

Winter 2002

Research



# Abstracts

Center for  
Latin American  
Economics

Federal Reserve Bank of Dallas  
Research Department





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# Preface

The Center for Latin American Economics is pleased to present the Winter 2002 issue of *Research Abstracts*. The main body of *Research Abstracts* contains the titles, authors and abstracts of the papers. An index at the back lists all authors and how to contact them to request copies of the papers. Wherever possible, the index also lists the web sites where you can find papers.

This edition's offerings include Latin America-related work on inflation targeting, business cycle synchronicity, disinflation, monetary regime options, financial crises, determinants of educational performance, banking system efficiency, immigration and much more. There are 104 papers by 140 authors or coauthors. In our own work at the Center for Latin American Economics, we find the analysis in these papers invaluable not only for our own scholarly and technical research but also as bases for briefings we make. We hope that you will gain as much from these papers as we do.

*Research Abstracts* appears on the Federal Reserve Bank of Dallas web site, [www.dallasfed.org](http://www.dallasfed.org), in the Center for Latin American Economics section.

As soon as we complete one issue of *Research Abstracts*, we start work on the next. We accordingly urge you to send abstracts of your recent research, along with copies of the papers. We ask that authors write the abstracts in English, limit each abstract to 250 words and confine submissions to research related to Latin American monetary and economic issues. If you are not yet a member of the Center for Latin American Economics, we invite you to join by filling out the application form at the back of this publication. Membership is free. Please send communications to the following address:

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# Abstracts

## **Incorporation of Capital and the Wage Gap:**

*Argentina's Manufacturing Industry During the 1990s*

by Pablo Acosta and Leonardo Gasparini

Adding physical capital to the production process modifies the relative productivity between skilled and unskilled labor, changing the wage structure. In particular, the high complementarity between capital and skilled labor and the skilled-biased technological innovations incorporated in new machines suggest a positive correlation between investment in physical capital and the wage premium. In this paper we present evidence for this hypothesis by taking advantage of the variability in wage premia and investment across industries in the Argentine manufacturing sector. We conclude that the wage premium of workers with complete college education has increased more in those industries with higher investment in machinery and equipment.

## **Inflation Targeting in Emerging Market Countries—Too Much Exchange-Rate Intervention?:**

*A Test*

by Alberto Ades, Marcos Buscaglia and Rumi Masih

Lately, many emerging-market countries (EMC) have engaged inflation targeting. But there is ample evidence of “fear of floating” amongst EMC. Limiting the flexibility of the exchange rate has the risk of turning it into an anchor in the eyes of the public. In this paper we test the extent of interest rate defenses in EMC. We find some countries prevented deviations of the exchange rate from its long-run equilibrium value, while others appeared to have responded to any fluctuation of the exchange rate. We link these findings with measures of liability dollarization, credibility and pass-through.

## **Sovereign Debt with Adverse Selection:**

*A Quantitative Approach*

by Laura Alfaro and Fabio Kanczuk

We construct a dynamic equilibrium model to quantitatively study sovereign debt contingent services and country-risk spreads. The sovereign's present benefits of defaulting are tempered by higher borrowing interest rates in the future. Our results suggest that the (additional) output drop due to default is an important factor in determining the qualitative nature of equilibria. The autoregressive specification of technology shocks in conjunction with the adverse selection problem gives rise to the phenomenon of “muddling through” the delay of some countries to default as a way to reduce a loss of reputation.

## **The Implications of Capital–Skill Complementarity in Economies with Large Informal Sectors**

by Pedro Amaral and Erwan Quintin

In most developing nations, formal workers tend to be more experienced and educated than informal workers, a fact often interpreted as evidence that low-skill workers face barriers to entry into the formal sector. Yet, there exists little direct evidence that labor markets are segmented in those nations. This paper describes a model where significant differences arise between workers across sectors even though labor markets are perfectly competitive. In equilibrium, the informal sector emphasizes low-skill work because informal managers have access to less outside financing and choose to substitute low-skill labor for physical capital. We argue that subsidiary implications of the model for the organization of production are borne out by the existing evidence on informal economic activities in developing countries.

## **Quantity and Quality of Economic Growth**

by Robert J. Barro

Most cross-country studies of economic performance have focused on narrow economic variables. The present study emphasizes instead some quality dimensions of economic development, including health, fertility, income distribution, political institutions, crime, and religion. The data reveal a regular pattern in which economic development goes along with higher life expectancy and reduced fertility. Improvements in the standard of living are also associated with expansions of democracy, increased maintenance of the rule of law, and reductions in official corruption. Despite the presence of a Kuznets curve, little of the variation in income inequality is explained by the overall level of economic development. Crime rates, proxied by murder rates, also bear little relation with the level of development but are more closely associated with income inequality. Finally, there is some support for the secularization hypothesis, in that economic development is typically accompanied by lower levels of church attendance and religious beliefs. However, religiosity is positively related to education, holding fixed other indicators of economic development. (Central Bank of Chile Working Paper no. 168)

## **Monetary Integration in the Southern Cone:**

*Mercosur Is Not Like the EU?*

by Ansgar Belke and Daniel Gros

Evaluating the costs and benefits of exchange-rate stability requires a somewhat different approach for Mercosur than for the EU. EU member countries are highly integrated in terms of trade in goods and services. By contrast, trade integration within Mercosur is much more limited. Intra-area exchange rates are thus less impor-

tant than the exchange rate vis-à-vis the dollar and the euro. This contribution analyzes the impact of both aspects of financial volatility (exchange-rate and interest-rate volatility) on investment and labor markets in the Southern Cone, finding that both exchange-rate variability (mainly against the dollar and the euro) and (domestic) interest-rate volatility have a significant dampening impact on employment and investment, as predicted by our theoretical model (Central Bank of Chile Working Paper no. 188)

## **An Evaluation of Monetary Regime Options for Latin America**

by Andrew Berg, Eduardo Borensztein and Paolo Mauro

Over the past decade, most Latin American countries have moved in line with worldwide trends toward either the extreme of floating rates or that of dollarization. In this paper, we evaluate the wisdom of those decisions and the choice of a monetary regime more generally. We first evaluate the desirability of adopting a common currency in the region. We find that, under present circumstances, the costs of a common currency are likely to outweigh its benefits, as these countries do not trade much with each other; and, moreover, they face diverse economic shocks, their business cycles are not coordinated, and they are affected by common shocks to the sentiment in international financial markets only to the same extent that average emerging markets are. We next consider the unilateral dollarization option. For most Latin American countries, this would be desirable only when there are strong links to the U.S. economy, the credibility of the monetary authorities is irreversibly lost, and there is a keen demand for dollar-denominated financial assets. Finally, we review the relatively short experience of floating-exchange regimes in Latin America and find that despite the external constraints, floating countries have retained sufficient flexibility in using monetary policy for domestic ends in response to important shocks. (Central Bank of Chile Working Paper no. 178)

## **Policy-Driven Productivity in Chile and Mexico in the 1980s and 1990s**

by Raphael Bergoing, Patrick J. Kehoe, Timothy J. Kehoe and Raimundo Soto

Both Chile and Mexico experienced severe economic crises in the early 1980s, but Chile recovered much faster than did Mexico. Using growth accounting and a calibrated dynamic general equilibrium model, we conclude that the crucial determinant of this difference between the two countries was the faster productivity growth in Chile, rather than higher investment or employment. Our hypothesis is that this difference in productivity was driven

by earlier policy reforms in Chile, the most crucial of which were in banking and bankruptcy procedures. We propose a theoretical framework in which government policy affects both the allocation of resources and the composition of firms.

## **Testing Real Business Cycles Models in an Emerging Economy**

by Raphael Bergoing and Raimundo Soto

RBC models have been successful when applied to developed economies. However, their abilities in replicating the data of emerging countries remain largely unexplored. The rapid but unstable growth process in developing countries and their relatively less developed market structure pose a formidable challenge to neoclassical general equilibrium models. Using data of the Chilean economy, we explore the effects of market rigidities and macroeconomic policies on the dynamics of consumption, investment, inflation and factor markets. We find that business cycle models replicate much of the observed fluctuations of real and monetary variables in the Chilean economy, despite its idiosyncratic economic structure. Using a calibrated model, we find that technology shocks, fiscal policies and labor market rigidities are the main sources of economic cycles, while monetary policies and wage indexation play a minor role. Econometric tests support the use of our calibrated model as an adequate representation of the Chilean data. (Central Bank of Chile Working Paper no. 159)

## **Turnover and Regulation:**

*The Chilean Pension Fund Industry*

by Solange Berstein

We study price competition in a model with differentiated products and searching costs. In this model firms charge a price above marginal costs. This positive mark-up gives firms incentive to steal consumers from their rivals. For this purpose, firms hire sales agents that contact customers personally to switch them from one firm to another and offer rewards to the switchers. These rewards can be interpreted as a price cut to rival's customers, which is a form of price discrimination in this model. This model is applied to the Chilean pension funds industry. In 1995 there was more than one sales agent per 200 customers, with a turnover of pension fund administrators of more than 50 percent. This high turnover was associated with large costs, and by the end of 1997 the authorities reacted by imposing restrictions on switching. The empirical section of the paper attempts to analyze the role of sales agents in this industry and the impact of such restrictions. (Central Bank of Chile Working Paper no. 180)

## Evaluation of the Real Plan and Challenges Ahead

by Afonso S. Bevilaqua and Márcio G. P. Garcia

The Brazilian domestic debt has posed two challenges to policy-makers: It has grown very fast, and its maturity is extremely short. This has prompted fears that a default or a compulsory lengthening scheme would be imposed. Here, we analyze the domestic public-debt management experience in Brazil, searching for policy prescriptions for the next few years. After briefly reviewing the recent domestic public-debt history, we decompose the large rise in federal bonded debt during 1995–2000, searching for its macroeconomic causes. The main culprits are the extremely high interest payments, which until 1998, were caused by the weak fiscal stance and the quasi-fixed exchange-rate regime and since 1999, by the impact of the currency depreciation on the dollar-indexed and external debt and by the accumulation of assets of doubtful value, much of which may have to be written off in the future. Simulation exercises of the net-debt path for the near future underscore the importance of a tighter fiscal stance to prevent the debt/GDP ratio from growing further. Given the need to quickly lengthen the debt maturity, our main policy advice is to foster and rely more on inflation-linked bonds.

## Productivity and Economic Growth:

*The Case of Chile*

by Harald Beyer B. and Rodrigo Vergara M.

