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A network analysis approach to vertical trade linkages

The case of Latin America and Asia

Dayna Zaclicever

UNITED NATIONS

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Abstract

Network analysis techniques offer a powerful means for studying the connections between countries within international production networks. This document adopts a network analysis approach to examine the vertical trade relations between Latin America and Asia, showing the potential of these techniques for providing new insights into the patterns and dynamics of countries' GVC linkages. Particularly, network-based measures are used to assess how important countries are as users and suppliers of foreign intermediate inputs in each network, at both the aggregate and sector level. In addition, clustering techniques are applied to identify groups of supplier countries.

The analysis shows the expansion experienced by Latin America-Asia vertical integration between 2000 and 2014. Particularly, it highlights the increasingly central role played by China, both as a user of inputs imported from Latin American countries and as a supplier of intermediates for these countries' exports. The document also shows the asymmetric nature of the linkages between the two regions, where Latin America is largely specialised in supplying primary and relatively low-technology manufactured inputs while importing more technology-intensive intermediates.

Introduction

Latin America's trade with Asia increased rapidly since the early 2000s, as China emerged as a major player in the world economy. The share of Asian countries in Latin American goods exports rose from around 15% in 2000 to nearly 30% in 2014, while their participation in the region's goods imports increased in this period from less than 7% to around 20%. Yet, the asymmetric nature of these trade linkages, in which Latin America exports a small range of primary products and low-technology manufactures and imports a larger variety of higher-technology goods, poses challenges for the region in terms of diversification and upgrading (i.e., shifting toward higher value-added products and tasks).

The pattern of Latin America-Asia trade relations reflects these regions' roles in global value chains (GVCs). While many Asian economies have successfully integrated into different stages of international production networks, by specialising in niches of the manufacturing process, Latin American countries' GVC participation has been predominantly limited to supplying relatively unprocessed natural resource-based inputs to other countries downstream (Blyde, 2014; Cadestin et al., 2016).

This document adopts a network analysis approach to provide new insights into the extent and nature of vertical trade links between Latin America and Asia (i.e., their trade in intermediate inputs that are used to produce each region's exports). Network analysis offers a powerful means for representing patterns of connections between countries within international production networks. Since the first applications of these techniques to the characterisation of world trade (e.g., Serrano and Boguñá, 2003; Garlaschelli and Loffredo, 2005; Kali and Reyes; 2007), a growing body of literature has explored the use of network analysis to the study of GVCs. Using bilateral trade data, Ferrarini (2013) introduces the visualisation of trade associated with international production chains in the form of network maps, and quantifies the intensity of vertical trade among the countries and industries participating in global production sharing. Also on the basis

of bilateral trade data, Cingolani et al. (2017) propose a three-faceted measure of centrality that captures countries' distinct roles at the upstream, midstream, and downstream stages of the international production process. Studies based on inter-country input-output (ICIO) data include Zhu et al. (2015), who investigate the topological properties of industry-level GVCs, represented as global value trees that capture the value-added flows between industries in different countries. De Benedictis and Tajoli (2016) evaluate the evolution of Italy's comparative advantages, both in gross terms and in value added, through the visual and topological representation of its position in the network of world trade. Amador and Cabral (2017) provide a general picture of the nature and dynamics of GVCs from a binary-network perspective, examining analytically and graphically the international flows of value added. Amador et al. (2018) use weighted network metrics to investigate the specific roles of different countries within GVCs and quantify their relative importance over time. Also, Zhu et al. (2018) compare GVCs across countries, introducing a network-based measure of similarity that takes into account both direct and indirect relationships between country-sector pairs.

Here, information from input-output tables is combined with bilateral trade data to describe the patterns and dynamics of vertical trade between Latin America and Asia along the period 2000-2014. Particularly, network-based measures are used to assess how important countries are as users and suppliers of foreign intermediate inputs in each network, on the basis of their weighted in-going and out-going connections. In addition, clustering techniques are used to identify groups of supplier countries.

The document is organised in three sections. Section I describes the methodology and data underlying the analysis. Section II presents the characterisation of Latin America and Asia's vertical trade relationships. Finally, section III concludes.

I. A network analysis of gross vertical trade

Vertical trade refers to the use of foreign intermediate inputs to produce countries' exports. In gross terms, countries' forward linkages in international value chains are reflected in their exports of intermediate inputs that are incorporated into other countries' exports, while backward linkages are given by the foreign intermediates used in the production of countries' own exports. This document adopts a network analysis approach to study the patterns and dynamics of gross vertical trade between Latin America and Asia along the period 2000-2014, combining input-output information from the Organisation for Economic Cooperation and Development (OECD) with bilateral trade data from the *Centre d'Études Prospectives et d'Informations Internationales* (CEPII)'s *Base pour l'Analyse du Commerce International* (BACI).[1]

Network analysis provides useful tools to visualise and synthetically represent international trade flows. Particularly, it allows for studying trade linkages in a structural way, taking into account the interdependence amongst all participant countries (De Benedictis et al., 2013; Amador et al., 2018). Thus, trade relations between each country-pair are not analysed in isolation but considering the full set of relations in the network (i.e., each country's relation with every other participating country). This is particularly useful for assessing the nature and dynamics of countries' GVC linkages.

International value chains are represented here as weighted directed networks where countries (nodes or vertices) are linked by bilateral vertical trade flows (edges).[2] The analysis focuses on Latin American and Asian countries' gross backward linkages, measured by the

[1] For details on the construction of the dataset, see annex 1.

[2] In directed networks each edge has a direction, pointing from one node to another (here, from the input-exporting country to the input-importing country). In contrast, undirected networks ignore the direction of the edges (if there is any).

imported intermediate goods used to produce these countries' manufacturing exports (excluding energy inputs). The input-output data available allow to include 7 countries from Latin America (Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico, and Peru) and 14 Asian countries (Brunei Darussalam, Cambodia, China, Hong Kong, India, Indonesia, Japan, the Republic of Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand, and Viet Nam) as importers of foreign inputs (i.e., recipients of the directed edges). The countries supplying these inputs (i.e., origin of the edges) are 220, including 33 from Latin America and the Caribbean and 17 from Asia.[3]

It should be noted that the reduced availability of inter-country input-output data for Latin American countries imposes two limitations to the analysis performed in this document. First, the use of gross vertical trade data implies that both the domestic and foreign value embodied in traded inputs are considered, not just the value added in the exporting country. Measures based on trade in value added would allow quantifying countries' actual contribution to the value generated in each stage of the production chain, capturing direct and indirect inter-country linkages. Second, most Latin American economies are considered here as supplying countries but not in their role as input-importing countries, which prevents from taking into account the complete set of interconnections amongst Latin American and Asian economies, as well as that of intra-regional linkages within Latin America.

This section presents the indicators used to assess countries' roles as users and suppliers of foreign intermediates in each of the two networks considered —referred hereafter as Latin America (7 countries) and Asia (14 countries)—, on the basis of their in-going and out-going connections. It also describes the cluster analysis performed to identify groups of supplier countries in each network.

A. Centrality measures

Centrality measures allow quantifying how important (central) nodes are in a network. They can be used to evaluate how relevant a country's participation in international value chains is. The simplest measure of centrality is node degree, often referred to as degree centrality, given by the number of edges connected to the node. In directed networks nodes have two different degrees, in-degree and out-degree, corresponding to the number of in-going and out-going edges, respectively.

Here, links between countries are weighted by the value of the vertical trade-related intermediate goods exchanged. Thus, extending the definition of node degree to the case of a weighted network (Barrat et al., 2004), countries' in-strength (s^{in}) —computed for the 21 Latin American and Asian importers included in the analysis— is given by the total value of the foreign intermediate goods embodied in each country's own exports. Countries' out-strength (s^{out}) —computed for the 220 supplier countries considered— is the total value of the intermediate

[3] The analysis in this document focuses on the value chains linking Latin America and the Caribbean with East and South-East Asia. Unless otherwise indicated, this last region (for simplicity, referred to as Asia) comprises the following countries: Brunei Darussalam, Cambodia, China, Hong Kong (Special Administrative Region of China), India, Indonesia, Japan, the Republic of Korea, Lao, Macao, Malaysia, Myanmar, Philippines, Singapore, Taiwan (Province of China), Thailand, and Viet Nam. Other Asian countries are included in the aggregate rest of the world. The list of all the countries considered in the analysis, and their three-letter ISO codes (used in tables and figures), is given in table A.2 in annex 2.

goods supplied to other countries' exports. Both measures are normalised by the total weight of the network (being therefore expressed in percentage terms):

$$s_p^{in} = \frac{\sum_q w_{qp}}{\sum_q \sum_p w_{pq}} \quad (1)$$

$$s_p^{out} = \frac{\sum_q w_{pq}}{\sum_q \sum_p w_{pq}} \quad (2)$$

where w_{pq}, the *pq*th element of the weighted adjacency matrix, is the value of the intermediate goods from source (exporting) country *p* embodied in (importing) country *q*'s exports (with w_{pq} = 0 for $p = q$).[4]

Countries' centrality can also be assessed by identifying the so-called hubs and authorities in each network. The hub and authority centralities of a country are related to the centralities of the countries it is connected to. A hub is defined here as a country that supplies a large amount of intermediate goods to countries that are important users of foreign inputs in their exports (i.e., countries that have a high in-strength centrality). An authority is a country whose exports embody a large amount of intermediate goods from countries that are important suppliers (i.e., countries that have a high out-strength centrality). A hub may also be an authority, and vice versa. Thus, the hub and authority centralities quantify countries' relevance in the two roles: the hub centrality reflects countries' prominence as suppliers of foreign intermediates to other countries' exports, whereas the authority centrality indicates countries' importance as users of foreign intermediates in their own exports (analogously to the out-strength centrality and the in-strength centrality, respectively).

The centrality algorithm called hyperlink-induced topic search (HITS), developed by Kleinberg (1999), works iteratively computing hub and authority scores for each node. These scores, defined in terms of one another and initialised to 1, are updated during each iteration as follows:

- the authority centrality of node *p* (aut_p) is proportional to the sum of the (previous iteration's) hub centralities of the nodes that point to node *p*

$$aut_p(n) = b(n) \sum_q w_{qp} hub_q(n-1) \quad (3)$$

- the hub centrality of node *p* (hub_p) is proportional to the sum of the (current iteration's) authority centralities of the nodes it points to

$$hub_p(n) = c(n) \sum_q w_{pq} aut_q(n) \quad (4)$$

where *n* is the iteration number; and *b* and *c* are normalisation factors that make the squares of the authority and hub scores, respectively, sum to 1 (i.e., $\sum_p [aut_p(n)]^2 = 1$, and $\sum_p [hub_p(n)]^2 = 1$). The algorithm is considered to have converged when the scores become stable (i.e., the change between one iteration and the next is below an arbitrarily small value, set here at 1E-10).

From equation (3), authority centrality will be larger for countries with significant imports from countries with large hub centrality. Similarly, from equation (4), hub centrality will be larger

[4] The adjacency matrix is used to represent networks, capturing their structure. In its binary form, the elements of the adjacency matrix (a_{pq}) take the value 1 if there is a link (edge) between the corresponding nodes (in directed networks, a link from node *p* to node *q*), and 0 otherwise. The elements of the weighted adjacency matrix (w_{pq}) are the weights (strength) of the links between the corresponding nodes.

for those countries with significant exports to countries with large authority centrality. Thus, both metrics are interrelated, strengthening and reinforcing each other (Deguchi et al., 2014).

B. Community detection

Another relevant area of network analysis is that of community detection or clustering, consisting in the division of nodes into groups, clusters or communities on the basis of topological features extracted from the network (e.g., the density of links between nodes), or additional information on characteristics related to the nodes and edges.

Here, the K-medoids clustering method (particularly, the partitioning around medoids (PAM) algorithm) is used to identify groups of supplier countries in each network. A cluster is defined as a set of countries that are closer each other, compared to the rest of supplier countries in the network, according to a measure of distance or dissimilarity. This dissimilarity measure is computed on the basis of the composition of countries' vertical trade-related intermediate exports, in terms of the share of agricultural, mining, low-technology, medium-low-technology, and medium-high or high-technology inputs.[5,6]

The PAM algorithm is based on the search for *k* nodes, called medoids, that should represent the structure of the data (Kaufman and Rousseeuw, 1987). These representative nodes are the most centrally located nodes in each cluster.[7] After selecting an initial set of medoids, clusters are formed by assigning each non-selected node to its most similar medoid (build phase). Subsequently, medoid and non-medoid nodes are exchanged (swap phase), until the sum of dissimilarities between the nodes and their closest medoid (the objective function) can no longer be decreased. At each iteration, an original medoid is replaced with the node that causes the greatest reduction in the objective function (if there is any). The set of best nodes for each cluster form the new respective medoids, and non-medoid nodes are re-assigned. As a result of this procedure, the nodes assigned to each cluster should have a high degree of similarity, while nodes belonging to different clusters should be as dissimilar as possible.

As it is frequently the case in cluster analysis, the number of clusters present in each network is not known *a priori* here. The PAM algorithm is therefore computed using different values of *k*, and the optimal cluster structure is determined by means of the so-called silhouette coefficient (Rousseeuw, 1987). This coefficient evaluates clustering quality by combining information about inter-cluster separation and intra-cluster compactness:

$$SC_p(k) = \frac{\bar{d}_p^B(k) - \bar{d}_p^W(k)}{\max\{\bar{d}_p^W(k); \bar{d}_p^B(k)\}} \quad (5)$$

---

[5] Dissimilarity between countries is measured by the Euclidean distance, given by: $d_{pq} = \sqrt{\sum_i |x_p(i) - x_q(i)|^2}$, where $x_p(i)$ and $x_q(i)$ is the share of the *i*-th category of inputs in countries *p* and *q*'s exports, respectively.

[6] The technology-intensity classification of manufacturing industries considered in this document is based on that of the OECD. For details, see table A.1 in annex 2 and ISIC Rev. 3 Technology Intensity Definition (OECD, online document: www.oecd.org/dataoecd/43/41/48350231.pdf).

[7] K-medoids clustering is a robust alternative to K-means clustering, less sensitive to outliers. While in K-means clustering the centre of a given cluster is calculated as the mean of the member nodes, which is greatly influenced by extreme values, K-medoids uses the most centrally located node (i.e., that for which dissimilarity with all the other members of the cluster is minimal).

where $\bar{d}_p^W$ is the average dissimilarity of country *p* to all other countries in its own cluster (within dissimilarity); $\bar{d}_p^B$ is the average dissimilarity of country *p* to the members of its neighbouring cluster (i.e., the smallest between dissimilarity); and *k* is the number of clusters considered.[8]

For each country *p*, SC_p ranges between -1 and 1. A value close to 1 implies that within dissimilarity is much smaller than the smallest between dissimilarity, so country *p* is well-clustered. In contrast, a value close to -1 would imply that country *p* is misclassified, as within dissimilarity is much larger than the smallest between dissimilarity. A small value of SC_p (around 0) means that the country lies between two clusters.

The optimal number of clusters in each network (*k**) is given by that that yields the largest overall average silhouette width (i.e., the average of SC_p for the *P* supplier countries in the network), computed as:

$$\overline{SC}(k) = \frac{\sum_{p=1}^{P} SC_p(k)}{P} \quad (6)$$

[8] To avoid confusion with subsection A, the notation in equation (5) differs from that used in Rousseeuw (1987).

II. Latin America and Asia's vertical trade integration

A. Vertical trade networks: relevant players, hubs and authorities

Vertical trade integration between Latin America and Asia is first approached here by assessing countries' roles as users and suppliers of foreign intermediates in each network (i.e., Latin America (7 countries) and Asia (14 countries)), based on the centrality measures described in section I.

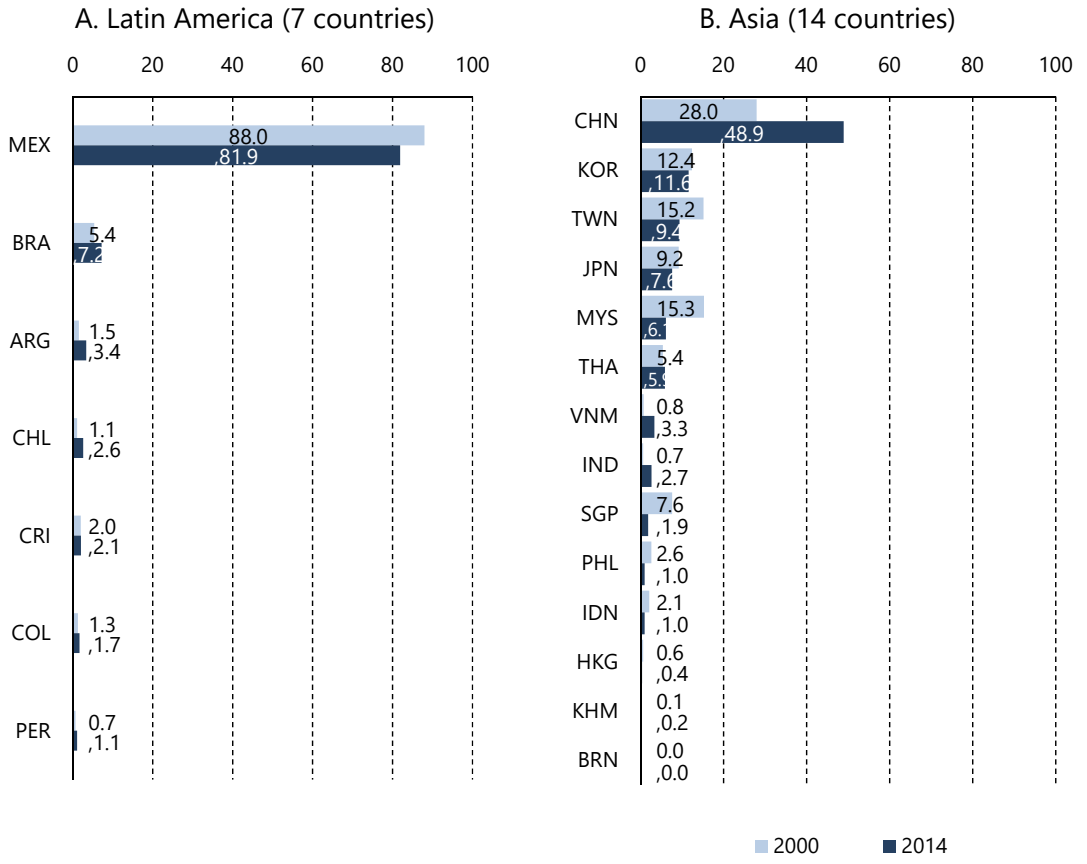
The analysis of countries' in-strength centrality shows that Mexico —highly integrated into North American value chains— concentrates the bulk of the in-going vertical trade-related intermediate flows in Latin America (7 countries), while China is largely the main user of imported inputs within Asia (14 countries) (see figure 1). China also plays a central role in both networks as a supplier of foreign intermediates to other countries' exports, as revealed by its out-strength centrality (see figure 2). Although the United States remains as the main input supplier for Latin America (7 countries) —mostly Mexico—, it has lost much ground to China. In Asia (14 countries), China's out-strength centrality has also increased significantly since the early 2000s, to the detriment of Japan and the United States.

The increasing relevance of China, in the role of both user and supplier of foreign intermediates, reflects this country's rise as a major global manufacturing centre in the 2000s, after its accession to the World Trade Organization (WTO). This is also evident when considering the global network made up of the 63 countries covered in the OECD's ICIO tables (see figure 3).

Latin American and Caribbean countries do not play a relevant role as suppliers of foreign intermediates (see figures 2 and 3). Particularly, these countries' weak intraregional linkages contrast with those of Asian economies, although there are significant differences between Mexico and the other countries encompassed in Latin America (7 countries) (referred hereafter as Latin America

(6 countries)). While Latin America and the Caribbean accounts for only 3% of the foreign inputs embodied in Mexican manufacturing exports, it represents over 30% of the total in Argentina and Chile (see figure A.1 in annex 2). For Asia (14 countries), the share of intraregional inputs ranges between 38% (India) and 95% (Cambodia), with an average of 66% (see figure A.2 in annex 2). Yet, the level of intraregional linkages —as well as countries' overall out-strength centrality— varies greatly across inputs' origin sectors.

Figure 1
Latin America (7 countries) and Asia (14 countries): in-strength centrality in regional networks, 2000 and 2014[a]
(Percentages)



Source: Author's calculations on the basis of input-output data from the Organisation for Economic Cooperation and Development (OECD)'s ICIO tables.
[a] Countries are shown in descending order according to their in-strength centrality in 2014, which is normalised by the total value of the foreign intermediate inputs embodied in the corresponding network's manufacturing exports (i.e., Latin America (7 countries) and Asia (14 countries) for figures 1.A and 1.B, respectively).

