

# The impact of China on Latin America: trade and foreign direct investment channels

Jacopo Timini and Ayman El-Dahrawy Sánchez-Albornoz

## **Abstract**

The economic, political and institutional ties between Latin America and China have become closer as the Chinese economy has grown. Indeed, as a result of its rapid economic growth, China now plays a systemic role in the world economy. However, since the global financial crisis, the Chinese economic model has shown signs of exhaustion and controlling the rate of growth may prove to be a particularly difficult challenge, taking into account the profound structural transformation to be addressed and the high level of debt of the Chinese economy. Against this backdrop, the article provides an empirical analysis of the effects on the Latin American countries' growth of their trade and investment relations with China. It also analyses the channels through which the Chinese economic slowdown is transmitted to the region. The study shows that, through the trade channel at least, an unexpected slowdown in China could have a negative impact on economic growth in Latin America.

**Keywords:** China, Latin America, economic growth, international trade, foreign direct investment.

**JEL codes:** O11, O47, O54.

## THE IMPACT OF CHINA ON LATIN AMERICA: TRADE AND FOREIGN DIRECT INVESTMENT CHANNELS

The authors of this article are Jacopo Timini and Ayman El-Dahrawy Sánchez-Albornoz of the Directorate General Economics, Statistics and Research.

### Introduction

Since the 1980s, China has recorded average annual GDP growth of close to 10%, focused on investment and exports (see Chart 1) (Dieppe et al., 2018). Thanks to this rapid growth it is now the world's second largest economy by GDP. In addition, thanks to its growing interconnectedness with other economies, it has become a systemic economy. Latin America is no exception in this process and its ties with China – which are not only economic but also political and institutional – have become closer.

However, since the 2008 global financial crisis, the Chinese economic model has begun to show signs of a certain degree of exhaustion: the contribution of the drivers of its high economic growth (investment and net exports) has fallen and private sector (mainly corporate) debt has risen significantly (Timini, 2017). Thus, after recording year-on-year growth rates of around 6.7% in the two previous years, Chinese GDP grew by 6.4% in 2018 Q4 (6.6% in annual average terms), amidst fears that the slowdown will extend beyond 2019. The growth rate in 2018 was the lowest figure recorded since the global financial crisis, partly as a result of the tightened financial regulations, aimed at curbing the exponential growth of shadow banking activity<sup>1</sup> and of local governments' off-balance-sheet financial instruments (Bai et al., 2016). The authorities responded to the slowdown by introducing monetary and fiscal stimulus measures and easing financial conditions (IMF, 2019), but controlling the rate of growth may prove to be a particularly difficult challenge, taking into account the profound structural transformation that the Chinese economic model will have to undergo and the high level of debt of the Chinese economy.

In this setting, the article analyses the main channels through which a potential economic slowdown in China may be transmitted to the Latin American economies.

### Transmission channels

This section analyses the (direct and indirect) economic effects of trade between China and Latin America and of Chinese foreign direct investment (FDI) on the region's economies (Kaplinsky and Messner, 2008). It does not cover another important channel of economic interconnectedness, i.e. the financial channel and the impact of potential changes in financial conditions stemming from economic developments in China (Cashin et al., 2017).<sup>2</sup>

The direct effects of trade refer to the impact of trade flows (exports and imports) between the two areas on activity in the countries of Latin America. Since China joined the World Trade Organization (WTO), Latin American exports to China have risen from 1.5% of the total in 2001 to 10% in 2017. Imports to Latin America from China have also risen quickly, to 18% of the total in 2017 (compared with 3% in 2001) (see Chart 2). However, these aggregate figures do not reflect the imbalance in terms of value added and technology content: Latin American imports from China have higher value added and higher technology content than Latin American exports, which are primarily commodities (ILO, 2017). In addition, there is a high level of heterogeneity between countries in terms of the economic