After a decade and a half of economic growth above 7 percent per year, the Chilean economy has been growing at rates below 3 percent during the last five years. In this article we suggest that to produce a new surge in economic growth, Chile needs a productivity shock arising from economic policy initiatives aimed at improving economic efficiency and institutions. Although Chile has a good record in both, it is still possible to have an upgrade. We run a cross section regression in which the dependent variable is total factor productivity. We conclude that modest changes in the country's policies and institutions may increase Chile's rate of growth by 1.5 percent. (Central Bank of Chile Working Paper no. 174)

## Added Investment Functions for the Chilean Economy

by Héctor Felipe Bravo and Jorge Enrique Restrepo

Investment equations are estimated for Chile between 1986 and 2001 with the objective of building forecasts and simulations of this variable. Investment behavior plays a crucial role in macro-

economic fluctuations not only in the short run but also in capital and output growth in the long run. Hence, investment has been the subject of many articles and studies. Investment is treated in the literature in two ways. In the first one, which could be called the neoclassical approach, its main determinant is the user cost of capital. In the second one, which is called the Tobin Q model, investment is determined by the relation between the market value of capital and its replacement cost. The estimated equations are derived from these two models. The best out-of-sample forecasts are obtained for machinery and equipment with the user cost model and for construction with the Q model. The methods of estimation used included two-stage, least squares, as well as error-correction, techniques, both linear and nonlinear, like the one by Phillips and Loretan (1991). (Central Bank of Chile Working Paper no. 158)

## The Impact of Immigration and Border Enforcement on Border Crime Rates

by Héctor Felipe Bravo, Leonardo Luna, Roberto Coronado and Pia M. Orrenius

The 1990s saw a large decline in crime rates along the U.S.–Mexico border. At the same time, legal and illegal immigration from Mexico surged and border enforcement rose to unprecedented levels. Although border enforcement was increased to deter illegal immigration, observers have claimed that an unintended benefit was a reduction in border crime. In this paper, we investigate the relationship between border county crime rates, immigration and enforcement since the mid-1980s. Preliminary findings imply a strong positive correlation between the volume of illegal immigration and violent crime. The evidence also suggests that while tighter border enforcement has had a deterrent effect on crime overall, this impact has diminished over time to the point that the net effect of enforcement on crime is now zero or slightly positive.

## On the Determinants of TFP in Uruguay: 1960–99

by Elizabeth Bucacos

Starting from a traditional growth accounting approach, this paper focuses on the evolution of Total Factor Productivity (TFP) in Uruguay during the last 40 years. This analysis has detected several factors that have influenced TFP in the middle run such as degree of openness and economic stability as well as other elements that have played a significant role in the dynamics of the efficiency in the handling of the production factors in Uruguay.

## Tendency and Cycle in the Uruguayan Output

by Elizabeth Bucacos

This paper attempts to identify the cyclical and trend components of Uruguayan real output in order to estimate a potential output indicator that determines a sustainable growth path, identifies inflationary pressures and detects cyclical transmission mechanisms. Preliminary results showed that the country would be growing with a negative annual output gap of 0.7 percent and that the January 1999 Brazilian devaluation, although important, only affected the Uruguayan output level and not its trend growth rate, which would be around 3.2 percent. In addition, regardless of the series studied, the degree of correlation is weak and causality relations are not conclusive. Nevertheless, it seems as if there was a wealth effect: Cyclical ups in real M3 seem to predict an expansive phase in Uruguayan economic activity level for the following quarter.

## The Economics and Politics of Argentina's Debacle

by Marcos A. Buscaglia

Most of the literature on the Argentine crisis has centered on the role of the fixed exchange rate, the fiscal deficit, and the functioning of international financial markets. In this paper we argue that political-economy considerations are central to understanding the unfolding of events. We claim that throughout the 1990s, the main political parties remained attached to populism and no strong party emerged in the center of the political spectrum to catalyze the support that the initial success of the Convertibility Plan had achieved. Thus, no political party was strong enough to push Argentina from rent-seeking capitalism to a true market economy. This impeded the extension of the benefits of reform to the population at large and, hence, reduced its political support.

## Real Exchange Rates in the Long and Short Run:

*A Panel Cointegration Approach*

by César A. Calderón

The empirical literature on long-run real exchange rate behavior has shown mixed evidence due to problems involving the lack of long time-series data and the low power of time-series unit root tests in small samples. The main objective of the present paper is to tackle these empirical issues by applying the recently developed panel cointegration techniques to the long-run real exchange rate equation implied by our model. Using annual data for 67 countries between 1966 and 1997, we find that the cointegrating relationship between the real exchange rate and the ratio of net foreign assets to GDP, the relative home-to-foreign productivity of the traded and nontraded sector, and the terms of trade is

valid in the long run. This result holds for all subsamples of countries (whether they are classified by income per capita or capital controls). Furthermore, our coefficient estimates are consistent with the theoretical values implied by the calibrated parameters of preferences and technology in Stockman and Tesar (1995). Robustness checks reveal that: (i) “pooling” the data to obtain a common long-run equilibrium relationship across countries is valid for the samples of countries with high income and low capital controls; (ii) the oil shock crisis in 1973 represents a structural change for these subsamples; (iii) deviations from the equilibrium are large and persistent with half-life estimates (between 2.8 and 5) consistent with the consensus interval of 2.5–5 found in the literature (Murray and Papell 2002). (Central Bank of Chile Working Paper no. 153)

## How Did Latin America's Infrastructure Fare in the Era of Macroeconomic Crises?

by César Calderón, William Easterly and Luis Servén

There is a long-standing literature that shows that fiscal adjustment is often implemented through cuts in public investment, including infrastructure (Roubini and Sachs 1989; Hicks 1991; De Haan et al. 1996). In this respect, the present paper aims to provide a comprehensive overview of the evolution of infrastructure stocks, quality and spending in Latin America in order to assess whether the infrastructure sector suffers from the prolonged period of macroeconomic stabilization in the 1980s and 1990s. First, we assess trends in quantity and quality of infrastructure using data on 19 Latin American countries, and we compare them to the performance of the seven “East Asian miracle” countries. Second, we look at trends in infrastructure spending for nine major Latin American countries on which we have country data. Here we examine to what extent changes in public infrastructure spending were linked to fiscal deficit reductions and driven by the privatization of infrastructure as well as to what extent they increased private spending on infrastructure. Finally, we assess the relationship of infrastructure quantity and quality to the path of infrastructure spending in a panel data econometric analysis. (Central Bank of Chile Working Paper no. 185)

## Infrastructure Compression and Public Sector Solvency in Latin America

by César Calderón, William Easterly and Luis Servén

Public investment and infrastructure spending are often singled out for drastic cuts at times of fiscal retrenchment. Fiscal austerity in Latin America during the 1980s and 1990s was characterized by a sharp contraction in infrastructure spending. In five of the nine major Latin American countries, infrastructure-investment cuts contributed half or more of the total fiscal adjustment. However, the compression of infrastructure spending does not guarantee

the sustainability of the public sector. Infrastructure-spending cuts not only reduce the public deficit (thereby raising the public sector's net worth) but also lead to a decline in infrastructure stock accumulation and in output growth as well. This in turn implies a reduction in the economy's debt-servicing capacity, thus weakening the public sector net worth (Easterly 2001). In the present paper we quantitatively assess the growth cost of public infrastructure compression for major Latin American economies during the fiscal austerity period of the 1980s and 1990s, and we examine the effectiveness of infrastructure spending cuts as a device to enhance public sector solvency. (Central Bank of Chile Working Paper no. 187)

## The Direction of Causality Between Financial Development and Economic Growth

by César Calderón and Lin Liu

This paper employs the Geweke decomposition test on pooled data of 109 developing and industrial countries from 1960 to 1994 to examine the direction of causality between financial development and economic growth. The paper finds that (1) financial development generally leads to economic growth; (2) the Granger causality from financial development to economic growth and the Granger causality from economic growth to financial development coexist; (3) financial deepening contributes more to the causal relationships in the developing countries than in the industrial countries; (4) the longer the sampling interval, the larger the effect of financial development on economic growth; (5) financial deepening propels economic growth through both a more rapid capital accumulation and productivity growth, with the latter channel being the strongest. (Central Bank of Chile Working Paper no. 184)

## Greenfield FDI vs. Mergers and Acquisitions: Does the Distinction Matter?

by César Calderón, Norman Loayza and Luis Servén

Foreign direct investment (FDI) flows to developing countries surged in the 1990s to become their leading source of external financing. This rise in FDI volume was accompanied by a marked change in its composition: Investment in the form of acquisition of existing assets (M&A) grew much more rapidly than investment in mainly new assets ("greenfield" FDI), particularly in countries undertaking extensive privatization of public enterprises. This raises two issues. First, is the M&A boom a one-time effect of privatization, or is it likely to be followed by a rise in greenfield investment? Second, do these two types of FDI have different macroeconomic consequences—in terms of aggregate investment and growth? This paper focuses on establishing the stylized facts in terms of time precedence between both types of FDI, using data for a large sample of industrial and developing countries.

We find that in developing and industrial countries, higher M&A is typically followed by higher greenfield investment, while the reverse is true only for industrial countries. In developing economies, domestic investment leads both types of FDI, but not the reverse; while in industrial countries, domestic investment leads M&A but is led by greenfield FDI. Neither type of FDI appears to precede economic growth in either developing or industrial countries, but FDI does respond positively to increases in the growth rate. (Central Bank of Chile Working Paper no. 173)

## The Output Cost of Latin America's Infrastructure Gap

by César Calderón and Luis Servén

Latin America has lost substantial ground relative to other developing and developed regions in terms of the quality and quantity of infrastructure over the last two decades. For instance, Latin America's infrastructure gap in infrastructure growth relative to that of the seven successful economies of East Asia grew by 40–50 percent for road length, 50–60 percent for telecommunications, and as much as 90–100 percent in terms of power generation capacity over the 1980–97 period. The consequences of this loss of ground for growth and welfare in the region are a matter of concern. Lack of adequate infrastructure services results in lower productivity and higher production costs for private producers. Poor road and telecommunication networks raise transport and, more generally, logistic costs, which have been shown in comparative studies to exceed the international norm by wide margins (Guasch 2001). The reduced profitability in turn discourages private investment. Through all these channels, the result is lower output growth. As with infrastructure, Latin America's loss of ground was particularly marked in the 1980s. We find evidence of a strong empirical association between output and infrastructure although this need not reflect causation from infrastructure services to aggregate output. The present paper wants to determine the role of Latin America's growing infrastructure gap in the widening of the output gap. We devote our efforts in this paper to answer this question. (Central Bank of Chile Working Paper no. 186)

## Financial Development and Economic Growth in Brazil: Causality Evidences

by Orlando Carneiro de Matos

This paper aims at verifying the nature of the relationship between financial development and economic growth in Brazil. From the theoretical point of view, there are distinct positions related to financial development's impact on economic growth. Some authors argue that the two variables are jointly determined, while others simply insert this relationship in the theoretical framework of demand for financial assets. This work adopts the

causality test proposed by Granger for empirical verification. Using the data from 1947–2000, 1963–2000 and 1970–2000, the results empirically support the existence of direct and unidirectional impacts of financial development on economic growth, when the following ratios are used as financial development indicators: banking credit to private sector/GDP, financial system credits to private sector/GDP and public resources in the financial system/M2. (Central Bank of Brazil Working Paper no. 49)

### **Aggregate School Value:**

*An Approximation of the Quality of Education in Colombia*

by Andrés Fernando Casas, Luis F. Gamboa and Luis Jaime Piñeros

This work examines student and school performance in light of the ICFES exam. Incorporating the criticisms of different publications where schools are compared according to their average score, an analysis of aggregate value is proposed, which explicitly keeps in mind the differences in the socioeconomic status of the students and their families. The work shows the value of this technique as a diagnostic tool as well as a means to design strategies for raising the level of schools as well as that of students.