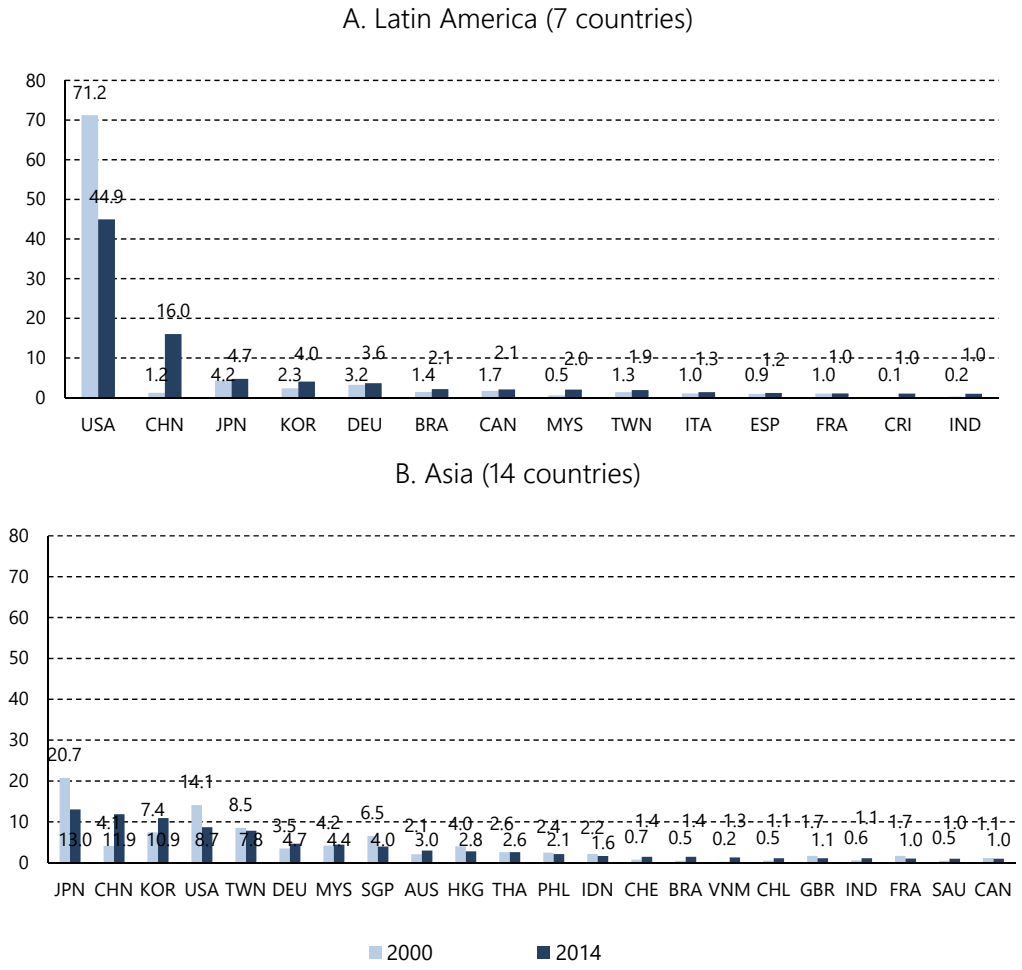
Latin American countries, particularly those from the South American subregion and mostly at the intraregional level, show relatively large out-strength centralities in agriculture, mining and natural resource-based manufacturing sectors (including Food products, beverages and tobacco, Pulp, paper and paper products, and Basic metals). Except for Basic metals, these sectors account for a rather small share of the foreign intermediates embodied in Latin American and Asian countries's manufacturing exports (see tables A.3 to A.5 in annex 2). Brazil and, to a lesser extent, Argentina and Mexico also play a significant role as intraregional suppliers of more technology-intensive inputs (Motor vehicles,

Electrical machinery and apparatus, n.e.c., Computer, electronic and optical equipment, depending on the country). In addition, Costa Rica and Mexico have a rather significant participation as a source of some high-technology inputs for Asian manufacturing exports (Computer, electronic and optical equipment and Motor vehicles, respectively).[9]

Figure 2

Selected countries: out-strength centrality in Latin America (7 countries) and Asia (14 countries), 2000 and 2014[a]

(Percentages)

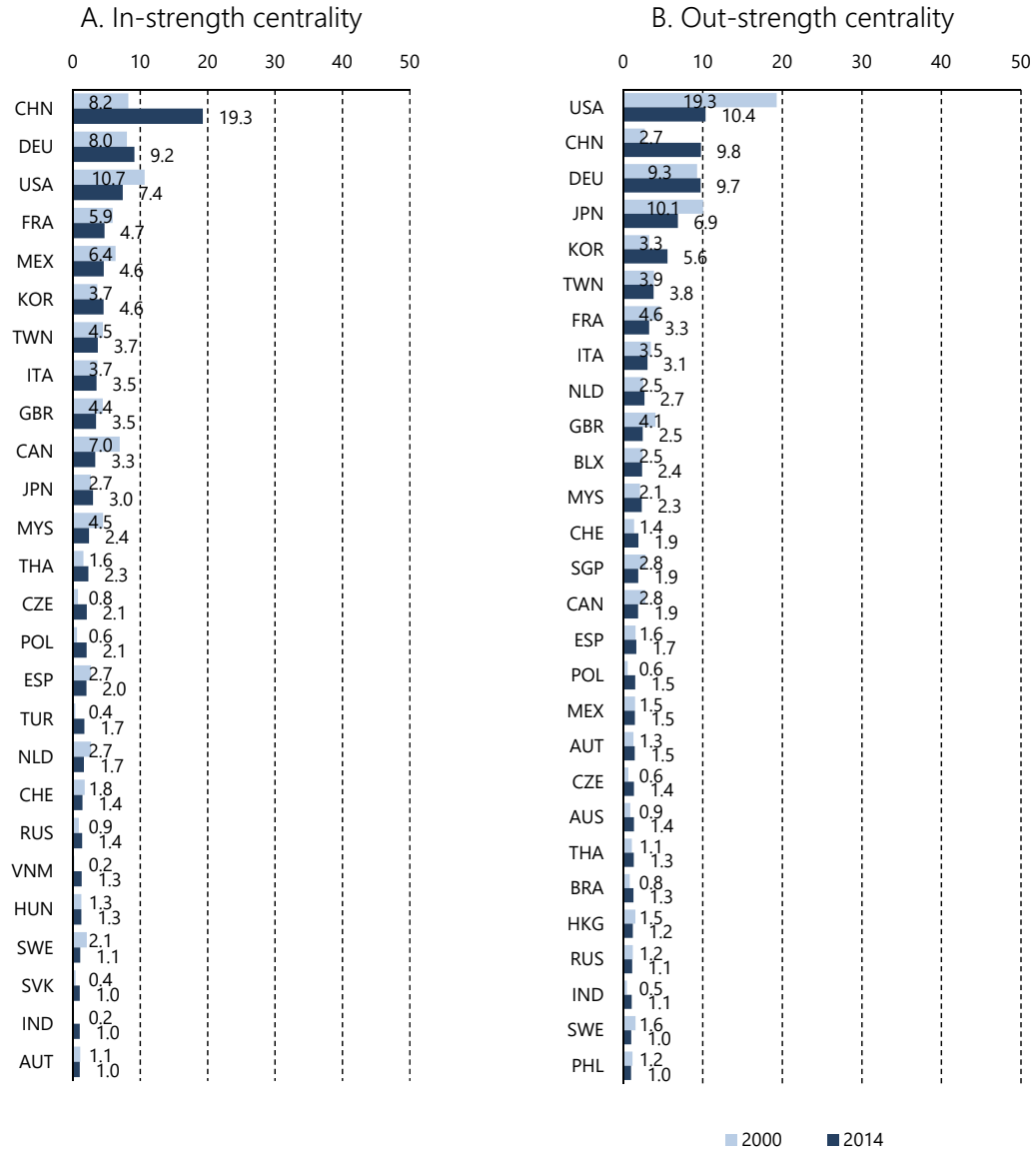


Source: Author's calculations on the basis of input-output data from the Organisation for Economic Cooperation and Development (OECD)'s ICIO tables; and trade data from the Centre d'Études Prospectives et d'Informations Internationales (CEPII), Base pour l'Analyse du Commerce International (BACI).

[a] Countries are shown in descending order according to their out-strength centrality in 2014, which is normalised by the total value of the foreign intermediate inputs embodied in the corresponding network's manufacturing exports (i.e., Latin America (7 countries) and Asia (14 countries) for figures 2.A and 2.B, respectively). Countries with a strength centrality of less than 1% in 2014 are not shown.

[9] The closure of Intel's microprocessor assembly plant in 2014 has caused a sharp decline in Costa Rican exports of electronic components.

Figure 3
Selected countries: in and out-strength centrality in the global (63 countries) network, 2000 and 2014[a]
(Percentages)



Source: Author's calculations on the basis of input-output data from the Organisation for Economic Cooperation and Development (OECD)'s ICIO tables; and trade data from the Centre d'Études Prospectives et d'Informations Internationales (CEPII), Base pour l'Analyse du Commerce International (BACI).

[a] Countries are shown in descending order according to their strength centralities in 2014, which are normalised by the total value of the foreign intermediate inputs embodied in the global (63 countries) network's manufacturing exports. Countries with a strength centrality of less than 1% in 2014 are not shown.

The analysis by source sector shows that China's largest out-strength centrality in Latin America (6 countries) is in Textiles, leather and footwear, which represents less than 2% of total foreign inputs. Among the main source sectors, China accounts for a larger share in Basic metals, Fabricated metal products, Computer, electronic and optical equipment, Machinery and equipment, n.e.c., and Rubber and plastics products (see table A.3 in annex 2). In all six sectors, China's participation increased

significantly since the early 2000s, at the expense of other extraregional suppliers like the United States, the European Union and other Asian economies. Latin American countries have also been affected by China's competition in intraregional markets, particularly as a source of Basic metals and Textiles, leather and footwear.

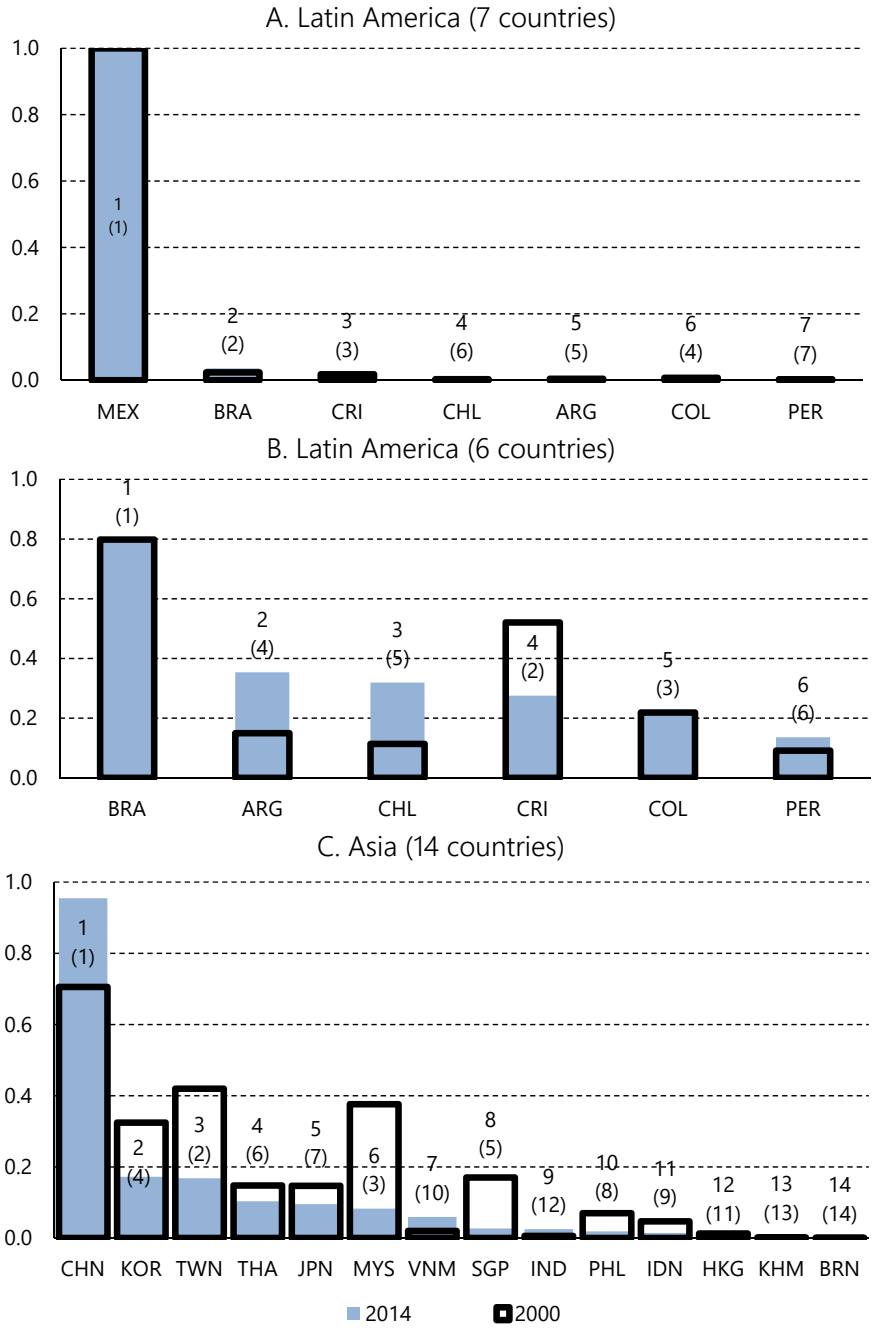
Mexico's backward linkages with China also experienced a significant increase along the studied period, as reflected in this country's out-strength centralities (see table A.4 in annex 2). This is particularly the case of Computer, electronic and optical equipment, Electrical machinery and apparatus, n.e.c., Machinery and equipment, n.e.c., Fabricated metal products, and Rubber and plastics products, among the main source sectors. With the exception of Computer, electronic and optical equipment, where Asian countries account for over 70% of the total (compared to less than 20% in 2000), the United States remains as the main origin of foreign intermediates for Mexican manufacturing exports. Mexico's above-mentioned weak backward linkages with Latin American and Caribbean countries are largely concentrated in primary and low-technology sectors (except for Brazil, Costa Rica and Nicaragua, who also show significant linkages in some more technology-intensive industries).

Most imported intermediate goods used in the production of Asia (14 countries)'s manufacturing exports have an intraregional origin, particularly those with a higher technology content (see table A.5 in annex 2). China has also played an increasing role as a foreign input provider in this network, while countries like Japan and the United States have lost ground. However, it should be noted that a large proportion of the value added embodied in Chinese technology-intensive intermediate exports is sourced from abroad (mostly, other Asian countries, the European Union, and the United States) (Zaclicever, 2017).

The above findings reflect an asymmetric vertical integration between Latin American and Asian economies, where the formers are predominantly specialised in supplying relatively unprocessed natural resource-based inputs while importing more technology-intensive intermediates from extraregional markets (increasingly, China). Although this integration pattern is similar to that of Latin American countries with the European Union and, to a lesser extent, the United States, the asymmetry is accentuated in their relationship with Asia (particularly, China).

Countries' authority and hub centralities provide additional information on their relevance as users and suppliers of foreign intermediates, respectively, taking into consideration how important their trading partners are. In terms of authority centrality, Mexico leads within Latin America (7 countries), at great distance from the other six countries, due to its own relevance as importer and its strong linkages with the United States (a leading hub) (see figure 4.A). Also in line with countries' in-strength centrality, Brazil is largely the main authority in Latin America (6 countries), followed by Argentina and Chile —with rising authority scores— and Costa Rica —who has lost ground— (see figure 4.B). Within Asia (14 countries), China exhibits an increasingly central position, to the detriment of most other countries (including Korea, Japan, Malaysia, and Taiwan) (see figure 4.C).

Figure 4
Selected countries: authority centrality in regional networks, 2000 and 2014[a]
(Scores and rank positions)



Source: Author's calculations on the basis of input-output data from the Organisation for Economic Cooperation and Development (OECD)'s ICIO tables; and trade data from the Centre d'Études Prospectives et d'Informations Internationales (CEPII), Base pour l'Analyse du Commerce International (BACI).

[a] Countries are shown in descending order according to their authority centrality in 2014. Labels indicate countries' rank position in 2014, values for 2000 are shown in brackets.

The analysis of countries' hub scores shows that the high relevance of the United States as input supplier for Mexico —the most central importer in Latin America (7 countries)— is reflected in this country's large hub centrality (see figure 5.A). China ranks second, still far from the United States but showing a significant increase since 2000, when it ranked seventh. Nine of the twenty top-ranked hubs are Asian countries, in comparison with only two countries from Latin America (Costa Rica, ranked ninth, and Brazil, ranked twelfth). When Mexico is excluded a different picture emerges, as China ranks first (compared to eleventh in 2000) —with a similar hub score than the United States—, and Latin American countries move to more central positions (see figure 5.B and table A.6 in annex 2).[10]

Countries with strongest forward linkages with China —the main authority in Asia (14 countries)— exhibit larger hub centralities in that network (particularly, Korea, Japan, Taiwan, and the United States) (see figure 5.C). Also in this case, only two countries from Latin America are among the twenty top-ranked suppliers, Brazil (ranked thirteenth) and Chile (ranked fifteenth), followed by Costa Rica, Mexico, Peru, Argentina and Uruguay in lower positions (see table A.6 in annex 2). The same seven Latin American countries have the largest hub centralities in the global (63 countries) network, where Korea, the United States, Japan, Taiwan and Germany are the most central input providers (see figure 5.D).

Countries' hub scores computed at the source sector level show a similar pattern than their out-strength centralities, examined above. Latin American countries hold more central positions as providers of primary and natural resource-based manufactured intermediates, while their role as a source of more technology-intensive inputs is, with a few exceptions, not significant. As shown in diagrams 1 and 2, the number of countries from Latin America ranked in the top twenty hubs reduces as inputs' technology content increases.[11] Thus, while for Latin America (7 countries) seven to eleven South American and Central American countries were in 2014 among the main providers in Agriculture, Mining and quarrying and Food products, beverages and tobacco —natural resource-based sectors that account for a low share of total inputs—, only one to three of these countries (Brazil, Costa Rica, Honduras or Nicaragua, depending on the sector) had such central positions in Machinery and equipment, n.e.c., Computer, electronic and optical equipment, Electrical machinery and apparatus, n.e.c. and Transport equipment —medium-high or high-technology industries that represent a large proportion of total intermediates— (see diagrams 1.A). When Mexico is excluded, intraregional linkages become more relevant (i.e., central), although Latin American countries' hub centralities remain low in the most technology-intensive sectors, dominated by extraregional providers (see diagrams 1.B).

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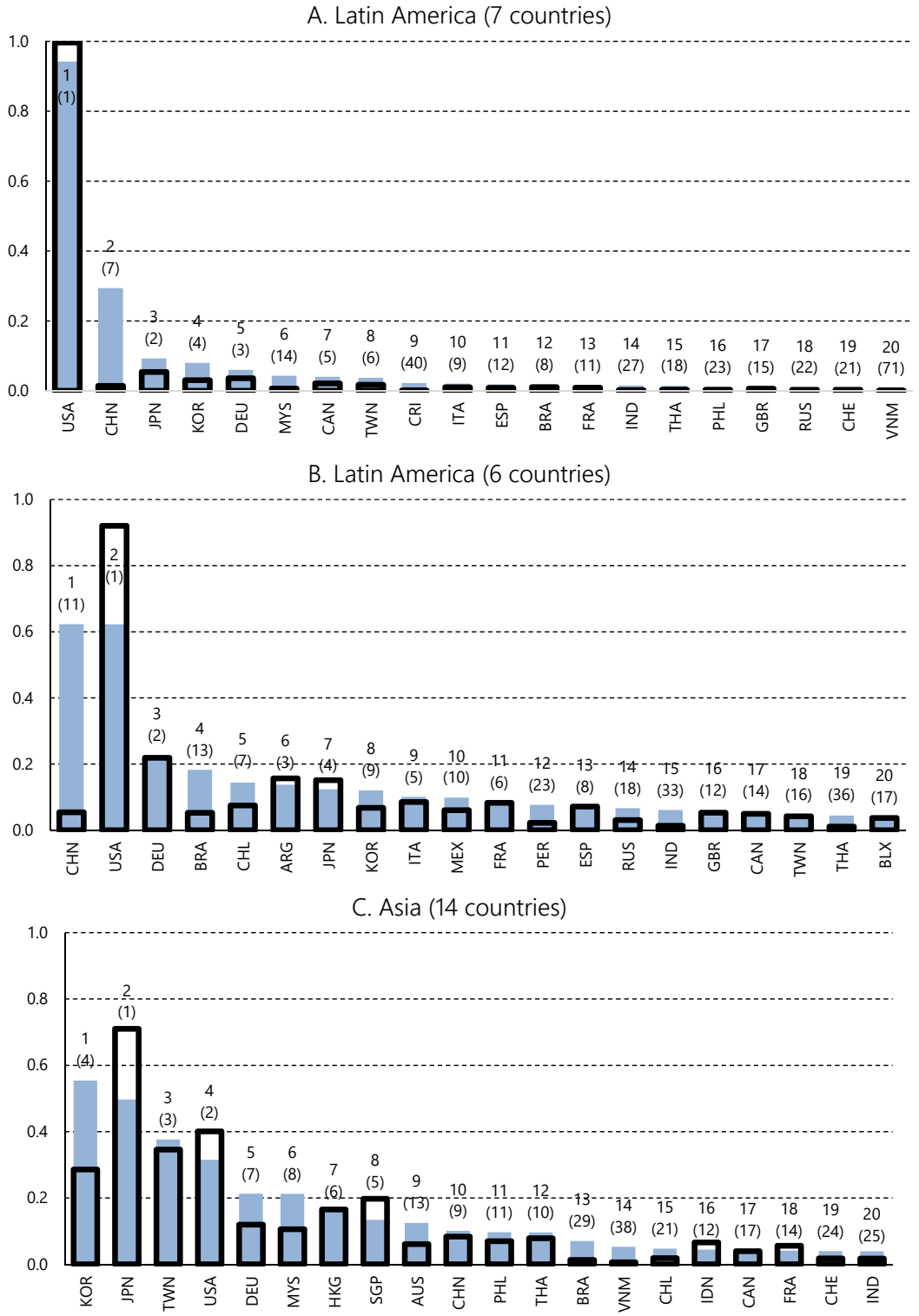
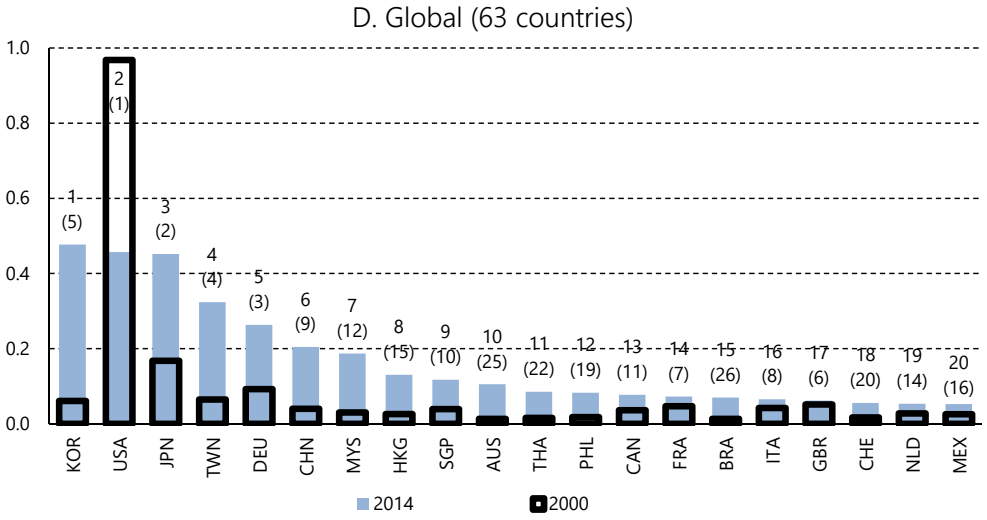
[10] See tables A.6 and A.7 in annex 2 for complete results on Latin American and Asian countries' hub and autorithy centralities.

[11] The diagrams were created with NodeXL (http://nodexl.codeplex.com). Each diagram shows at the bottom all Latin American, Caribbean and Asian source countries, as well as the main hubs from other regions. Node shape identifies origin regions and subregions, as follows: Triangle: South America; Square: Mexico; Solid square: Central America; Solid diamond: The Caribbean; Disk: Asia; and Solid triangle: Rest of the world. Node size is given by countries' hub score, while labels indicate countries' rank position. The twenty top-ranked source countries in each sector are shown in blue. As for importing countries, shown in grey at the top of each diagram, they are presented in descending order according to their authority score (reflected also in node size). Sector share corresponds to the participation of each source sector in the intermediate inputs embodied in the network's exports in 2014.

