Group. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Kasilag, room MC3-321, telephone 202-473-9081, fax 202-522-1159, email address mkasilag@worldbank.org. Policy

Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at ekrivonos@arec.umd.edu. (36 pages)

3359. A Flexible Modeling Framework to Estimate Interregional Trade Patterns and Input-Output Accounts

Patrick Canning and Zhi Wang
(July 2004)

There are tremendous disparities in economic development across regions in large developing countries such as Brazil, China, India, and Indonesia. Globalization may have different impacts on urban and coastal areas compared with less developed rural and inland regions. A major obstacle in conducting policy analysis for regional economic development under globalization is the lack of consistent, reliable regional data, especially data on interregional trade and interindustry transactions.

This study implements and tests a mathematical programming model to estimate interregional, interindustry transaction flows in a national system of economic regions based on an interregional accounting framework and initial information on interregional shipments. A complete national input-output table plus regional sectoral data on gross output, value-added, exports, imports, and final demand are used as inputs to generate an interregional input-output system that reconciles regional market data and interregional transactions. The model is tested on a four-region 10-sector example against data aggregated from a multi-regional global input-output database, and test results from seven experiments are evaluated against eight mean absolute percentage error indexes. The model has capacity to discover the true interregional trade pattern from highly distorted initial estimates. The paper also discusses some general guidelines for implementing the model for a large-dimension multi-regional account based on real national and regional data.

This paper is a product of the Trade Team, Development Research Group. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Kasilag, room MC3-321, telephone 202-473-9081, fax 202-522-1159, email address mkasilag@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at pcanning@ers.usda.gov or zwang53@comcast.net. (30 pages)

3360. On the Inefficiency of Inequality

Maurice Schiff
(July 2004)

A number of studies have examined the implications of preference interdependence. This paper models individual utility as depending either on the level of other people's consumption or on the difference in consumption levels. It assumes that the impact of an increase in other people's consumption on individual utility diminishes with the level of consumption, raising individual utility when that consumption is very small and lowering it when that consumption is very large. Based on that plausible assumption, the paper shows that, whether individual utility depends on the level of other people's consumption or on the difference in consumption levels, (1) welfare declines with inequality, (2) equilibrium inequality is inefficient, and (3) the optimal intervention leads to a more equal distribution. Implications for the role of development institutions are examined.

This paper—a product of the Trade Team, Development Research Group—is part of a larger effort in the group to examine the impact of inequality on efficiency. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Flewitt, room MC3-333, telephone 202-473-2724, fax 202-522-1159, email address pflewitt@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at mschiff@worldbank.org. (16 pages)

3361. Trade, Environmental Regulations, and the World Trade Organization: New Empirical Evidence

Matthias Busse
(July 2004)

Busse empirically explores the linkages between environmental regulations and international trade flows. So far, empirical studies either have failed to find any close statistical relationship or have delivered questionable results due to data limitations. Using a comprehensive new database for environmental regulations across countries, the author performs a thorough empirical investigation of that linkage for 119 countries and five high-polluting industries. No evidence is found to support the pollution hypothesis that industries facing above-average abatement costs with environmental regulations would prefer pollution havens and relocate their activities. The exception is iron and steel products, where a negative and statistically significant link is established, implying that higher compliance with international treaties and conventions and more stringent regulations are associated with reduced net exports. High-income countries, where environmental regulations are usually more stringent in comparison to middle or low-income countries, have experienced a considerable decline in the export-import ratio of iron and steel products since the late 1970s. There is no clear evidence that national governments choose suboptimal policies that result in insufficient regulations, so the case for environmental standards within the WTO framework is relatively weak.

This paper is a product of the Trade Team, Development Research Group. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Flewitt, room MC3-333, telephone 202-473-2724, fax 202-522-1159, email address pflewitt@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at busse@hwwa.de. (29 pages)

3362. Education, Information, and Smoking Decisions: Evidence from Smoking Histories, 1940–2000

Damien de Walque
(July 2004)

De Walque tests the hypothesis that education improves health and increases people's life expectancy. Smoking histories—reconstructed from retrospective data in the National Health Interview Surveys in the United States—show that after 1950, when information about the dangers associated with tobacco consumption started to diffuse, the prevalence of smoking declined earlier and most dramatically for college graduates. More educated individuals are also more likely to quit smoking: incidence analysis of smoking cessation shows a strong education effect. The instrumental variable approach, which relies on the fact that during the Vietnam War college attendance provided a strategy to avoid the draft, indicates that education does affect decisions about whether to smoke or stop smoking.

This paper—a product of the Public Services Team, Development Research Group—is part of a larger effort in the group to study the health benefits associated with education. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, room MC3-607, telephone 202-473-7698, fax 202-522-1154, email address hsladovich@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at ddewalque@worldbank.org. (30 pages)

3363. Structural Issues in the Kenyan Financial System: Improving Competition and Access

Thorsten Beck and Michael Fuchs
(July 2004)

Although by regional standards Kenya's financial system is relatively well developed and diversified, major structural impediments prevent it from reaching its full potential. Cross-country comparisons, however, show the importance of a well developed financial sector for long-term economic growth and poverty alleviation. Experience from other developing economies has shown the detrimental effect of government ownership and the positive impact that foreign bank ownership can have on the development of a market-based financial system. Analyzing and decomposing the high interest rate spreads and margins in Kenya helps identify structural impediments that drive the high cost of and low access to financial services. The limited information sharing on debtors, deficiencies in the legal and judicial system, the limited number of strong and reputable banks, and nontransparency and uncertainty in the banking market are major impediments to the development of Kenya's financial system, and to reducing spreads and widening access.

