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Research Summaries

Latin America's External Linkages

Shaun Roache



Recent global financial market volatility and evidence of a slow-down of growth in the United States have rekindled interest in an old question: how are changes in external conditions likely to affect growth in Latin America? The diversity of the region implies that many external factors could have a strong influence, among them external demand, interest rates in advanced countries, investor risk appetite, remittance flows, and commodity prices. This article reviews recent IMF research on how external factors, both macroeconomic and financial, affect economic growth in Latin America.

From the broader literature, a number of stylized facts can be established about the nature of Latin America's external linkages and how they have changed over time. Linkages seemed to be at their strongest during the 1970s, even though the region was relatively closed to external trade. This was due to a variety of common shocks, including the sharp rises in world oil prices that buffeted the global economy throughout that decade. *(continued on page 2)*

Reaping the Benefits of Structural Reforms

Stephen Tokarick



IMF research has shown that structural reforms—the liberalization of product and factor markets—have many benefits. They raise growth rates and productivity, although it may take some time before these benefits are realized. Research has revealed that there may be complementarities among certain types of reforms that reinforce the impact of one on the other. Overall, structural reforms are an important component of a policy package that countries can implement to raise per-capita real GDP.

How can countries accelerate their rate of economic growth? Policymakers the world over frequently grapple with this question. And while there is no magic formula, it is fair to say that a consensus has emerged that any economic program designed to spur growth must include structural reforms—policies that liberalize financial, product, and factor markets (e.g., labor markets) and reduce barriers to international trade. Structural reforms typically are an important component of IMF-supported adjustment programs, but just how effective are they? A large body of research undertaken at the IMF *(continued on page 4)*

Latin America's External Linkages

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During the 1980s, the emerging market debt crisis that afflicted many key countries in the region, together with civil conflict in Central America, weakened these global linkages, causing growth to be determined largely by regional and domestic factors. The story since the mid-1990s has been one of increasing external integration and strengthening linkages. Common shocks are now playing a less important role; trade liberalization, increasing openness, and the globalization of capital markets, including for foreign direct investment, now explain much of the region's rising sensitivity to external factors.

A number of recent IMF studies have explored external linkages in Latin America and attempted to quantify the effects of external shocks and cycles on regional economic growth. Österholm and Zettelmeyer (2007) assess the effect of a variety of external shocks on the largest six countries in Latin America using a Bayesian vector autoregression (VAR) approach. While VAR models have been used by others to address this topic in the region (e.g., Canova, 2005), the Bayesian approach overcomes some drawbacks of conventional VARs, including a large number of parameters and often short sample periods. This is achieved by imposing "informative priors" on the long-run steady state, on which the forecaster often has an opinion.

In the main specification, external factors are represented by world GDP growth, a trade-weighted index of commodity prices that are relevant for Latin America, U.S. Treasury bill rates, and the high-yield corporate bond spread in the United States to capture investor risk aversion. Also included is the Latin America subcomponent of JP Morgan's Emerging Market Bond Index (EMBI), which is influenced both by external financing conditions and regional domestic fundamentals. As a measure of Latin American growth, a weighted index for Argentina, Brazil, Chile, Colombia, Mexico, and Peru is used. Imposing the restriction that the external factors were not influenced by developments in Latin America, the key result is that shocks to world GDP growth are passed on to Latin America about one-for-one—that is, a one standard deviation 0.3 percent world growth shock leads to an increase in (four-quarter) Latin American growth by about 0.4 of a percentage point after four quarters. A similar result is obtained when applying a U.S. growth shock. In recent months, the focus has increasingly shifted to the linkages running from financial markets to the real economy, and the evidence from this model suggests that this sensitivity

was high, at least over the 1994–2006 sample period. The reaction of Latin American growth to U.S. interest rates is muted, but one standard deviation shocks to the U.S. high-yield bond or Latin American EMBI spreads, interpreted as higher risk aversion, were associated with declines in annual growth of 0.9 and 0.5 percent respectively after three quarters. Commodity prices, a key component of exports for many countries in the region, are also a key transmission mechanism. Overall, the conclusion is that the region may remain sensitive to a number of adverse external scenarios, including sharply tighter financing conditions, particularly when combined with slower world growth or a large and rapid drop in commodity prices, which in turn would have consequences for capital flows to the region.

This approach also yields insights at the country level. Abrego and Österholm (2008) apply this model to Colombia and find sensitivities higher than the one-for-one results from the regional model—in fact, GDP growth would decline by a cumulative 1.4 percentage points over four quarters in response to a 1 percentage point decline in global growth over the same period.