Figure 5
Selected countries: hub centrality in regional and global networks, 2000 and 2014[a]
(Scores and rank positions)





Source: Author's calculations on the basis of input-output data from the Organisation for Economic Cooperation and Development (OECD)'s ICIO tables; and trade data from the Centre d'Études Prospectives et d'Informations Internationales (CEPII), Base pour l'Analyse du Commerce International (BACI).

[a] Countries are shown in descending order according to their hub centrality score in 2014. Labels indicate countries' rank position in 2014, values for 2000 are shown in brackets.

In Asia (14 countries), Latin American countries also hold more central positions in primary and natural resource-based manufacturing sectors, but the number of these countries among the twenty top-ranked suppliers is significantly lower than in Latin America (7 countries) and Latin America (6 countries). Specifically, only five Latin American economies (Argentina, Brazil, Chile, Peru, and Uruguay) were in 2014 among the top twenty hubs in such sectors, which account for a low share of total inputs (except for Basic metals) (see diagrams 2.A to 2.H). In the more relevant technology-intensive sectors, only Costa Rica (Computer, electronic and optical equipment) and Mexico (Computer, electronic and optical equipment, Electrical machinery and apparatus, n.e.c., and Transport equipment) had rather central positions in the Asian network (see diagrams 2.I to 2.L).

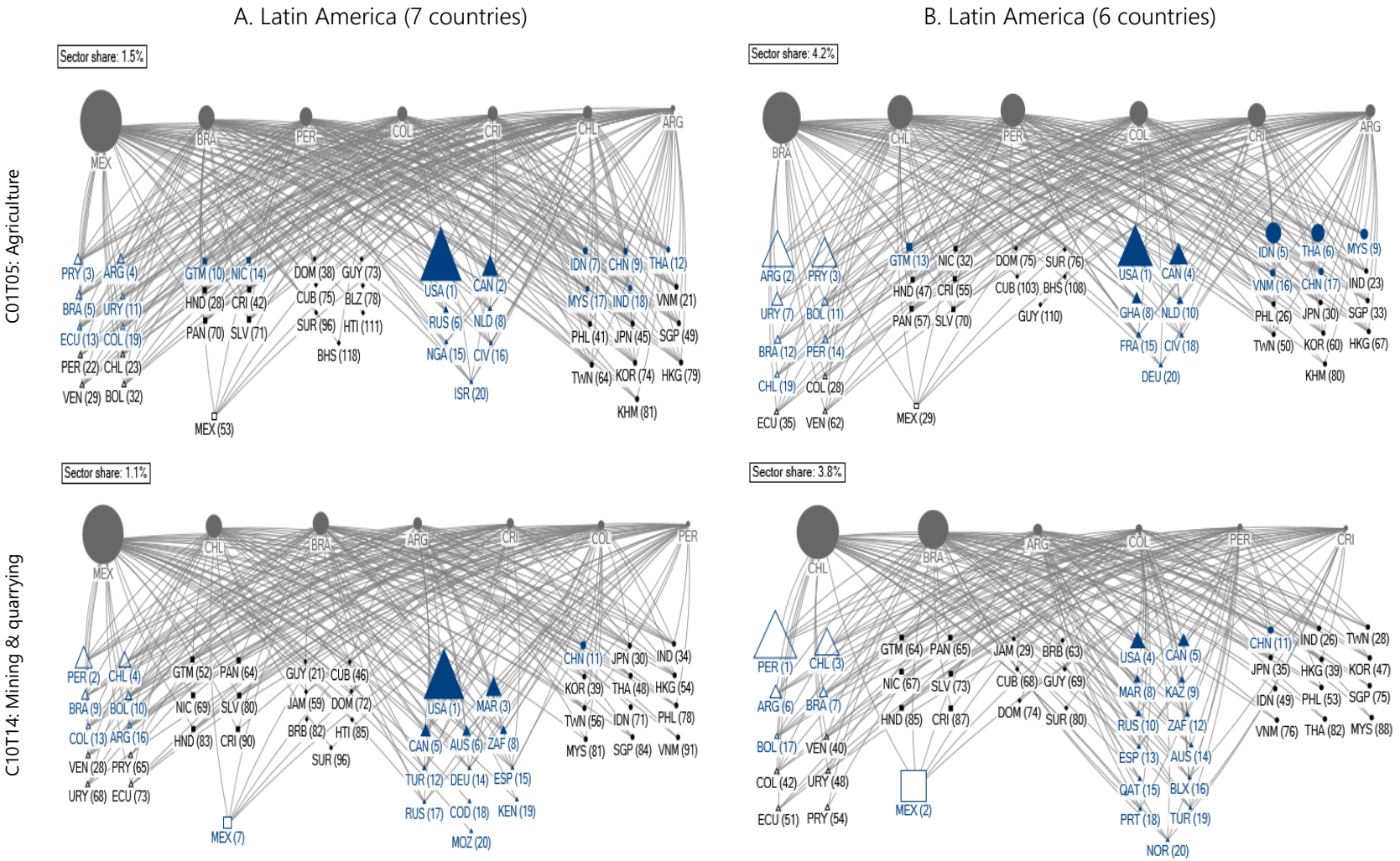
According to the sector-level hub scores, Asian economies are among the main input suppliers in all sectors, both in Latin America (7 countries) and Latin America (6 countries). In contrast to Latin American economies, the number of Asian countries ranked in these networks' top twenty hubs is generally larger in those sectors with a higher technology content (see diagram 1). Also, China holds increasingly central positions in most sectors, ranking in 2014 in the top five in nine of the twelve sectors considered (mostly second in Latin America (7 countries), behind the United States, and first or second in Latin America (6 countries)), compared to two of twelve in 2000.

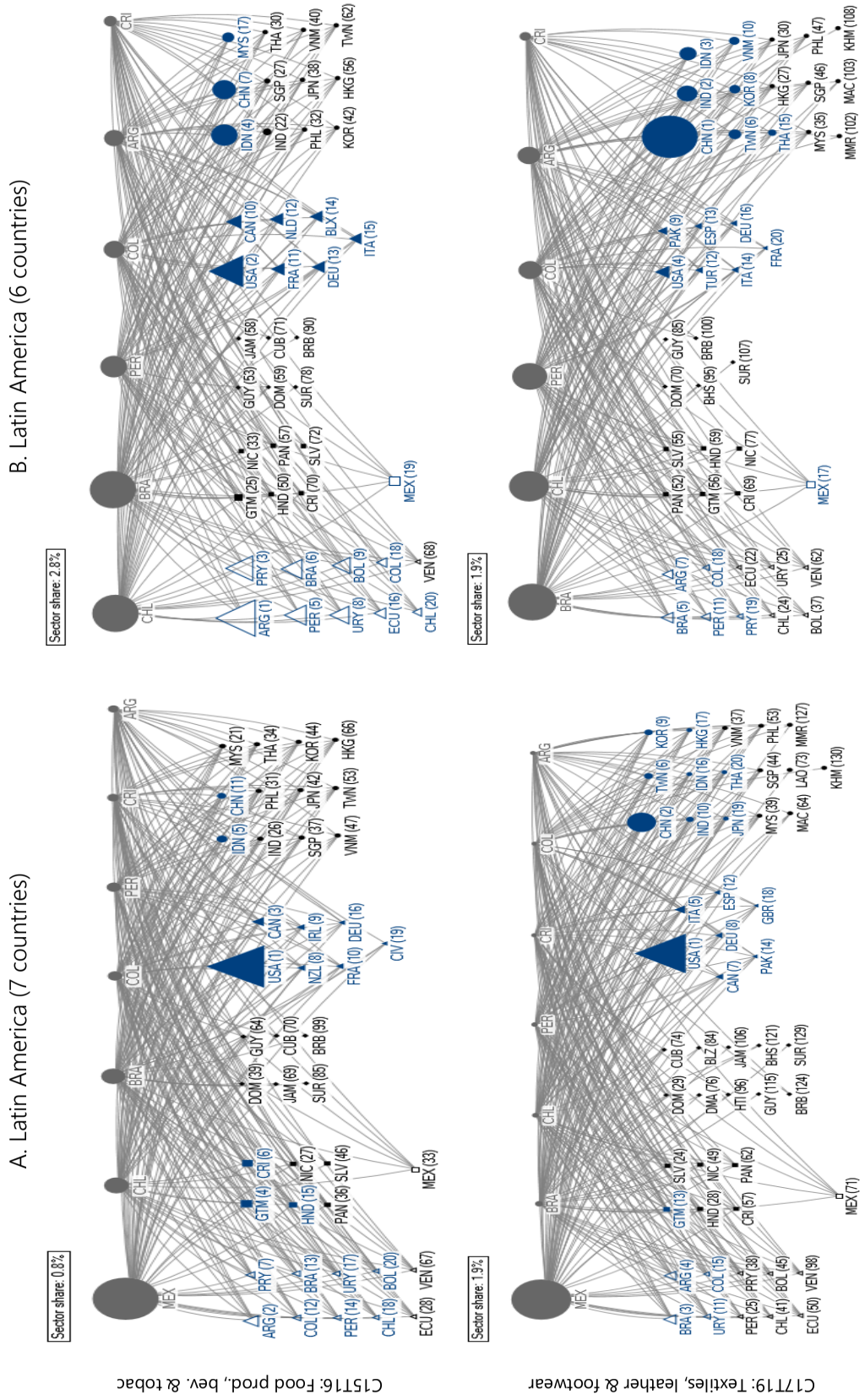
The aforementioned dominant role of intraregional suppliers in Asia (14 countries) reflects in the fact that, in all source sectors (except for Mining and quarrying), at least seven Asian countries are among this network's top twenty hubs (see diagram 2). Countries like Japan, Korea and China play a more central role in medium-high or high-technology industries, although they are also among the main suppliers in sectors like Textiles, leather and footwear and Basic metals. In contrast, countries like India and Indonesia hold more central positions in primary and natural-resource based sectors. It should be noted that, as the main regional authority, China has a significantly less central role as a hub in Asia (14 countries) than in Latin America (7 countries) and Latin America (6 countries).

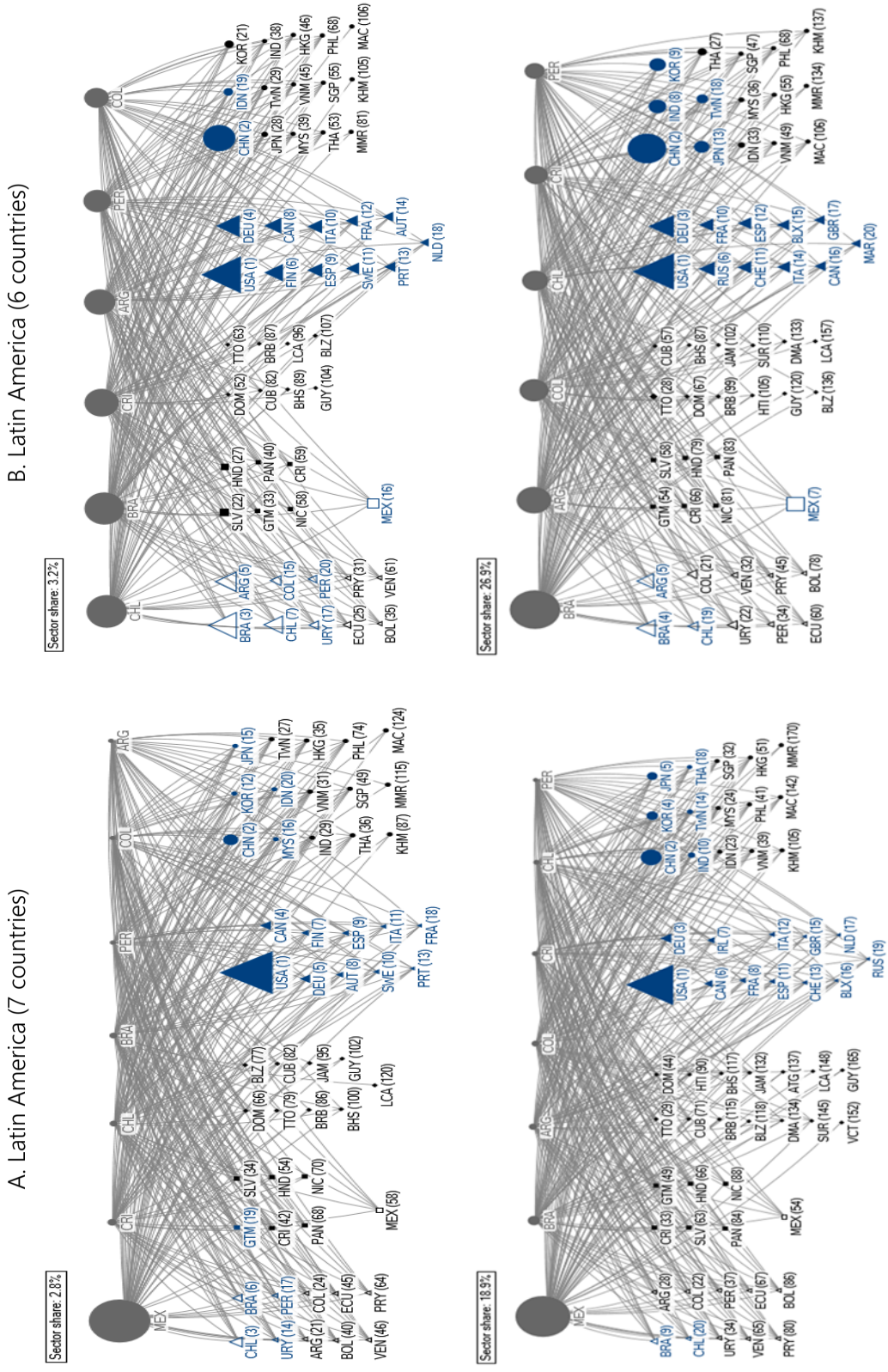
The sector-level results on countries' authority centralities shown in diagrams 1 and 2 reveal that, in all source sectors, China ranks first in Asia (14 countries) —with a substantially larger authority score than the other countries—, while in Latin America (7 countries) Mexico is largely the main authority. In both cases, the position of the other countries varies considerably across sectors, although Korea and Brazil generally rank second in their corresponding networks. In Latin America (6 countries) there are also significant differences in countries' position across sectors, even though Brazil dominates in seven of the twelve sectors (Agriculture, Textiles, leather and footwear, Chemicals and chemical products, Basic metals, Fabricated metal products, Machinery and equipment, n.e.c., and Electrical machinery and apparatus, n.e.c.), and Chile in three of them (Mining and quarrying, Food products, beverages and tobacco, and Wood, paper and printing).

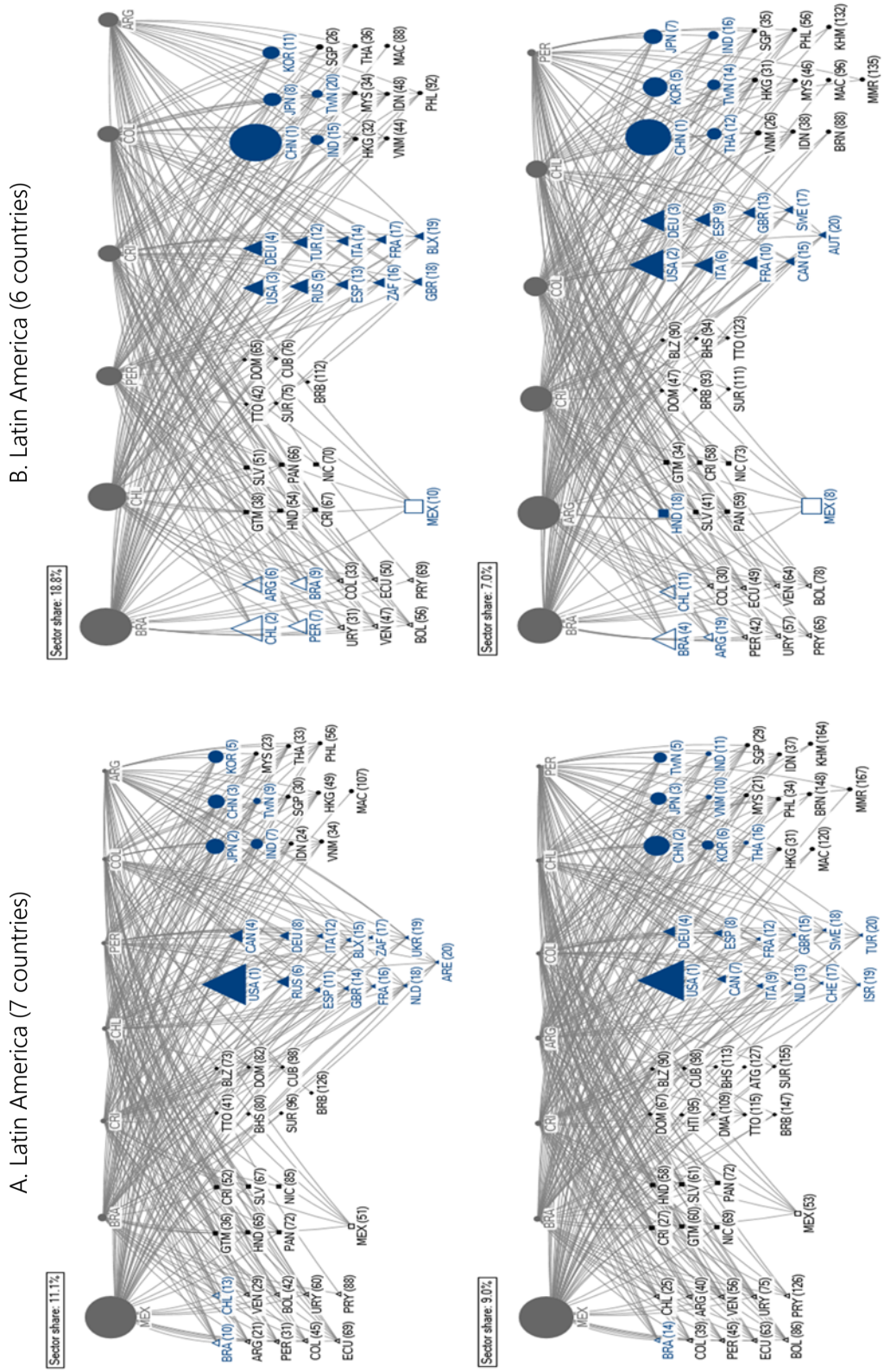
Diagram 1

Selected countries: hub centrality in Latin America (7 countries) and Latin America (6 countries) by source sector, 2014




A. Latin America (7 countries)
B. Latin America (6 countries)
Sector share: 0.8%
Sector share: 2.8%
Sector share: 1.9%
Sector share: 1.9%
C1516: Food prod., bev. & tobac
C1719: Textiles, leather & footwear


A. Latin America (7 countries)
B. Latin America (6 countries)
Sector share: 2.8%
Sector share: 3.2%
Sector share: 26.9%
Sector share: 18.9%
C20T22: Wood, paper & printing
C24T26: Chem. & non-met. min.


A. Latin America (7 countries)
B. Latin America (6 countries)
C27: Basic metals
C28: Fabricated metal products
Sector share: 11.1%
Sector share: 18.8%
Sector share: 9.0%
Sector share: 7.0%

A. Latin America (7 countries)

B. Latin America (6 countries)

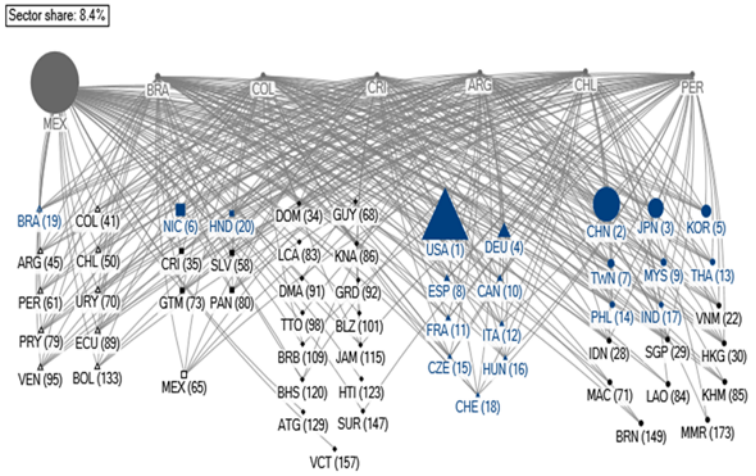
C29: Machinery & equip. n.e.c.

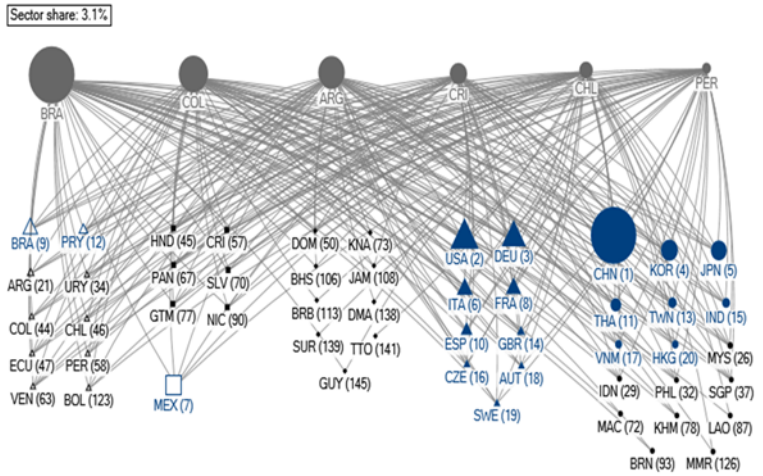
C30.32.33: Comp., electronic & opt. eq.

A. Latin America (7 countries)

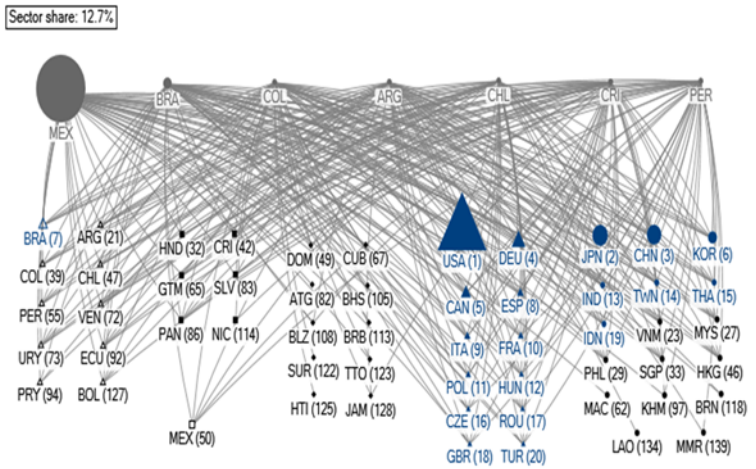
B. Latin America (6 countries)

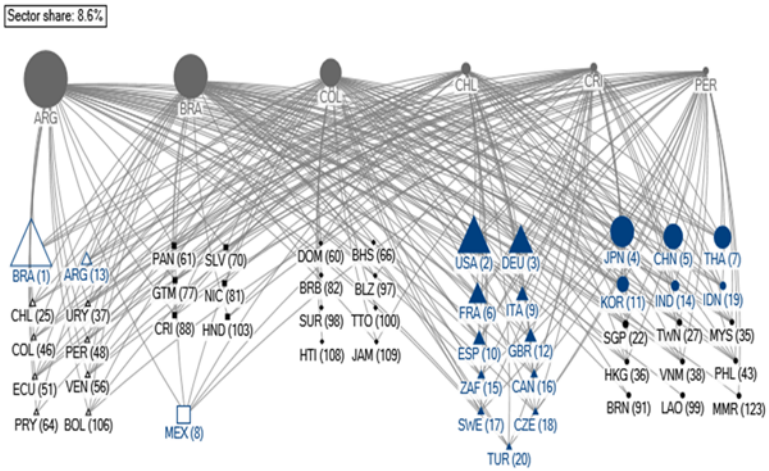
C31: Elect. mach. & app., n.e.c.