This paper—a product of the Finance Team, Development Research Group—is part of a larger effort in the group to understand the determinants of financial sector development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Agnes Yaptenco, room MC3-439, telephone 202-473-1823, fax 202-522-1155, email address ayaptenco@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at tbeck@worldbank.org or mfuchs@worldbank.org. (19 pages)

3364. Can the Unsophisticated Market Provide Discipline?

Gerard Caprio and Patrick Honohan
(August 2004)

Caprio and Honohan question the widespread belief that market discipline on banks cannot be effective in less developed financial environments.

There is no systematic tendency for low-income countries to lack the prerequisites for market discipline. Offsetting factors to the weaker market and formal information infrastructures are (1) the less complex character of banking business in low-income countries; (2) the growing internationalization of these markets through the presence of foreign banks, and through international trading of the debt and equity of locally-controlled nongovernment banks; and (3) the smaller size of the business and financial community. However, continuing dominance by public sector banks in some countries limits the likely development of market monitoring, which is clearly a cause for concern, given the disappointing record of governments around the world as monitors of their self-owned banks.

Countries should build on this potential for market discipline by limiting the role of explicit deposit guarantees, reducing state ownership of banks where it is prevalent, and not putting all their eggs in the supervisory basket. Greater disclosure, for example, of how risk taking is rewarded and how rating agencies earn their fees would support the development of better market monitoring. Enhancing market discipline (pillar three) is much more likely to be of use in most developing countries than addressing the refinements of the risk-weighting system of Basel II's first pillar.

This paper—a joint product of the Financial Sector Operations and Policy Department and the Finance Team, Development Research Group—is part of a larger effort in the Bank to provide research on what works to strengthen countries' financial systems. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Daniele Evans, room MC9-747, telephone 202-473-7496, fax 202-522-3184, email address devans@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at gcaprio@worldbank.org or phonohan@worldbank.org. (40 pages)

3365. Private Provision of Rural Infrastructure Services: Competing for Subsidies

Björn Wellenius, Vivien Foster, and Christina Malmberg-Calvo
(August 2004)

Market-oriented reforms of infrastructure in developing countries tend to focus primarily on commercially viable services in urban areas. Nevertheless, an increasing number of countries are beginning to experiment with extending the market paradigm to infrastructure services in rural areas that are often less attractive in commercial terms. In these cases, subsidies are used to close the gap between market requirements and development needs, and are increasingly determined and allocated on a competitive basis. The authors discuss the conditions under which competition among firms for such subsidies—successfully used in the telecommunications sector in a number of middle-income countries—could also be applied to electricity, water and sanitation, and transportation services in lower-income countries.

This paper is a product of the Finance, Private Sector, and Infrastructure Unit, Latin America and the Caribbean Region. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Vivien Foster, room I5-005, telephone 202-458-9574, fax 202-522-3552, email address vfoster@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The other authors may be contacted at wellenius@attglobal.net or cmalmbergcalvo@worldbank.org. (28 pages)

3366. Knowledge and Development: A Cross-Section Approach

Derek H. C. Chen and Carl J. Dahlman
(August 2004)

Chen and Dahlman assess the effects of knowledge on economic growth. By using an array of indicators, each of which represents an aspect of knowledge, as independent variables in cross-section regressions that span 92 countries for the period 1960 to 2000, they show that knowledge is a significant determinant of long-term economic growth. In particular, the authors find that the stock of human capital, the level of domestic innovation and technological adaptation, and the level of information and communications technologies (ICT) infrastructure all exert statistically significant positive effects on long-term economic growth. More specifically with regard to the growth effects of the human capital stock, they find that an increase of 20 percent in the average years of schooling of a population tends to increase the average annual economic growth by 0.15 percentage point. In terms of innovation, the authors find that a 20 percent increase in the annual number of USPTO patents granted is associated with an increase of 3.8 percentage points in annual economic growth. Lastly, when the ICT infrastructure, measured by the number of telephones per 1,000 persons, is increased by 20 percent, they find that annual economic growth tends to increase by 0.11 percentage point.

This paper—a product of the Global Knowledge and Learning Division, World Bank Institute—is part of a larger effort in the institute to assess the effects of knowledge on economic development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Faythe Calandra, room J2-267, telephone 202-473-6440, fax 202-522-1492, email address fcalandra@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at dchen2@worldbank.org or cdahlman@worldbank.org. (88 pages)

3367. Estimating Willingness-to-Pay with Random Valuation Models: An Application to Lake Sevan, Armenia

Hua Wang, Benoît Laplante, Xun Wu, and Craig Meisner
(August 2004)

This paper presents a case study of willingness-to-pay (WTP) estimation using random valuation models. A contingent valuation survey was conducted in Yerevan, Armenia to estimate people's WTP for the protection of Lake Sevan. Three elicitation formats—open-ended, closed-ended, and the stochastic payment card (SPC) approach—were used with split random samples. WTP models with heterogeneous errors were constructed and estimated with the survey data. The SPC approach produces a higher estimation of the mean WTP than both the open-ended and closed-ended approaches, while results from the open-ended and closed-ended elicitation formats are similar. Furthermore, contrary to research findings obtained in the United States, this study finds higher WTP estimations with mail surveys than with personal interviews.

This paper—a product of the Infrastructure and Environment Team, Development Research Group—is part of a larger effort in the group to understand the economics of sustainable development in developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hua Wang, room MC2-525, telephone 202-473-3255, fax 202-522-3230, email address hwang1@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. (41 pages)

3368. Gainers and Losers from Trade Reform in Morocco

Martin Ravallion and Michael Lokshin
(August 2004)

Ravallion and Lokshin use Morocco's national survey of living standards to measure the short-term welfare impacts of prior estimates of the price changes attributed to various trade policy reforms for cereals—the country's main foodstaple. They find small impacts on mean consumption and inequality in the aggregate. There are both gainers and losers and (contrary to past claims) the rural poor are worse off on average after trade policy reforms. The authors decompose the aggregate impact on inequality into a "vertical" component (between people at different pre-reform welfare levels) and a "horizontal" component (between people at the same pre-reform welfare level). There is a large horizontal component which dominates the vertical impact of full de-protection. The diverse impacts reflect a degree of observable heterogeneity in consumption behavior and income sources, with implications for social protection policies.