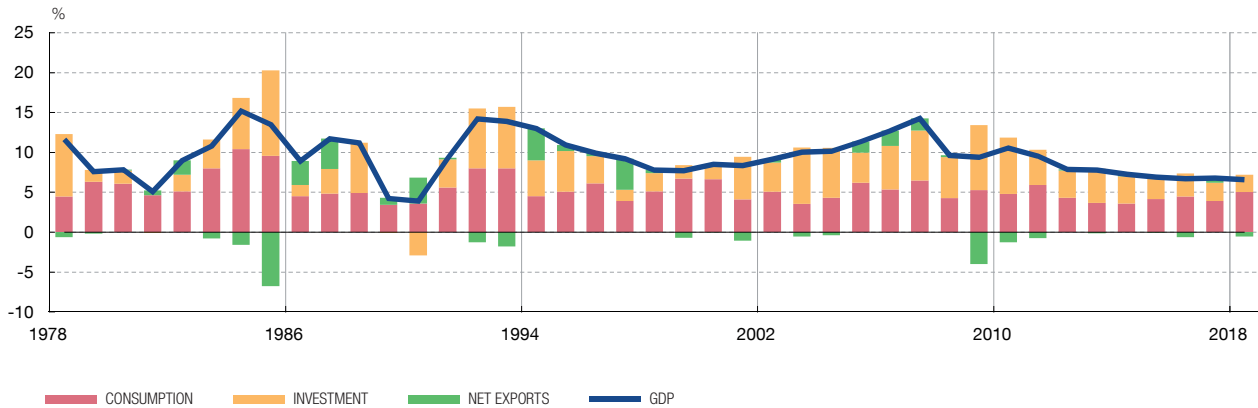
<sup>1</sup> Shadow banking is defined as "credit intermediation involving entities and activities (fully or partly) outside of the regular banking system" (FSB, 2017).

<sup>2</sup> For an analysis of the importance of the financial channel for emerging market economies in the event of a slowdown in China, see Roth et al. (2019).

## CHINA: CONTRIBUTIONS TO GDP GROWTH

CHART 1

Growth in China has been based on investment and exports and has held at 10% per annum on average since the 1980s. However, since the global financial crisis, the Chinese economic model has shown signs of exhaustion.



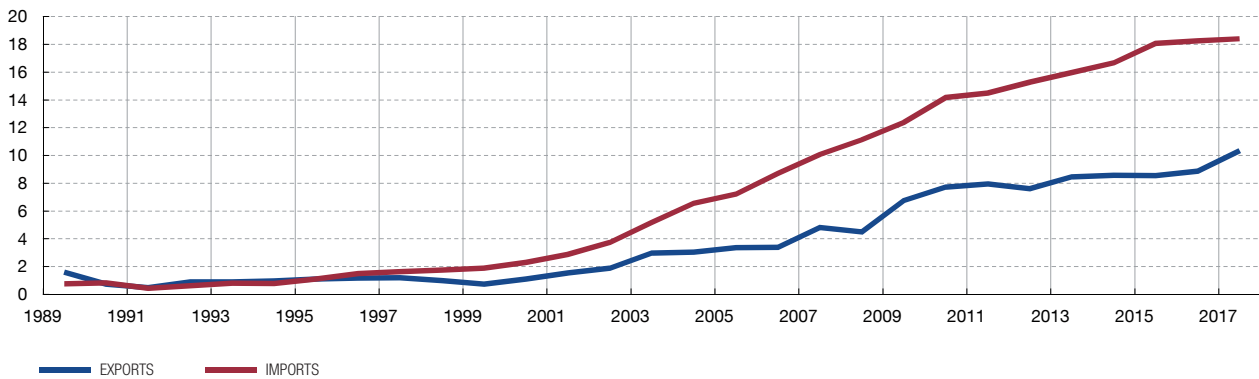
SOURCE: CEIC.



## LATIN AMERICAN TRADE WITH CHINA (% OF TOTAL)

CHART 2

Since China joined the World Trade Organization (WTO), Latin American exports to China and imports from China have grown.



SOURCE: World Bank.



weight of exports to China and the products exported (see Chart 5). In any event, such a significant increase in exports is expected to have had a positive impact on economic growth in the region.