C34T35: Transport equipment

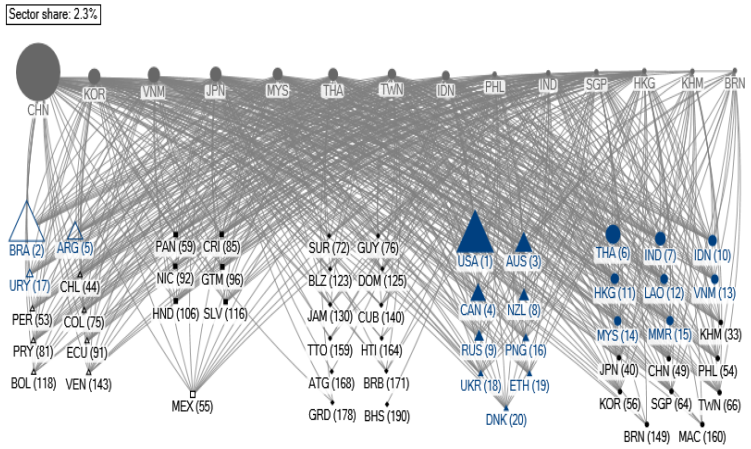




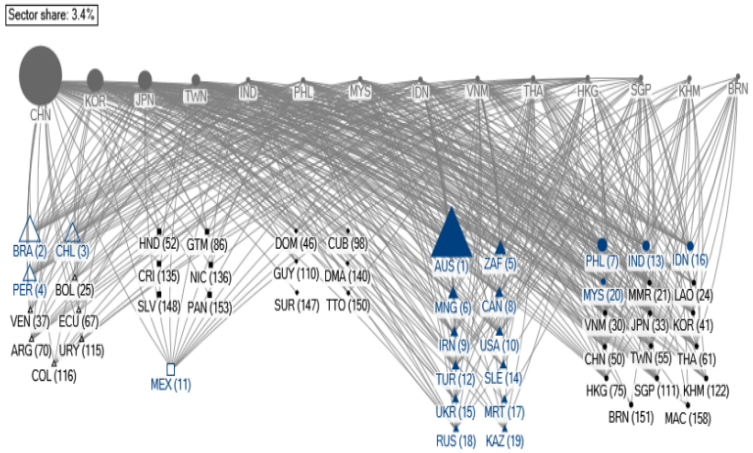
Source: Author's calculations on the basis of input-output data from the Organisation for Economic Cooperation and Development (OECD)'s ICIO tables; and trade data from the Centre d'Études Prospectives et d'Informations Internationales (CEPII), Base pour l'Analyse du Commerce International (BACI).

Diagram 2
Selected countries: hub centrality in Asia (14 countries) by source sector, 2014

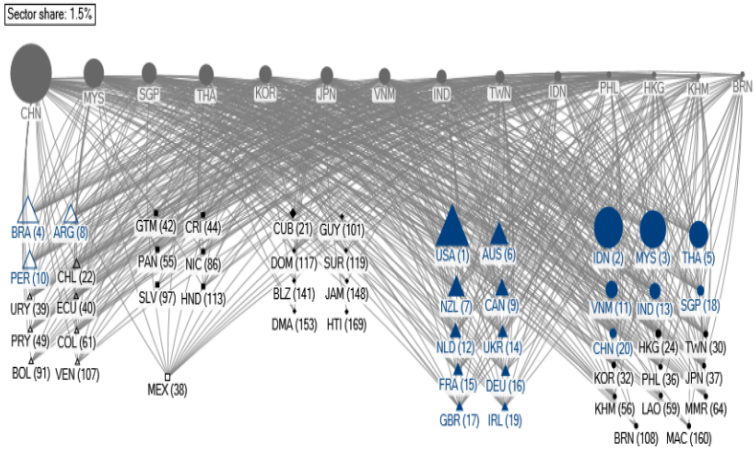
A. C01T05: Agriculture



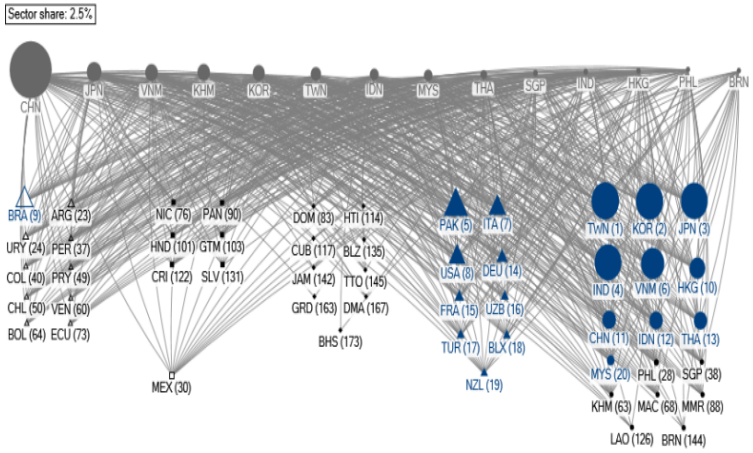
B. C10T14: Mining & quarrying



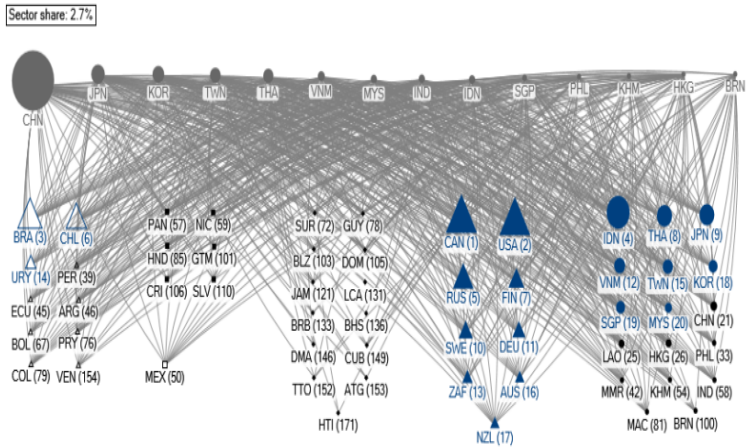
C. C15T16: Food prod., bev. & tobacco



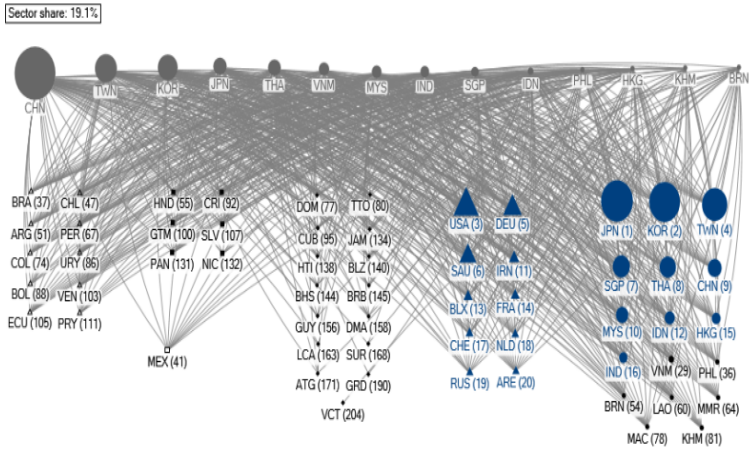
D. C17T19: Textiles, leather & footwear



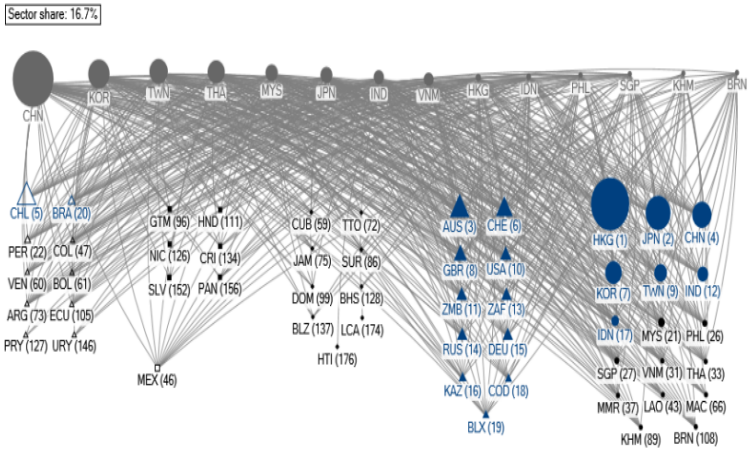
E. C20T22: Wood, paper & printing



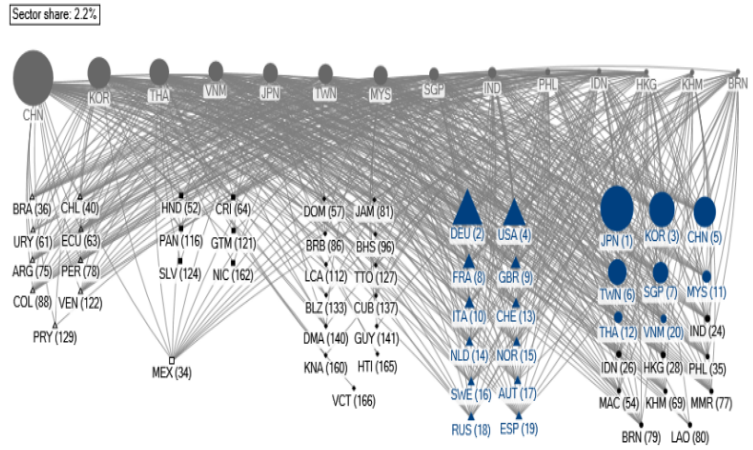
F. C24T26: Chem. & non-metallic mineral products



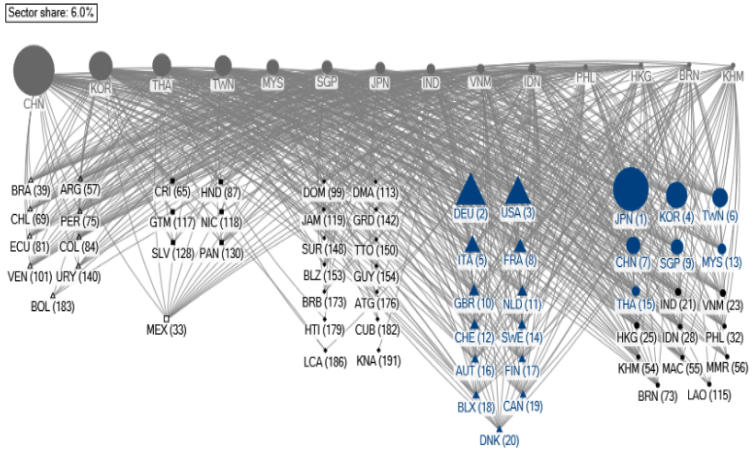
G. C27: Basic metals



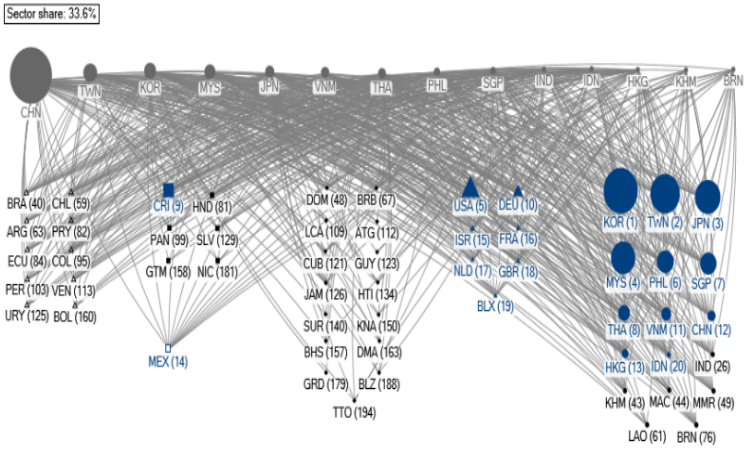
H. C28: Fabricated metal products



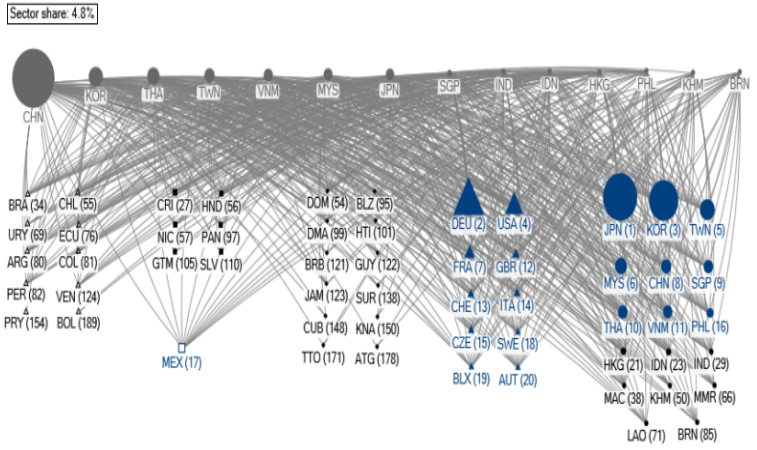
I. C29: Machinery & equipment, n.e.c.



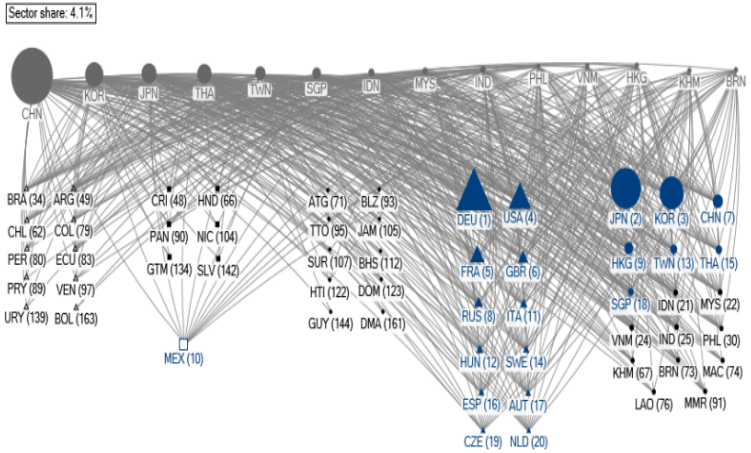
J. C30.32.33: Computer, electronic & optical equipment



K. C31: Electical machinery & apparatus, n.e.c.



L. C34T35: Transport equipment



Source: Author's calculations on the basis of input-output data from the Organisation for Economic Cooperation and Development (OECD)'s ICIO tables; and trade data from the Centre d'Études Prospectives et d'Informations Internationales (CEPII), Base pour l'Analyse du Commerce International (BACI).

B. Cluster analysis

The characterisation of countries' roles as suppliers of foreign intermediates for Latin American and Asian exports is complemented here with a cluster analysis. As described in section I, clusters are defined on the basis of the composition of countries' vertical trade-related intermediate exports, in terms of five categories of inputs: agriculture, mining, low-technology, medium-low-technology, and medium-high or high-technology.

In the case of Latin America (7 countries), the resulting 6-cluster partition shows a first cluster formed by those suppliers with a relatively large participation of medium-low-technology inputs (see figure 6.D). Countries in cluster 2 are characterised by a comparatively large share of low-technology inputs (see figure 6.C). Cluster 3 and, to a greatest extent, cluster 4 group those suppliers specialised in medium-high or high-technology inputs (see figures 6.E and 6.F). Countries in cluster 5 show a relatively large share of agricultural inputs (see figure 6.A). Finally, countries with a comparatively large participation of mining inputs are assigned to cluster 6 (see figure 6.B).

The allocation of Latin American and Caribbean suppliers in this network shows that a large number of them (17), mostly from the Caribbean, are included in one of the two clusters associated with the most technology-intensive inputs (cluster 3 or 4).[12] However, these countries are not relevant suppliers of this category of intermediates, as indicated in figures 6.E and 6.F by their low out-strength centralities (Brazil in cluster 3 and Costa Rica in cluster 4 show the largest values, with 1.6%). Most other Latin American and Caribbean countries are included in clusters 1 (7) or 2 (5) —associated with the other two categories of manufactured inputs—, also with low out-strength centralities (Chile with 1.6% and Uruguay with 0.8% have the largest metrics in their corresponding clusters).[13] The remaining four countries are assigned to one of the "primary clusters" (5 or 6), where two of them are relevant suppliers (Paraguay in cluster 5 and Peru in cluster 6, with 6.6% and 19.7%, respectively).

As shown in figure 6, most Asian suppliers in Latin America (7 countries) are included in clusters 3 (8) or 4 (7), where China, Japan, Korea, Malaysia and Taiwan show significant levels of out-strength centrality. The central role played by the United States —assigned to cluster 3— as a hub in this network is reflected in its high relevance as a supplier of the five categories of inputs. To a lesser extent, China —the second main hub— shows high out-strength centralities in the three categories of manufactured inputs.

Clustering results for Latin America (6 countries) also show a 6-cluster partition with: 1) a first cluster characterised by a relatively large participation of medium-low-technology inputs (see figure 7.D); 2) two clusters (2 and 4) formed by those suppliers specialised in medium-high or high-technology inputs (see figures 7.E and 7.F); 3) one cluster (3) that groups countries with a comparatively large share of low-technology inputs (see figure 7.C); 4) one cluster (5) formed by

[12] Labels in figures 6 to 8 identify the Latin American and Asian countries assigned to the cluster characterised by the corresponding input category, whose members are shown in red (e.g., in figure 6.A, cluster 5, associated with agricultural inputs). For a complete list of the countries assigned to each cluster see table A.8 in annex 2.

[13] It should be noted that Argentina and Colombia, with a similar participation of medium-low-technology and medium-high or high-technology inputs, lie between clusters 1 and 3 (with low levels of out-strength centrality in both categories of inputs).

countries that show a relatively large participation of agricultural inputs (see figure 7.A); and 5) one last cluster (6) that encompasses those suppliers with a comparatively large share of mining inputs (see figure 7.B).

The comparison with Latin America (7 countries) does not show major differences in terms of the allocation of Latin American and Caribbean suppliers. A somewhat smaller number of these countries (14) are included in those clusters associated with the most technology-intensive inputs, where only Brazil is a relevant supplier. Argentina, Chile and Mexico (cluster 1), Bolivia (P.S. of) and Ecuador (cluster 3), Paraguay (cluster 5), and Peru (cluster 6) are the only other Latin American countries with significant levels of out-strength centrality (i.e., at least 1%) in their corresponding input categories. As for Asian suppliers, the main difference with Latin America (7 countries) relates to China, who shows a slight concentration of its vertical trade-related intermediate exports in medium-low-technology products (being therefore included in cluster 1, but actually lying between clusters 1 and 2).

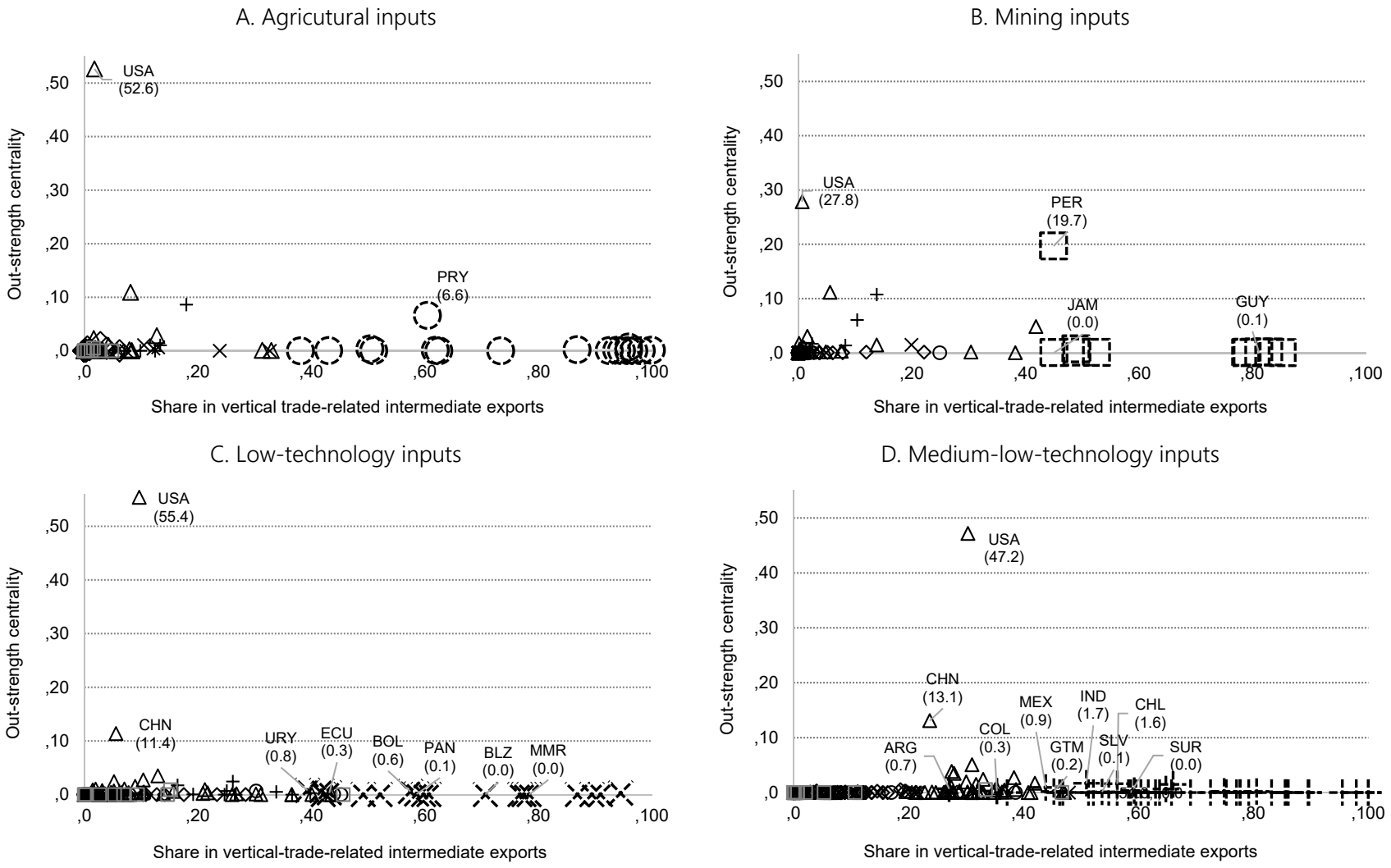
For Asia (14 countries), the clustering process results in a 5-cluster partition (see figure 8). Cluster 1 is formed by suppliers with a relatively large participation of medium-low-technology inputs (see figure 8.D). Countries in cluster 2 show a relatively large share of agricultural inputs (see figure 8.A). Countries assigned to cluster 3 are characterised by a comparatively large participation of low-technology inputs (see figure 8.C). Cluster 4 groups those suppliers with a relatively high share of mining inputs (see figure 8.B). Finally, countries with a comparatively large participation of medium-high or high-technology inputs are assigned to cluster 5 (see figure 8.E). This last cluster includes China, Japan, Korea, Taiwan and the United States —the main hubs in Asia (14 countries)— as well as most other Asian countries. In contrast, most Latin American and Caribbean suppliers (20) are assigned to the clusters associated with primary or low-technology inputs (three to cluster 2, fourteen to cluster 3, and three to cluster 4).