### **The School's Role in Student Achievement:**

*Colombia 1999–2000*

by Andrés Fernando Casas, Luis F. Gamboa and Luis Jaime Piñeros

The article seeks to understand the way in which the change in the Colombian ICFES's exam enacted in 2000 affected the importance of a school's role in predicting student achievement. The article shows that between 1997 and 1999, the importance of a particular school was between 27 percent and 37 percent. In 2000 with the implementation of the new exam, the number fell considerably to between 10 percent and 27 percent. Thus, the discriminatory power of schools under the new exam was significantly reduced. The net importance oscillated between 13 percent and 20 percent in 1999 but dropped to between 6 percent and 11 percent in 2000.

### **Unemployment and Wage Determination in Mexico's Manufacturing Sector, 1994–2001**

by Sara G. Castellanos

We analyze nominal wage and unemployment dynamics with panel data of 202 industrial branches of Mexico's manufacturing sector during 1994–2001. The nominal wage determination model employed is consistent with efficiency and bargaining wage setting models (Shapiro and Stiglitz 1984). It also coincides with the recent approach of estimating Phillips curves and/or wage curves

(Blanchflower and Oswald 1994) with data by location or industry, in contrast with the traditional aggregate data estimations. Results suggest that nominal wage increments are only slightly moderated by the unemployment rate increments. Along the Shapiro and Stiglitz interpretation, this indicates that employers and workers do not acknowledge the effect on employment of their wage-setting negotiations. On the other hand, results support the specification of the Phillips curve over the wage curve so that industrial nominal wage levels are affected by changes in the industrial unemployment rate.

### **Optimal Bidding in the Mexican Treasury Securities Primary Auctions:**

*A Structural Econometrics Approach*

by Sara G. Castellanos and Marco A. Oviedo

We analyze the Mexican Treasury securities primary auctions applying the structural econometric model proposed by Février, Préget, and Visser (2002). The model is based on the share auction proposed by Wilson (1979) and estimates, through a two-stage semiparametric procedure, the parameters that characterize the distribution function of the securities' marginal value and the conditional distribution of the signals given the securities' value, respectively. These estimated parameters are used to derive optimal bids and equilibrium prices of alternative auction mechanisms and compare revenues yielded through each one. We focus our analysis on the results from the primary auctions of the Certificados de la Tesorería de la Federación (CETES) carried out between January 2001 and April 2002.

### **Macroeconomic Coordination and Inflation Targeting in a Two-Country Model**

by Eui Jung Chang, Marcelo Kfoury Muinhos and Joanílio Rodolpho Teixeira

This paper deals with macroeconomic coordination and its stabilization within a new Keynesian framework. The dynamic treatment of a two-country model is made by simulation, using the linear quadratic algorithm. We compare the optimal monetary policy rule for three types of equilibria: macroeconomic coordination, Nash and Stackelberg, using parameters that reflect the relative size and degree of openness of the economies. Under the strict inflation target, we obtain higher output and inflation volatilities due to each economy's reaction to the other country's policy. The only exception is the case of an optimal macroeconomic coordination rule. This dynamic model finds that macroeconomic coordination policy is better than noncoordination rules, supporting the traditional result found in static models. (Central Bank of Brazil Working Paper no. 50)

## Is There Enough Evidence Against Absolute Convergence?

by Rómulo Chumacero

This paper analyzes whether the econometric methods usually applied to test for absolute convergence have proved this hypothesis. I show that traditional (absolute and conditional) convergence tests are not consistent with even the simplest model that displays convergence. Furthermore, claims of divergence on the grounds of bimodalities in the distribution of GDP per capita can be made consistent with models in which neither divergence nor twin peaks are present in the long run. (Central Bank of Chile Working Paper no. 176)

## Seasonal Adjustment of Economic Series:

*The Procedure Used by the Central Bank of Chile*

by Víctor Correa and Francisco Ruiz

This paper was written as a technical note to explain the seasonal adjustment procedure used by the Central Bank of Chile. The methodology used here, named X-12-ARIMA, was developed by the U.S. Census Bureau. This paper also includes a procedure manual for the seasonal adjustment of economic series using the EX-12 program (Macro Excel). (Central Bank of Chile Working Paper no. 177)

## GDP: Annual and Quarterly Series, 1986–95

by Víctor Correa, Antonio Escandón, René Luengo and José Venegas

In March 2002 the Central Bank of Chile published a new data series of national accounts for Chile for 1996–2001, using 1996 as the new base period. To provide users with longer annual and quarterly time series, this paper links the 1986 base period GDP series with the 1996 base period GDP data (for total GDP and expenditure components). The paper discusses the methodologies and recommendations made by SNA 93, the European System of National Accounts, and specific countries. Finally, the paper provides a simple numerical example to illustrate the change of the base period and the standard problems that have to be addressed in these cases. (Central Bank of Chile Working Paper no. 179)

## The Term Structure of Country Risk and Valuation in Emerging Markets

by Juan J. Cruces, Marcos Buscaglia and Joaquín Alonso

The prevailing valuation technique in emerging markets adds the country risk to the discount rate in an ad-hoc manner. This practice does not account for the term structure of default risk. The mismatch between the duration of the project being valued and the duration of the measure of country risk used leads to an over-

valuation (undervaluation) of long-term projects when the term structure of default risk is upward (downward) sloping. We estimate a model that captures most of the variation of expected collection at different horizons at one point in time and that can be used to solve the misestimation problem.

## A New Look at the Disengagement of Mexico from South American Country Risk

by Alfredo Cuevas

The capital asset pricing model is used to explore contagion and its opposite, the de-linking of Mexican risk from the risk of South American sovereign borrowers. We apply the CAPM to the study of weekly returns from holding arbitrage portfolios consisting of a long position on a relevant sovereign bond (such as a Mexican bond and a Brazilian bond) and short position on U.S. treasuries. The right-hand-side variable on those regressions is a portfolio based on some South American bond, and the left-hand-side variable is the portfolio based on the Mexican bond. We run “rolling regressions” on this model to chart the evolution of “beta” and of “systematic risk” during the period January 1999 through October 2002. This exercise provides clear evidence of the timing and strength of the de-linking of Mexico from South America. We finally discuss the most plausible explanations for these developments, including fundamental factors such as the relative strength of the domestic economy and technical factors such as the upgrading of Mexico’s sovereign debt to investment grade by Fitch and S&P in early 2002.

## An Estimation of the Substitution and Plutocratic Biases in Mexico’s CPI

by Alfredo Cuevas and Rodrigo García-Verdú

This paper presents estimates of the substitution and plutocratic biases in Mexico’s CPI. The first bias arises because the typical CPI uses fixed weights to aggregate the different prices into a single index number, whereas a cost of living index takes into account that consumers substitute away from goods and services whose prices increase. Thus, inflation measured through the CPI is an upper bound on the change in the cost of living. The second bias arises because the weights used by the typical CPI are calculated as the total expenditure in each category divided by total expenditures in all categories. As shown by Prais (1958), this is equivalent to weighting each household’s index by its expenditure, so households with higher expenditures are overrepresented in the CPI. The plutocratic bias is defined as the difference between the CPI calculated using equal weight for each household’s expenditure share and the traditional CPI calculated using expenditure to weigh each share. Once we estimate the plutocratic bias, we also analyze the issue of how inflation in Mexico has affected different population groups differentially by constructing different indices for several income groups.

## Macroeconomic Synchronization Between Mexico and Its NAFTA Partners

by Alfredo Cuevas, Miguel Messmacher and Alejandro Werner

In this paper we try to identify an increase in the real integration between Mexico and its NAFTA partners by looking at the timing of the economic cycles of these countries. To this end, we use data on employment, industrial production (aggregate and by sector) and the components of aggregate demand, which we analyze with moving correlations, simple regressions and factor models. We find both increasing correlations between the NAFTA parties and an increasing importance of U.S. factors for the evolution of the Mexican economy. We controlled for the effects of globalization by looking at whether other countries (from Europe and Latin America) have also become more integrated with the United States. We find that those countries have indeed become more closely linked to the United States, but this change is weaker in those countries than it is in Mexico. We find, nevertheless, that a Mexico-specific factor continues to be important in the description of the Mexican cycle, indicating a continuing rationale for independent economic policymaking.

## The Mexican Experience with a Floating Exchange-Rate Regime

by Alfredo Cuevas and Alejandro Werner

This paper starts by explaining the Mexican abandonment of exchange-rate objectives in 1995 and the start of the flotation of the exchange rate. An important part of this discussion is the clarification of the way Mexico's monetary policy instrument, the settlement balances target (commonly nicknamed the "short"), operates. The paper then discusses the experience under a float from two perspectives. First, it indicates how monetary policy has been able to focus on domestic disinflation as a result of having a flexible exchange rate. For this purpose, the two most recent disinflation experiences in Mexico are compared (the current monetary-policy based process and the exchange-rate based disinflation of 1988–94). And second, it looks at how the economy has reacted to a series of real and financial external shocks during the floating period, including the cooling off of international capital flows after the Russian debt default of 1998 and the U.S. recession of 2001. The basic conclusion from the work is that the flexible exchange rate has helped Mexico reduce vulnerabilities that have developed under alternative exchange-rate regimes and deal with external shocks affecting Mexico.

## Macroeconomic Management in Emerging Economies and the International Financial Architecture

by José De Gregorio

In the last few years and most recently with the crisis in Argentina, views about emerging markets and the international financial institutions have changed significantly. This paper reviews macroeconomic management in emerging economies and the role of the international financial institutions in helping to secure their stability. It discusses the role of macroeconomic policies, in particular, exchange rate policies, arguing that a very strong case can be made for exchange-rate flexibility. However, as recent evidence confirms, this choice requires an institutional framework that credibly commits the economy to low inflation, preventing price instability even in the presence of strong fluctuations in the exchange rate. Also discussed is the role of the international financial institutions in a world of recurrent currency crises and contagion. Despite the need for increased transparency, accountability, and greater independence for the International Monetary Fund to avoid its being seen as an institution that primarily serves the political goals of its main shareholders and despite the need for improved procedures to handle crises, the best recipe for stability is at the domestic level. Good macroeconomic policies are those that bring about low inflation, fiscal prudence, and a strong financial system. These are necessary and almost sufficient conditions to avoid the type of crisis experienced repeatedly in the last decade. However, strong institutions must support this set of policies. The ultimate goal of macroeconomic policy is to serve as the basis for prosperity and for improving the well-being of the entire population, and here there is no substitute for macroeconomic stability. (Bank of Mexico Working Paper no. 163)

## Student Performance at Public Universities in Argentina

by Luciano Di Gresia, Alberto Porto and Laura Ripani

This work analyzes the factors that influence student performance using the entire student population of public universities in Argentina. The data are from the Census of Students of National Universities of 1994. Indicators of the main characteristics of public universities and those of students are presented. The performance measure used is the one that Article 50 of the Law of Superior Education (Law 24.521/95) adopts to define a typical student. Econometric estimates of the determinants of student performance are presented for public university students (around 400,000 observations) and separately for other universities.