The results for Latin America from the Bayesian VAR approach are broadly similar to those obtained from a more conventional VAR model described in the April 2007 *World Economic Outlook*, which included three external variables unaffected by developments elsewhere—growth in the United States, Japan, and the euro area—and three country-specific variables, including growth, inflation, and the real effective exchange rate (IMF, 2007). Using quarterly data over 1991–2005, changes in U.S. growth have almost a one-for-one impact on Latin American growth, with spillovers peaking after one quarter and dying out after three to four quarters.

A second, different way of measuring linkages is by identifying the "common factors" that influence economic growth. These factors may not just be one-off shocks from one country to another, but instead recurring influences that determine the periodic fluctuations of the business cycle that may originate in one country or be common to both. A study in the April 2007 *World Economic Outlook*, closely related to the Bayesian dynamic factor model of Kose, Otrok, and Whiteman (2003), follows this approach and assesses common global and regional factors influencing growth in output, private consumption, and private fixed investment across 93 countries.

Using a variance decomposition measure for 19 Latin American countries, the influence of global and regional factors for the two decades through 2005 appears to have

declined compared with the 1960–85 period. This is consistent with other results that suggest that the common global shocks of the 1970s and the influence of the regional debt crisis in the early 1980s prompted external linkages to strengthen sharply. A second key result is that country factors have tended to be much more important in Latin America than in other regions over the later sample—just over 50 percent of output growth variance is explained by country-specific influences, compared with 31 percent in emerging Asia and Japan and 27 percent in Western Europe.

Aiolfi, Catão, and Timmerman (2006) use a different technique to extract common dynamic factors for four large Latin American countries using a comprehensive set of annual economic data that, in some cases, stretch back to 1870. Using a range of indicators, a country business-cycle indicator was constructed and linkages were then assessed by measuring the proportion of time that two cycles are in the same state—for a sample period dominated by the 1990s, results were diverse across country pairings, confirming the heterogeneity of the region throughout this period.

Interesting regional case studies are provided by Central America. These economies are relatively open and geographically close to the United States, with a number of transmission channels through which U.S. cyclical fluctuations could be transmitted, including trade, the financial sector, and migrant worker remittance flows. Roache (2008) explores the strength of Central America's linkages by focusing on the extent to which these economies share common trends and cycles with each other and the United States. Using the cofeature method of Vahid and Engle (1993), the paper applies the insights of cointegration to the analysis of stationary, or cyclical, economic data. The results indicate that the Central American business cycle, defined as periodic and transient fluctuations in growth, is dominated by the United States. Indeed, these linkages appear to be much stronger than simple regressions of GDP growth rates would imply. So why does output growth sometimes diverge? This model suggests that region-specific long-run shocks, including civil conflicts, terms of trade shocks and poor policy responses, rather than a unique regional business cycle, are responsible for those periods when growth has diverged from the United States. Kose and Rebucci (2005) use a VAR approach to show that external shocks, on average, are estimated to account for around one-third of total real output variance, close to the levels estimated for Mexico. Multi-country versions of this model suggest that these external shocks are in fact less impor-

tant than regional (i.e., Central American) shocks, which account for around one-half of output variance.

Future work is likely to sharpen the focus on linkages that run from external financial markets to the real economies of the region. Recent work has touched upon this issue, but two fundamental changes likely imply that the nature of these linkages has changed. First, recent external shocks have emerged after an exceptional period of strength both globally and for countries in Latin America, which is helping contain the impact. In particular, compared with the 1990s, improved public and private sector balance sheets, lower and better anchored inflation expectations, and strengthened policy frameworks have made the region more resilient to changes in international financial conditions. Second, financial linkages have become more complex, moving beyond foreign currency sovereign borrowing in international markets to include increasing corporate financial market activity, local currency debt issuance to foreign investors, and the potential role that remittance inflows might play in the financial system.

References

- Abrego, Lisandro, and Pär Österholm, 2008, "External Linkages and Economic Growth in Colombia: Insights from a Bayesian VAR Model," IMF Working Paper 08/46.
- Aiolfi, Marco, Luis Catão, and Allan Timmermann, 2006, "Common Factors in Latin America's Business Cycles," IMF Working Paper 06/49.
- Canova, Fabio, 2005, "The Transmission of U.S. Shocks to Latin America," *Journal of Applied Econometrics*, Vol. 20, No. 2, pp. 229–51.
- International Monetary Fund (IMF), 2007, "Decoupling the Train? Spillovers and Cycles in the Global Economy," Chapter 4 in *World Economic Outlook, April* (Washington).
- Kose, M. Ayhan, and Alessandro Rebucci, 2005, "How Might CAFTA Change Macroeconomic Fluctuations in Central America? Lessons from NAFTA," *Journal of Asian Economics*, Vol. 16 (February), pp. 77–104.
- Kose, M. Ayhan, Christopher Otrok, and Charles H. Whiteman, 2003, "International Business Cycles: World, Region, and Country-Specific Factors," *The American Economic Review*, Vol. 93, No. 4. (November), pp. 1216–239.
- Österholm, Pär, and Jeromin Zettelmeyer, 2007, "The Effect of External Conditions on Growth in Latin America," IMF Working Paper 07/176.
- Roache, Shaun, 2008, "Central America's Regional Trends and U.S. Cycles," IMF Working Paper 08/50.
- Vahid, F., and R.F. Engle, 1993, "Common Trends and Common Cycles," *Journal of Applied Econometrics*, Vol. 8, No. 4., pp. 341–60.