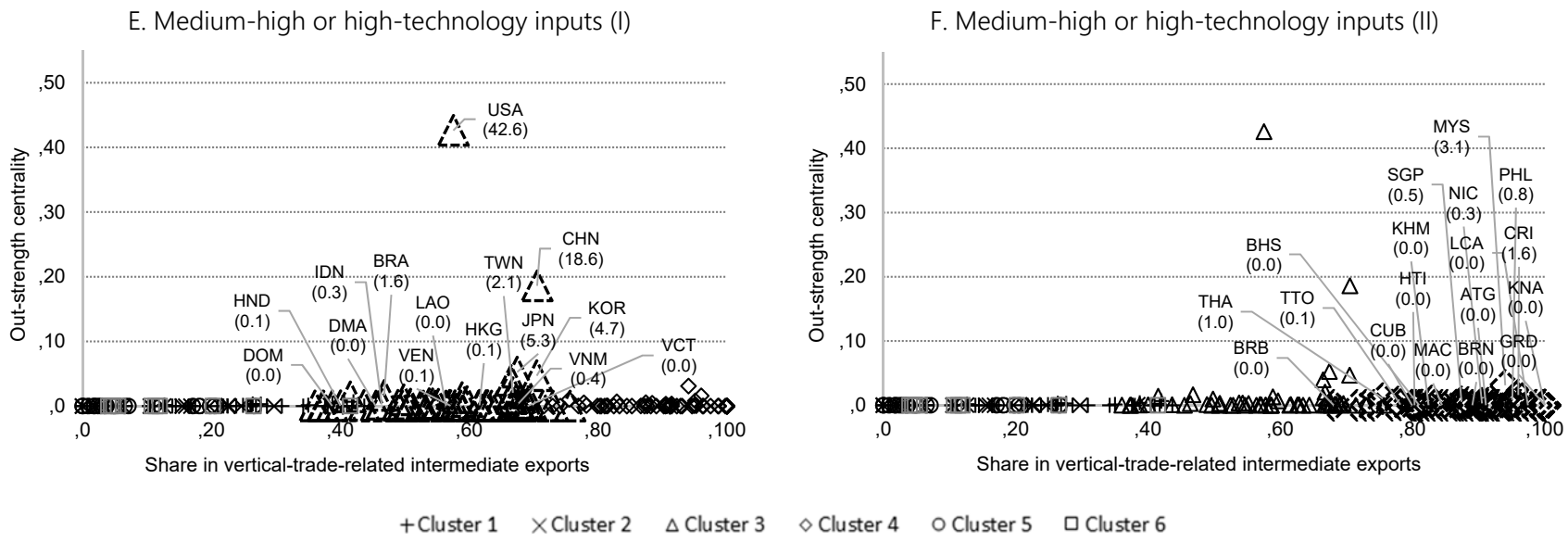
As shown in figure 8, most Asian countries in cluster 5 play a significant role as suppliers of medium-high or high-technology inputs (particularly, Japan, Korea, China, and Taiwan), while the Latin American and Caribbean countries in this cluster have very low levels of out-strength centrality (Costa Rica shows the largest value, with 1.2%, followed by Mexico with only 0.4%). Likewise, most Latin American and Caribbean countries assigned to the other four clusters also account for a very low portion of the corresponding input category; the exceptions are Brazil in cluster 2 (20.3%) and, to a lesser extent, Peru in cluster 4 (4.1%), Chile in cluster 1 (2.9%), and Argentina in cluster 3 (1.3%).

The above results illustrate the asymmetric nature of the vertical trade relations between Latin America and Asia, already pointed out in section A. They also show the weak intraregional linkages that, in contrast to Asian economies, characterise Latin American and Caribbean countries (particularly in the most technology-intensive sectors).[14] A complementary product-level analysis of countries' export similarities —beyond the scope of this document— would provide a deeper characterisation of their roles as suppliers of each category of inputs.

[14] Although this network-level analysis hides some relevant bilateral linkages (e.g., Argentina's backward integration with Brazil), Latin American and Caribbean countries are characterised by lower levels of intraregional vertical integration than countries in other regions (Cadestin et al., 2016; Zaclicever, 2017).

Figure 6
Latin America (7 countries): characterisation of clusters of supplier countries, 2014[a]

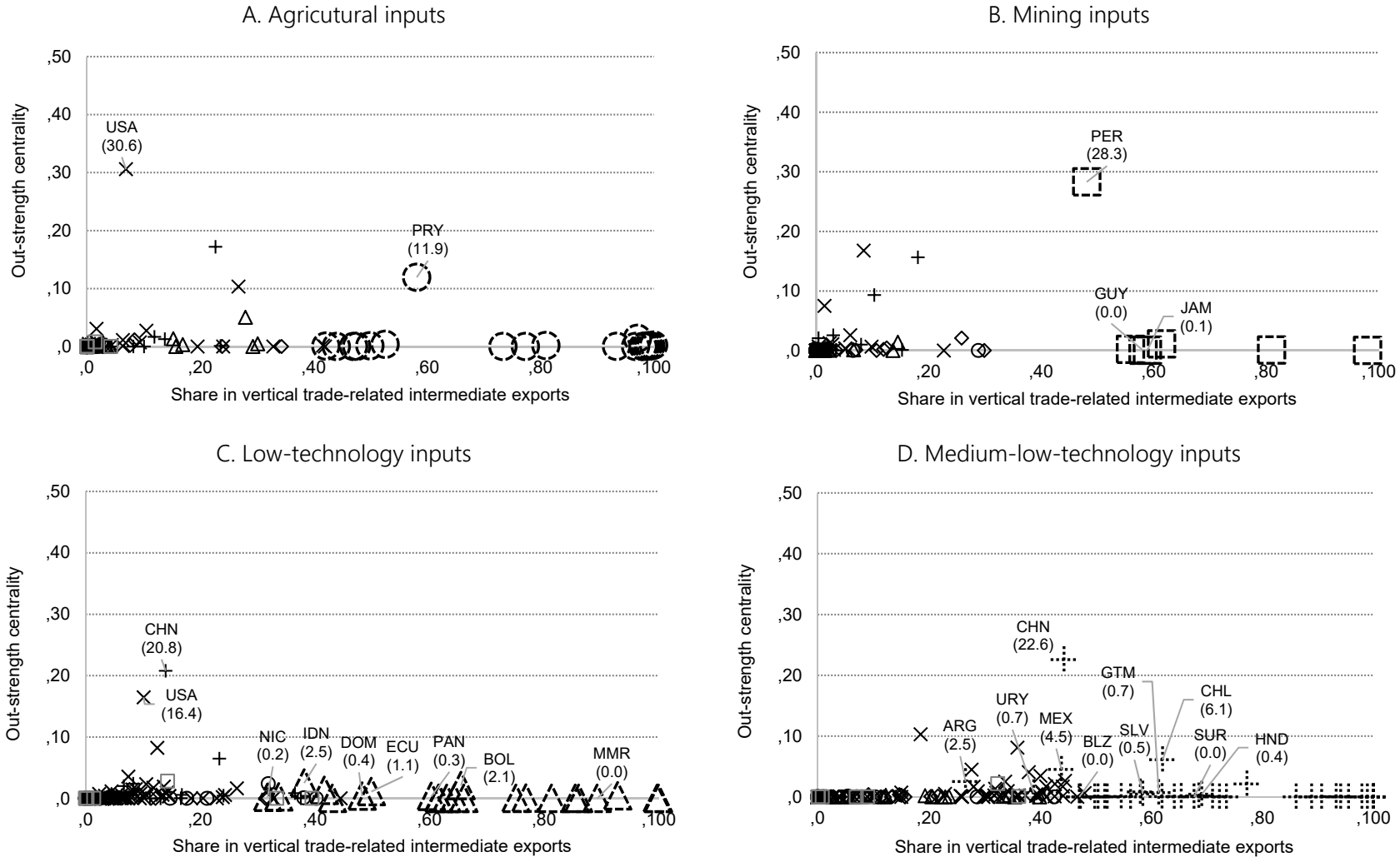


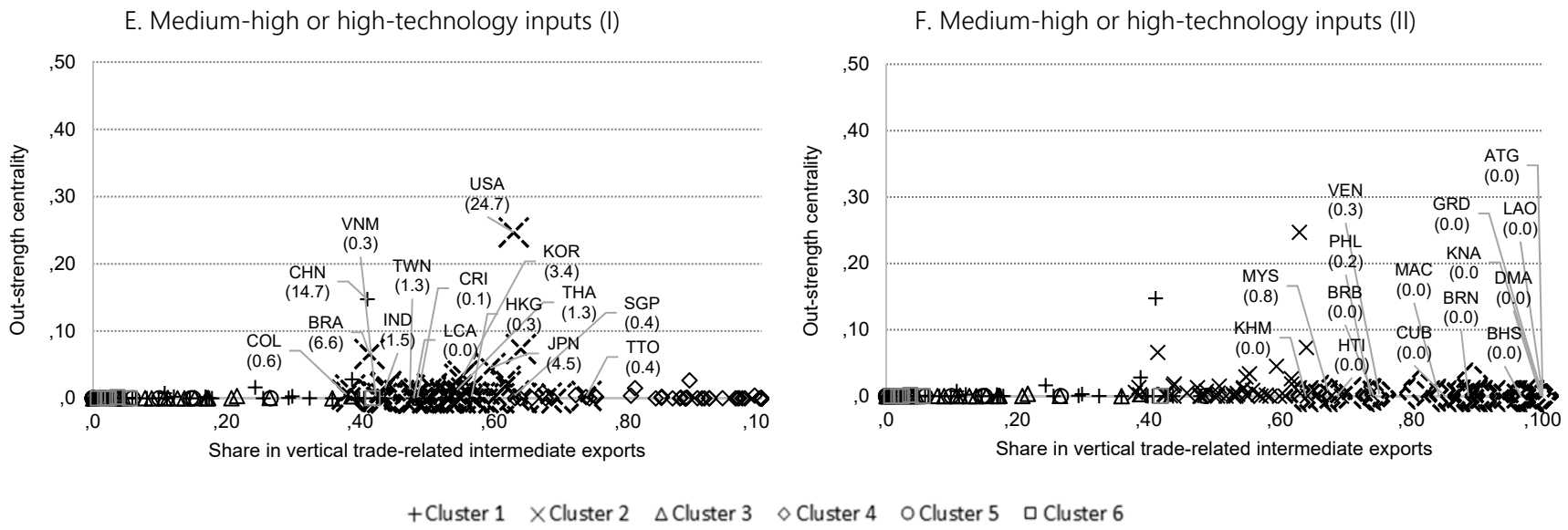


Source: Author's calculations on the basis of data from the Organisation for Economic Cooperation and Development (OECD), and the Centre d'Études Prospectives et d'Informations Internationales (CEPII).

[a] Labels in each subfigure identify the Latin American and Asian countries assigned to the cluster characterised by the corresponding input category, whose members are shown in dashed markers. Numbers in brackets indicate countries' out-strength centrality in the corresponding input category.

Figure 7
Latin America (6 countries): characterisation of clusters of supplier countries, 2014[a]

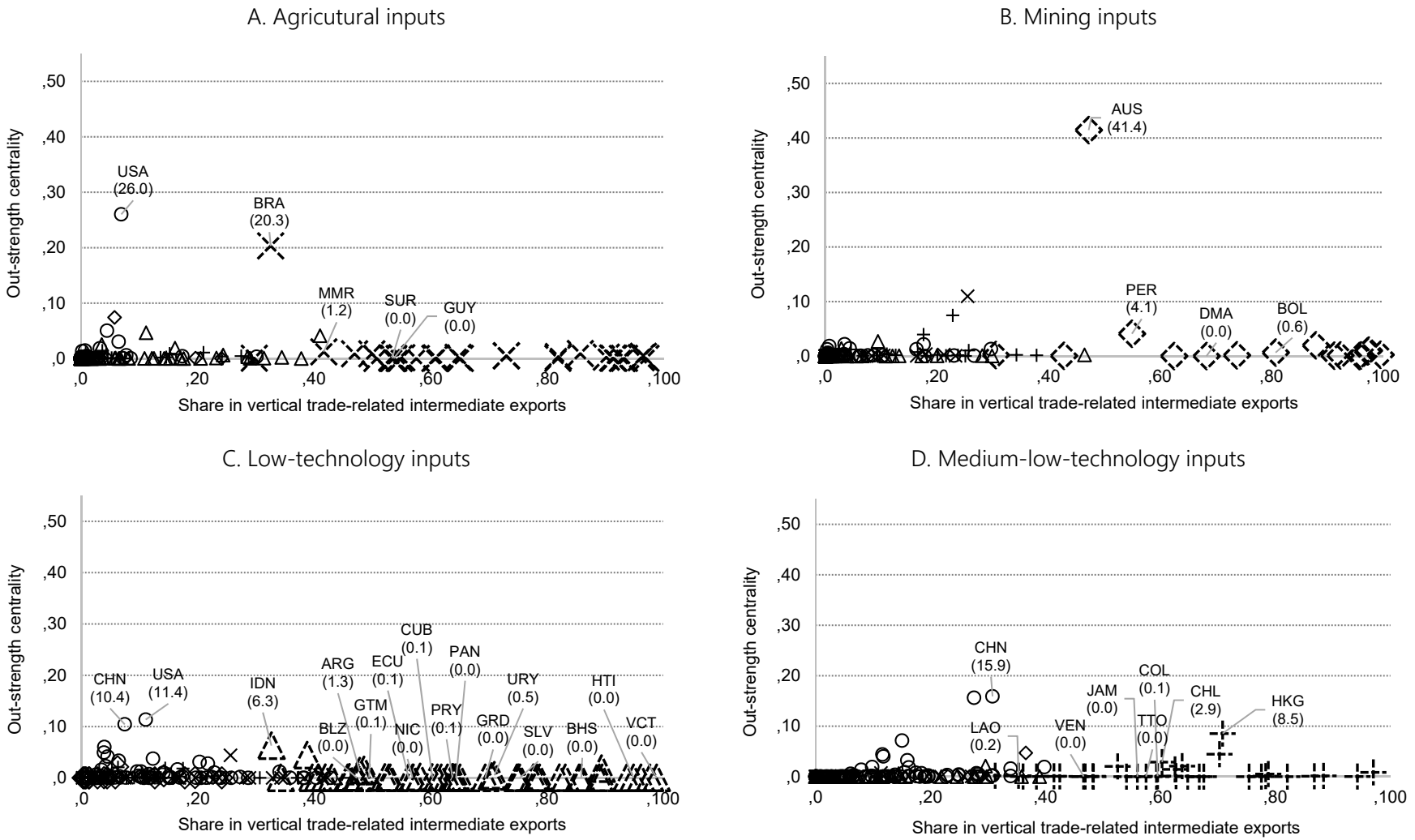


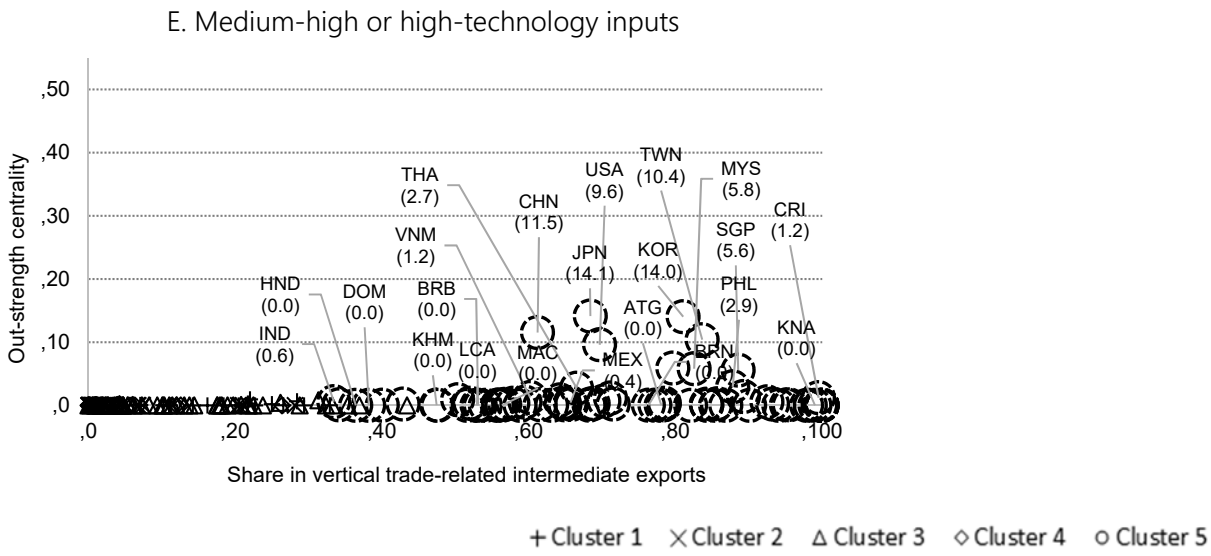


Source: Author's calculations on the basis of data from the Organisation for Economic Cooperation and Development (OECD), and the Centre d'Études Prospectives et d'Informations Internationales (CEPII).

[a] Labels in each subfigure identify the Latin American and Asian countries assigned to the cluster characterised by the corresponding input category, whose members are shown in dashed markers. Numbers in brackets indicate countries' out-strength centrality in the corresponding input category.

Figure 8
Asia (14 countries): characterisation of clusters of supplier countries, 2014[a]





Source: Author's calculations on the basis of data from the Organisation for Economic Cooperation and Development (OECD), and the Centre d'Études Prospectives et d'Informations Internationales (CEPII).

[a] Labels in each subfigure identify the Latin American and Asian countries assigned to the cluster characterised by the corresponding input category, whose members are shown in dashed markers. Numbers in brackets indicate countries' out-strength centrality in the corresponding input category.

III. Concluding remarks

Network analysis techniques offer a powerful means for studying the connections between countries within international production networks. This document adopts a network analysis approach to examine the vertical trade relations between Latin America and Asia, showing the potential of these techniques for providing new insights into the patterns and dynamics of countries' GVC linkages. Particularly, network-based measures are used to assess how important countries are as users and suppliers of foreign intermediate inputs in each network, at both the aggregate and sector level. In addition, clustering techniques are applied to identify groups of supplier countries.

The analysis shows the expansion experienced by Latin America-Asia vertical integration between 2000 and 2014. Particularly, it highlights the increasingly central role played by China, both as a user of inputs imported from Latin American countries and as a supplier of intermediates for these countries' exports. The document also shows the asymmetric nature of the linkages between the two regions, where Latin America is largely specialised in supplying primary and relatively low-technology manufactured inputs while importing more technology-intensive intermediates. Overall, Latin American economies do not play a relevant role as suppliers of foreign intermediates for Asian exports and show significantly weaker intraregional linkages than Asian countries.

For Latin American countries to become more relevant partners for China and other Asian economies, and maximise the positive spillovers associated with international production integration, the region needs to diversify and upgrade its participation in GVCs. This would require coordinated plans across a number of policy areas, including trade, foreign direct investment, innovation and human capital formation (Zaclicever, 2017).

The availability of comprehensive inter-country input-output data for Latin American economies (and their partner countries) would allow the use of network measures computed from

data on trade in value added. This would provide a better characterisation of countries' roles in each network, by revealing their actual contribution to the value generated in each stage of the production process. It would also allow capturing the complete set of direct and indirect interconnections amongst participating countries.

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Annexes

Annex 1
Vertical trade data

The construction of the bilateral intermediate trade database used in this document starts by computing the direct and indirect import content of countries' gross manufacturing exports, given by:

$$\mathbf{VS}_{c,t} = \mathbf{A}^{M}_{c,t}\left(\mathbf{I} - \mathbf{A}^{D}_{c,t}\right)^{-1}\hat{\mathbf{E}}_{c,t} = \mathbf{A}^{M}_{c,t}\mathbf{L}_{c,t}\hat{\mathbf{E}}_{c,t} \quad \text{(A.1)}$$

where the subscripts *c* and *t* denote country and time, respectively; $\mathbf{A}^{M}_{c,t}$ is the K×K matrix of direct imported input coefficients; $\mathbf{A}^{D}_{c,t}$ is the K×K matrix of direct domestic input coefficients (or technical coefficients); **I** is a K×K identity matrix; $\mathbf{L}_{c,t} = \left(\mathbf{I} - \mathbf{A}^{D}_{c,t}\right)^{-1}$ is the K×K Leontief inverse; $\hat{\mathbf{E}}_{c,t}$ is a K×K diagonal matrix of gross manufacturing exports by exporting industry; and K is the number of industries.[15]

Each $VS_{c,t}(i,j)$ (i.e., each component of matrix $\mathbf{VS}_{c,t}$) gives the value of the imported inputs from industry *i* used in country *c* at time *t* in the production of industry *j*'s gross exports. Thus, the imported intermediates from industry *i* embodied in country *c*'s total gross manufacturing exports is calculated as:

$$VS_{c,t}(i) = \sum_{j} VS_{c,t}(i,j) \quad \text{(A.2)}$$

The data used to compute $\mathbf{VS}_{c,t}$ come from the OECD's ICIO tables, which provide information with a 34-industry breakdown (see table A.1).

The final step in the construction of the bilateral trade database is the disaggregation of $VS_{c,t}(i)$ by origin country:

$$VS_{p,c,t}(i) = VS_{c,t}(i) * m_{p,c,t}(i) \quad \text{(A.3)}$$

where $m_{p,c,t}(i)$ is the share of origin country *p* in country *c*'s total imports of intermediate inputs from industry *i* at time *t*.[16] This share is computed using 6-digit Harmonized System (HS) level data from BACI.[17] The correspondence between industries and HS codes considered here is based on the conversion tables used in the construction of the OECD's ICIO tables. This ensures a good match between the product-level bilateral trade data and the industry of origin in $VS_{c,t}(i)$.