## International Reserve Variations and Exchange-Rate and Interest-Rate Movements

by Dionísio Dias Carneiro and Thomas Wu

We examine the relationship between international reserve variations and the exchange-rate and interest-rate movements of the Brazilian economy over the past few years. The empirical evidence obtained for the international reserve variations captures the distinction between the two exchange-rate regimes after stabilization. It shows that the movements of international reserves are affected by the movements in interest rates and exchange rates (the observed exchange rate as a proxy of the expected exchange rate). Furthermore, the results suggest a reason for the central bank's conservative behavior in keeping the interest rate high to avoid excessive movements of its international reserves.

## Exchange-Rate Pass-Through into the Prices of Tradable and Nontradable Goods in Costa Rica

by Rodolfo Durán Víquez, Bernal Laverde Molina and Jorge León Murillo

This paper estimates short-run and long-run coefficients of exchange-rate pass-throughs in the prices of tradable and nontradable goods in Costa Rica. The coefficients are estimated by OLS. A VAR analysis is conducted to estimate the dynamic process between exchange rate and inflation. A Granger causality test and a stability test are also conducted. The short-run pass-through coefficients are 13 percent and 10 percent, for tradable and nontradable goods, respectively, and the long-run coefficients are 68 percent and 52 percent in the same order. There is a second-stage pass-through of 7 percent included in the long-run coefficient for nontradable goods. The dynamic analysis shows that the adjustment process of prices as a result of an exchange-rate shock takes 17 months for tradable goods and 27 months for nontradable goods. The Granger causality test shows precedence between variation in the exchange rate and inflation and between the prices of tradable and nontradable goods. There is statistical evidence of a structural change in the nontradable model between the end of 1995 and the beginning of 1996.

## Generalized Hyperbolic Distributions and Brazilian Data

by José Fajardo and Aquiles Farias

This paper discusses the use of the Generalized Hyperbolic Distributions to fit Brazilian asset returns. Selected subclasses are compared regarding goodness of fit statistics and distances. Empirical results show that these distributions fit data well. Then we show how to use these distributions in value-at-risk estimation and derivative price computation. (Central Bank of Brazil Working Paper no. 52)

## Growth, Instability and the Crisis of Convertibility in Argentina

by José María Fanelli

The paper analyzes the macroeconomic dimensions of the Argentine crisis. It suggests that structural features play a relevant role. The main argument is that some features of the economic structure contribute to amplifying the consequences of shocks. We emphasize three features: (1) the type of international integration, (2) the rigidities affecting nominal variables and the policy regime, and (3) the lack of financial depth. Indeed, the absence of fluctuation-dampening factors is particularly apparent in the present circumstances. The financial crisis, the fall in national income and political uncertainty gave rise to powerful destabilizing forces. Without significant offsetting mechanisms at work beyond those of the markets, the economy is now in a state of depression. The first section studies the problem of structural changes (breaks) and high volatility, as well as their relationship with expectational errors and the characteristics of contracts in Argentina. The second examines the 1998–99 shocks and their interactions with the country's economic structure. We emphasize the role of international integration, nominal and policy rigidities, and financial effects.

## Micro–Macro Interactions, Competitiveness and Sustainability

by José María Fanelli

In today's Latin America, the concepts of competitiveness and sustainability of the growth process play a prime role in economic policy debates. But the meaning of these two concepts is far from clear in common usage. This paper elaborates on the meaning of “competitiveness” and “sustainability.” One obstacle to understanding the meaning in regard to emerging countries is that beyond important exceptions, there is no systematic analysis of the interactions between competitiveness and sustainability on the one hand and productivity, macroeconomic equilibrium, and international integration on the other. This paper also explores the hypothesis that the consideration of micro–macro interactions may be of relevance and specifically why this may be so in Latin America. This entails the following hypotheses: (1) Macroeconomic disequilibria may have permanent effects on the microeconomic structure; (2) The interactions between nominal and real magnitudes have real effects; (3) When markets are incomplete, finance matters for the real side; (4) Market failures generate coordination failures at the macroeconomic level; and (5) Institutional underdevelopment is an obstacle to market creation and to the government supply of coordination instruments to make up for market failures. Section one of the paper analyzes hypotheses (1) and (2). It develops a framework for understanding micro–macro interactions and emphasizes the role of price rigidities, liquidity constraints, and international financial market failures. Section two analyzes hypotheses (3) and (4) and briefly comments on hypothesis (5). Section three applies the framework to the analysis of the concepts of competitiveness and sustainability.

## Determinants and Consequences of Financial Constraints Facing Firms in Argentina

by José María Fanelli, Ricardo N. Bebczuk and Juan J. Pradelli

The main purpose of the paper is to contribute to our knowledge of the financial constraints that firms face in Argentina, focusing on the years that preceded the most recent crisis. Unlike most papers in the field, which rely on listed firms, we analyze for the first time an additional set of 500 large firms (the number of usable observations for econometric purposes is lower). The wide range of issues—stylized facts, investments and capital structure decisions—fills some gaps detected in the empirical literature on Argentina. Specifically, we focus on micro data to: (1) present the stylized facts characterizing the capital structure of Argentine firms based on the analysis of balance-sheet items; (2) assess the relevance of financial constraints on investment at the firm level; (3) obtain quantitative evidence of a firm's financial structure and choices; (4) investigate the effects of financial imperfections on different types of firms according to different sample splits; and (5) evaluate the effects of macroeconomic volatility and shocks on firms' financial structures. The paper is organized into three parts. The first section presents the stylized facts that can be identified in the balance-sheet data. To set the context for our discussion, this section includes a description of the evolution of credit and other relevant monetary variables under convertibility during the period under study. The second section studies the investment and capital structure decisions in the convertibility period. The third section presents conclusions and policy implications.

## Monetary Dilemmas in Argentina

by José María Fanelli and Daniel Heyman

For decades the Argentine economy was known for its high and stubborn inflation. In 1991 the country adopted a strict system of convertibility with a hard peg to the dollar. Under this system, inflation definitely stopped. However, since the last part of the 1990s, the performance of the economy persistently deteriorated. This process eventually led to the collapse of the monetary and financial systems and put into question basic aspects of the economic organization of the country. The deep economic crisis of Argentina has motivated an active quest for conclusions of topical or general importance. We believe that despite the temptation to produce instant analysis that may be encapsulated in one-liners or self-confident exhortations (Reform now!, Dollarize this way!, Float that way!), the questions raised hardly lend themselves to trivial answers. This paper discusses the problems related to the choice, design and administration of a monetary regime in an economy such as Argentina's. The ultimate aim is to present arguments that may be of practical use. But we do not intend to push a particular prescription or to analyze in depth the available alter-

natives. Rather, our interest is to discuss conditions and parameters, which can affect the choice of a monetary regime in Argentina, and to raise some analytical questions, which may go beyond the concern for one particular episode.

## The Derivative Markets in Latin America with an Emphasis on Chile

by Viviana Fernández

Between the 1970s and the 1980s, the derivative markets flourished. Forwards, futures and options began to be regularly traded. According to information gathered by The Bank of International Settlements, at the end of April 2001 the value of over-the-counter (OTC) positions outstanding was more than US\$99 trillion, while the value of positions outstanding in organized exchanges was approximately US\$20 trillion. In Latin America the largest derivatives exchanges are located in Argentina (MATBA, ROFEX), Brazil (BM&F, BOVESPA), and Mexico (MexDer). In addition, OTC markets exist in Chile and Peru. Excluding Peru, Chile's derivatives market is the least developed to date. Most domestic transactions are OTC and consist of currency forwards (U.S. dollar/Chilean peso). The use of other derivatives, such as options on stocks and futures on stock indices, has not gained ground. Economists claim that the blame should be put on regulatory constraints faced by institutional investors, and on market illiquidity. However, recent amendments to the Law of Capital Markets might boost the derivatives market by providing additional investment opportunities. Meanwhile, the market of currency forwards continues to be the most active. In particular, the elimination of the floating band of the U.S. dollar against the Chilean peso in September 1999 increased currency risk and made investors turn to shorter maturity contracts. (University of Chile Working paper no.128)

## How Sensitive Is Volatility to Exchange-Rate Regimes?

by Viviana Fernández

It is usually conjectured that the nominal exchange rate should be more volatile under a free float than under a dirty float regime. This paper examines this issue for the Chilean economy. Specifically, in September 1999 the Central Bank of Chile eliminated the floating band for the nominal exchange rate, which had operated since 1984, and established a free float. This lasted until the burst of the last Argentinean economic crisis in July 2001. Since then, the Central Bank has smoothed out the exchange-rate path by selling U.S. dollars and/or issuing U.S. dollar-denominated bonds. We examine the free float period by assessing whether the increase in exchange-rate volatility was as sharp as expected. We show that volatility went up but only slightly. (University of Chile Working Paper no. 135)

## Financial Crises and National Policy Issues:

*An Overview*

by Ricardo Ffrench-Davis

In this overview we analyze why funds continued to flow toward emerging economies while fundamentals in host countries had been deteriorating before the Asian crisis (a rising external deficit, with a significant liquid component; appreciating exchange rates; low capital formation, particularly in Latin America). We also analyze why funding has remained dry since 1998. We stress the role and nature of the predominant agents as well as the *process* of flows in lieu of one-shot building of foreign capital stock. We then focus on the interrelations between capital flows and fiscal, monetary, exchange-rate and bank-regulation policies. Finally, some policy implications are presented for boom-and-bust stages of inflow-led cycles.

## Why Do We Need Antidumping Rules?

by Ronald Fischer and Martín Osorio

Given that governments are sensitive to pressure groups defending import competing industries, we show that the inclusion of antidumping (AD) and countervailing subsidy (CVD) regulations can increase the range of feasible preferential trade agreements (PTA). AD and CVD regulations serve as an “escape valve” for pressure groups affected by the PTA in some states of the world. If government preferences do not differ much from those of a welfare-maximizing planner, PTAs exist with escape clauses that provide more welfare than PTAs without escape. AD and CVD differ from safeguards in not requiring compensation to exporting countries, so a feasible agreement requires testing for injury caused by imports. Cheating on trade agreements is likely unless the level of pressure for protection is verifiable, and this is the role of the World Trade Organization (WTO) injury tests. If the injury tests are weakened, and the level of political pressure is less observable than expected, agreements become less valuable or may collapse. (University of Chile Working Paper no. 134)

## Indicators Derived from Monetary Aggregates

by Fernando de Aquino Fonseca Neto and José Albuquerque Júnior

Utilizing causality and cointegration tests, this work examined the ability of monetary aggregates to anticipate fluctuations in byproducts and prices in Brazil. Monthly data of monetary aggregates, IPCA, and real GDP from January 1995 to March 2002 were used. In an attempt to estimate better measures of macroeconomic liquidity, the broad money supply weighted by the Divisia index was evaluated in its original form to represent financial wealth. It was then adjusted for determining net domestic credit in primary terms. The results indicated that the balance found using the Divisia index did not contribute to improving the performance of primary aggregates for the purposes of the experiment. The broader concepts, stemming from M3 and M4, mainly

the domestic credit determined from M3, showed time antecedence with the real product. It was found that fluctuations in prices generally anticipated financial wealth and liquidity indicators. (Central Bank of Brazil Working Paper no. 47)

## Regional Econometric Assessment of Aggregate Water Consumption Trends

by Thomas M. Fullerton and David A. Schauer Jr.