This paper—a product of the Poverty Team, Development Research Group—is part of a larger effort in the group to assess the distributional impact of economywide policy reforms. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Sader room MC3-556, telephone 202-473-3902, fax 202-522-1151, email address psader@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at mravallion@worldbank.org or mlokshin@worldbank.org. (41 pages)

3369. Using Rapid City Surveys to Inform Municipal Social Policy: An Application in Cali, Colombia

Jesko Hentschel
(August 2004)

Many developing countries assign local governments increasing responsibilities in fighting poverty. This requires local social policy to go beyond the execution of centrally designed and funded education and health programs. Hence, local governments and their partners have both an opportunity and a need to analyze key local bottlenecks for poverty reduction and social development. Drawing on an example from Cali, Colombia, Hentschel describes a tool for such policy formulation at the local level—a rapid city household survey. Although the survey uses precoded and closed- ended questions, it is contextual in the sense that it is tailormade to social and economic conditions in Cali. The survey places particular emphasis on collecting key quantitative information, such as household welfare and service access, as well as qualitative information, such as service evaluations and population priorities. Combining the quantitative and qualitative data allows, for example, the mapping of population budget priorities or service satisfaction levels by welfare group. Rapid city household surveys could provide an important tool for the development of local social policies.

This paper—a joint product of the Human Development Sector Unit, and the Finance, Private Sector, and Infrastructure Unit, Latin America and the Caribbean Region—is part of a larger effort in the region to support local and municipal governments in the formulation of social policies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Natalia Moncada, room I7-700, telephone 202-473-4785, fax 202-522-0050, email address nmoncada@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at jhentschel@worldbank.org. (26 pages)

3370. Mortgage Securities in Emerging Markets

Loïc Chiquier, Olivier Hassler, and Michael Lea
(August 2004)

Despite its recognized economic and social importance, housing finance often remains underdeveloped in emerging economies. Residential lending remains small, poorly accessible, and depository-based. Lenders remain vulnerable to significant credit, liquidity, and interest rate risks. As a result, housing finance is relatively expensive and often rationed. The importance of developing robust systems of housing finance is paramount as emerging economy governments struggle to cope with population growth, rapid urbanization, and rising expectations from a growing middle class.

The capital markets in many economies can provide an attractive and potentially large source of long-term funding for housing, and solutions to better allocate part of the risks. The advent of institutional investors is creating large and rapidly growing pools of funds that may facilitate the development of mortgage-related securities. Despite such a strong appeal, there are significant barriers to the development of mortgage securities in emerging markets. Their success is dependent on many factors, starting with a strong legal and regulatory framework and liberalized financial sector, and including a developed primary mortgage market. The experience in developing mortgage securities in emerging markets has been mixed. Chiquier, Hassler, and Lea review the experience of introducing mortgage securities in emerging markets and explore the policy issues related to this theme.

This paper—a product of the Financial Sector Operations and Policy Department—is part of a larger effort in the department to provide housing finance information. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Braxton, room MC9-904, telephone 202-473-2720, fax 202-522-7105, email address pbraxton@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at lchiquier@worldbank.org, ohassler@worldbank.org, or michael_lea@countrywide.com. (42 pages)

3371. On the Measurement of Market-Oriented Reforms

Norman V. Loayza and Raimundo Soto
(August 2004)

Loayza and Soto present policy and outcome-based ways of measuring the progress of market-oriented reforms in both traditional areas of first-generation reform and the areas of institutional reform that have been emphasized lately. These policy areas are the domestic financial system, international financial markets, international trade, the labor market, the tax system, public infrastructure and public firms, the legal and regulatory framework, and governance. For each of them, the authors first discuss the general principles underlying market-oriented reform. Second, they present various indicators of the policy stance in the area in question. And third, they present various outcome indicators of the policy stance.

This paper—a product of Investment Climate Team, Development Research Group—is part of a larger effort in the group to understand the process of economic reform. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Tourya Tourougui, mail stop MC3-301, telephone 202-458-7431, fax 202-522-3518, email address ttourougui@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. Norman Loayza may be contacted at nloayza@worldbank.org. (66 pages)

3372. Two Case Studies on Electronic Distribution of Government Securities: The U.S. TreasuryDirect System and the Philippine Expanded Small Investors Program

Thomas G. Glaessner and Zeynep Kantur
(August 2004)

The case study on the U.S. TreasuryDirect examines the evolution of the electronic distribution systems for marketable and nonmarketable government securities, the main objectives, and the basic legal infrastructure and the preconditions enabling the system. The U.S. experience highlights that the enabling environment and infrastructure (for example, in terms of information databases such as Pay.Gov) make a large difference in terms of both the security and convenience that customers can expect in the use of the system. The system also achieved important cost savings for the Bureau of the Public Debt. The case study on the Small Investors Program of the Philippines looks at a program that the Philippine government has been experimenting with to sell its securities directly to retail investors over the Internet. The recently revised version of the program—called the Expanded Small Investors Program—aims to increase access to government securities and distribute them more widely, develop better savings products, and enhance competition in the primary markets for these securities. Glaessner and Kantur analyze whether the program's main goals can be achieved while mitigating the risks. Their analysis suggests that there are good reasons to believe that the new program will succeed. Still, regular and responsive assessments and adjustments will be required as the program moves forward.