Reaping the Benefits of Structural Reforms

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suggests that they are essential if countries are to grow more rapidly.

IMF research points to the general conclusion that structural reforms are beneficial to the country undertaking them, although these benefits may take some time before they materialize. Tressel (2008) examined the effects of financial and trade reforms on the performance of manufacturing output across a number of countries. He found that financial sector reforms had two important effects: (1) they improved the efficiency of financial intermediation by reallocating capital across sectors; and (2) they enhanced the resilience of economies to shocks. Trade reforms resulted in faster output growth in export sectors, especially those that used imported intermediate inputs to a large extent. Campos and Kinoshita (2008) reported robust evidence of a positive relationship between reforms, especially financial sector liberalization and privatization, and the ability of a country to attract foreign direct investment.

In a survey paper, the IMF (2004) concluded that structural policies in the context of Fund-supported programs—at least those designed to assist in fiscal adjustment and enhancing output growth—have been effective. Research has revealed that the benefits of structural reforms do not occur immediately, however. For example, Salgado (2002) investigated the impact of structural reforms on productivity growth in 20 countries in the Organization for Economic Cooperation and Development (OECD) and found that over the long run, the reforms—particularly product market and trade reforms—had a significantly positive effect on productivity growth. In the short run, however, the impact of the reforms was weak or even negative, suggesting that the existence of adjustment costs precluded a full realization of the benefits until some time had elapsed.

Hauner and Prati (2008) investigated the issue of the proper sequencing of reforms. They considered the links between openness to international trade and domestic financial regulation and found that trade liberalization was a significant leading indicator of both domestic financial liberalization and capital account liberalization—a result that was robust using different data frequencies and estimation methods. They also noted that product market liberalization is a leading indicator of domestic financial reform, suggesting that the opposition of interest groups to financial sector reforms weakens once product market liberalization takes place.

Owing to data availability, a large body of IMF research has focused on the impact of structural reforms in the advanced economies of Europe. These studies all reach a similar conclusion: these economies would benefit, in terms of enhanced growth prospects, if they would undertake structural reforms to make their labor and product markets more resilient. Everaert and Schule (2008) used the IMF's Global Economy Model to show that the European Union would enjoy sizable output and employment gains in the long run if it were to boost competition in product and labor markets.

One area that has received quite a lot of attention has been the impact of labor market reforms in Europe. Estevão (2005) observed that real wage growth in the European Union has moderated significantly over the past 20 years, but that there has not been much of a reduction in the unemployment rate in the region. He found that the positive impact of wage moderation was offset in large part by the high degree of product market regulation and the

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existence of barriers to firm entry. Under these conditions, the effects of wage moderation on output and employment growth were substantially muted. With rigidities in product markets in place, the wage reductions showed up as larger industry profits and rents. Boeri (2005) also emphasized the beneficial effects of reform to both labor and product markets. Berger and Danninger (2007) studied a sample of OECD countries and concluded that labor and product market reforms would raise aggregate employment significantly. The authors highlighted that their results come about in large part as a result of interaction effects between the two types of reforms.

Recent IMF research has also evaluated a specific type of labor market reform for Europe. Zhou (2006) studied a type of reform to employment protection legislation that relaxed restrictions on hiring and firing temporary workers, while leaving those on permanent employees unchanged. She concluded that the impact of this type of partial reform

depends on the particular labor market, but that it raises the unemployment rate in the specific case of France.

IMF research has also evaluated the impact of structural reforms across a range of emerging market economies. Enders (2007) undertook a careful case study in order to understand the reasons behind the acceleration in growth in Egypt in recent years. Using the “decision tree” approach of Hausmann, Rodrik, and Velasco (forthcoming), Enders concluded that the principal constraints on growth in Egypt were due to complex regulations facing entrepreneurs and the inefficient delivery of government services. He reported that the reforms adopted by the Egyptian authorities in 2004 designed to reduce regulations have had a positive effect on economic growth. Similarly, Gemayel and Grigorian (2005) have shown that Uzbekistan would benefit from a wide-ranging set of structural reforms. For India, Topalova (2004) has uncovered evidence that trade liberalization raised the level and growth of firm productivity in the manufacturing sector. Khatri and Ogawa (2007) have shown that reforms by the Japanese government that reduced regulations in the service sector have been successful in raising productivity growth.