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[15] Each coefficient of matrix $\mathbf{A}^{D}_{c,t}$, $a^{D}_{c,t}(i,j)$, gives the value of products from domestic industry *i* used by industry *j* as intermediate inputs to produce one monetary unit of output. Similarly, each coefficient of matrix $\mathbf{A}^{M}_{c,t}$, $a^{M}_{c,t}(i,j)$, shows the imported inputs from foreign industry *i* required by domestic industry *j* to produce one monetary unit of output. For details on these matrices see Ahmad et al. (2017).

[16] $m_{p,c,t}(i) = \frac{M_{p,c,t}(i)}{\sum_{p} M_{p,c,t}(i)}$, where $M_{p,c,t}(i)$ are the intermediate inputs from industry *i* imported by country *c* from country *p* at time *t*.

[17] BACI provides bilateral values and quantities of exports, reconciling exporting and importing countries' data from the United Nations Commodity Trade Statistics Database (COMTRADE) (see Gaulier and Zignago, 2010).

Annex 2
Additional tables and figures

Table A.1
Industry breakdown of OECD's input-output tables

Group	Code	Description	Technology intensity
Primary	C01T05	Agriculture, hunting, forestry and fishing	
	C10T14	Mining and quarrying	
Manufacturing	C15T16	Food products, beverages and tobacco	Low
	C17T19	Textiles, textile products, leather and footwear	Low
	C20	Wood and products of wood and cork	Low
	C21T22	Pulp, paper, paper products, printing and publishing	Low
	C23	Coke, refined petroleum products and nuclear fuel	Medium-low
	C24	Chemicals and chemical products	Medium-high or high
	C25	Rubber and plastics products	Medium-low
	C26	Other non-metallic mineral products	Medium-low
	C27	Basic metals	Medium-low
	C28	Fabricated metal products	Medium-low
	C29	Machinery and equipment, n.e.c.	Medium-high or high
	C30.32.33	Computer, electronic and optical equipment	Medium-high or high
	C31	Electrical machinery and apparatus, n.e.c.	Medium-high or high
	C34	Motor vehicles, trailers and semi-trailers	Medium-high or high
	C35	Other transport equipment	Medium-high or high
	C36T37	Manufacturing n.e.c.; recycling	Low
Services	C40T41	Electricity, gas and water supply	
	C45	Construction	
	C50T52	Wholesale and retail trade; repairs	
	C55	Hotels and restaurants	
	C60T63	Transport and storage	
	C64	Post and telecommunications	
	C65T67	Financial intermediation	
	C70	Real estate activities	
	C71	Renting of machinery and equipment	
	C72	Computer and related activities	
	C73T74	R&D and other business activities	
	C75	Public admin. and defence; compulsory social security	
	C80	Education	
	C85	Health and social work	
	C90T93	Other community, social and personal services	
	C95	Private households with employed persons	

Source: Author's elaboration on the basis of Organisation for Economic Cooperation and Development (OECD)'s SIC Rev. 3 Technology Intensity Definition (online document: www.oecd.org/dataoecd/43/41/48350231.pdf).

Table A.2
Country list[a]

Region	Country	ISO code
North America	Canada*	CAN
	United States*	USA
European Union	Austria*	AUT
	Belgium-Luxembourg*[b]	BLX
	Bulgaria*	BGR
	Croatia*	HRV
	Cyprus*	CYP
	Czech Republic*	CZE
	Denmark*	DNK
	Estonia*	EST
	Finland*	FIN
	France*	FRA
	Germany*	DEU
	Greece*	GRC
	Hungary*	HUN
	Ireland*	IRL
	Italy*	ITA
	Latvia*	LVA
	Lithuania*	LTU
	Malta*	MLT
	Netherlands*	NLD
	Poland*	POL
	Portugal*	PRT
	Romania*	ROU
	Slovakia*	SVK
	Slovenia*	SVN
	Spain*	ESP
	Sweden*	SWE
	United Kingdom*	GBR
Asia	Brunei Darussalam*	BRN
	Cambodia*	KHM
	China*	CHN
	Hong Kong*	HKG
	India*	IND
	Indonesia*	IDN
	Japan*	JPN
	Korea (Republic of)*	KOR
	Lao (People's Democratic Republic)	LAO
	Macao	MAC
	Malaysia*	MYS
	Myanmar	MMR
	Philippines*	PHL
	Singapore*	SGP
	Taiwan (Province of China)*	TWN
	Thailand*	THA
	Viet Nam*	VNM
South America	Argentina*	ARG
	Bolivia (Plurinational State of)	BOL
	Brazil*	BRA
	Chile*	CHL
	Colombia*	COL
	Ecuador	ECU
	Paraguay	PRY
	Peru*	PER
	Uruguay	URY
	Venezuela (Bolivarian Republic of)	VEN

Region	Country	ISO code
Central America	Costa Rica*	CRI
	El Salvador	SLV
	Guatemala	GTM
	Honduras	HND
	Nicaragua	NIC
	Panama	PAN
Mexico	Mexico*	MEX
The Caribbean	Antigua and Barbuda	ATG
	Bahamas	BHS
	Barbados	BRB
	Belize	BLZ
	Cuba	CUB
	Dominica	DMA
	Dominican Republic	DOM
	Grenada	GRD
	Guyana	GUY
	Haiti	HTI
	Jamaica	JAM
	Saint Kitts and Nevis	KNA
	Saint Lucia	LCA
	Saint Vincent and the Grenadines	VCT
	Suriname	SUR
	Trinidad and Tobago	TTO
Rest of the World	Afghanistan	AFG
	Albania	ALB
	Algeria	DZA
	American Samoa	ASM
	Andorra	AND
	Angola	AGO
	Anguilla	AIA
	Armenia	ARM
	Aruba	ABW
	Australia*	AUS
	Azerbaijan	AZE
	Bahrain	BHR
	Bangladesh	BGD
	Belarus	BLR
	Benin	BEN
	Bermuda	BMU
	Bhutan	BTN
	Bosnia and Herzegovina	BIH
	British Indian Ocean Territory	IOT
	British Virgin Islands	VGB
	Burkina Faso	BFA
	Burundi	BDI
	Cameroon	CMR
	Cape Verde	CPV
	Cayman Islands	CYM
	Central African Republic	CAF
	Chad	TCD
	Christmas Island	CXR
	Cocos (Keeling) Islands	CCK
	Comoros	COM
	Congo	COG
	Congo (Democratic Republic of)	COD
	Cook Islands	COK
	Côte d'Ivoire	CIV
	Curaçao	CUW
	Djibouti	DJI
	Egypt	EGY
	Equatorial Guinea	GNQ
	Eritrea	ERI

Region	Country	ISO code
Rest of the World	Ethiopia	ETH
	Falkland Islands (Malvinas)	FLK
	Fiji	FJI
	French Polynesia	PYF
	French Southern Territories	ATF
	Gabon	GAB
	Gambia	GMB
	Georgia	GEO
	Ghana	GHA
	Gibraltar	GIB
	Greenland	GRL
	Guam	GUM
	Guinea	GIN
	Guinea-Bissau	GNB
	Iceland*	ISL
	Iran (Islamic Republic of)	IRN
	Iraq	IRQ
	Israel*	ISR
	Jordan	JOR
	Kazakhstan	KAZ
	Kenya	KEN
	Kiribati	KIR
	Korea (Democratic People's Republic of)	PRK
	Kuwait	KWT
	Kyrgyzstan	KGZ
	Lebanon	LBN
	Liberia	LBR
	Libya	LBY
	Macedonia (the former Yugoslav Republic of)	MKD
	Madagascar	MDG
	Malawi	MWI
	Maldives	MDV
	Mali	MLI
	Marshall Islands	MHL
	Mauritania	MRT
	Mauritius	MUS
	Micronesia (Federated States of)	FSM
	Moldova (Republic of)	MDA
	Mongolia	MNG
	Montenegro	MNE
	Montserrat	MSR
	Morocco*	MAR
	Mozambique	MOZ
	Nauru	NRU
	Nepal	NPL
	Netherlands Antilles	ANT
	New Caledonia	NCL
	New Zealand*	NZL
	Niger	NER
	Nigeria	NGA
	Niue	NIU
	Norfolk Island	NFK
	Northern Mariana Islands	MNP
	Norway*	NOR
	Oman	OMN
	Pakistan	PAK
	Palau	PLW
	Palestinian Territory	PSE
	Papua New Guinea	PNG
	Pitcairn	PCN
	Qatar	QAT
	Russian Federation*	RUS
	Rwanda	RWA

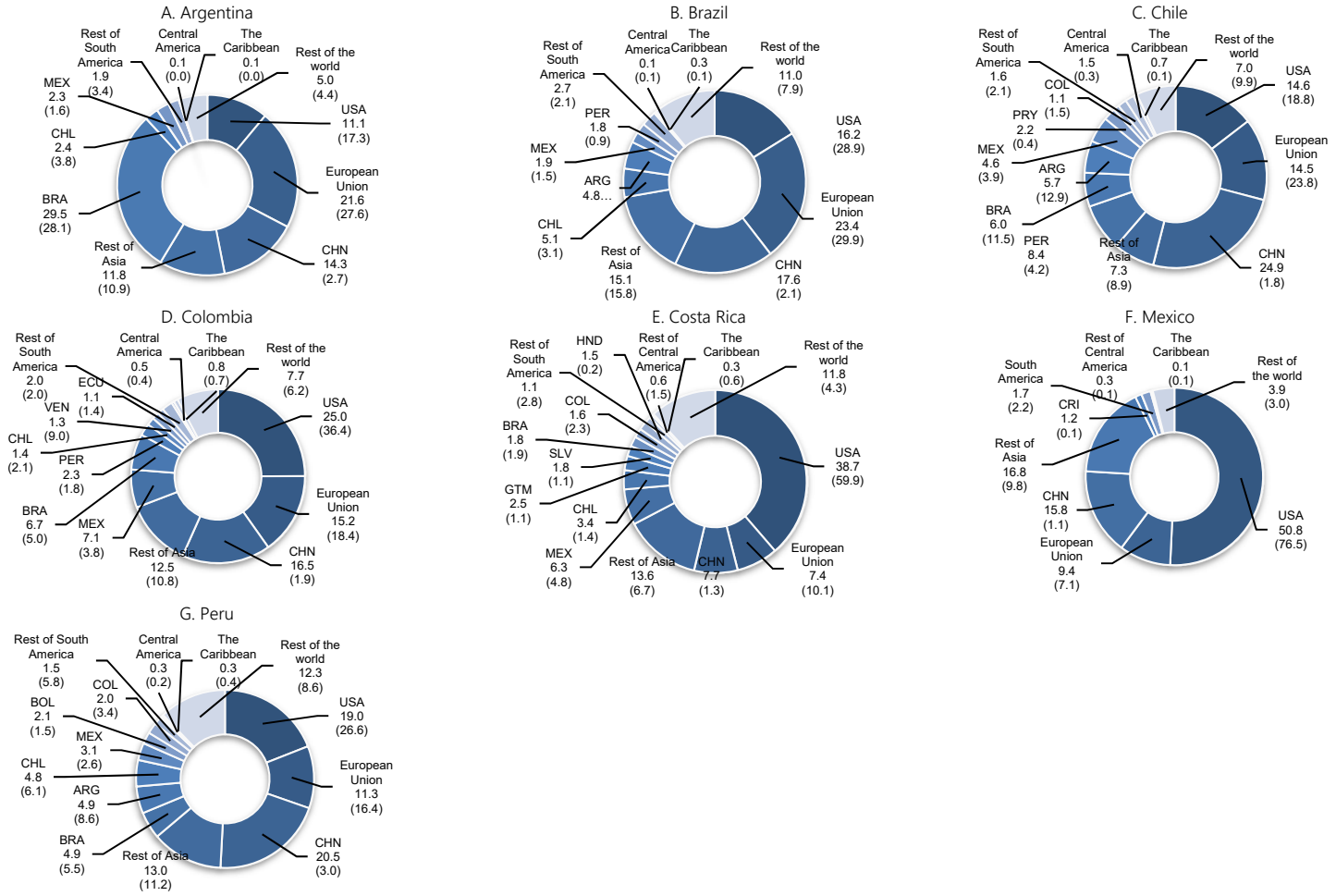
Region	Country	ISO code
Rest of the World	Saint Barthélemy	BLM
	Saint Helena	SHN
	Saint Pierre and Miquelon	SPM
	Samoa	WSM
	San Marino	SMR
	Sao Tome and Principe	STP
	Saudi Arabia*	SAU
	Senegal	SEN
	Serbia	SRB
	Seychelles	SYC
	Sierra Leone	SLE
	Solomon Islands	SLB
	Somalia	SOM
	South Africa*	ZAF
	Sri Lanka	LKA
	Sudan	SDN
	Switzerland*	CHE
	Syrian Arab Republic	SYR
	Tajikistan	TJK
	Tanzania (United Republic of)	TZA
	Timor-Leste	TLS
	Togo	TGO
	Tokelau	TKL
	Tonga	TON
	Tunisia*	TUN
	Turkey*	TUR
	Turkmenistan	TKM
	Turks and Caicos Islands	TCA
	Tuvalu	TUV
	Uganda	UGA
	Ukraine	UKR
	United Arab Emirates	ARE
	Uzbekistan	UZB
	Vanuatu	VUT
	Wallis and Futuna	WLF
	Yemen	YEM
	Zambia	ZMB
	Zimbabwe	ZWE

[a] Countries included in the Organisation for Economic Cooperation and Development (OECD)'s ICIO tables are indicated by asterisks.
[b] Due to data availability reasons, Belgium and Luxembourg are considered as a single country.

Figure A.1

Latin America (7 countries): imported inputs embodied in gross manufacturing exports by geographical origin, 2000 and 2014[a]

(Percentages of the total)



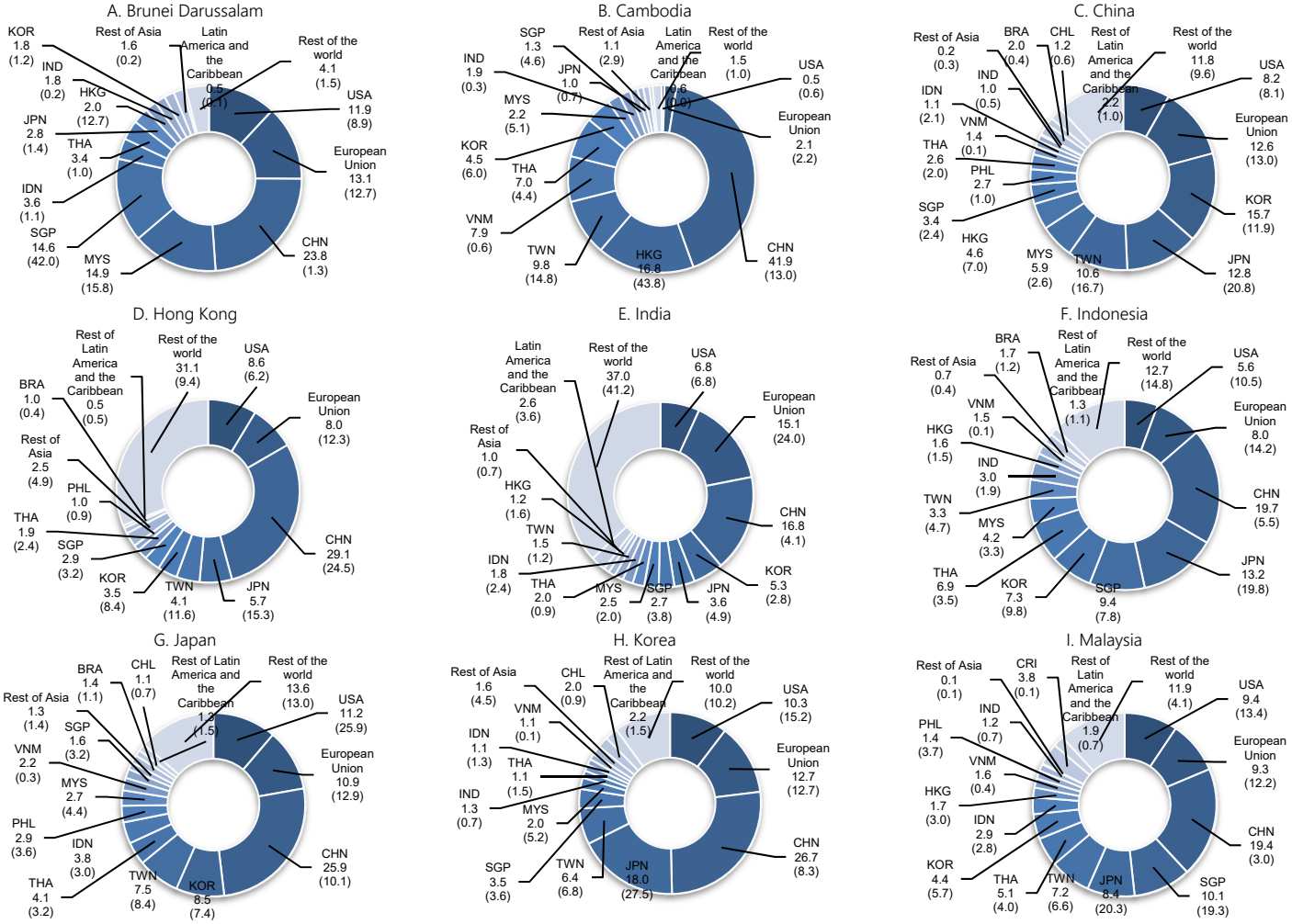
Source: Author's calculations on the basis of input-output data from the Organisation for Economic Cooperation and Development (OECD)'s ICIO tables; and trade data from the Centre d'Études Prospectives et d'Informations Internationales (CEPII), Base pour l'Analyse du Commerce International (BACI).

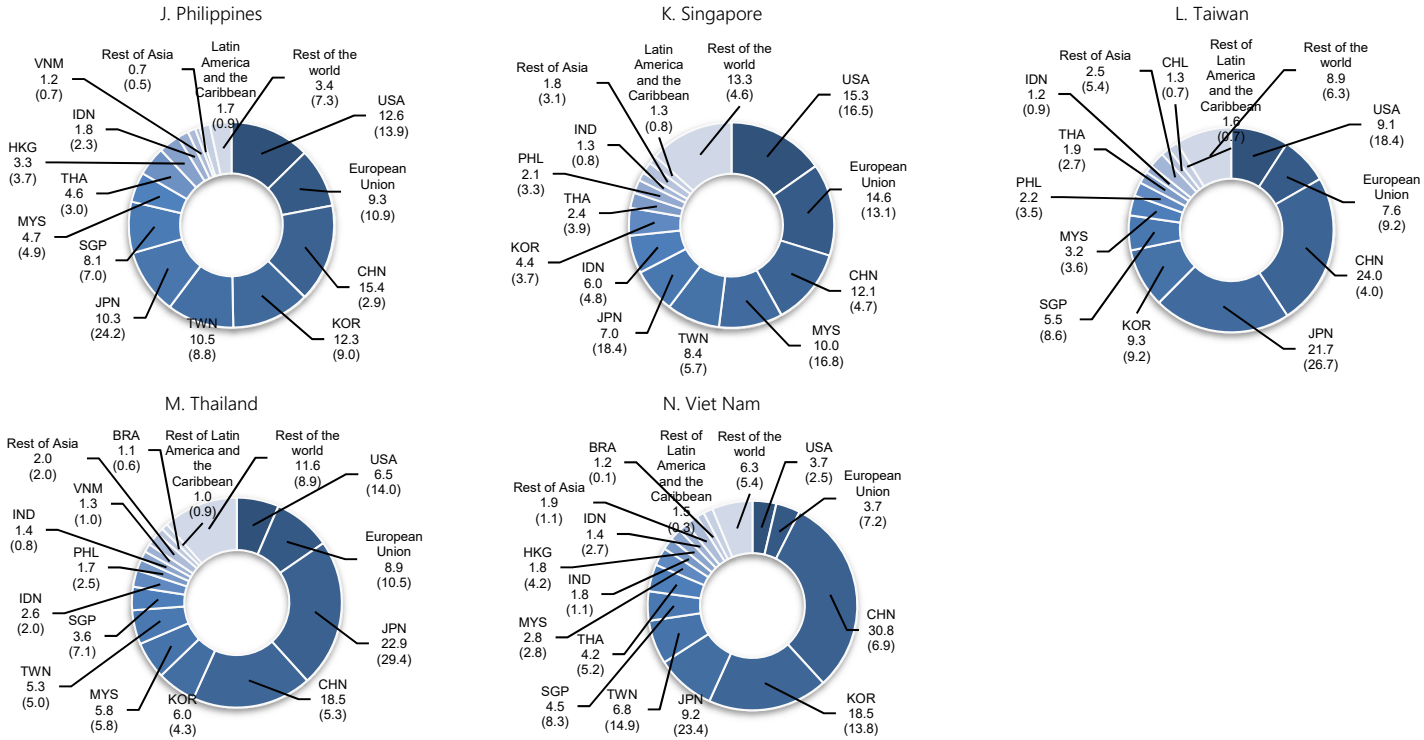
[a] Percentages in brackets indicate the share of each origin in 2000.

Figure A.2

Asia (14 countries): imported inputs embodied in gross manufacturing exports by geographical origin, 2000 and 2014[a]

(Percentages of the total)





Source: Author's calculations on the basis of input-output data from the Organisation for Economic Cooperation and Development (OECD)'s ICIO tables; and trade data from the Centre d'Études Prospectives et d'Informations Internationales (CEPII), Base pour l'Analyse du Commerce International (BACI).

[a] Percentages in brackets indicate the share of each origin in 2000.