This paper—a product of the Financial Sector Operations and Policy Department—is part of a larger effort in the department to provide public goods coming out of the debt management and debt market development program and capital markets practice. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Priscilla Infante, room MC9-702, telephone 202-473-7642, fax 202-522-7105, email address pinfante@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at tglaessner@worldbank.org or zkantur@hsbc.com. (45 pages)

3373. Are Returns to Private Infrastructure in Developing Countries Consistent with Risks since the Asian Crisis?

Antonio Estache and Maria Elena Pinglo
(August 2004)

Estache and Pinglo present a basic assessment of the financial performance of infrastructure service operators in developing countries. They rely on a new database of 120 companies put together to track the evolution of the cost of capital, the cost of equity, and the return of equity for electricity, water and sanitation, railways, and port operators in 32 developing countries distributed evenly across low-income, low-middle-income, and upper-middle-income countries. The authors show that between 1998 and 2002, the average cost of capital in developing countries varied from less than 11 percent to over 15 percent across regions and sectors, while the cost of equity varied from around 13 percent to over 22 percent. Low-middle-income countries have recovered relatively well from the East Asia crisis, while low-income and upper-middle-income countries have seen their situation deteriorate since the crisis. At the regional level, the main story is that East Asia is recovering quite well from its crisis, and that the financial performance of the operators in Africa and Latin America has deteriorated. Eastern Europe and South Asia are doing relatively better but show a large volatility of returns over time and within sectors. At the sector level, the railways and the energy sectors have seen their performance deteriorate significantly over the period, while the water and port sectors have done relatively better. In all sectors and regions, the average return to equity has been lower than the cost of equity since the Asian crisis.

This paper—a product of the Office of the Vice President, Infrastructure Network—is part of a larger effort in the network to generate quantitative information on infrastructure. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Marie Leon, room G2-002, telephone 202-473-6151, fax 202-522-2961, email address mleon@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at aestache@worldbank.org or mpinglo@worldbank.org. (23 pages)

3374. Is Debt Replacing Equity in Regulated Privatized Infrastructure in Developing Countries?

Luis Correia da Silva, Antonio Estache, and Sakari Järvelä
(August 2004)

Da Silva, Estache, and Järvelä describe the evolution of the financing structure of regulated privatized utilities and transport companies. To do so, they rely on a sample of 121 utilities distributed over 16 countries, and 23 transport infrastructure operators and 23 transport services operators distributed over 23 countries. The authors show that leverage rates vary significantly across sectors, with the highest rates observed in transport and the lowest in water. Moreover, they also show that the 1997 Asia crisis led operators to adjust their financial structure differently in different regions. Overall, the evidence they present shows that debt is replacing equity in financing the investment needs of utilities and transport services in developing countries. These results raise some questions as to whether the regulator's mandate should be expanded to monitor the financial structure of companies and as to whether the international community should make a stronger commitment to more transparent regulatory accounting systems.

This paper—a product of the Office of the Vice President, Infrastructure Network—is part of a larger effort in the network to generate quantitative information on infrastructure. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Marie Leon, room G2-002, telephone 202-473-6151, fax 202-522-2961, email address eleon@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. Antonio Estache may be contacted at aestache@worldbank.org. (22 pages)

3375. Estimating Individual Vulnerability to Poverty with Pseudo-Panel Data

François Bourguignon, Chor-ching Goh, and Dae Il Kim
(August 2004)

Bourguignon, Goh, and Kim present an original method to study individual earning dynamics using repeated cross-sectional data. Because panel data of individuals are seldom available in developing countries, it is difficult to study individual earning dynamics and related issues such as the propensity of earners to fall into poverty or vulnerability to poverty because of changes in earnings. The authors show that under the assumption that individual earning dynamics obey some basic properties and follow a simple stochastic process, the main parameters of this process can be recovered from repeated cross-sectional data. The knowledge of these parameters then permits simulation of the earning dynamics of an individual, and estimate other measures of interest, such as an individual's vulnerability to poverty. The results show that model parameters recovered from pseudo panels approximate reasonably well those estimated directly from a true panel. Moreover, implications of the model, in this case pseudo-panel measures of vulnerability to poverty, reflect closely those based on actual panel data.

This paper—a product of the Office of the Vice President and Chief Economist, Development Economics—is part of a larger effort in the vice presidency to improve measurement of vulnerability to poverty. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Chor-ching Goh, room MC8-129, telephone 202-458-0123, fax 202-522-1557, email address cgoh@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at fbourguignon@worldbank.org,

cgoh@worldbank.org, or dikim@plaza.snu.ac.kr. (17 pages)

3376. What Triggers Inflation in Emerging Market Economies?

Ilker Domaç and Eray M. Yücel
(August 2004)

Emerging market economies (EMEs) have experienced a noticeable decline in inflation since the mid-1990s. Whether this stable price environment in EMEs is likely to endure and what kind of policies need to be followed to ensure price stability, however, still continue to be questions of considerable policy relevance. Domaç and Yücel investigate the factors associated with the start of 24 inflation episodes in 15 EMEs between 1980 and 2001. They use pooled probit analysis to estimate the contribution of the key factors to inflation starts. Their empirical results suggest that increases in the output gap, agricultural shocks, and expansionary fiscal policy raise the probability of inflation starts in EMEs. Their findings also indicate that a more democratic environment and an increase in capital flows relative to GDP reduce the probability of inflation starts.