Adrogué, Cerisola, and Gelos (2006) studied the long-run growth performance of Brazil and concluded that macroeconomic stability, along with several structural reforms such as trade liberalization and improved financial sector intermediation, have helped increase per capita GDP growth since the mid-1980s. They did note, however, that some longstanding structural weaknesses, such as the high level of government consumption, continue to retard growth. In addition to its high level, the variability of government consumption may also affect growth outcomes. In this vein, Mody and Schindler (2006) found that a lack of fiscal discipline was at the heart of Argentina’s volatile growth history.

While structural reforms are not a magic bullet for curing all economic ills, IMF research demonstrates that they do have a key role to play in raising living standards across countries. As noted above, however, most of the research on the effects of structural reforms has been limited to advanced countries. The IMF continues to be actively engaged in this type of research¹ and is compiling a new dataset on structural reforms in 91 countries for the period from 1973 to 2006, including many less-developed countries.²

¹For a summary of recent conference on this topic, see <http://www.imf.org/external/pubs/ft/survey/so/2008/RES031708A.htm>.

²One subset of these data, a disaggregated dataset on capital account transactions, will be published in a forthcoming paper by Martin Schindler.

References

- Adrogué, Ricardo, Martin Cerisola, and R. Gaston Gelos, 2006, “Brazil’s Long-Term Growth Performance—Trying to Explain the Puzzle,” IMF Working Paper 06/282.
- Berger, Helge, and Stephan Danninger, 2007, “The Employment Effects of Labor and Product Market Deregulation and Their Implications for Structural Reform,” *IMF Staff Papers*, Vol. 54, No. 3, pp. 591–619.
- Boeri, Tito, 2005, “Reforming Labor and Product Markets: Some Lessons from Two Decades of Experiments in Europe,” IMF Working Paper 05/97.
- Campos, Nauro, and Yuko Kinoshita, 2008, “Foreign Direct Investment and Structural Reforms: Panel Evidence from Eastern Europe and Latin America,” IMF Working Paper 08/26.
- Enders, Klaus, 2007, “Egypt—Searching for Binding Constraints on Growth,” IMF Working Paper 07/57.
- Estevão, Marcello, 2005, “Product Market Regulation and the Benefits of Wage Moderation,” IMF Working Paper 05/191.
- Everaert, Luc, and Werner Schule, 2008, “Why It Pays to Synchronize Structural Reforms in the Euro Area Across Markets and Countries,” *IMF Staff Papers*, Vol. 55, No. 2.
- Gemayel, Edward, and David Grigorian, 2005, “How Tight is Too Tight? A Look at Welfare Implications of Distortionary Policies in Uzbekistan,” IMF Working Paper 05/239.
- Hauner, David, and Alessandro Prati, 2008, “Openness and Domestic Financial Liberalization: Which Comes First?” Paper presented at the Conference on the Causes and Consequences of Structural Reforms, International Monetary Fund, Washington, February 28–29.
- Hausmann, Ricardo, Dani Rodrik, and Andres Velasco, forthcoming, “Growth Diagnostics,” in *The Washington Consensus Reconsidered: Towards a New Global Governance*, ed. by J. Stiglitz and N. Serra (New York: Oxford University Press).
- International Monetary Fund (IMF), 2004, “Macroeconomic and Structural Policies in Fund-Supported Programs: Review of Experience,” Policy Development and Review Department (unpublished).
- Khatri, Yougash, and Sumiko Ogawa, 2007, “Japan: Boosting Productivity in Services—Priorities for Deregulation,” in *Japan: Selected Issues*, IMF Country Report 07/281.
- Mody, Ashoka, and Martin Schindler, 2006, “Argentina’s Growth: A Puzzle?” (unpublished).
- Salgado, Ranil, 2002, “Impact of Structural Reforms on Productivity Growth in Industrial Countries,” IMF Working Paper 02/10.
- Schindler, Martin, forthcoming, “Measuring Financial Integration: A New Dataset?” *IMF Staff Papers*.
- Topalova, Petia, 2004, “Trade Liberalization and Firm Productivity: The Case of India,” IMF Working Paper 04/28.
- Tresselt, Thierry, 2008, “Unbundling the Effects of Reforms.” Paper presented at the Conference on the Causes and Consequences of Structural Reforms, International Monetary Fund, Washington, February 28–29.
- Zhou, Jianping, 2006, “Reforming Employment Protection Legislation in France,” IMF Working Paper 06/108.