Regional water availability is rapidly becoming an issue throughout many areas of the world. To accurately gauge the severity of potential supply shortfalls requires quantitative assessment of aggregate consumption trends. Regional econometric modeling and forecasting analysis offers one means by which this objective may be attained. This requires partially expanding the traditional modeling framework to include water customer and per capita consumption trends by rate class. Empirical results from the El Paso–Ciudad Juárez borderplex forecasting model are presented. The results indicate that regional models can be utilized to accomplish such steps in an effective manner.

## Short-Run Maquiladora Employment Dynamics

by Thomas M. Fullerton and David A. Schauer Jr.

The Ciudad Juárez maquiladora sector has grown enormously during the last three decades. This paper examines the trends underlying this remarkable performance by analyzing the short-term time series characteristics of this portion of the metropolitan economy. Econometric methodologies employed include both univariate and transfer function ARIMA analysis augmented by causality testing for the latter. Data are drawn for the January 1981 to December 1998 sample period. Empirical results indicate that inflation-adjusted wage rates, factories in operation, U.S. industrial performance and the international value of the peso play important roles in determining month-to-month fluctuations in borderplex maquiladora payrolls.

## Currency Demand, Inflation and PPP in Mexico, 1945–2000

by Daniel G. Garcés-Díaz

This paper shows that an economic policy change in 1982 brought about a conspicuous alteration in the relationship between money and prices in Mexico. Before that year, the long-run demand for currency was the velocity equation, and inflation was driven mainly by the money gap. In a striking changeover, from 1983 until 2000 the demand for currency took a very different form, and inflation was determined by the markup without an explicit effect from money. However, the long-run relationship that links the levels of output, the exchange rate and foreign prices with that of nominal money holds for the whole sample.

## Monetary Aggregates, Inflation and Economic Activity in Mexico

by Daniel G. Garcés-Díaz

The objective of this research is to analyze the relationship of selected monetary aggregates with inflation and economic activity in Mexico since 1980. First, the properties of stability and exogeneity of demand for the selected aggregates are examined. The method of estimation utilized enables testing directly the properties of long-term stability. The more stable demands are for bills and coins and for M2. The demands for M1 and M4 show possible instability. The informative content of the selected aggregates is quantified for the prediction of inflation and economic activity. The results indicate that the utility of the monetary aggregates as advanced indicators of inflation and of economic activity is, in most cases, modest. Also, one is able to conclude that due to the properties of greater stability, predictive power, and informative content, the strictest definition of money is preferable over a larger aggregate to analyze the relationship in Mexico of money with other macroeconomic variables. (Bank of Mexico Working Paper no. 2002-7)

## A Survey of Public Policy Evaluation in Mexico

by Rodrigo García-Verdú

The evaluation of public policy interventions has been gaining prominence in Mexico in recent years in response to the growing demand for government accountability. This paper surveys the recent contributions to the evaluation of public policies in Mexico, with particular reference to the literature on social program evaluation. It first reviews the model of potential outcomes and then, in light of this model, critically analyzes recent evaluations in Mexico by making their identifying assumptions clear. The focus of the paper is on those evaluations that estimate causal parameters (for example, average treatment effect, the effect of the treatment on the treated, etc.) through the use of various simple estimators (for example, simple differences, difference-in-differences, matching, etc.), whether based on experimental or on observational data.

## Microeconometric Decompositions of Aggregate Variables:

*An Application to Labor Informality in Argentina*

by Leonardo C. Gasparini

This paper illustrates the use of microeconometric decomposition techniques to characterize changes in aggregate variables. In particular, I study the effect of changes in the employment structure on the labor informality rate for salaried workers in the Greater Buenos Aires area (Argentina). To that aim I compute the difference between the informality rate at moment  $t'$  and the rate that results from combining the population at moment  $t$  with the parameters estimated at moment  $t'$  that link observable individual

characteristics to the informality decision. The paper concludes that the deep change of the employment structure in Argentina during the 1980s and the 1990s has had a significant but minor effect on the labor informality rate.

## On the Measurement of Unfairness:

*An Application to High School Attendance in Argentina*

by Leonardo C. Gasparini

This paper presents a framework to measure unfairness in certain outcomes, like education attendance or consumption of basic health services. The determinants of an individual outcome are divided into socially acceptable and unacceptable sources of differences in that outcome. To detect an unfair situation, comparisons are restricted to those individuals who share the same value of the vector of acceptable factors. The relevant argument to compare is the expectation of the outcome conditional on the vector of unacceptable variables. Unfairness is related to inequality in the distribution of those conditional expectations across individuals. An illustration of the framework is presented for the case of high school attendance in the Greater Buenos Aires area and other Argentine cities.

## A Review of the Literature on Early Warning Systems for Banking Crises

by Alejandro Gaytán and Christian A. Johnson

This paper presents a review of alternative methodologies for early detection of banking distress. The methodologies proposed are aimed at the early identification of financial distress for countries without an important recent history of bank failure but facing an unstable international environment. We evaluate several indicators and methodologies to measure financial distress such as qualitative indicators, the signal extraction approach, limited dependent estimation, and finally duration models. (Central Bank of Chile Working Paper no. 183)

## Should Government Smooth Exchange-Rate Risk?

by Ilan Goldfajn and Marcos Antônio Silveira

A general equilibrium model is built to explain if there are circumstances in which exchange-rate risk smoothing (ERRS) policies may bring a Pareto-improvement for an indebted small open (home) economy. The model shows that this is the case when over-pessimistic foreign creditors demand a large spread on the default-risk-free world interest rate, whose size can be reduced by ERRS policies and when market imperfections, such as information asymmetry between foreign investors and domestic debtors, prevent the home economy's residents from internalizing all benefits and costs of the exchange-rate risk reallocation into their allocative decisions. (Central Bank of Brazil Working Paper no. 48)

## Wage Indexation, Inflation Inertia and the Cost of Disinflation

by Javier Gómez

The Colombian Constitutional Court has mandated wage indexation on the basis of past inflation. A simple model with a wage price system, a real block, and an inflation targeting interest rule is calibrated to resemble price setting in the Colombian economy and to analyze the differing slope of the output inflation tradeoff for different specifications of wage indexation. The disinflation experiments show that backward-looking indexation increases inflation inertia, decreases the effect of monetary policy, and increases the cost of disinflation. Shorter wage contracts and more frequent wage negotiations do not appear to have important effects on the cost of disinflation. Higher central bank credibility and the use of forward-looking inflation expectations in wage negotiations decrease the cost of disinflation and may eventually lead to a boom.

## Transmission Mechanisms and Inflation Targeting:

*The Case of Colombia's Disinflation*

by Javier Gómez and Juan Manuel Julio

Colombia has been on a steady disinflation path since the early 1990s. To examine this disinflation, the paper presents a model of the transmission mechanisms of monetary policy in Colombia. The model describes the evolution of inflation in response to shocks to the terms of trade and the risk premium across different monetary policy rules and, in particular, under different assumptions about the formation of inflation expectations. We then illustrate the behavior of the economy under a permanent shift to the inflation target and quantify the sacrifice ratio under different kinds of formation of inflation expectations. This helps us judge to what extent the shift toward a more forward-looking wage and price setting affects the disinflation process and its cost. Finally, we estimate the welfare gains from disinflation and provide an inflation forecast for Colombia.

## The Implementation of Inflation Targeting in Colombia

by Javier Gómez, José D. Uribe and Hernando Vargas

The paper presents the development of the inflation-targeting regime in Colombia, the operational characteristics of the regime and models used in forecasting inflation and output in Colombia. Among the models presented in the paper are an output gap model designed for forecasting and policy analysis, a combination of forecasts designed statistically for forecasting purposes, and a neo-classical growth model used in the estimation of the output gap.

## The Effects of Privatization on Firms and on Social Welfare

by Rodrigo Gutiérrez and Pablo Serra

We analyze the Chilean privatization process. We study the 37 Chilean state-owned enterprises (SOEs) that were privatized during the period 1981–2000 and for which preprivatization and post-privatization financial, employment, and productive data are available. We show that these firms behaved no differently from the average firm in their economic sectors after privatization, implying that they were efficient SOEs. The large increase in profitability of privatized firms can be explained by the performance of firms in the regulated sector. In particular, employment in these firms increased after privatization, showing that they were not overmanned under government control. We show that the profitability in the sector is due to the more efficient use of physical capital and because the regulators were unable to transfer these gains to consumers. Next, we examine the effects of the privatization of social services. We analyze in detail the effects of privatization on the performance of telecommunications and the electric sector. We confirm that profits in the regulated natural-monopoly sectors increased while profits in sectors characterized by competition fell. Nevertheless, regulated firms are fairly efficient, implying that incentive regulation has been successful. Another privatization process involved infrastructure, where the main highways and ports have been franchised successfully and where reduced transportation costs will increase the efficiency of the economy as a whole. Next we study the effects of the privatization of the pension system, the health insurance system and of education through a voucher system. We find that the big benefit of the pension system is that pensions can no longer be expropriated by the political system. However, we find that the system is expensive, though costs have fallen lately. The private health insurance system has not been a big success because information asymmetries plague health care. However, it has had the beneficial effect of showing the inefficiencies of the public system and, thus, putting pressure on it to improve. Similarly, vouchers have not been shown unequivocally to lead to a better education system. (Although there is some evidence that this is so.) It also has put pressure on the public system to improve. Moreover, vouchers would be more effective if parents were informed of their children's performance on standardized tests and if public schools were able to fire bad teachers. Finally, the increased competition in higher education has led to improvements in the quality of the traditional state-financed institutions and to a large increase in the coverage of higher education.

## Private Demand of Public Debt and Other Financial Assets

by Alexander W. Hoffmaister Arce, Ana Cecilia Kikut Valverder, Jaime Odio Chinchilla and Lorely Villalobos Moreno

The main objective of this paper is to estimate the private demand for public debt  $DP(i)$ , which plays an important role in the year-end closing exercise of the financial programming proposed by Hoffmaister and others (2001).  $DP(i)$  is related to the private demand of other financial assets. In other words, it is determined simultaneously with the money demand (in colones and dollars) and certificates of deposit. This relationship is important when the year-end closing of the Monetary Program is done with adjustments in the interest rate. Likewise, incorporation of these economic relationships and some restrictions obtain better estimates. The principal results of this paper are: First, the semi-elasticity response of the public debt to changes in the interest rate of the joint auction,  $i$ , is estimated at approximately 0.7. Second, the estimations of the private demand for other financial assets confirm the interrelationship between these demands. For example, changes in the interest rate imply the need to rebuild the programming exercise. These changes in demand impact the year-end closing of the commercial banks. In turn, this affects the financial requirements of the central bank. Third, for the Monetary Program 2000, the estimates of the public-debt demand suggest that the original year-end closing coincides with the estimated debt demand.