This paper—a product of the Poverty Reduction and Economic Management Sector Unit, Europe and Central Asia Region—is part of a larger effort in the region to enhance knowledge on the inflationary process and its policy implications. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Nancy Davies-Cole, room H4-310, telephone 202-473-8482, fax 202-614-1162, email address ndaviescole@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at idomac@worldbank.org or eray.yucel@tcmb.gov.tr. (25 pages)

3377. Resolving Systemic Financial Crises: Policies and Institutions

Stijn Claessens, Daniela Klingebiel, and Luc Laeven
(August 2004)

Claessens, Klingebiel, and Laeven analyze the role of institutions in resolving systemic banking crises for a broad sample of countries. Banking crises are fiscally costly, especially when policies like substantial liquidity support, explicit government guarantees on financial institutions' liabilities, and forbearance from prudential regulations are used. Higher fiscal outlays do not, however, accelerate the recovery from a crisis. Better institutions—less corruption, improved law and order, legal system, and bureaucracy—do. The authors find these results to be relatively robust to estimation techniques, including controlling for the effects of a poor institutional environment on the likelihood of financial crisis and the size of fiscal costs. Their results suggest that countries should use strict policies to resolve a crisis and use the crisis as an opportunity to implement medium-term structural reforms, which will also help avoid future systemic crises.

This paper—a product of the Financial Sector Operations and Policy Department—is part of a larger effort in the department to study financial crisis resolution. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room MC9-624, telephone 202-473-3722, fax 202-522-2031, email address hvo1@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at stijn@fee.uva.nl, dklingebiel@worldbank.org, or llaeven@worldbank.org. (38 pages)

3378. Pro-Growth, Pro-Poor: Is There a Tradeoff?

J. Humberto Lopez
(August 2004)

Is a pro-growth strategy always the best pro-poor strategy? To address this issue, Lopez provides an empirical evaluation of the impact of a series of pro-growth policies on inequality and headcount poverty. He relies on a large macroeconomic data set and estimate dynamic panel models that allows him to differentiate between the short- and long-run impacts of the policies under consideration on growth, inequality, and poverty. The author's findings indicate that regardless of their impact on inequality, pro-growth policies lead to lower poverty levels in the long run. However, he also finds evidence indicating that some of these policies may lead to higher inequality and, under plausible assumptions for the distribution of income, to higher poverty levels in the short run. These findings would justify the adoption of a pro-growth policy package as the center of any poverty reduction strategy, together with pro-poor measures that complement such a package by offsetting potential short-run increases in poverty.

This paper—a product of the Poverty Reduction Group, Poverty Reduction and Economic Management Network—is part of a larger effort in the network to understand how to increase the impact of growth on poverty reduction. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Nelly Obias, room MC4-834, telephone 202-473-1986, fax 202-522-3283, email address nobias@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at hlopez@worldbank.org. (29 pages)

3379. A Taxonomy of Financial Crisis Resolution Mechanisms: Cross-Country Experience

Charles W. Calomiris, Daniela Klingebiel, and Luc Laeven
(August 2004)

The goals of financial restructuring are to reestablish the creditor-debtor relationships on which the economy depends for an efficient allocation of capital, and to accomplish that objective at minimal cost. Costs include direct costs to taxpayers of financial assistance and the indirect costs to the economy that result from misallocations of capital and incentive problems resulting from the restructuring. Calomiris, Klingebiel, and Laeven review cases in which countries used alternative mechanisms to restructure their financial and corporate sectors. Countries typically apply a combination of tools, including decentralized, market-based mechanisms, and government-managed programs. Market-based strategies seek to strengthen the capital base of financial institutions and borrowers to enable them to renegotiate debt and resume new credit supply. Government-led restructuring strategies often include the establishment of an entity to which nonperforming loans are transferred or the government's sale of financial institutions, sometimes to foreign entrants. Market-based mechanisms can, in principle, resolve coordination problems that countries face in the wake of massive debtor and creditor insolvency, with acceptably low direct and indirect costs, particularly when those mechanisms are effective in achieving the desirable objective of selectivity. However, these mechanisms depend for their success on an efficient judicial system, a credible supervisory framework and authority with sufficient enforcement capacity, and a lack of corruption in implementation. Government-managed programs may not seem to depend as much on efficient legal and supervisory institutions for their success, but in fact these approaches, in particular the transfer of assets to government-owned asset management companies, also depend on effective legal, regulatory, and political institutions for their success. Further, a lack of attention to incentive problems when designing specific rules governing financial assistance can aggravate moral hazard problems, unnecessarily raising the costs of resolution. These results suggest that policymakers in emerging market economies with weak institutions should not expect to achieve the same level of success in financial restructuring as other countries, and that they should design resolution mechanisms accordingly. Despite the theoretical attraction of some complex market-based mechanisms, simpler mechanisms that afford quick resolution of outstanding debts that improve financial system competitiveness, and that offer little discretion to governments, are most effective.

This paper—a product of the Financial Sector and Operations Policy Department—is part of a larger effort in the department to study the containment and resolution of financial crises. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room MC9-624, telephone 202-473-3722, fax 202-522-2031, email address hvo1@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at cc374@columbia.edu, dklingebiel@worldbank.org, or llaeven@worldbank.org. (74 pages)

3380. Genetically Modified Rice Adoption: Implications for Welfare and Poverty Alleviation

Kym Anderson, Lee Ann Jackson, and Chantal Pohl Nielsen
(August 2004)

The first generation of genetically modified (GM) crop varieties sought to increase producer profitability through cost reductions or higher yields, while the next generation of GM food research is focusing on breeding for attributes of interest to consumers. "Golden rice" has been genetically engineered to contain a higher level of vitamin A and thereby boost the health of poor people in developing countries. Anderson, Jackson, and Nielsen analyze the potential economic effects of adopting both types of innovation in Asia, including its impact on rice producers and other consumers. They do so using the global economywide computable general equilibrium model known as GTAP. The results suggest that farm productivity gains could be dwarfed by the welfare gains resulting from the potential health-enhancing attributes of golden rice which would boost the productivity of unskilled workers among Asia's poor.

