BOX 3.2 Understanding cross-border growth spillovers

Growth spillovers can operate via trade and financial linkages. The confidence channel—consumer and business sentiment—can also be an important mechanism for cross-border spillovers of growth. The empirical literature finds sizeable spillovers from China for countries with close trade ties, e.g. countries in the EAP region, Japan and Germany among the advanced markets, and commodity exporters. Growth in Russia and Brazil tends to affect growth of their neighbors and those with whom they have strong trade and remittance linkages.

This box discusses cross-border transmission of shocks to growth and examines empirical estimates of the size of these spillovers.

Transmission channels

Trade channel. A growth slowdown can reduce growth in trading partner countries directly by lowering import demand and, indirectly, by lowering growth in third countries or by slowing technological advances and productivity growth intrinsic to imports (Kose, Prasad, and Terrones 2009; Jansen and Stockman 2004).

While this suggests greater spillovers between countries with closer trade ties, in principle, the opposite can arise when mutual trade generates particularly strong specialization. For example, close trade ties can result in heavy specialization in goods in which countries have a comparative advantage. As countries become heavily reliant on individual industries, they may become more sensitive to industry-specific shocks, with less correlation in broader growth between trading partners (Frankel and Rose 1998).[1]

Financial channel. A growth slowdown can reduce portfolio investment and foreign direct investment outflows to other countries. Arbitrage between different global financial systems could quickly propagate shocks from one country to another (Kose, Otrok, and Whiteman 2003; Doyle and Faust 2002). Rising banking sector cross-border exposures also raise the potential for growth spillovers (IMF 2014). Reduced financial flows could set back investment growth and longer-term growth potential in destination countries. International remittances may also transmit spillovers, as they tend to vary with incomes in sending countries. Some low- and lower-middle-income countries that rely heavily on remittance inflows are particularly vulnerable to disruptions in foreign labor markets that reduce remittances (Dabla-Norris, Espinoza, and Jahan 2015).

While this suggests greater spillovers between countries with larger mutual financial flows, the opposite is, in principle, also possible if incentives to diversify risk internationally are sufficiently strong. For example, if investors are concerned about growth setbacks in one country, they may choose to increase their investments in others with better growth prospects. As a result, capital could flow out of countries with negative growth shocks and into less-affected countries where it would lift activity (Canova and Marrinan 1998; Kalemli-Ozcan, Sørensen, and Yosha 2003; Imbs 2004; Heathcote and Perri 2004).

Commodity channel. A growth slowdown in a major commodity-importing country could reduce global commodity demand and reduce global commodity prices. This would set back investment and growth in commodity exporting countries around the world, even those without direct trade relations with the source country of the shock (Kose and Riezman 2001; Eicher, Schubert, and Turnovsky 2008; Broda and Tille 2002; World Bank 2015a).

Confidence channel. Trade, financial, and commodity channels do not appear to explain the unprecedented severity and cross-country synchronization of contractions and slowdowns in the global financial crisis of 2007-09 (Kalemli-Ozcan, Papaioannou, and Perri 2013; Bacchetta and van Wincoop 2014). In addition to direct economic ties, consumer and business sentiment (over and above developments in underlying fundamentals)—i.e., the confidence channel—can be an important transmission mechanism for cross-border spillovers (Levchenko and Pandalai-Nayar 2015).

Identifying the individual effects of each of these transmission channels is empirically challenging, and the literature has mostly focused on aggregate effects. The importance of each transmission channel likely depends on the nature of the underlying shock although the debate on the relative importance of different shocks is not yet settled.[2] This box focuses on the aggregate effects of growth spillovers without dwelling on their fundamental drivers.

Note: This Box was prepared by Raju Huidrom.

[1]For a detailed discussion, see Kose and Terrones (2015).

[2]For instance, Mendoza (1995) and Kose (2002) attribute a sizable portion of output fluctuations to international shocks through the terms of trade, while a part of the real-business-cycle literature focuses on the effects of technology shocks.