## Real Demand for Private Credit

by Ana Cecilia Kikut Valverder, Manrique Sáenz Castegnaro, Álvaro Solera Ramírez and Jaime Odio Chinchilla

We estimate the demand for credit by the private sector in Costa Rica based on monthly data over the period 1995–2001. We model the demand for credit as a function of the real interest rate on lending, real economic activity and expected future growth in production. We calculate the lending interest rate as the (weighted) average of interest rates across economic activities and across dollar- and local-currency-denominated loans. Given the large proportion of dollar-denominated loans in the current banking system portfolio, this is a significant improvement over previous studies typically based on the lending rate for only local-currency-denominated loans. We also take into account that the interest rate may be an endogenous variable in this model (that is, correlated with the error term in the demand for credit equation). Therefore, we use the U.S. prime rate as an instrumental variable in a two-stage least squares regression. The results of regression analysis using two-stage least squares indicate that the semi-elasticity of real private credit with respect to the real interest rate is  $-4.08$ . Given an average (lending) real interest rate of 26 percent, this implies an interest-elasticity close to 1, as expected. This estimate is higher (in absolute value) than the one obtained using OLS.

The estimated elasticity of credit demand with respect to economic activity is 1.87. Finally, a 1 percent increase in expected production growth (proxied by future effective growth) is estimated to produce a 0.3 percent increase in demand for real credit.

## Finance and Growth:

*New Evidence and Policy Analyses for Chile*

by Ross Levine and María Carkovic

Given conflicting theoretical predictions about the impact of stock markets and banks on economic growth, this paper empirically evaluates this debate. The results emphasize the growth-enhancing role of stock markets and banks. Chile is clearly an outlier; it has less liquid stock markets and lower levels of banking development than other rapidly growing countries. The paper then compares Chile's commercial bank regulatory and supervisory system with other countries and highlights some areas worthy of further study. (Central Bank of Chile Working Paper no.157)

## Recent Trends of Foreign Direct Investment:

*A Comparison of China with Mexico*

by He Li

China and Mexico are among the most successful nations in attracting foreign direct investment (FDI). This paper discusses the importance of attracting FDI as a policy stance to stimulate economic development. The first section explores the evolution of FDI in the two countries. The second section discusses why China and Mexico have been able to attract FDI. The next section looks at features and patterns of FDI in China and Mexico. Finally, the paper explores the implications of the large absorption of FDI by China and Mexico and issues they are facing today.

## Macroeconomic Coordination and Monetary Cooperation:

*The Case of a South American Monetary Union*

by James Loveday and Jan Lust

This paper proposes the necessity of a South American monetary union. It is argued that only by establishing a monetary union (a) will the people of South America reap the complete benefits of globalization, (b) will the South American economies be less vulnerable to external financial and monetary shocks, (c) will these economies be able to draw up long-term structural adjustment programs, and (d) will the South American continent be one of the leading economies in the world. Despite the forces that are trying to dollarize the continent, we argue that a monetary union is much more beneficial for South America. We argue that a monetary union sorts out endogenously positive side effects, which dollarization is not able to do. The paper draws a com-

plete framework of a process toward a South American monetary union by including political, cultural, economic, and monetary aspects. It accomplishes this by building on the European experience; referring to the shortcomings of regional integration processes in South America; making use of the economic theories of macroeconomic and monetary coordination and cooperation; and utilizing the optimum currency-area theory.

## Are Devaluations Really Contractionary?

by I. Igal Magendzo

Given the theoretical disagreement on the effect of a devaluation on output, empirical evidence plays a fundamental role. Empirical findings have favored the view that devaluations are contractionary. In this paper the author argues that what stands behind these results is selection bias. In theory, the same variables that determine the probability of a devaluation determine the rate of growth of output. The author controls for selection bias using matching estimators and an extensive data set of 155 countries for the period 1970–99 that includes as many as 264 devaluation episodes. Not controlling for selection bias, devaluations appear to be contractionary, in line with previous findings. Nevertheless, when the author controls for this bias, the contractionary effect vanishes. Extensive sensitivity analysis is provided. (Central Bank of Chile Working Paper no. 182)

## Distributive Impact of the Changes in Fertility Decisions

by Mariana Marchionni and Leonardo Gasparini

During the last two decades, fertility decisions in Argentina have varied significantly and not uniformly along income distribution. In this paper we study the effects of these demographic changes on two dimensions of the income distribution—poverty and inequality—by applying microeconomic decomposition techniques. In particular, we simulate the income distribution that would emerge if individuals in time  $t$  took fertility decisions as in time  $t'$ . The results suggest that these demographic factors can account for a non-negligible proportion of the actual increase in poverty between 1980 and 1992, and in inequality between 1980 and 2000.

## Does Market Discipline Exist in Costa Rican Banking System?

by Mauricio Mayorga Martínez and Evelyn Muñoz Salas

The primary target of this study was to evaluate whether market discipline is present in the Costa Rican banking system and the effect of the establishment of a guarantee system of banking deposits in Costa Rica. The results affirm the existence of market discipline, albeit very weak, in the Costa Rican banking system.

## Inflation Targeting in Brazil:

*Lessons and Challenges*

by André Minella, Paulo Springer de Freitas, Ilan Goldfajn and Marcelo Kfoury Muinhos

This paper assesses the first three years of the inflation-targeting regime adopted in Brazil in July 1999. The inflation-targeting framework has shown to be highly important for macroeconomic stabilization. We stress three important challenges: construction of credibility, change in relative prices, and exchange rate volatility. The estimations indicate the following results: (i) the inflation targets have worked as an important coordinator of expectations; (ii) the Central Bank of Brazil has reacted strongly to inflation expectations; (iii) there has been a reduction in the degree of persistence in inflation and in the volatility of inflation and output; (iv) the exchange rate pass-through for “administered or monitored” prices is more than two times higher than for “market” prices. We also describe the methodology the central bank has developed to deal with inflationary shocks, which quantifies the sources of inflation, and examine some issues involved in the institutional design of inflation targeting. (Central Bank of Brazil Working Paper no. 53)

## Estimating the Equilibrium Real Exchange Rate for Brazil: 1984–2000

by Carlos E. Merlín and Marcelo S. Portugal

The present article aims at contributing to the debate over exchange-rate misalignment in Brazil, with special regard to the period after 1994. We present an equilibrium exchange-rate calculation for the Brazilian economy from 1984 to 2000. We use a model based on Montiel (1999), adequate for developing economies and estimated by means of quarterly data. The estimates are made from long-run coefficients for a cointegrating model, in which variables are transformed by Hodrick-Prescott filter so that we can extract their permanent values. The results indicate that the evolution of fundamentals gave rise to a tendency toward the reduction of exchange-rate misalignment after 1994. In addition, the estimated coefficient of error correction was compatible with the exchange-rate behavior after the exchange market liberalization in January 1999.

## Monetary Policy and Transmission Mechanisms:

*New Considerations for an Old Discussion*

by Verónica Mies, Felipe Morandé and Matías Tapia

This article starts by reviewing the existing literature on monetary transmission, emphasizing the empirical evidence for the Chilean case. Then, it focuses on two aspects that have not been given much attention in previous studies, namely the evolution of the monetary policy impact on output and prices over the past decade and its breakdown by sectors. A basic uniequational

model is estimated, in order to study (i) temporal shifts in the effectiveness of monetary policy and (ii) shifts in regimes that occurred in the late 1990s. Then, VAR models are used—similar to those of previous studies—to analyze the temporal development of impulse-response functions. Finally, a comparative analysis is made on the impact of monetary policy on various productive sectors, for which output and price variables are incorporated into the traditional VAR model. (Central Bank of Chile Working Paper no. 181)

## Fiscal Policy as a Signal

by Alexis Milo

This work studies the impact of current tax policy on investment via expectations about future taxes. A model of signaling is developed to show that output fluctuations should be considered when the credibility of the current fiscal policy as a signal is evaluated. When negative supply shocks hit, a government may not reveal its preference for high taxation. However, when supply shocks are positive and the tax base is expanded, a government may find this false signal too costly due to the increased revenue given up. The bottom line is that the tax strategy is changed by the size of the current tax base, which in turn is affected by supply shocks.

## Capital Mobility and Consumption Smoothing in a Two-Sector Model:

*The Case of Mexico*

by Alexis Milo

This work extends the literature on the determination of the current account by considering the presence of nontradable goods. Existing studies view the current account as a mechanism for smoothing aggregate consumption over time. I find that the optimal current account is the balance implied by the consumption path that solves the intertemporal allocation problem for the representative agent. Discrepancies between the predicted and actual current account balances are taken to be a rejection of the model, suggesting imperfect capital mobility and/or other market disturbances. However, previous work attributes an extremely high consumption-smoothing ability to the current account by implicitly assuming that all goods can be traded internationally or perfect substitutability is possible in either consumption or production of tradables and nontradables. I show that previous studies miss an important point in the characterization of the current account's behavior by failing to consider the presence of nontradables. A large share of nontradable goods is found in many economies, implying that a reduced ability of the current account to smooth consumption is present in many cases. I relax the assumption that all goods are homogeneous and explore the role of imperfect substitutability among tradable and nontradable goods. A two-

sector version of the Sachs (1982) model with one sector of nontradables is constructed, estimated and tested for the case of Mexico in the period 1980–98 using the Campbell and Shiller (1987) econometric methodology. I conclude that there is no evidence of imperfect capital mobility for the case of Mexico under the two-sector model.

## Optimal Monetary Policy, Gains from Commitment and Inflation Persistence

by André Minella

Using a new Keynesian framework, this paper compares the effects on the welfare of optimal monetary policies under commitment and discretion and examines the consequences of the presence of inflation persistence. A policy under commitment generates a better-weighted average of the variances of output and inflation (“dynamic gains”) and eliminates the inflationary bias. Commitment usually delivers a lower variance of inflation and a higher variance of output than those under discretion. The effect of the presence of inflation persistence on the dynamic gains from commitment is somehow surprising: the benefits are increasing in the degree of inflation persistence for moderate levels of persistence. On the other hand, inflation persistence reduces the inflationary bias. Furthermore, under “restricted commitment,” where the solution is restricted to within the same family of rules of the discretionary case, the gains are substantially inferior to those from commitment. (Central Bank of Brazil Working Paper no. 45)

## Equity and Educational Performance

by Alejandra Mizala and Pilar Romaguera

We review the main issues under discussion in the field of economics of education, with a special focus on Latin America. We seek to organize the debate about educational policies by showing how these policies respond to different models based on different assumptions and hypotheses about how the educational system functions. Methodological and informational problems make it difficult to test the validity of different policies. This would explain the enormous number of studies in the field that conclude with conflicting policy prescriptions. We also use data from Chile to analyze the importance of the school in educational outcome and to explore the heterogeneous impacts of student and school characteristics on educational achievement. The results obtained allow us to conclude that the school plays a very important role in explaining educational achievement. We also find that low-income students stand to benefit the most from attending a private school. However, this conclusion is valid for a marginal analysis and does not necessarily apply to a massive reallocation of students among schools.