This paper—a product of the Trade Team, Development Research Group—is part of a larger effort in the group to understand the global economic effects of agricultural biotechnology policies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Flewitt, room MC3-333, telephone 202-473-2724, fax 202-522-1159, email address pflewitt@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. Kym Anderson may be contacted at kanderson@worldbank.org. (21 pages)

3381. Measuring the International Mobility of Skilled Workers (1990–2000): Release 1.0

Frédéric Docquier and Abdeslam Marfouk
(August 2004)

Until recently, there has been no systematic empirical assessment of the economic impact of the brain drain. Despite many case studies and anecdotal evidence, the main reason for this seems to be the lack of harmonized international data on migration by country of origin and education level. An exception is the paper by Carrington and Detragiache (1998), which provided skilled migration rates for 61 developing countries in 1990. This study relies on a set of tentative assumptions. For example, they transpose the skill structure of U.S. immigrants on the OECD total immigration stock.

In this paper, Docquier and Marfouk provide new estimates of skilled workers' emigration rates for about 190 countries in 2000 and 170 countries in 1990, in both developing and industrial countries. Using various statistical sources, they revisit Carrington and Detragiache's measures by incorporating information on immigrants' educational attainment and country of origin from almost all OECD countries. The set of receiving countries is restricted to OECD nations. The authors' database covers 92.7 percent of the OECD immigration stock.

In absolute terms, the authors show that the largest numbers of highly educated migrants are from Europe, Southern and Eastern Asia, and, to a lesser extent, from Central America. Nevertheless, as a proportion of the potential educated labor force, the highest brain drain rates are observed in the Caribbean, Central America, and Western and Eastern Africa. Repeating the exercise for 1990 and 2000 allows the authors to evaluate the changes in brain drain intensity. Western Africa, Eastern Africa, and Central America experienced a remarkable increase in the brain drain during the past decade.

The database delivers information that is rich enough to assess the changes in the international distribution of migration rates, to test for the (push and pull) determinants per skill group, to evaluate the growth effects of migration on source and destination countries, and to estimate the relationships between migration, trade, foreign research and development, and remittances.

This paper—a product of the Trade Team, Development Research Group—is part of a larger effort in the group to measure the extent of the brain drain as part of the International Migration and Development Program. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Flewitt, room MC3-333, telephone 202-473-2724, fax 202-522-1159, email address pflewitt@worldbank.org. Policy Research Working

Papers are also posted on the Web at http://econ.worldbank.org. Fréderic Docquier may be contacted at f.docquier@skynet.be. (37 pages)

3382. Skilled Migration: The Perspective of Developing Countries

Frédéric Docquier and
Hillel Rapoport
(August 2004)

Docquier and Rapoport focus on the consequences of skilled migration for developing countries. They first present new evidence on the magnitude of migration of skilled workers at the international level and then discuss its direct and indirect effects on human capital formation in developing countries in a unified stylized model. Finally they turn to policy implications, with emphasis on migration and education policy in a context of globalized labor markets.

This paper—a product of the Trade Team, Development Research Group—is part of a larger effort in the group to measure and understand the implication of the brain drain as part of the International Migration and Development Program. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Flewitt, room MC3-333, telephone 202-473-2724, fax 202-522-1159, email address pflewitt@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. Frédéric Docquier may be contacted at f.docquier@skynet.be. (38 pages)

3383. Air Pollution during Growth: Accounting for Governance and Vulnerability

Susmita Dasgupta, Kirk Hamilton,
Kiran Pandey, and David Wheeler
(August 2004)

New research on urban air pollution casts doubt on the conventional view of the relationship between economic growth and environmental quality. This view holds that pollution automatically increases until societies reach middle-income status because poor countries have neither the institutional capacity nor the political commitment necessary to regulate polluters. Some policymakers and researchers have cited this model (called the "environmental Kuznets curve," or EKC) when arguing that developing countries should "grow first, clean up later." However, new evidence suggests that the EKC model is misleading because it mistakenly assumes that strong environmental governance is not possible for poor countries. As the authors show in this paper, the empirical relationship between pollution and income becomes much weaker when measures of governance are added to the analysis. Their results also suggest that previous research has underestimated the effect of geographic vulnerability (climate and terrain factors) on air quality. The authors find that weak governance and geographic vulnerability alone can account for the crisis levels of air pollution in many developing country cities. When these factors are combined with income and population effects, the authors have a sufficient explanation for the fact that some cities already have air quality comparable to levels in OECD urban areas. To summarize, their results suggest that the maxim "grow first, clean up later" is too simplistic. Appropriate urban growth strategies can steer development toward cities with lower geographic vulnerability, and governance reform can reduce air pollution significantly, long before countries reach middle-income status.

This paper—a joint product of the Infrastructure and Environment Team, Development Research Group, the Environment Department, and the Global Environment Facility—is part of a larger effort in the Bank to understand governance and pollution. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Yasmin D'Souza, room MC2-622, telephone 202-473-1449, fax 202-522-3230, email address ydsouza@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at sdasgupta@worldbank.org, khamilton@worldbank.org, kpandey@worldbank.org, or dwheeler1@worldbank.org. (29 pages)

3384. Local Conflict in Indonesia: Measuring Incidence and Identifying Patterns

Patrick Barron, Kai Kaiser,
and Menno Pradhan
(August 2004)