The direct effects of imports may be less clear. On the one hand, to the extent that Chinese imports crowd out domestic markets' local production, they could adversely affect employment and consumption. On the other, to the extent that the increase in Chinese imports is to the detriment of imports from other countries, rather than of local production, it may introduce more competitive products onto the market and boost consumption. Jenkins and Dussel Peters (2009) suggest that such effects are observed in most sectors of the Argentine and Brazilian economies. Moreover, if imports are used as inputs in the production process, they can increase firms' productivity and reduce the sale prices of final goods (Amiti and Konings (2007) and Choquette and Meinen (2015)).

Latin American terms of trade are exposed to fluctuations in international commodity prices. These depend on Chinese demand, given the composition of Chinese imports and the size of the Chinese economy.



SOURCE: World Bank.



There are also several indirect channels that reflect the impact of China on Latin American growth through trade. The first is competition in third markets (Jenkins et al., 2008): China is a competitor for some Latin American countries, especially for those specialising in manufacturing and exports of goods, where China has a competitive advantage.<sup>3</sup> Several empirical studies suggest that this is particularly the case for Mexico. The second indirect channel is the growing interconnectedness between China and Latin America's trading partners, such as the United States and the European Union, whose economies are increasingly exposed to economic activity in China. If an economic slowdown in China were to spread to these advanced economies, which are some of Latin America's biggest export markets, activity in the region could be affected. Lastly, the third channel is related to the sheer size of the Chinese economy, which means that China plays a central role in the global price fluctuations of the products – especially commodities – that it imports (Farooki and Kaplinsky, 2013) (see Chart 3). In turn, these imports form a key part of Latin American exports, thus affecting their terms of trade (Lehmann et al. (2007) and Jenkins (2011)).

In addition, over the last two decades, China has become not only a top FDI destination but also the source of FDI to other countries (ECLAC, 2013). China's FDI flows to Latin America have grown significantly, up to an annual average of \$17.6 billion in the period 2016-18 (compared with an annual average of \$1.6 billion in the period 2005-07) (see Chart 4). Chinese FDI was traditionally concentrated on the extractive industries;<sup>4</sup> this could explain, at least in part, the slowdown in FDI observed in 2013-15, coinciding with the end of the commodity price boom (copper, gold and oil), and its concentration in certain countries (especially Brazil, Peru and Chile). Since 2017, several Latin American countries have entered into cooperation agreements with China,<sup>5</sup> under the Belt and Road

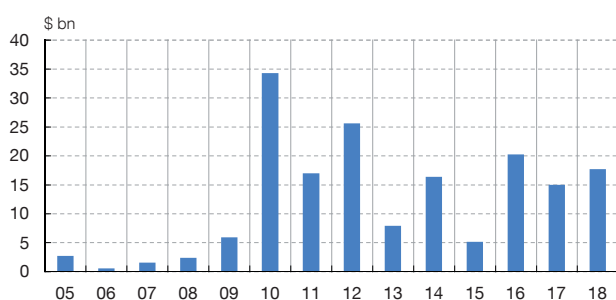
<sup>3</sup> At the turn of the century, China specialised strictly in exports of highly labour-intensive products. But there is evidence of a shift in Chinese exports towards higher quality and more capital-intensive products (Pula and Santabárbara (2011) and Caporale et al. (2015)).

<sup>4</sup> In recent years, Chinese FDI has increasingly focused on service sector activity (Avendano et al., 2017).

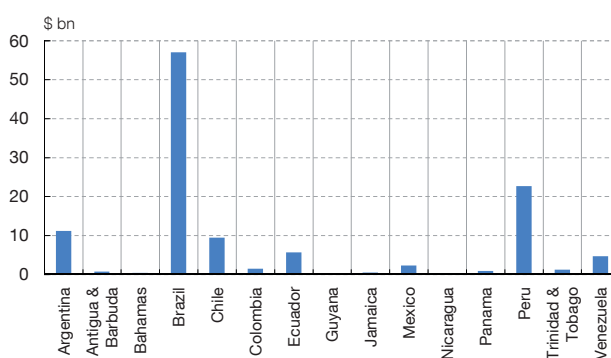
<sup>5</sup> Antigua and Barbuda, Bolivia, Chile, Grenada, Guyana, Panama and Trinidad and Tobago. Ecuador has signed a "cooperative document" (for more information see <https://www.beltroad-initiative.com/memorandum-of-understanding-belt-and-road-initiative/>).