## Macroeconomic Coordination and Inflation Targeting in a Two-Country Model

by Marcelo Kfoury Muinhos, Eui Jung Chang and Joanio Rodolpho Teixeira

This paper deals with macroeconomic coordination and stabilization within a new Keynesian framework. The dynamic treatment of a two-country model is made by simulation, using the linear quadratic algorithm. We compare the optimal monetary policy rule for three types of equilibria: macroeconomic coordination, Nash, and Stackelberg, using parameters that reflect the relative size and degree of openness of the economies. Under the strict inflation target, we obtain higher output and inflation volatilities due to each economy's reaction to the other country's policy. The only exception is the case of optimal macroeconomic coordination rules. This dynamic model finds that macroeconomic coordination policy is better than noncoordination rules, supporting the traditional result found in static models. (Central Bank of Brazil Working Paper no. 50)

## The Mexican Banking System:

*Privatization, Crisis and Reform*

by Jos Antonio Murillo

This paper analyzes the main changes that the Mexican banking system has experienced during the last decade. It studies the results of the privatization process and the ensuing performance of the newly privatized banks. Also, it describes the programs executed by the financial authorities to face the banking crisis that surged in 1995, as well as the regulatory and supervisory reforms adopted after the crisis. Finally, it discusses the elements that might have restrained the resurgence of credit after the reforms have taken place.

## Efficiency Analysis of the Mexican Banking System

by Jos L. Negrn

We apply the efficiency frontier analysis to the Mexican commercial banks for the period 1997 to 2001. We apply the particular methodology developed by Berger and Mester (1997) in order to rank banks by their relative efficiency levels. We then model the efficiency measure (error) using the methodology developed by Cornwell, Schmidt and Sickles (1990) to provide time dynamics. The main goal is to analyze the effects of institutional changes in the banking system—such as the growing concentration and foreign participation—on the relative efficiency measures. Preliminary results indicate that the main determinant of efficiency is bank size. Also, the relative position of banks has not suffered important changes in the period under analysis.

## Market Structure and Competition in the Mexican Credit Card Industry

by Jos L. Negrn

The Mexican banking credit card market is small, highly concentrated and presents high lending rates. These elements seem to point toward the lack of competition in the industry. In this paper we develop a model that allows us to assess the existence of competition in the Mexican credit market, using the limited information available. We found that there are several pieces of evidence of competition in the industry. First, the representative lending rates respond strongly to changes in the cost of funds. This contrasts with the same estimation for the U.S. credit card market (Ausubel 1991). Second, following our model, we found that the markup is inversely related to the technical efficiency position at the issuers' level. Additionally, we found that changes in the cost of funds affect more the markup of the inefficient firms than that of the efficient firms. All these elements are consistent with the existence of competition in the market. However, these indicators do not say much about the intensity of such competition. Given the differentiation of the credit card services, it is likely that despite the competition indications, issuers enjoy considerable market power, thereby resulting in the high interest rates that prevail in the market.

## Industrial Policies and Growth:

*Lessons from International Experience*

by Marcus Noland and Howard Pack

The application of industrial policies (IP) to direct resources to industries considered preponderant in achieving growth has been the chosen road by many emerging economies to tackle underdevelopment. Subsidized loans, variable taxes and differentiated tariffs are frequently used. Because of the successful experiences of some South Asian industrial policies, other emerging countries feel tempted to replicate the formula. However, first they should be sure that their governments have the necessary competencies. There are also two questions to ask on the role of IPs in the growth of these countries: (1) Were IPs the dominant factor in the countries' accelerated growth? (The neoclassical approach offers an alternative explanation, that the Asian miracle was mainly the result of strong macroeconomic policies implemented.) and (2) Can the problems of some Asian economies in the 1990s be explained by the prolonged application of IPs? This article finds evidence that economic growth was due to strong macroeconomic foundations such as fiscal discipline, controlled inflation and adequate real exchange rate levels. These variables were the driving forces that created high levels of saving and investment. On the other hand, the implementation of IPs is difficult in a globalized world where the regulations of international trade have become very important.

## Do Amnesty Programs Reduce Undocumented Immigration?

*Evidence from IRCA*

by Pia M. Orrenius and Madeline Zavodny

This paper examines whether mass legalization programs reduce future undocumented immigration. We focus on the effects of the 1986 Immigration Reform and Control Act, which granted amnesty to over 3 million undocumented immigrants. We find that apprehensions of persons attempting to illegally cross the U.S.–Mexico border declined immediately following passage of the law but returned to normal levels during the period when undocumented immigrants could file for amnesty and the years thereafter. Our findings suggest that the amnesty program did not change long-run patterns of undocumented immigration from Mexico.

## Does Immigration Affect Wages?

*A Look at Occupation-Level Evidence*

by Pia M. Orrenius and Madeline Zavodny

Previous research has reached mixed conclusions about whether higher levels of immigration reduce the wages of natives. This paper reexamines this question using data from the Current Population Survey and the Immigration and Naturalization Service and focuses on differential effects by skill level. Using occupation as a proxy for skill, we find that an increase in the fraction of workers in an occupation group who are foreign born tends to slightly lower the wages of low-skilled natives—particularly after controlling for endogeneity—but does not have a negative effect among skilled natives.

## Vintage Capital, Distortions and Development

by Samuel de Abreu Pessoa and Rafael Rob

This paper asks to what extent distortions in the adoption of new technology cause income inequality across nations. We work in the framework of embodied technological progress with an individual C.E.S. production function. We estimate the parameters of this production function from international data and calibrate the model, using U.S. National Income Statistics. Our analysis suggests that distortions account for a bigger portion of income inequality than hitherto has been assessed.

## Business Cycle Coordination Along the Texas–Mexico Border

by Keith R. Phillips and Jesus Cañas

The Texas–Mexico border is a fast-growing region that is a complex blend of U.S. and Mexican cultures, languages and customs. It is a dynamic region that has benefited from the large and grow-

ing populations in northern Mexico and the rapid growth in U.S.–Mexico trade. In this paper we use a dynamic single-factor model originally attributed to Stock and Watson (1989, 1991) to measure the business cycle in the Texas border metropolitan statistical areas and Mexico. Then we measure changes in the degree of economic integration between U.S.–Mexico border cities and the U.S., Texas and Mexican economies by using correlation and cluster analysis. Preliminary findings imply that significant changes have occurred in the business cycle correlations of the border economies since 1994.

## Direct Democracy and Tax Exporting:

*Theory and an Application of the First Referendum (“Consulta Popular”) in Argentina*

by Natalia Porto and Alberto Porto

The assignment of the responsibility for different taxing powers is one of the most important problems in the theory and practice of fiscal federalism. The literature provides us with a set of general guidelines for the “tax assignment problem.” One conclusion is that “tax exporting” could create perverse signals for fiscal choice. In this paper the “tax exporting” problem is analyzed with simple models. The case of a tax passed through a referendum (Consulta Popular) in an Argentinean tourist municipality is studied. In a numerical exercise, using the fiscal data of the municipality, the size of the public expenditures is calculated under different rules of fiscal decision. Then, an empirical analysis of the results of the voting and its determinants is carried out. The paper concludes with some comments on how to improve the mechanisms of referendum related to fiscal decisions at the municipal level.

## Default, Currency Crises and Sovereign Credit Ratings

by Carmen M. Reinhart

Sovereign credit ratings play an important part in determining countries’ access to international capital markets and the terms of that access. In principle, there is no reason to expect that sovereign credit ratings should systematically predict currency crises. In practice, however, in emerging market economies, there is a strong link between currency crises and default. Hence, if credit ratings are forward-looking and currency crises in emerging market economies are linked to defaults, it follows that downgrades in credit ratings should systematically precede currency crises. This article presents results suggesting that sovereign credit ratings systematically fail to predict currency crises but do considerably better in predicting defaults. Downgrades in credit ratings usually follow currency crises, possibly suggesting that currency instability increases the risk of default.

## **A Binomial Model for the Overdue Credit Portfolio in the Mexican Commercial Banks**

by Francisco E. Ron-Delgado

The use of statistical analysis and binomial model techniques helps in the identification of several factors to promote or to inhibit some specific phenomena, in this case the overdue banking credit portfolio. This paper is organized in three main sections. The first one revises the overdue credit portfolio trajectory in the Mexican banking system, taking into account results by main economic activities. The second one shows and explains the statistical method used. The last one reports results from the building of binomial models and their estimation. We found the following relevant in determining overdue credit portfolio problems: employment level in retail activities; interest rates; inflation level; in an inverse effect, industrial activity; and wage level in the retail sector.

## **Market Makers:**

*A Structural Change in the Mexican Government Bonds Market?*

by Francisco E. Ron-Delgado

This paper attempts to evaluate the effect of the recent authorization of market makers in the government bond market, through the use of time series analysis techniques to test the hypothesis of structural change in that market. Results give evidence that since the market makers' appearances, the daily average trading and the number of participants have increased. At the same time, we prove the existence of structural change in the operated volume of federal bonds (CETES) but not in the case of their price.

## **Banking System Efficiency in the Monetary Policy Transmission Process in Mexico**

by Francisco E. Ron-Delgado

The paper attempts to evaluate the efficiency in the causality chain through which the central bank transmits its monetary policy targets to the economic agents in Mexico. This chain starts by showing an increase or a decrease in the commercial bank's accumulated balance in the central bank (it is called "corto" in Mexico). The signal is followed by a reaction in the interbank interest rate (TIIE) and by subsequent movements in the banking deposit interest rates. These rates are affected by the different economic agents who will adjust their future and present consumption as a function of inflationary expectations. Adjusting ARIMA models, the document proves that in recent years "el corto" induced the banking intermediaries' actions through movements in the TIIE. At the same time, it was found that through equilibrium correction models, TIIE has a long time causality relation with the deposit interest rates. In the same way, elements were found to suggest that the short time relation is direct between two

interest rates. Another relevant result is that there is a "break" mechanism, which moves the deposit interest rate to its equilibrium relation with the interbank interest rate.