The widespread presence of local conflict characterizes many developing countries such as Indonesia. Outbreaks of violent conflict not only have direct costs for lives, livelihoods, and material property, but may also have the potential to escalate further. Recent studies on large-scale "headline" conflicts have tended to exclude the systematic consideration of local conflict, in large part due to the absence of representative data at low levels of geographic specification. This paper is a first attempt to correct for that. Barron, Kaiser, and Pradhan evaluate a unique dataset compiled by the Indonesian government, the periodic Village Potential Statistics (PODES), which seeks to map conflict across all of Indonesia's 69,000 villages/neighborhoods. The data confirm that conflict is prevalent beyond well-publicized "conflict regions," and that it can be observed across the archipelago. The data report largely violent conflict in 7.1 percent of Indonesia's lowest administrative tier (rural *desa* and urban *kelurahan*). Integrating examples from qualitative fieldwork, the authors assess issues in the measurement of local conflict for quantitative analysis, and adopt an empirical framework to examine potential associations with poverty, inequality, shocks, ethnic and religious diversity/inequality, and community-level associational and security arrangements. The quantitative analysis shows positive correlations between local conflict and unemployment, inequality, natural disasters, changes in sources of incomes, and clustering of ethnic groups within villages. The institutional variables indicate that the presence of places of worship is associated with less conflict, while the presence of religious groups and traditional culture (*adat*) institutions are associated with conflict. The authors conclude by suggesting future areas of research, notably on the role of group inequality and inference, and suggest ways to improve the measurement of conflict in the village census.

This paper—a product of the Public Sector Governance Division, Poverty Reduction and Economic Management Network—is part of a larger effort in the network to evaluate decentralized/local governance and service delivery. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Kai Kaiser, room MC4-543, telephone 202-458-1385, fax 202-522-7132, email address kkaiser@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The other authors may be contacted at pbarron@worldbank.org or mpradhan@worldbank.org. (47 pages)

3385. Loss Aversion and Trade Policy

Caroline Freund and Çaglar Özden
(September 2004)

Freund and Özden provide new survey evidence showing that loss aversion and reference dependence are important in shaping people's perception of trade policy. Under the assumption that agents' welfare functions exhibit these behavioral elements, they analyze a model with a welfare-maximizing government and with the lobbying framework of Grossman and Helpman (1994). The policy implications of the augmented models differ in three important ways:

- There is a region of compensating protection, where a decline in the world price leads to an offsetting increase in protection, such that a constant domestic price is maintained.
- Protection following a single negative price shock will be persistent.
- Irrespective of the extent of lobbying, there will be a deviation from free trade that tends to favor loss-making industries.

The augmented models are more consistent with the observed structure of protection and, in particular explain why many trade policy instruments are explicitly designed to maintain prices at a given level.

This paper—a product of the Trade Team, Development Research Group—is part of a larger effort in the group to analyze trade policy formulation. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Michelle Chester, mail stop MC3-303, telephone 202-458-2010, fax 202-522-1159, email address mchester@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at cfreund@worldbank.org or cozden@worldbank.org. (35 pages)

3386. An Evaluation of the Performance of Regression Discontinuity Design on PROGRESA

Hielke Buddelmeyer and Emmanuel Skoufias
(September 2004)

While providing the most reliable method of evaluating social programs, randomized experiments in industrial and developing countries alike are accompanied by political risks and ethical issues that jeopardize the chances of adopting them. Buddelmeyer and Skoufias use a unique data set from rural Mexico collected for the purpose of evaluating the impact of the PROGRESA poverty alleviation program to examine the performance of a quasi-experimental estimator, the regression discontinuity design (RDD). Using as a benchmark the impact estimates based on the experimental nature of the sample, the authors examine how estimates differ when the RDD is used as the estimator for evaluating program impact on two key indicators—child school attendance and child work.

Overall the performance of the RDD was remarkably good. The RDD estimates of program impact agreed with the experimental estimates in 10 out of the 12 possible cases. The two cases in which the RDD failed to reveal any significant program impact on school attendance of boys and girls were in the first year of the program (round 3). RDD estimates comparable to the experimental estimates were obtained when the authors used as a comparison group children from noneligible households in the control localities.

This paper—a product of the Poverty and Gender Unit, Latin America and the Caribbean Region—is part of a larger effort in the region to develop and apply rigorous methods in the evaluation of poverty alleviation programs. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rosangela Leao, room I8-110, telephone 202-473-4971, fax 202-522-3134, email address rleao@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at Hielkeb@unimelb.edu.au or eskoufias@worldbank.org. (48 pages)

3387. Basel II and Developing Countries: Sailing through the Sea of Standards

Andrew Powell
(September 2004)

Despite recently announced delays, Basel II—the new standard for bank capital—is due to be completed this year for implementation in the 13 Basel Committee member countries by the end of 2006. Should the other 170 plus member countries of the World Bank also adopt Basel II? Basel II was not written with developing countries in mind, but that does not necessarily mean that there is nothing in it for developing countries or that it can be ignored. Basels I and II represent a wide "Sea of Standards." Powell suggests five alternative island-standards and five navigational tools to help countries choose their preferred island within the sea. He suggests that for some developing countries, the standardized approach will yield little in terms of linking regulatory capital to risk, but that countries may need many years of work to adopt the more advanced internal rating-based approach. The author then proposes a centralized rating-based approach as a transition measure. He also makes proposals regarding a set of largely unresolved cross-border issues.