Table A.3
Selected countries and regions: out-strength centrality in Latin America (6 countries) by origin sector, 2000 and 2014[a,b]

		C01T05 (4.2%)		C10T14 (3.8%)		C15T16 (2.8%)		C17T19 (1.9%)		C20 (0.4%)		C21T22 (2.8%)	
Region	Country	2000	2014	2000	2014	2000	2014	2000	2014	2000	2014	2000	2014
South America	ARG	37.4	17.2	4.8	2.6	22.9	16.6	5.9	2.0	9.1	3.0	5.7	5.0
	BOL	0.7	1.3	1.5	1.4	5.3	6.5	1.4	0.1	2.2	1.4	0.0	0.0
	BRA	3.9	3.1	8.5	16.8	6.9	7.4	7.6	5.3	8.7	6.0	10.9	12.7
	CHL	1.2	0.6	21.1	15.6	1.4	1.4	2.3	0.6	6.7	10.2	6.3	6.1
	COL	0.3	0.4	0.0	0.3	0.2	1.2	1.8	1.1	0.1	0.1	1.1	1.7
	ECU	0.6	0.2	0.0	0.1	1.7	1.9	1.8	0.7	3.5	5.4	0.3	0.5
	PER	0.3	0.8	18.4	28.3	2.3	4.5	0.9	1.9	0.2	0.4	0.2	0.9
	PRY	6.8	11.9	0.1	0.1	4.8	8.0	0.9	0.7	8.1	1.1	0.0	0.3
	URY	0.7	1.7	0.1	0.0	6.6	3.6	1.8	0.4	0.4	1.6	1.3	1.2
	VEN	0.1	0.0	0.4	0.1	1.0	0.0	0.8	0.0	0.2	0.3	0.6	0.0
Central America	CRI	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.7	0.0	0.0	0.0
	GTM	0.3	1.3	0.1	0.2	1.3	0.6	0.5	0.3	0.0	0.1	0.2	0.3
	HND	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.7
	NIC	0.1	0.5	0.0	0.1	0.2	0.4	0.1	0.0	0.3	0.0	0.0	0.0
	PAN	0.1	0.0	0.0	0.0	0.2	0.2	0.3	0.1	0.0	0.0	0.5	0.2
	SLV	0.0	0.0	0.0	0.0	0.1	0.1	0.8	0.3	0.0	0.0	0.2	1.0
Mexico		0.5	0.3	2.4	9.3	1.6	1.3	3.7	1.5	0.3	0.2	1.7	1.6
The Caribbean	ATG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BHS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BLZ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BRB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CUB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	DMA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	DOM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
	GRD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	GUY	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	HTI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	JAM	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	KNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	LCA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SUR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TTO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	VCT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Asia	BRN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CHN	0.6	0.7	1.0	2.1	0.5	4.5	6.6	46.9	1.7	21.4	0.4	8.4
	HKG	0.0	0.0	0.0	0.1	0.0	0.0	0.9	0.3	0.3	0.1	0.3	0.1
	IDN	2.2	5.0	1.1	0.0	1.1	5.2	2.6	3.9	0.3	0.1	0.5	1.2
	IND	0.2	0.3	10.0	0.4	0.3	0.8	2.6	8.1	0.1	0.1	0.0	0.2
	JPN	0.1	0.2	0.2	0.1	0.1	0.1	0.6	0.2	0.0	0.0	1.0	0.4
	KHM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	KOR	0.0	0.0	0.0	0.0	0.1	0.1	11.1	2.1	0.1	0.3	0.5	1.0
	LAO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MAC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MMR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MYS	1.3	1.2	0.0	0.0	0.8	1.5	0.1	0.1	0.2	0.1	0.0	0.1
	PHL	0.2	0.2	0.2	0.0	0.1	0.3	0.1	0.1	0.1	0.0	0.0	0.0
	SGP	0.4	0.1	0.0	0.0	0.3	0.4	0.1	0.1	0.0	0.0	0.0	0.0
	THA	0.9	2.7	0.0	0.0	0.1	0.2	0.9	1.1	0.1	0.0	0.1	0.0
	TWN	0.0	0.0	0.0	0.1	0.0	0.0	6.2	2.3	0.1	0.0	0.1	0.5
	VNM	0.1	0.7	0.0	0.0	0.0	0.1	0.0	1.5	0.0	0.2	0.0	0.1
United States		21.8	30.6	9.6	7.5	16.3	15.7	20.3	6.5	12.6	7.6	28.1	23.2
European Union		5.4	3.2	4.5	4.0	17.2	12.2	11.7	6.7	39.6	37.1	27.3	26.1

		C24 (19.9%)		C25 (6.4%)		C26 (0.7%)		C27 (18.8%)		C28 (7.0%)		C29 (9.1%)	
Region	Country	2000	2014	2000	2014	2000	2014	2000	2014	2000	2014	2000	2014
South America	ARG	4.4	2.6	3.6	3.4	4.0	2.4	4.3	2.8	1.8	0.9	3.0	1.2
	BOL	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
	BRA	4.5	5.4	10.2	9.2	12.8	9.3	10.7	8.4	6.1	6.4	1.4	3.1
	CHL	1.2	1.3	1.8	1.7	1.3	1.0	10.0	9.3	2.2	2.5	0.3	0.5
	COL	1.5	1.2	2.2	1.9	3.0	1.9	1.6	0.3	0.9	0.5	0.2	0.1
	ECU	0.1	0.1	0.9	0.6	0.7	0.4	0.3	0.2	0.2	0.2	0.0	0.1
	PER	0.3	0.4	0.3	1.6	1.2	2.2	4.2	3.1	0.4	0.4	0.1	0.1
	PRY	0.0	0.1	0.2	0.6	0.1	0.5	0.2	0.0	0.0	0.0	0.0	0.0
	URY	0.4	0.4	2.0	2.6	1.5	0.5	0.4	0.3	0.1	0.0	0.0	0.0
	VEN	3.4	0.8	1.3	0.0	2.5	0.1	5.9	0.2	2.8	0.0	0.2	0.0
Central America	CRI	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	GTM	0.1	0.1	1.3	1.2	0.5	0.4	0.2	0.7	0.1	0.5	0.0	0.0
	HND	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.2	0.1	1.6	0.0	0.0
	NIC	0.1	0.0	0.2	0.1	0.4	0.1	0.0	0.0	0.2	0.0	0.0	0.0
	PAN	0.2	0.0	1.4	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.1	0.0
	SLV	0.1	0.1	0.3	1.0	0.0	0.0	0.4	0.4	0.2	0.3	0.0	0.0
Mexico	MEX	5.3	3.7	2.4	3.7	3.4	6.3	4.7	4.9	3.2	4.2	0.9	1.5
The Caribbean	ATG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BHS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BLZ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BRB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CUB	0.1	0.1	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0
	DMA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	DOM	0.0	0.1	0.1	0.1	0.0	0.3	0.0	0.1	0.0	0.1	0.0	0.0
	GRD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	GUY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	HTI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	JAM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	KNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	LCA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SUR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TTO	0.2	0.9	0.0	0.0	0.0	0.1	0.5	0.3	0.0	0.0	0.0	0.0
	VCT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Asia	BRN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CHN	2.0	12.1	2.5	18.1	2.1	26.9	1.0	24.4	3.0	21.2	1.4	18.6
	HKG	0.1	0.1	0.5	0.2	0.3	0.3	0.1	0.2	1.0	0.4	0.5	0.1
	IDN	0.4	0.4	0.3	0.5	0.6	0.2	0.0	0.1	0.1	0.3	0.1	0.4
	IND	1.3	3.0	0.7	1.8	0.4	2.0	0.3	2.2	0.2	1.1	0.2	1.0
	JPN	2.6	1.4	5.4	5.1	4.4	1.2	4.2	4.3	4.4	3.0	8.9	5.8
	KHM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	KOR	2.0	2.6	4.9	3.5	0.9	2.3	1.6	2.8	1.2	5.3	1.0	2.2
	LAO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MAC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MMR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MYS	0.1	0.3	0.7	0.5	0.3	0.3	0.4	0.2	0.2	0.1	0.1	1.3
	PHL	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1
	SGP	0.4	0.3	0.3	0.2	0.0	0.1	0.1	0.3	0.4	0.3	0.1	0.5
	THA	0.3	0.4	0.7	1.9	1.4	0.4	0.1	0.3	0.1	1.8	0.2	1.0
	TWN	0.6	1.3	2.1	1.8	0.7	0.4	0.5	1.6	3.1	1.8	0.7	0.7
	VNM	0.0	0.0	0.2	0.5	0.0	1.7	0.0	0.1	0.0	0.5	0.0	0.2
United States		32.7	25.1	26.6	17.2	18.4	9.5	11.7	5.7	32.1	16.7	36.3	23.3
European Union		25.9	21.1	23.1	17.0	34.9	25.0	20.9	14.8	31.3	26.1	39.4	33.2

		C30.32.33 (7.5%)		C31 (3.1%)		C34 (5.5%)		C35 (3.1%)		C36T37 (3.0%)	
Region	Country	2000	2014	2000	2014	2000	2014	2000	2014	2000	2014
South America	ARG	0.2	0.1	3.6	0.5	5.5	2.9	0.2	0.1	2.1	1.5
	BOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.6
	BRA	0.5	0.4	3.4	5.9	20.4	28.5	0.5	0.8	4.7	7.3
	CHL	0.0	0.0	0.5	0.2	1.3	0.7	1.4	0.0	1.2	0.5
	COL	0.1	0.0	0.4	0.3	0.1	0.0	0.0	0.1	0.4	2.7
	ECU	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.3	0.9
	PER	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.1	4.2
	PRY	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.5	0.6
	URY	0.0	0.0	0.1	0.5	0.7	0.1	0.1	0.0	1.1	1.3
	VEN	0.0	0.0	0.6	0.0	0.4	0.0	0.0	0.0	2.0	0.0
Central America	CRI	0.2	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.4	0.7
	GTM	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	1.2
	HND	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.2	0.9
	NIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
	PAN	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.9	0.9
	SLV	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.5	2.1
Mexico	MEX	0.9	1.4	1.9	4.9	2.2	3.3	0.1	1.1	1.2	3.1
The Caribbean	ATG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BHS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BLZ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BRB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CUB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	DMA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	DOM	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3	1.4
	GRD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	GUY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	HTI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	JAM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	KNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	LCA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SUR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TTO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	VCT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Asia	BRN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CHN	3.1	20.4	4.3	28.9	0.2	5.9	1.7	8.2	5.7	33.1
	HKG	1.6	0.9	0.9	0.6	0.0	0.0	0.2	0.3	6.5	0.1
	IDN	0.3	0.1	0.3	0.4	0.1	0.8	0.4	0.3	0.3	1.0
	IND	0.0	0.2	0.4	1.0	0.1	1.2	1.1	1.1	0.2	0.1
	JPN	7.3	7.6	9.3	3.2	12.2	9.8	3.3	4.2	4.7	1.7
	KHM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	KOR	4.4	7.6	3.4	3.6	1.3	4.2	0.3	0.6	1.4	1.0
	LAO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MAC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MMR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MYS	3.4	2.6	0.9	0.5	0.0	0.1	0.1	0.3	0.2	0.1
	PHL	0.9	0.8	0.1	0.4	0.0	0.0	0.1	0.0	0.1	0.0
	SGP	1.5	0.7	0.4	0.2	0.0	0.5	0.3	0.5	0.1	0.0
	THA	0.6	0.8	0.4	1.5	0.2	5.0	0.2	1.8	0.2	1.2
	TWN	2.7	3.3	2.5	1.1	0.9	0.5	2.3	1.0	3.6	1.1
	VNM	0.0	1.0	0.0	0.8	0.0	0.0	0.0	0.2	0.2	0.4
United States		59.2	31.9	33.0	15.3	17.3	7.9	53.4	45.5	28.5	16.9
European Union		11.2	5.3	29.5	25.4	35.4	25.9	32.6	26.2	29.7	10.0

Source: Author's calculations on the basis of input-output data from the Organisation for Economic Cooperation and Development (OECD)'s ICIO tables; and trade data from the Centre d'Études Prospectives et d'Informations Internationales (CEPII), Base pour l'Analyse du Commerce International (BACI).

[a] Latin America (6 countries) includes Argentina, Brazil, Chile, Colombia, Costa Rica and Peru.

[b] The numbers in brackets at the top of each column correspond to the share of each sector in the foreign intermediate goods embodied in Latin America (6 countries)'s manufacturing exports in 2014. For a description of sector codes see table A.1.

Table A.4
Selected countries and regions: out-strength centrality in Mexico by origin sector, 2000 and 2014[a]

		C01T05 (1.0%)		C10T14 (0.5%)		C15T16 (0.3%)		C17T19 (1.9%)		C20 (0.5%)		C21T22 (2.2%)	
Region	Country	2000	2014	2000	2014	2000	2014	2000	2014	2000	2014	2000	2014
South America	ARG	0.1	0.3	0.0	0.0	0.8	1.4	0.5	3.1	0.3	1.3	0.1	0.1
	BOL	0.0	0.0	0.4	1.6	0.0	0.0	0.0	0.0	0.5	0.1	0.0	0.0
	BRA	1.7	1.6	11.4	0.7	0.5	0.4	0.3	3.4	2.9	5.6	0.3	1.3
	CHL	0.1	0.2	0.4	1.6	0.7	0.7	0.4	0.1	6.8	15.8	0.4	1.3
	COL	0.1	0.3	0.0	0.7	0.3	1.2	0.4	0.7	0.0	0.2	0.1	0.2
	ECU	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.0	1.6	0.1	0.0	0.0
	PER	0.0	0.2	9.0	3.7	1.6	0.1	0.1	0.2	2.1	2.2	0.0	0.0
	PRY	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
	URY	0.1	0.5	0.0	0.0	0.3	0.3	0.4	1.1	0.0	2.7	0.0	0.0
	VEN	0.3	0.2	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0
Central America	CRI	0.0	0.0	0.0	0.0	1.7	2.0	0.1	0.0	0.1	0.0	0.0	0.0
	GTM	0.6	0.8	0.1	0.0	1.1	2.3	0.2	0.8	0.2	0.5	0.1	0.3
	HND	0.0	0.2	0.0	0.0	0.3	1.2	0.0	0.2	0.0	0.0	0.0	0.0
	NIC	0.6	0.5	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
	PAN	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
	SLV	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.1
The Caribbean	ATG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BHS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BLZ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
	BRB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CUB	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	DMA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	DOM	0.0	0.1	0.5	0.0	0.2	0.1	0.0	0.2	0.0	0.0	0.0	0.0
	GRD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	GUY	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	HTI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	JAM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	KNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	LCA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SUR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TTO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	VCT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Asia	BRN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CHN	0.6	0.9	2.3	1.1	0.5	0.5	2.2	14.2	1.1	9.7	0.3	3.4
	HKG	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.1
	IDN	1.1	0.7	0.0	0.0	1.4	0.8	0.5	0.6	7.6	0.6	0.2	0.3
	IND	0.2	0.3	0.8	0.1	0.2	0.3	0.4	1.0	0.0	0.2	0.0	0.1
	JPN	0.0	0.0	0.1	0.1	0.0	0.0	0.4	0.5	0.1	0.0	0.6	0.6
	KHM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	KOR	0.0	0.0	0.0	0.1	0.1	0.0	5.0	1.3	0.1	0.2	0.3	0.7
	LAO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MAC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MMR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MYS	0.2	0.3	0.0	0.0	0.2	0.6	0.1	0.1	1.3	2.2	0.1	0.0
	PHL	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
	SGP	0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.0
	THA	0.5	0.3	0.0	0.0	0.0	0.1	0.3	0.4	0.0	0.1	0.0	0.0
	TWN	0.0	0.0	0.0	0.0	0.1	0.0	2.2	1.4	0.1	0.1	0.1	0.2
	VNM	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.0	0.0
United States		81.5	74.0	45.7	65.4	62.1	75.8	77.7	59.5	69.4	47.0	88.6	75.9
European Union		1.3	1.6	7.6	2.0	19.2	5.6	4.3	6.5	2.4	7.9	5.6	11.5

		C24 (8.1%)		C25 (8.4%)		C26 (0.7%)		C27 (9.3%)		C28 (9.4%)		C29 (11.3%)	
Region	Country	2000	2014	2000	2014	2000	2014	2000	2014	2000	2014	2000	2014
South America	ARG	0.2	0.2	0.1	0.1	0.1	0.0	0.3	0.5	0.0	0.0	0.1	0.1
	BOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
	BRA	0.5	1.2	0.4	1.0	1.7	2.8	2.6	1.1	0.3	0.5	1.0	1.0
	CHL	0.3	0.4	0.1	0.3	0.1	0.2	5.4	0.8	0.0	0.1	0.0	0.1
	COL	0.1	0.2	0.1	0.4	0.3	0.7	0.0	0.0	0.1	0.0	0.0	0.0
	ECU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	PER	0.1	0.0	0.0	0.2	0.0	0.1	0.4	0.1	0.0	0.0	0.0	0.0
	PRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	URY	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	VEN	0.3	0.0	0.1	0.0	0.7	0.0	3.3	0.1	0.2	0.0	0.0	0.0
Central America	CRI	0.0	0.1	0.1	0.2	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0
	GTM	0.0	0.0	0.1	0.1	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.0
	HND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	NIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	PAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SLV	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
The Caribbean	ATG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BHS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BLZ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BRB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CUB	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
	DMA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	DOM	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	GRD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	GUY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	HTI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	JAM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	KNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	LCA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SUR	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
	TTO	0.2	0.3	0.0	0.0	0.0	0.0	0.8	0.1	0.0	0.0	0.0	0.0
	VCT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Asia	BRN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CHN	1.2	5.8	1.1	12.1	1.1	18.8	1.2	5.8	0.7	13.4	0.8	14.4
	HKG	0.0	0.0	0.1	0.1	0.1	0.3	0.0	0.0	0.1	0.1	0.1	0.1
	IDN	0.2	0.3	0.1	0.3	1.2	0.1	0.0	0.3	0.1	0.0	0.1	0.2
	IND	1.0	1.5	0.1	0.7	0.2	1.0	0.3	3.1	0.1	0.8	0.1	0.6
	JPN	2.1	1.3	3.1	3.4	4.2	3.0	5.7	7.3	3.1	5.4	4.4	7.8
	KHM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	KOR	1.5	1.8	1.0	4.1	3.6	0.8	2.7	5.0	0.9	3.0	0.9	2.7
	LAO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MAC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MMR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MYS	0.1	0.2	0.2	0.2	0.2	0.3	0.0	0.3	0.1	0.3	0.1	0.5
	PHL	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
	SGP	0.4	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.4
	THA	0.1	0.2	0.2	0.7	0.2	0.4	0.1	0.1	0.0	0.4	0.0	0.4
	TWN	0.6	0.5	0.8	1.1	0.5	0.8	0.3	1.2	1.1	3.7	0.9	1.3
	VNM	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.8	0.0	0.2
United States		72.3	65.0	84.6	62.2	68.9	51.5	57.1	52.6	85.3	56.9	73.6	52.2
European Union		14.1	14.5	5.3	8.8	14.0	16.6	9.8	9.2	5.7	10.7	14.5	14.6

		C30.32.33 (21.4%)		C31 (9.5%)		C34 (12.7%)		C35 (0.9%)		C36T37 (1.9%)	
Region	Country	2000	2014	2000	2014	2000	2014	2000	2014	2000	2014
South America	ARG	0.0	0.0	0.0	0.0	0.6	0.3	0.0	0.0	0.1	0.0
	BOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BRA	0.2	0.1	0.2	0.4	2.2	1.9	0.3	0.3	0.3	0.4
	CHL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
	COL	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2	0.0
	ECU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	PER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	PRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	URY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	VEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Central America	CRI	0.1	5.3	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0
	GTM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0
	HND	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
	NIC	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.1
	PAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SLV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
The Caribbean	ATG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BHS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BLZ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BRB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CUB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	DMA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	DOM	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
	GRD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	GUY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	HTI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	JAM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	KNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	LCA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SUR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TTO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	VCT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Asia	BRN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CHN	1.3	36.1	1.1	17.6	0.0	5.3	3.9	12.0	1.4	8.0
	HKG	0.6	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.2	0.1
	IDN	0.1	0.2	0.1	0.2	0.0	0.3	0.4	0.1	0.0	0.1
	IND	0.0	0.1	0.1	0.5	0.0	0.6	1.4	0.3	0.0	0.1
	JPN	5.1	4.6	5.3	6.1	5.4	6.8	1.1	0.4	1.9	2.0
	KHM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	KOR	4.7	10.0	0.6	2.5	0.1	2.4	0.0	0.0	0.9	1.0
	LAO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MAC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MMR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MYS	1.4	9.5	0.4	0.9	0.0	0.0	0.1	0.7	0.1	0.4
	PHL	0.6	2.3	0.1	0.7	0.0	0.1	0.0	0.0	0.0	0.2
	SGP	1.3	1.2	0.2	0.2	0.0	0.0	0.2	0.0	0.1	0.0
	THA	0.6	2.0	0.2	0.7	0.0	0.5	0.1	0.0	0.1	0.3
	TWN	2.5	4.7	1.1	1.3	0.3	0.5	4.1	1.2	1.1	0.5
	VNM	0.0	0.9	0.0	0.3	0.0	0.2	0.0	0.1	0.0	0.1
United States		76.1	18.4	83.6	53.5	75.7	65.8	72.8	64.9	85.5	76.8
European Union		4.5	3.3	5.2	10.2	11.2	12.0	9.6	14.2	5.0	4.8

Source: Author's calculations on the basis of input-output data from the Organisation for Economic Cooperation and Development (OECD)'s ICIO tables; and trade data from the Centre d'Études Prospectives et d'Informations Internationales (CEPII), Base pour l'Analyse du Commerce International (BACI).

[a] The numbers in brackets at the top of each column correspond to the share of each sector in the foreign intermediate goods embodied in Mexico's manufacturing exports in 2014. For a description of sector codes see table A.1.