Chinese FDI flows to Latin America have also risen continuously since the turn of the century, but they are concentrated in certain countries and sectors (the extractive industries).

1 FDI FLOWS FROM CHINA TO LATIN AMERICA



2 CHINESE FDI IN LATIN AMERICA, 2005-2017. TOTAL IN PERIOD



SOURCES: Global Investment Tracker and World Bank.



Initiative, that could lead to a reorientation of FDI towards infrastructures in Latin America. In any event, the literature associates FDI with increased productivity, technology transfer and trade in the firms and sectors where it is implemented, which would drive up growth in the region overall.

From a different standpoint, part of the FDI flows to Latin America from other regions of the world could be indirectly diverted to China through the “competition effect” generated by that country’s strong economic growth. However, the impact of possible competition from China on FDI flows to Latin America would be marginal (García-Herrero and Santabárbara (2007), Chantasawat et al. (2010) and Yao and Wang (2014)) and seems only to affect certain very specific geographical areas (such as the rest of Asia).

## Estimates and discussion

In line with the economic growth literature, the analysis in this section aims to quantify the direct effects of Chinese trade and FDI on growth in the countries of Latin America.<sup>6</sup> The technical details of the estimates, which cover 16 countries for the period 2001-2015, are set out in Box 1. The findings are in general in keeping with the literature: population growth has a negative effect on GDP per capita (e.g. Busse et al., 2016). The relationship between investment and growth is positive, but – contrary to what may be expected – it is not significant. The terms of trade of the Latin American economies have a positive correlation with growth, which suggests that Latin American exporters benefit from higher commodity prices (Kataryniuk and Martínez-Martín, 2018), which in turn are explained (at least in part) by higher demand from China.<sup>7</sup> The initial level of GDP per capita has a negative impact; this confirms the convergence effect identified in most empirical studies of economic growth (at country level, e.g. Hansen and Tarp, 2001).

The Latin American countries’ trade ties with China also have a clear positive impact on growth. First because higher external demand for goods stimulates domestic economic activity, and second because higher imports from China may entail cheaper inputs, boosting

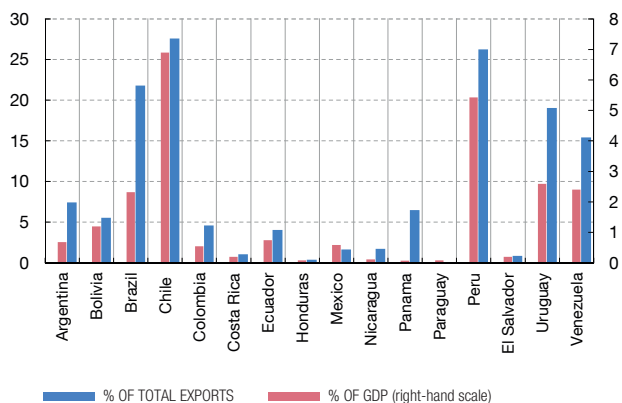
<sup>6</sup> The sample includes: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, Paraguay, El Salvador, Uruguay and Venezuela.

<sup>7</sup> This finding is affected by the number of explanatory variables included in the regression.

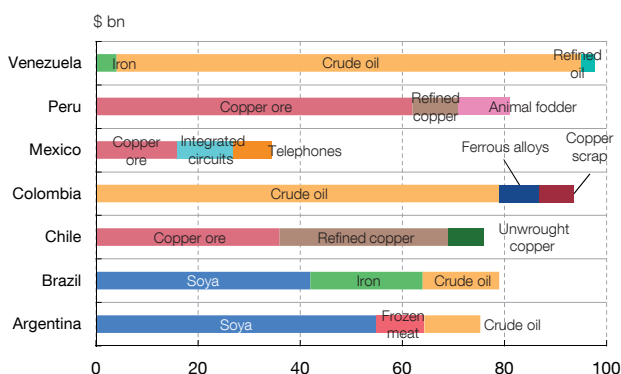


The importance of exports to China varies significantly across countries, as does the type of product exported, although they are mostly primary sector products.