This paper—a product of the Financial Sector Operations and Policy Department—is part of a larger effort in the department to inform policymakers on banking regulation and supervision. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Susana Coca, room MC9-210, telephone 202-473-7474, fax 202-522-3199, email address scoca@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at apowell@utdt.edu. (51 pages)

3388. Tools for Legislative Oversight: An Empirical Investigation

Riccardo Pelizzo and Rick Stapenhurst
(September 2004)

Parliaments are the institutions through which governments are held accountable to the electorate. They have a wide range of tools with which to carry out this over-

This paper—a product of the Poverty Reduction and Economic Management Division, Latin America and the Caribbean Region—is part of a larger effort in the region to examine teachers' incentives. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Silvia Marquina, room I4-046, telephone 202-473-4023, email address smarquina@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at gacevedo@worldbank.org. (30 pages)

3395. Trade, Standards, and the Political Economy of Genetically Modified Food

Kym Anderson , Richard Damania, and Lee Ann Jackson
(September 2004)

Anderson, Damania, and Jackson develop a common-agency lobbying model to help understand why North America and the European Union have adopted such different policies toward genetically modified (GM) food. Their results show that when firms (in this case farmers) lobby policymakers to influence standards, and consumers and environmentalists care about the choice of standard, it is possible that increased competition from abroad can lead to strategic incentives to raise standards, not just lower them as shown in earlier models. The authors show that differences in comparative advantage in the adoption of GM crops may be sufficient to explain the trans-Atlantic difference in GM policies. On the one hand, farmers in a country with a comparative advantage in GM technology can gain a strategic cost advantage by lobbying for lax controls on GM production and use at home and abroad. On the other hand, when faced with greater competition, the optimal response of farmers in countries with a comparative disadvantage in GM adoption may be to lobby for more-stringent GM standards. So it is rational for producers in the European Union (whose relatively small farms would enjoy less gains from the new biotechnology than broad-acre American farms) to reject GM technology if that enables them and consumer and environmental lobbyists to argue for restraints on imports from GM-adopting countries. This theoretical proposition is supported by numerical results from a global general equilibrium model of GM adoption in America with and without an EU moratorium.

This paper—a product of the Trade Team, Development Research Group—is part of a larger effort in the group to understand the economic implications of standards and technology policies in a multilateral trading environment. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Flewitt, room MC3-333, telephone 202-473-2724, fax 202-522-1159, email address pflewitt@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at kanderson@worldbank.org, richard.damania@adelaide.edu.au, or leeann.jackson@wto.org. (30 pages)

3396. Agricultural Trade Reform and Poverty Reduction in Developing Countries

Kym Anderson
(September 2004)

Anderson offers an economic assessment of the opportunities and challenges provided by the World Trade Organization's Doha Development Agenda, particularly through agricultural trade liberalization, for low-income countries seeking to trade their way out of poverty. After discussing links between poverty, economic growth, and trade, he reports modelling results showing that farm product markets remain the most costly of all goods market distortions in world trade. The author focuses on what such reform might mean for developing countries both with and without their involvement in the multilateral trade negotiations. What becomes clear is that if those countries want to maximize their benefits from the Doha round, they need also to free up their own domestic product and factor markets so their farmers are better able to take advantage of new market opportunities abroad. The author also addresses other concerns of low-income countries about farm trade reform: whether there would be losses associated with tariff preference erosion, whether food-importing countries would suffer from higher food prices in international markets, whether China's WTO accession will provide an example of trade reform aggravating poverty by way of cuts in prices received by Chinese farmers, and the impact on food security and poverty alleviation.

This paper—a product of the Trade Team, Development Research Group—is part of a larger effort in the group to understand the poverty implication of trade policy reforms. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Flewitt, room MC3-333, telephone 202-473-2724, fax 202-522-1159, email address pflewitt@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at kanderson@worldbank.org. (34 pages)

3397. A Unified Framework for Pro-Poor Growth Analysis

B. Essama-Nssah
(September 2004)

Starting with a general impact indicator as an evaluation criterion, Essama-Nssah offers an integrative framework for a unified discussion of various concepts and measures of pro-poor growth emerging from the current literature. He shows that whether economic growth is considered pro-poor depends fundamentally on the choice of evaluative weights. In addition, the author's framework leads to a new indicator of the rate of pro-poor growth that can be interpreted as the equally distributed equivalent growth rate. This is a distribution-adjusted rate of growth that depends on the chosen level of inequality aversion. Illustrations based on data for Indonesia in the 1990s show a strong link between growth and poverty reduction in that country. A decomposition of the observed poverty outcomes reveals the extent to which changes in inequality have blunted the poverty impacts of both growth and contraction. Finally, the results also demonstrate that absolute and relative indicators of pro-poor growth can lead to conflicting conclusions from the same set of facts.

This paper—a product of the Poverty Reduction Group, Poverty Reduction and Economic Management Network—is part of a larger effort in the network to understand the distributional implications of economic growth. Copies of the paper are available free from the World Bank, 1818

H Street NW, Washington, DC 20433. Please contact Oykiao Kootzemew, room MC4-620, telephone 202-473-5075, fax 202-522-3283, email address okootzemew@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at bessamanssah@worldbank.org. (35 pages)

3398. The Scaling-Up of Microfinance in Bangladesh: Determinants, Impact, and Lessons

Hassan Zaman
(September 2004)

The microfinance industry in Bangladesh currently provides access to credit to around 13 million poor households. Zaman describes the factors that led to the scaling-up of micro-credit in Bangladesh, the impact this has had on the poor, future challenges in Bangladesh, and possible lessons for other countries. The consensus in the literature is that micro-credit plays a significant role in reducing household vulnerability to a number of risks and that it contributes to improving social indicators. The author argues that strategic donor investments in a handful of well-managed institutions that offer a simple, easily replicable financial product could lead to large gains in access to finance for the poor. However, this approach could sacrifice other objectives of financial sector development, such as product and institutional diversity, which could be promoted after the initial expansion has taken place. Governments can also have a crucial role in promoting access to microfinance by ensuring macroeconomic stability, enforcing a simple regulatory structure, and developing communications networks that reduce transaction costs. Another lesson is that while visionary leadership cannot simply be franchised, the internal management systems that led to the scaling-up can be replicated in other settings.

This paper—a product of the Finance and Private Sector Development Unit, South Asia Region—is part of a larger effort in the region to understand how successful antipoverty interventions can be scaled-up. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Syed Hye, room MC10-128, telephone 202-473-1638, fax 202-522-1145, email address shye@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at hzaman@worldbank.org. (22 pages)