## **Inflation Targeting in Brazil, Chile and Mexico: Performance, Credibility and the Exchange Rate**

by Klaus Schmidt-Hebbel and Alejandro Werner

Inflation targeting (IT) has been adopted by a growing number of countries, and Latin America has been part of this world trend. This paper reviews the recent IT experiences of Brazil, Chile and Mexico, applying a common empirical framework to the three country cases. Inflation performance under IT and its associated output costs are reported and compared favorably to a control group of other countries. The paper analyzes ways by which IT has contributed to strengthen credibility: the effect of targets on inflation expectations and on actual inflation, the low influence of inflation shocks on core inflation and the decline in inflation forecast errors. Do the three inflation targeters exhibit fear of floating? No, considering their relatively large exchange-rate volatility and moderate international reserve holdings. No, considering strongly declining inflation-to-devaluation pass-through coefficients and little evidence for monetary policy reaction to exchange-rate shocks. Yes, considering the frequency and intensity of sterilized exchange interventions in comparison with other inflation targeters that float more cleanly. (Central Bank of Chile Working Paper no. 171)

## **The Determinants of Bank Interest Spreads in Brazil**

by Tarsila Segalla Afanasieff, Priscilla Maria Villa Lhacer and Márcio I. Nakane

The behavior of bank interest spreads in Brazil reveals two stylized facts: first, a remarkable fall in the average rates since early 1999 and, second, a strong and persistent dispersion of rates across banks. Such stylized facts suggest that both the time series and the cross section dimensions are important elements to understand the trend of the country's bank interest spreads. This paper makes use of panel data techniques to uncover the main determinants of the bank interest spreads in Brazil. A question that the paper aims to address is whether macro or microeconomic factors are the most relevant ones affecting the behavior of such rates. A two-step approach by Ho and Saunders (1981) is employed to measure the relative relevance of the micro and macro elements. The roles played by the inflation rate, risk premium, economic activity, required reserves (all macroeconomic factors) and CAMEL-type indicators (microeconomic factors) are highlighted. The results suggest that macroeconomic variables are the most relevant factors to explain the behavior of bank interest spreads in Brazil. (Central Bank of Brazil Working Paper no. 46)

## Cuba's Economic Reforms from a Chinese Perspective

by Jiang Shixue

Despite the geographical distance and different population sizes, Cuba and China have at least two things in common: They are socialist countries, and both are on the road to economic reforms. While Cuba began to reform its economy in the early 1990s, China started its reforms and open-door policy as early as 1978 when the Third Plenary Session of the 11th Central Committee of the Communist Party of China was held in Beijing. This paper highlights China's progress in stimulating economic development, raising people's living standards and upgrading comprehensive national strength. The paper also highlights the major components of Cuba's reforms, which include: (1) decentralization in the agricultural sector; (2) legalization of the use of foreign currency; (3) authorization of self-employment; (4) improving fiscal management; (5) more integration with the world market; (6) attracting more foreign investment; (7) establishing a free trade zone (FTZ); (8) economic restructuring. In light of China's experience and lessons, the following implications are important: (1) paying more attention to theoretical innovation for the reform process; (2) choosing the right speed of reforms; (3) "letting some people get rich first" but equally distributing benefits of reforms; (4) improving the ownership structure in a more effective way; (5) realizing that privatization is not a panacea but recognizing the need to reform the state-owned enterprises; (6) realizing corruption is highly detrimental, and (7) "putting a screen on the window when it is opened."

## Sino-Latin American Relations:

*Perspectives on the Past and Prospects for the Future*

by Jiang Shixue

Proven contacts between China and Latin America can be dated back to the 1570s, when Sino-Latin American trade started to flourish across the Pacific. After the Cuban revolution, Sino-Latin American relations entered a new stage. China's reforms and opening to the outside world since 1978 have provided the country with new opportunities to revise and strengthen its foreign policy. Since then, Sino-Latin American relations have been moving forward steadily. China has established diplomatic relations with 19 Latin American countries. On the whole, bilateral relations between China and Latin American countries are presently on good terms. However, there is room for improvement. The Central American and Caribbean subregions are weak spots from the standpoint of China's foreign policy, since Taiwan has a strong foothold there. The outlook for increased trade appears promising because: (1) Latin America has a wealth of natural resources, and China's rapid economic development will need

more such input to sustain growth. (2) There is some economic complementarity between the two sides. (3) As both China and Latin America undergo economic reforms, markets are opening and investment regulations are becoming more liberal. (4) Latin America cannot afford to neglect China's huge market potential. Moreover, as it diversifies its external economic strategy, Latin America will also need China and other east Asian countries. (5) In the age of globalization, China and Latin America have some common interests involving such issues as South-South cooperation. Despite these mutual interests, the further development of Sino-Latin American economic relations confronts several major obstacles. First, the geographical distance between the two regions is certainly an unfavorable factor. So far there is no direct air link between China and any Latin American country, and the limited maritime routes are affected by long distance, weather and other factors. Second, exchanges of market information are difficult, and mutual understanding is lacking. This is due not only to the geographical distance but also to languages, cultures, customs and so on. Third, some Latin American countries have been using antidumping policies to protect their domestic markets.

## Inflation Targeting in Brazil:

*An Empirical Evaluation*

by Marcelo E. A. da Silva and Marcelo S. Portugal

In this paper we implement some initial tests on the effectiveness of inflation targeting in Brazil. We use two approaches. First, we estimate a Taylor style reaction function and look for a change in relative weights of real activity and inflation terms. Second, we obtain two Vector Auto-Regression (VAR) models, a restricted and an unrestricted one. The two models are used to perform an out-of-sample forecasting exercise. The results, although still preliminary due to the short span of data, allow us to conclude that the initial impact of inflation targeting was positive. Our results indicate that inflation targeting was an important mechanism to keep the price stability contained after the Real Plan, even in the context of sharp exchange-rate devaluation.

## Measures of Core Inflation for Costa Rica

by Álvaro Solera Ramírez, Ivannia Solano Chacón and Gabriela Saborio Muñoz

This paper builds and evaluates several alternative measures of core inflation for Costa Rica. The chosen measure is contrasted with the core inflation index (INI), which is the indicator of underlying inflation used today by the Central Bank of Costa Rica. The main idea is that core inflation is a good indicator of underlying inflation and catches the part of overall price change common to all the goods and services that are expected to persist in

the medium term and long term while it excludes changes in the relative prices of goods and services. The Underlying Inflation Index (ISI) is defined as a measure of core inflation, which excludes 30.7 percent of the total weight of the consumer price index. It is the most closely related to inflation's underlying trend and catches the component of overall price changes that are expected to persist in the general level of prices. Furthermore, the ISI is easy to compute and to follow, increasing the transparency and credibility of monetary policy and moreover is a timely indicator, increasing its value for monetary policymakers.

### **Evaluation of the P900 Program:**

*A Targeted Education Program for Under-Performing Schools*

by Andrea Tokman

Education policies targeted at the worst performing schools are controversial. The positive discriminatory nature has been debated, while the lack of serious empirical evaluation has frozen the discussion at a highly theoretical level. The biggest problem has been to identify unbiased effects, given nonrandom participation even within under-performing schools. This paper evaluates the P900 program that provides material support to low-achieving Chilean schools—estimating effects that are free of bias due to unmeasured fixed school-specific effects, which are correlated with participation. It explicitly considers the changing nature of both the program and the selection process, computing yearly effects and biases. The simplifying assumptions usually found in the literature (for example, constant program effects, bias and school effects) are tested and rejected, thus shedding doubts on previous findings. The paper finds that schools were selected for the P900 in an unobserved compensatory manner, thus downward biasing uncontrolled estimates. Moreover, the bias and the estimated effects of the program are increasing in time. The 1992 program is not significantly different from zero, while the 1994 and 1996 programs are significantly positive. The latter is significantly higher than the rest. Thus, it would be effectively helping the schools that participate. (Central Bank of Chile Working Paper no. 170)

### **Commercial Integration and Synchronization Between Business Cycles in Mexico and the United States**

by Alberto Torres García and Oscar Vela Treviño

This work analyzes the relationship between the economies of Mexico and the United States. The purpose is to study the implications of the commercial integration process that both economies have experienced during the past 10 years. The results show that commercial integration has taken place primarily through the manufacturing sector of each country and that the Mexican business cycle has tended to synchronize with the business cycle of

the United States. It is also found that this synchronization with the U.S. business cycle has brought about coordination between Mexican exports and imports, thus, motivating a decrease in the volatility of the Mexican trade balance. In other words, the synchronization with the U.S. business cycle has functioned as an automatic adjustment mechanism that has limited the variations in the Mexican trade balance. (Bank of Mexico Working Paper no. 2002-6)

### **Did the 1995 Mexican Crisis Affect Financial Constraints of Listed Firms and Their Role as Providers of Lending?**

by Lorenza Martínez Trigueros

The credit crunch that the Mexican economy experienced after the currency crisis of December 1994 has been highly documented. It was surprising how fast the economy recovered and how high the growth rates were from 1996 to 2000. The big questions are: How was this growth financed? Who took the place of domestic banks? This paper contributes to the understanding of these questions by focusing on two more specific questions: How were the financing sources of listed companies affected after the crisis? How important were these companies as credit providers through trade credit? The database comes from the Mexican stock market and consists of an unbalanced panel of 376 public firms, of which only 64 are present for the whole sample. The results indicate that not all the firms were affected by the credit crunch, particularly export-oriented firms, larger firms and, in general, firms with access to foreign markets. Among the affected firms, there seems to be a move toward suppliers' credit, although it was not enough to cover the reduction in other financing sources. It was found that smaller firms extended more credit both in terms of their sales and of their capital than larger ones. Also exporting firms gave more credit than nonexporting ones. There is also evidence suggesting that only exporting, medium-size and larger firms increased the extended trade credit after the crisis.

### **Credit Channel with Sovereign Credit Risk:**

*An Empirical Study*

by Victorio Yi Tson Chu

According to Bernanke and Gertler (1995), the Credit Channel amplifies the traditional monetary transmission and this amplification effect comes through the firm's external finance premium, which is a wedge between the expected return for the funds generated internally and the costs of funds raised externally to the firm. Traditionally, this wedge is the bank loan spread, but we extend this concept to include the sovereign (country) credit risk and name it Extended Credit Channel. Armed with this new concept and using a set-up model, we estimate two econometric equations for the Brazilian economy after its inflation stabilization

program. These two econometric equations measure: (1) the effects of the pure money channel (real interest rates and compulsory reserve requirements on demand deposits) and the extended credit channel (country credit risk and bank loan spreads) on the economy's production, and (2) the impact of real interest rates, compulsory reserve requirements on demand deposits, and country credit risk on the bank loan spread. Both equation coefficient signs conform to the expected theoretical model. With the results of the estimated equation, we define a Product Loss Index Number to compare these two transmission channels (extended credit and pure monetary). This comparison shows that the extended credit channel is as relevant as the pure monetary channel. (Central Bank of Brazil Working Paper no. 51)

## **Changes in the Patterns of External Financing Since the Approval of NAFTA**

by Alejandro Werner

In this paper we try to identify some of the main effects of the North American Free Trade Agreement on Mexico-bound capital flows. In the first section, we show how private capital flows have come to dominate the capital account of the balance of payments. Its most dynamic component, foreign direct investment (FDI), is examined in detail with the aid of a model estimated using cross-country data that help control for the impact of globalization. We find that some 40 percent of the FDI increase between 1991 and 1999 can be explained by NAFTA, either directly or indirectly. The evidence suggests that FDI flows into Mexico were relatively low in the late 1990s, and the loss of impetus in the structural reform front appears like a possible explanation of performance. In the second section of the paper, we use microeconomic data to look at the question of whether NAFTA has allowed Mexican firms easier access to external financing. In general, we find that the decline of domestic banking credit has been at least partially offset by foreign financing, especially for outwardly oriented firms. Nevertheless, significant liquidity constraints remain.

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William C. Gruben  
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Phone (214) 922-5155

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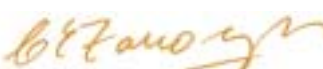
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