1 EXPORTS TO CHINA, 2017



2 TOP 3 EXPORTS TO CHINA, 2017, % OF TOTAL



SOURCES: Datastream and Observatory of Economic Complexity.



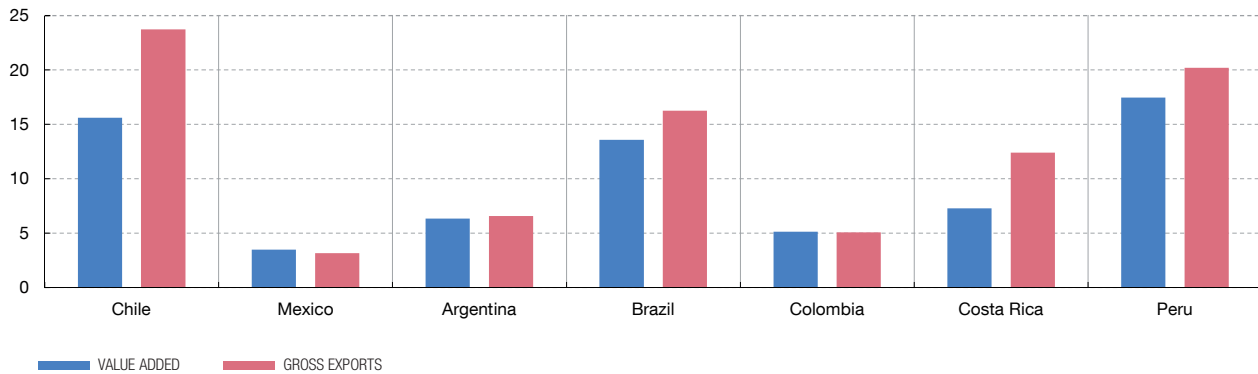
firms' productivity and lowering prices. The effect of exports is robust to the inclusion of FDI, in line with the findings of Vianna (2016) and García-Herrero et al. (2013). This is evidence of the role that Latin American exports to China play in the economic growth of these countries, especially since the year 2000 which is the period on which the analysis focuses.

FDI flows from China have no impact on economic growth. There may be various reasons for this, including the concentration of investment on the extractive industries which according to the literature has a lower or zero impact on economic growth compared with FDI in manufacturing (see, for example, Chakraborty and Nunnenkamp (2008) and Wang (2009)), and also institutional quality (Shan et al., 2018). When trade with and FDI flows from the rest of the world variables are included, as a robustness test, they are not significant, in line with the findings of other authors using a similar methodology (Busse et al. (2016) and Ulasan (2015)).

The findings are subject to certain limitations. The empirical study does not include all the theoretical channels mentioned above, given the constraints imposed by the methodology used. Some of these channels, such as the risk of excessive concentration of exports in some sectors (commodities), which some authors argue is a direct consequence of Chinese influence, or strong Chinese competition in third markets (especially the United States) (UNCTAD, 2019), could have negative effects for growth in the medium to long term. In addition, it is important to note that the estimates represent the average impact, and that there is a certain degree of heterogeneity in the level of the different Latin American countries' exposure to China through the trade channel. Indeed, although certain common patterns can be observed, exposure in terms of exports to China as a proportion of total exports or GDP varies enormously, as does the breakdown by sector of the products exported (see Chart 5).

A further caveat is that the data used relate to gross exports to China. Gross exports include

The share of value added produced in the countries of Latin America and destined to meet final demand in China is lower than the gross export share. This entails a risk of overestimating the actual effect of a possible slowdown in activity.



SOURCE: OECD-TIVA.



goods produced with no generation of value added in Latin America and goods not destined to meet final demand in China. Accordingly, the data may overestimate the actual effect of the trade channel. This is illustrated in Chart 6 which depicts, for 2011,<sup>8</sup> the difference between the share of gross exports to China and the share of value added produced in the countries of Latin America and destined to meet final demand in China. Lastly, the interconnectedness between the countries of Latin America, albeit limited in some cases, could reinforce the contagion effects: slowdown in one Latin American economy as a result of slowdown in China could reduce its imports from other countries in the region.