BOX 3.2 Understanding cross-border growth spillovers *(continued)*

Empirical estimates of spillovers

Advanced economies. Monfort et al. (2003) find sizeable co-movement in output among the G-7 economies during 1972-2002. Before 1985, a large part of this co-movement can be explained by common shocks (e.g., oil price swings), while in the period after 1985 spillovers, especially from North America to Europe, have become more dominant. Stock and Watson (2005) find sizeable spillovers among G7, accounting for 5-15 percent of the variance of growth depending on the country and the period examined. They, however, find that both overall co -movement and spillovers have declined since 1985, possibly reflecting lower volatility of shocks in the later period (the pre-global crisis "great moderation"). Yilmaz (2009) finds sizeable spillovers from the United States to other advanced economies, especially during the global financial crisis. Financial shocks from the United States appear to be transmitted particularly rapidly to the Euro Area (Dees et al. 2007).

Emerging markets. The literature has focused on spillovers from large EM, often with a regional perspective (Annex 3.3). For the EAP region, spillovers from China are significant, especially for EAP countries integrated into Chinese supply chains (Japan, Singapore, Malaysia and Thailand), and for commodity exporters that are less diversified, e.g. Indonesia (Duval et al. 2014; Inoue, Kaya, and Ohshige 2015; Ahuja and Nabar 2012). Beyond EAP, growth spillovers from China are also significant for Latin American countries, especially for commodity exporters (World Bank 2015a). The spillover implications of China for advanced markets and global growth are generally found to be modest (Ahuja and Nabar 2012; IMF 2014b). Among the advanced economies, Germany and Japan are most affected (Ahuja and Nabar 2012).

In the ECA region, Russia seems to influence regional growth mainly through the remittance and—albeit decreasingly—through the trade channel and somewhat less through the financial channel. Russian growth shocks are associated with sizable effects on Belarus, Kazakhstan, Kyrgyz Republic, Tajikistan, and, to some extent, Georgia (Alturki, Espinosa-Bowen, and Ilahi 2009). That said, growth spillovers from the rest of the world to ECA countries tend to be larger than those from Russia, reflecting declining trade and financial integration with Russia and increased ties to the European Union (Andrle, Garcia-Saltos, and G. Ho 2013; Ayvazyan and Dabán 2015; Obiora 2009).

South African growth has a substantial positive impact on *long-run* growth in the rest of Africa (Arora and Vamvakidis 2005). *Short-run* spillovers from South Africa, however, are not significant, even to neighboring countries (IMF 2012a). South Africa's trade with the rest of the continent has been limited despite some increase since 1994, in part reflecting trade patterns that prevailed under the apartheid regime that ruled South Africa until 1994. There are significant growth spillovers effect to African economies from both the Euro Area and the BRICS (Gurara and Ncube 2013), with spillovers from the Euro Area exceeding those from the BRICS.

Latin America is characterized by the presence of two large countries (Brazil and Mexico) that may affect smaller neighboring economies significantly (IMF 2012b). Spillovers from Brazil to some of its neighbors can be considerable, both by transmitting Brazil-specific shocks and by amplifying global shocks. Southern Cone countries (Argentina, Bolivia, Chile, Paraguay, and Uruguay), given their sizeable export linkages, are particularly vulnerable to spillovers from Brazil. In the Andean region, however, trade linkages with Brazil are generally weak. Likewise, reflecting Central America's modest trade linkages with Mexico, growth spillovers from Mexico are modest (Adler and Sosa 2014).

Low income countries (LIC) have become increasingly integrated with emerging markets, through stronger trade links, rising cross-border financial asset holdings and capital flows, and higher remittance flows (Dabla-Norris, Espinoza, and Jahan 2015).[3] In particular, emerging markets are an important source of remittances for LIC, especially within their own region – e.g. India for LIC in Asia, Russia for LIC in ECA, and Saudi Arabia for LIC in MNA. This was most evident in the aftermath of the global financial crisis, when recovery in many LIC mirrored the economic rebound in emerging market trading partners (IMF 2010).

[3]Informal sector trading links are also important for LIC as a channel of transmission (IMF 2012a).