## Conclusions

The article analyses some of the channels of transmission from the Chinese economy to the Latin American economies. The empirical estimates made suggest that trade exposure to China is significant for Latin American growth, over and above the effect that China has on commodity prices, and that Latin American exports to China have had a positive and statistically significant impact on the GDP per capita growth rate. The analysis shows that an unexpected slowdown in China could have a negative effect on the economies of the region, at least through the trade channel.

In addition, a dramatic shift in commodity prices (whether mining or agricultural products) that often move in line with economic activity in China, may have a significant impact on the group of Latin American countries that have most exposure to commodity production. Lastly, FDI flows from China appear to have no direct significant impact on growth in the region.

17.5.2019

## REFERENCES

- AMITI, M. and J. KONINGS (2007). "Trade Liberalization, Intermediate Inputs, and Productivity: Evidence from Indonesia", *American Economic Review*, 97, pp. 1611-1638.
- AVENDANO, R., A. MELGUIZO and S. MINER (2017). *Chinese FDI in Latin America: New Trends with Global Implications*, Atlantic Council - OECD publication, June.
- ARELLANO, M. and O. BOVER (1995). "Another look at the instrumental variable estimation of error-components models". *Journal of Econometrics*, Vol. 68(1), pp. 29-51.

<sup>8</sup> The last year for which data are available in the OECD-TIVA database. The availability of data at a geographical level explains why the sample is limited to just seven countries.



- BAI, C., C. HSIEH and Z. SONG (2016). *The Long Shadow of China's Fiscal Expansion*, NBER Working Paper No. 22801, November.
- BANCO DE ESPAÑA (2019). *Annual Report 2018*.
- BARRO, R. J. and X. SALA-I-MARTÍN (1992). "Convergence", *Journal of Political Economy*, 100, pp. 223-251.
- BORIN, A. and M. MANCINI (2016). "Foreign direct investment and firm performance: an empirical analysis of Italian firms", *Review of World Economics*, 152, pp. 705-732.
- BUSSE, M., C. ERDOGAN and H. MÜHLEN (2016). "China's Impact on Africa – The Role of Trade, FDI and Aid", *Kyklos*, Vol. 69, pp. 228-262.
- CAPORALE, G. M., A. SOVA and R. SOVA (2015). "Trade flows and trade specialization: The case of China", *China Economic Review*, 34, pp. 261-273.
- CASHIN, P., K. MOHADDES and M. RAISSI (2017). "China's slowdown and global financial market volatility: Is world growth losing out?", *Emerging Markets Review*, 31, pp. 164-175.
- CHAKRABORTY, C. and P. NUNNENKAMP (2008). "Economic Reforms, FDI, and Economic Growth in India: A Sector Level Analysis", Vol. 36, pp. 1192-1212.
- CHANTASASAWAT, B., K. C. FUNG, H. IIZAKA and A. SIU (2010). "FDI Flows to Latin America, East and Southeast Asia, and China: Substitutes or Complements?", *Review of Development Economics*, 14, pp. 533-546.
- CHOQUETTE, E. and P. MEINEN (2015). "Export Spillovers: Opening the Black Box", *The World Economy*, Vol. 38, pp.1912-1946.
- DIEPPE, A., R. GILHOOLY, J. HAN, I. KORHONEN and D. LODGE (eds.) (2018). *The transition of China to sustainable growth – implications for the global economy and the euro area*, ECB Occasional Paper, No 206, January.
- ECLAC (2013). "Chinese foreign direct investment in Latin America and the Caribbean", China-Latin America cross-council task force. Working Document. United Nations.
- FAROOKI, M. and R. KAPLINSKY (2013). *The impact of China on global commodity prices*, London, Routledge.
- FINANCIAL STABILITY BOARD (2017). *Global Shadow Banking Monitoring Report*, May.
- GARCÍA-HERRERO, A., M. FERCHEN and M. NIGRINIS (2013). "Evaluating Latin America's Commodity Dependence on China". *SSRN Electronic Journal*.
- GARCÍA-HERRERO, A. and D. SANTABÁRBARA (2007). "Does China have an impact on foreign direct investment to Latin America?", *China Economic Review*, 18, pp. 266-286.
- HANSEN, H. and F. TARP (2001). "Aid and growth regressions", *Journal of Development Economics*, Vol. 64, pp. 547-570.
- ILO (2017). *Effects of China on the quantity and quality of jobs in Latin America and the Caribbean*, ILO Americas Technical Reports 2017/6.
- IMF (2019). *World Economic Outlook Update*, January.
- ISLAM, N. (1995). "Growth Empirics: A Panel Data Approach", *Quarterly Journal of Economics*, Vol. 110, pp. 1127-1170.
- JENKINS, R. (2011). "The 'China effect' on commodity prices and Latin American export earnings", *CEPAL Review* No. 103, April.
- JENKINS, R. and E. DUSSEL PETERS (2009). *China and Latin America: Economic Relations in the Twenty-First Century*, Bonn, German Development Institute Press.
- JENKINS, R., E. DUSSEL PETERS and M. MESQUITA MOREIRA (2008). "The Impact of China on Latin America and the Caribbean", *World Development*, Vol. 36, pp. 235-253.
- KAPLINSKY, R., and D. MESSNER (2008). "Introduction: The Impact of Asian Drivers on the Developing World", *World Development*, 36, pp. 197-209.
- KATARYNIUK, I. and J. MARTÍNEZ-MARTÍN (2018). "TFP Growth and Commodity Prices in Emerging Economies", *Emerging Markets Finance and Trade*, <https://doi.org/10.1080/1540496X.2018.1520089>.
- LEHMANN, S., D. MORENO and P. JARAMILLO (2007). *China, precios de commodities y desempeño de América Latina: algunos hechos estilizados*, Central Bank of Chile Working Papers, No. 424, August.
- LIU, X., C. WANG and Y. WEI (2001). "Causal links between foreign direct investment and trade in China", *China Economic Review*, Vol. 12, pp. 190-202.
- MANKIW, G., D. ROMER and D. WEIL (1992). "A Contribution to the Empirics of Economic Growth", *Quarterly Journal of Economics*, 104, pp. 407-437.
- PERRI, A. and E. PERUFFO (2016). "Knowledge Spillovers from FDI: A Critical Review from the International Business Perspective", *International Journal of Management Reviews*, Vol. 18, pp. 3-27.
- PULA, G. and D. SANTABÁRBARA (2011). *Is China climbing up the quality ladder? Estimating cross country differences in product quality using Eurostat's COMEXT trade database*. ECB Working Paper 1310, March.
- ROODMAN, D. (2009). "How to do xtabond2: An Introduction to difference and system GMM in Stata", *The Stata Journal*, Vol. 9, pp. 86-136.
- ROTH, M., D. SANTABÁRBARA and B. XU (2019). "Global impact of a slowdown in China", Analytical Articles, *Economic Bulletin*, 2/2019, Banco de España.
- SALA-I-MARTÍN, X. (1996). "Regional Cohesion: Evidence and Theories of Regional Growth and Convergence", *European Economic Review*, Vol. 40, pp. 1325-1352.
- SERRA, X., J. TIMINI, J. ESTEFANÍA and E. MARTÍNEZ-CASILLAS (2018). "Argentina: economic challenges in an adverse international setting", Analytical Articles, *Economic Bulletin*, 4/2018, Banco de España.
- SHAN, S., Z. LIN, Y. LI and Y. ZENG, (2018). "Attracting Chinese FDI in Africa: The role of natural resources, market size and institutional quality", *Critical Perspectives on International Business*, 14, pp. 139-153.
- TIMINI, J. (2017). "China's economic imbalances and the role of the financial sector", Analytical Articles, *Economic Bulletin*, 4/2017, Banco de España.
- ULASAN, B. (2015). "Trade openness and economic growth: panel evidence", *Applied Economic Letters*, Vol. 22, pp. 163-167.
- UNCTAD (2019). "Who is profiting from US-Chinese trade tensions?", February. Available at: <https://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=1990>.

- VIANNA, A. C. (2016). "The impact of exports to China on Latin American growth", *Journal of Asian Economics*, 47, pp. 58-66.
- WANG, M. (2009). "Manufacturing FDI and economic growth: evidence from Asian economies", *Applied Economics*, Vol. 41, pp. 991-1002.
- YAO, S. and P. WANG (2014). "Has China displaced the outward investments of OECD countries?", *China Economic Review*, 28, pp. 55-71.

One of the methodologies generally used to estimate growth determinants consists in applying the Solow growth model, using population growth, the saving rate and technological change as explanatory variables. In the model used here, in accordance with Mankiw et al. (1992) and Islam (1995), the real GDP per capita growth rate in Latin America is determined by the following expression:

$$\Delta y_{it} = \beta_0 + \beta_1 \Delta y_{it-1} + \gamma Z'_{it} + \delta X'_{it} + \varepsilon_{it} \quad [1]$$

where  $\Delta y_{it-1}$  is the dependent lagged variable,  $Z'_{it}$  is a vector that includes standard control variables in accordance with the literature – population growth ( $\Delta POP_{it}$ ), investment growth ( $\Delta INV_{it}$ , as a proxy of the saving rate), a terms of trade index ( $ToT_{it}$ ) and the level of initial GDP per capita ( $y_{i, initial}$ ) – to ascertain if there is (beta) convergence (see Barro and Sala-i-Martin (1992) and Sala-i-Martin (1996)) between the different economies.  $X'_{it}$  is a vector that includes the variables of interest. In accordance with Vianna (2016), imports from and exports to China, and imports from and exports to the rest of the world, are included in alternative specifications (given their high correlation). Lastly, FDI flows from China and the rest of the world are also included, as it is expected

that FDI will be associated with the creation of jobs that command higher wages and with higher productivity (Borin and Mancini, 2016), knowledge spillover (Perri and Peruffo, 2016) and greater trade (Liu et al., 2001).

The problems of endogeneity of some of the explanatory variables, and the possible biases arising from inclusion of the lagged dependent variable, are addressed using the System Generalised Method of Moments (GMM) with heteroscedastic weight matrix, which is particularly suitable for small and highly persistent samples (Arellano and Bover (1995) and Roodman (2009)).<sup>1</sup> Table 1 shows the signs expected and the results of the regressions.

<sup>1</sup> The Two-Step System GMM. One of the main risks with estimators of this kind is the proliferation of instruments in the estimation (as several instruments are used for each of the variables considered endogenous). Following the golden rule in the case of a sample with only a small number of observations, we ensured that the number of instruments was always equal to or less than the number of groups (in this case, countries). The data for the GDP, investment, population growth, terms of trade and GDP per capita variables are World Bank data ([https:// data.worldbank.org/](https://data.worldbank.org/)); the trade and FDI data are UN data (COMTRADE and UNCTAD).

**Table 1**  
**EFFECTS OF TRADE AND INVESTMENT ON LAC GROWTH**

	Expected sign	Main determinants (1)	Main determinants (2)	Trade (China)	Trade and FDI (China)	Trade (RoW)	Trade and FDI (RoW)
$\Delta y_{it-1}$	-	_-**	_-**	_-**	_-***	+	-
$\Delta INV_{it}$	+	+	+	+	+**	+	+***
$\Delta POP_{it}$	-	_-**	_-*	_-**	_-**	_-**	_-***
$ToT_{it}$	+	+*	+	+	+**	+	+
$y_{i, initial}$	-		-	_-**	_-*	-	_-*
Exp_CHN	+			+***	+***		
Imp_CHN	?			+***	+		
IED_CHN	?				-		
Exp_RdM	+					+	+
Imp_RdM	?					+	-
IED_RdM	+						-

SOURCE: Own calculations.

NOTE: The sample includes 16 countries, from 2001 to 2015. To eliminate the economic cycle effect and in keeping with the literature (e.g. Busse et al., 2016), the 5-year average (with no overlapping) has been calculated for all the variables. To determine the expected sign of each of the variables, data have been compiled from a range of different studies or theoretical approaches. The “?” sign is used where there are groups of studies or theoretical approaches that lead to contrasting results for a specific variable. All regressors have been included in the equation as logarithms of the respective variable as a percentage of GDP, with the exception of the initial level of GDP per capita. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.