Table A.5
Selected countries and regions: out-strength centrality in Asia (14 countries) by origin sector, 2000 and 2014[a]

		C01T05 (2.3%)		C10T14 (3.4%)		C15T16 (1.5%)		C17T19 (2.5%)		C20 (0.6%)		C21T22 (2.0%)	
Region	Country	2000	2014	2000	2014	2000	2014	2000	2014	2000	2014	2000	2014
South America	ARG	4.6	4.1	1.1	0.2	5.1	5.8	0.8	0.8	0.0	0.2	0.0	0.0
	BOL	0.0	0.0	0.2	0.6	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
	BRA	3.1	20.3	7.5	11.0	2.6	7.2	0.5	3.1	1.8	0.9	1.8	8.2
	CHL	0.1	0.1	11.1	7.5	0.9	0.6	0.0	0.1	0.8	2.9	2.8	6.0
	COL	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
	ECU	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.0	0.0
	PER	0.0	0.1	2.3	4.1	5.2	1.9	0.1	0.1	0.0	0.4	0.0	0.0
	PRY	0.0	0.2	0.0	0.0	0.0	0.4	0.0	0.1	0.2	0.0	0.0	0.0
	URY	0.1	0.6	0.0	0.0	0.0	0.2	0.4	0.4	0.0	0.2	0.0	1.5
	VEN	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Central America	CRI	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
	GTM	0.1	0.1	0.0	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0
	HND	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	NIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
	PAN	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
	SLV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	MEX	0.1	0.1	0.9	2.1	0.1	0.2	0.6	0.2	0.0	0.0	0.0	0.1
The Caribbean	ATG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BHS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BLZ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BRB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CUB	0.0	0.0	0.0	0.0	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0
	DMA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	DOM	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	GRD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	GUY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	HTI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	JAM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	KNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	LCA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SUR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TTO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	VCT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Asia	BRN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CHN	9.7	1.3	5.5	1.2	3.1	3.9	8.0	19.1	5.0	7.6	1.6	7.0
	HKG	0.6	1.0	0.4	0.0	2.7	0.4	10.9	4.1	2.4	0.6	3.5	0.6
	IDN	4.5	2.5	7.5	1.4	6.2	11.8	3.1	3.5	25.1	7.9	11.8	8.5
	IND	0.6	3.0	4.9	1.4	3.4	2.6	2.4	7.2	0.1	0.1	0.3	0.1
	JPN	0.4	0.3	1.2	0.3	1.7	0.5	14.6	7.2	1.0	0.3	9.0	5.3
	KHM	0.5	0.4	0.0	0.0	0.0	0.1	0.0	0.1	1.6	1.5	0.1	0.0
	KOR	0.3	0.1	0.4	0.2	0.8	0.7	16.4	9.1	1.8	0.2	6.4	2.6
	LAO	0.5	1.1	0.0	0.4	0.0	0.0	0.0	0.0	0.3	3.8	0.0	0.0
	MAC	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0
	MMR	1.7	1.2	0.1	0.4	0.0	0.0	0.0	0.0	0.9	0.4	0.0	0.0
	MYS	4.2	1.4	0.6	0.6	9.6	9.5	1.6	1.2	15.9	6.4	1.4	0.9
	PHL	0.3	0.2	1.3	2.2	1.1	0.6	0.2	0.3	0.3	1.5	0.5	0.2
	SGP	1.0	0.1	0.5	0.1	1.9	1.6	0.7	0.4	0.9	0.2	2.5	2.7
	THA	6.8	5.0	0.8	0.3	4.6	6.0	1.7	3.1	4.3	8.5	2.8	1.7
	TWN	0.4	0.1	0.4	0.1	1.1	0.6	19.1	8.7	1.6	0.3	4.8	2.3
	VNM	1.5	1.8	0.4	0.3	0.8	2.1	0.5	6.5	0.6	6.9	0.2	0.5
United States		22.8	26.0	4.3	1.8	16.2	14.8	2.6	3.6	8.9	11.0	17.0	14.4
European Union		4.3	2.7	2.9	1.8	11.8	10.6	8.0	9.6	14.4	9.4	13.5	16.3

		C24 (15.2%)		C25 (3.1%)		C26 (0.8%)		C27 (16.7%)		C28 (2.2%)		C29 (6.0%)	
Region	Country	2000	2014	2000	2014	2000	2014	2000	2014	2000	2014	2000	2014
South America	ARG	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0
	BOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BRA	0.3	0.3	0.1	0.2	0.3	0.1	1.3	0.9	0.1	0.2	0.1	0.1
	CHL	0.1	0.2	0.0	0.0	0.0	0.0	2.5	4.0	0.0	0.1	0.0	0.0
	COL	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
	ECU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	PER	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0
	PRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	URY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	VEN	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Central America	CRI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	GTM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	HND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	NIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	PAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SLV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	MEX	0.3	0.2	0.2	0.3	0.1	0.2	0.3	0.1	0.1	0.2	0.1	0.3
The Caribbean	ATG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BHS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BLZ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BRB	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CUB	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
	DMA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	DOM	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
	GRD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	GUY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	HTI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	JAM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	KNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	LCA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SUR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TTO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	VCT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Asia	BRN	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CHN	2.9	10.1	4.3	12.9	6.4	18.4	5.2	15.4	6.7	22.6	2.9	12.2
	HKG	1.7	0.6	3.4	1.0	2.4	6.1	1.8	11.2	3.2	0.5	1.8	0.5
	IDN	2.1	1.9	2.1	2.2	2.7	0.9	2.0	2.2	0.9	1.1	0.7	0.9
	IND	1.0	1.5	0.4	0.6	0.6	1.0	0.8	1.9	0.4	0.7	0.2	0.8
	JPN	21.4	13.8	28.3	24.4	34.4	22.2	23.2	13.7	26.0	16.5	28.7	20.7
	KHM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	KOR	10.8	11.6	7.6	10.7	6.6	6.1	8.1	6.3	8.2	8.8	4.1	6.1
	LAO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
	MAC	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MMR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
	MYS	2.1	2.5	4.3	4.7	2.4	2.4	1.3	1.3	2.9	2.2	1.2	1.7
	PHL	0.2	0.3	1.0	0.6	0.8	0.4	0.6	0.6	0.3	0.4	0.3	0.3
	SGP	5.6	5.4	3.8	1.7	2.0	0.7	1.8	1.0	4.3	3.8	3.8	3.3
	THA	2.3	3.4	2.7	7.5	3.1	2.3	0.9	0.7	1.5	2.4	1.5	1.6
	TWN	9.4	7.4	14.2	6.7	9.5	8.7	8.4	3.0	9.6	5.0	3.9	3.2
	VNM	0.1	0.4	0.3	1.5	0.5	3.0	0.1	0.6	0.2	1.1	0.1	0.8
United States		14.1	11.1	12.7	7.9	9.8	10.7	3.5	2.9	11.9	8.2	21.6	13.0
European Union		14.3	13.3	12.1	15.1	15.7	14.3	8.0	7.2	18.5	21.3	25.0	30.1

		C30.32.33 (33.6%)		C31 (4.8%)		C34 (2.9%)		C35 (1.1%)		C36T37 (1.1%)	
Region	Country	2000	2014	2000	2014	2000	2014	2000	2014	2000	2014
South America	ARG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
	BOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BRA	0.0	0.0	0.1	0.1	0.2	0.3	0.1	0.2	0.1	0.4
	CHL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
	COL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2
	ECU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	PER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	PRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	URY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	VEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Central America	CRI	0.1	2.2	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.1
	GTM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	HND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	NIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	PAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	SLV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	MEX	0.3	0.4	0.2	0.7	0.6	1.6	0.0	0.2	0.3	1.2
The Caribbean	ATG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BHS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BLZ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	BRB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CUB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	DMA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	DOM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
	GRD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	GUY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	HTI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	JAM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	KNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	LCA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SUR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TTO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	VCT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Asia	BRN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	CHN	3.5	11.4	6.2	17.6	3.3	10.4	2.7	6.6	6.2	10.4
	HKG	5.1	1.2	6.6	0.8	0.3	0.2	2.4	4.3	6.2	3.9
	IDN	0.9	0.2	2.4	1.3	2.1	1.4	1.1	1.4	1.7	1.9
	IND	0.2	0.1	0.2	0.5	0.4	0.8	0.3	0.6	0.2	0.4
	JPN	19.8	12.0	32.1	19.6	31.6	22.5	6.1	3.9	9.0	8.6
	KHM	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2
	KOR	7.1	17.6	4.1	11.7	2.9	11.0	0.6	1.0	2.6	3.3
	LAO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MAC	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1
	MMR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	MYS	6.9	9.0	2.5	2.8	0.6	0.4	2.7	1.7	3.8	3.3
	PHL	5.1	5.0	1.2	1.6	2.2	0.8	0.2	0.1	1.9	1.5
	SGP	11.0	7.0	5.7	2.4	0.8	0.2	3.1	3.8	4.2	2.6
	THA	3.4	2.6	1.8	2.6	3.5	4.1	1.7	1.5	2.0	3.3
	TWN	8.8	15.1	8.4	3.4	3.8	0.9	3.2	1.8	5.5	2.4
	VNM	0.2	1.6	1.1	2.5	0.0	1.0	0.1	0.7	0.4	0.9
United States		16.5	8.1	10.6	6.8	22.1	6.1	49.9	37.5	24.7	16.7
European Union		9.9	4.9	14.6	22.6	18.7	36.4	20.8	27.1	17.1	17.5

Source: Author's calculations on the basis of input-output data from the Organisation for Economic Cooperation and Development (OECD)'s ICIO tables; and trade data from the Centre d'Études Prospectives et d'Informations Internationales (CEPII), Base pour l'Analyse du Commerce International (BACI).

[a] The numbers in brackets at the top of each column correspond to the share of each sector in the foreign intermediate goods embodied in Asia (14 countries)'s manufacturing exports in 2014. For a description of sector codes see table A.1.

Table A.6
Latin America and the Caribbean: hub and authority centralities in regional and global networks, 2000 and 2014[a]

		Latin America (7 countries)								Latin America (6 countries)							
		Hub centrality				Authority centrality				Hub centrality				Authority centrality			
		2000		2014		2000		2014		2000		2014		2000		2014	
Subregion	Country	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score
South America	ARG	28	0.0021	33	0.0040	5	0.0042	5	0.0126	3	0.1568	6	0.1375	4	0.1496	2	0.3537
	BOL	64	0.0001	65	0.0003					54	0.0026	49	0.0072				
	BRA	8	0.0104	12	0.0175	2	0.0238	2	0.0358	13	0.0525	4	0.1824	1	0.7982	1	0.7944
	CHL	13	0.0083	24	0.0055	6	0.0031	4	0.0130	7	0.0748	5	0.1436	5	0.1138	3	0.3194
	COL	38	0.0009	38	0.0020	4	0.0071	6	0.0115	26	0.0179	30	0.0217	3	0.2189	5	0.2185
	ECU	60	0.0001	69	0.0002					52	0.0030	54	0.0054				
	PER	32	0.0015	44	0.0015	7	0.0028	7	0.0063	23	0.0225	12	0.0765	6	0.0912	6	0.1358
	PRY	85	0.0000	62	0.0004					29	0.0153	24	0.0333				
	URY	50	0.0004	48	0.0012					27	0.0178	28	0.0276				
	VEN	17	0.0050	61	0.0004					20	0.0282	51	0.0063				
Central America	CRI	40	0.0009	9	0.0221	3	0.0180	3	0.0185	58	0.0022	62	0.0034	2	0.5209	4	0.2751
	GTM	41	0.0008	49	0.0011					43	0.0056	46	0.0085				
	HND	80	0.0000	50	0.0009					63	0.0012	57	0.0046				
	NIC	75	0.0001	32	0.0041					60	0.0018	72	0.0014				
	PAN	74	0.0001	95	0.0000					41	0.0059	74	0.0013				
	SLV	59	0.0002	68	0.0002					46	0.0051	53	0.0057				
Mexico	MEX	72	0.0001	67	0.0003	1	0.9995	1	0.9989	10	0.0605	10	0.0986				
The Caribbean	ATG	138	0.0000	155	0.0000					164	0.0000	181	0.0000				
	BHS	134	0.0000	142	0.0000					120	0.0000	111	0.0001				
	BLZ	95	0.0000	101	0.0000					121	0.0000	147	0.0000				
	BRB	114	0.0000	126	0.0000					141	0.0000	121	0.0000				
	CUB	46	0.0004	88	0.0000					50	0.0033	75	0.0011				
	DMA	180	0.0000	146	0.0000					135	0.0000	174	0.0000				
	DOM	70	0.0001	56	0.0006					82	0.0003	68	0.0020				
	GRD	157	0.0000	167	0.0000					185	0.0000	203	0.0000				
	GUY	111	0.0000	96	0.0000					119	0.0000	115	0.0000				
	HTI	133	0.0000	128	0.0000					130	0.0000	136	0.0000				
	JAM	93	0.0000	123	0.0000					101	0.0001	108	0.0001				
	KNA	129	0.0000	116	0.0000					171	0.0000	141	0.0000				
	LCA	170	0.0000	156	0.0000					162	0.0000	179	0.0000				
	SUR	56	0.0002	158	0.0000					169	0.0000	112	0.0001				
	TTO	35	0.0012	54	0.0006					59	0.0022	47	0.0083				
	VCT	198	0.0000	193	0.0000					187	0.0000	205	0.0000				

		Asia (14 countries)								Global (63 countries)							
		Hub centrality				Authority centrality				Hub centrality				Authority centrality			
		2000		2014		2000		2014		2000		2014		2000		2014	
Subregion	Country	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score
South America	ARG	34	0.0079	42	0.0076					38	0.0038	46	0.0095	42	0.0028	41	0.0052
	BOL	113	0.0001	79	0.0009					90	0.0002	73	0.0018				
	BRA	29	0.0133	13	0.0702					26	0.0135	15	0.0697	24	0.0157	32	0.0127
	CHL	21	0.0185	15	0.0471					30	0.0079	24	0.0430	48	0.0021	45	0.0041
	COL	71	0.0005	74	0.0010					53	0.0013	66	0.0024	37	0.0045	47	0.0035
	ECU	127	0.0000	103	0.0003					100	0.0002	94	0.0009				
	PER	41	0.0042	35	0.0124					45	0.0022	39	0.0137	49	0.0018	53	0.0020
	PRY	88	0.0002	117	0.0002					118	0.0001	110	0.0005				
	URY	62	0.0010	55	0.0035					71	0.0004	61	0.0032				
	VEN	70	0.0006	90	0.0006					43	0.0028	93	0.0009				
Central America	CRI	52	0.0014	23	0.0339					48	0.0019	27	0.0329	29	0.0112	42	0.0050
	GTM	109	0.0001	121	0.0002					62	0.0007	97	0.0008				
	HND	134	0.0000	99	0.0004					97	0.0002	96	0.0009				
	NIC	159	0.0000	129	0.0001					88	0.0002	92	0.0009				
	PAN	136	0.0000	118	0.0002					121	0.0001	130	0.0002				
	SLV	147	0.0000	153	0.0000					95	0.0002	136	0.0001				
Mexico	MEX	31	0.0085	29	0.0174					16	0.0254	20	0.0524	2	0.6191	2	0.2589
The Caribbean	ATG	172	0.0000	173	0.0000					147	0.0000	180	0.0000				
	BHS	157	0.0000	163	0.0000					129	0.0000	147	0.0001				
	BLZ	137	0.0000	161	0.0000					139	0.0000	159	0.0000				
	BRB	89	0.0002	155	0.0000					119	0.0001	160	0.0000				
	CUB	58	0.0011	85	0.0007					41	0.0030	105	0.0006				
	DMA	112	0.0001	177	0.0000					154	0.0000	186	0.0000				
	DOM	83	0.0002	94	0.0005					79	0.0003	69	0.0019				
	GRD	190	0.0000	202	0.0000					156	0.0000	199	0.0000				
	GUY	139	0.0000	140	0.0001					56	0.0011	111	0.0005				
	HTI	187	0.0000	156	0.0000					149	0.0000	161	0.0000				
	JAM	87	0.0002	134	0.0001					61	0.0008	119	0.0003				
	KNA	165	0.0000	200	0.0000					151	0.0000	167	0.0000				
	LCA	186	0.0000	178	0.0000					164	0.0000	169	0.0000				
	SUR	145	0.0000	132	0.0001					77	0.0003	120	0.0003				
	TTO	133	0.0000	133	0.0001					60	0.0009	79	0.0013				
	VCT	215	0.0000	207	0.0000					197	0.0000	209	0.0000				

Source: Author's calculations on the basis of input-output data from the Organisation for Economic Cooperation and Development (OECD)'s ICIO tables; and trade data from the Centre d'Études Prospectives et d'Informations Internationales (CEPII), Base pour l'Analyse du Commerce International (BACI).

[a] Score represents the value of countries' hub and authority centralities, while ranking indicates their corresponding position

Table A.7
Asia: hub and authority centralities in regional and global networks, 2000 and 2014[a]

	Latin America (7 countries)								Latin America (6 countries)							
	Hub score				Authority score				Hub score				Authority score			
	2000		2014		2000		2014		2000		2014		2000		2014	
Country	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score
BRN	145	0.0000	189	0.0000					170	0.0000	132	0.0000				
CHN	7	0.0143	2	0.2938					11	0.0542	1	0.6228				
HKG	19	0.0033	42	0.0017					24	0.0198	44	0.0098				
IDN	26	0.0022	29	0.0047					34	0.0121	23	0.0337				
IND	27	0.0022	14	0.0149					33	0.0134	15	0.0611				
JPN	2	0.0539	3	0.0925					4	0.1513	7	0.1236				
KHM	152	0.0000	120	0.0000					122	0.0000	139	0.0000				
KOR	4	0.0306	4	0.0798					9	0.0678	8	0.1203				
LAO	107	0.0000	141	0.0000					187	0.0000	166	0.0000				
MAC	125	0.0000	100	0.0000					142	0.0000	106	0.0001				
MMR	144	0.0000	191	0.0000					155	0.0000	146	0.0000				
MYS	14	0.0066	6	0.0428					19	0.0290	29	0.0252				
PHL	23	0.0028	16	0.0112					39	0.0062	58	0.0039				
SGP	16	0.0061	21	0.0069					32	0.0140	38	0.0135				
THA	18	0.0033	15	0.0142					36	0.0109	19	0.0442				
TWN	6	0.0174	8	0.0371					16	0.0419	18	0.0463				
VNM	71	0.0001	20	0.0069					72	0.0006	35	0.0144				

	Asia (14 countries)								Global (63 countries)							
	Hub score				Authority score				Hub score				Authority score			
	2000		2014		2000		2014		2000		2014		2000		2014	
Country	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking	Score
BRN	142	0.0000	114	0.0002	14	0.0001	14	0.0001	170	0.0000	121	0.0003	62	0.0000	62	0.0001
CHN	9	0.0836	10	0.1008	1	0.7053	1	0.9542	9	0.0400	6	0.2042	3	0.1528	1	0.8389
HKG	6	0.1653	7	0.1585	11	0.0127	12	0.0039	15	0.0259	8	0.1303	40	0.0029	43	0.0045
IDN	12	0.0661	16	0.0443	9	0.0471	11	0.0144	27	0.0127	25	0.0412	27	0.0130	31	0.0141
IND	25	0.0174	20	0.0390	12	0.0061	9	0.0248	31	0.0069	23	0.0435	46	0.0024	25	0.0272
JPN	1	0.7099	2	0.4967	7	0.1468	5	0.0950	2	0.1676	3	0.4516	10	0.0969	9	0.1044
KHM	63	0.0010	80	0.0008	13	0.0018	13	0.0024	109	0.0001	100	0.0007	59	0.0002	52	0.0026
KOR	4	0.2861	1	0.5539	4	0.3245	2	0.1717	5	0.0608	1	0.4768	9	0.1007	5	0.1835
LAO	101	0.0001	56	0.0033					148	0.0000	63	0.0027				
MAC	43	0.0029	84	0.0008					78	0.0003	104	0.0006				
MMR	60	0.0010	57	0.0032					103	0.0001	64	0.0026				
MYS	8	0.1058	6	0.2122	3	0.3758	6	0.0823	12	0.0301	7	0.1870	8	0.1100	12	0.0847
PHL	11	0.0699	11	0.0964	8	0.0698	10	0.0187	19	0.0182	12	0.0827	21	0.0199	30	0.0180
SGP	5	0.1977	8	0.1340	5	0.1703	8	0.0265	10	0.0391	9	0.1173	12	0.0617	23	0.0274
THA	10	0.0786	12	0.0962	6	0.1474	4	0.1029	22	0.0160	11	0.0854	16	0.0418	10	0.0989
TWN	3	0.3457	3	0.3763	2	0.4196	3	0.1679	4	0.0648	4	0.3237	4	0.1402	6	0.1674
VNM	38	0.0060	14	0.0527	10	0.0201	7	0.0590	55	0.0012	22	0.0464	41	0.0028	14	0.0572

Source: Author's calculations on the basis of input-output data from the Organisation for Economic Cooperation and Development (OECD)'s ICIO tables; and trade data from the Centre d'Études Prospectives et d'Informations Internationales (CEPII), Base pour l'Analyse du Commerce International (BACI).

[a] Score represents the value of countries' hub and authority centralities, while ranking indicates their corresponding position.

Table A.8
Clusters composition

Network	Cluster number	Countries
Latin America (7 countries)	1	ABW, ALB, ARE, ARG, ARM, BHR, BIH, BMU, BTN, CHL, COL, EGY, ERI, FSM, GEO, GNB, GNQ, GTM, IND, LKA, MDA, MDG, MEX, MHL, NCL, NPL, RUS, SLV, STP, SUR, SYR, TCA, TGO, TKL, TON, TUR, TUV, UGA, UKR, VGB, WLF, YUG, ZAF, ZMB
	2	AFG, BGD, BLZ, BOL, ECU, ETH, FIN, FJI, GIN, MMR, NIU, PAK, PAN, PYF, SLB, URY, UZB, VUT
	3	AGO, AUS, AUT, AZE, BGR, BLX, BRA, CAN, CCK, CHN, CMR, CZE, DEU, DMA, DNK, DOM, ESP, FRA, GBR, GRC, HKG, HND, IDN, ISL, ITA, JOR, JPN, KGZ, KOR, LAO, LBN, LTU, LVA, MAR, MOZ, MSR, NLD, NOR, NZL, POL, PRK, PRT, QAT, ROU, SAU, SLE, SMR, SOM, SVK, SVN, SWE, TKM, TWN, USA, VCT, VEN, VNM
	4	AIA, AND, ATG, BDI, BHS, BLR, BRB, BRN, CAF, CHE, COK, COM, CPV, CRI, CUB, CXR, CYM, CYP, DJI, DZA, EST, FLK, GIB, GMB, GRD, HRV, HTI, HUN, IRL, IRN, IRQ, ISR, KHM, KIR, KNA, KWT, LBY, LCA, MAC, MDV, MLT, MNP, MRT, MYS, NER, NFK, NIC, NRU, OMN, PCN, PHL, PLW, RWA, SGP, SHN, SYC, THA, TJK, TTO, TUN, WSM
	5	BEN, BFA, CIV, GHA, GRL, LBR, MKD, MLI, MUS, MWI, NGA, PRY, SDN, TCD, TZA, YEM, ZWE
	6	COG, GAB, GUY, JAM, KAZ, KEN, MNG, PER, PNG, SEN
Latin America (6 countries)	1	ABW, ARG, ARM, BLZ, CHL, CHN, ERI, GEO, GNQ, GRC, GTM, HND, ISL, LKA, LTU, MDA, MDG, MEX, MHL, NCL, NRU, PRK, RWA, SHN, SLB, SLV, SUR, SVN, SYR, TKL, TON, TUR, TUV, UGA, UKR, URY, VGB, YUG, ZAF, ZMB
	2	AFG, AIA, ARE, AUS, AUT, BGR, BHR, BLX, BRA, CAN, COL, CRI, CYP, CZE, DEU, DNK, EGY, ESP, EST, FRA, GBR, HKG, HRV, IND, ITA, JPN, KOR, LBN, LCA, MOZ, MUS, NGA, NLD, NOR, PNG, POL, PRT, ROU, RUS, SAU, SGP, SOM, SVK, SWE, THA, TTO, TUN, TWN, USA, VNM
	3	AGO, ALB, BOL, CMR, DOM, ECU, ETH, FIN, GAB, IDN, LVA, MMR, MRT, NER, NIC, NPL, NZL, PAK, PAN, PYF, UZB, VUT, WLF
	4	AND, ATG, AZE, BDI, BHS, BIH, BLR, BMU, BRB, BRN, BTN, CAF, CCK, CHE, COG, COK, COM, CPV, CUB, CYM, DJI, DMA, FSM, GIB, GMB, GNB, GRD, HTI, HUN, IRL, IRN, IRQ, ISR, KGZ, KHM, KNA, KWT, LAO, LBY, MAC, MAR, MLT, MNG, MSR, MYS, NFK, NIU, OMN, PCN, PHL, PLW, QAT, SMR, STP, SYC, TJK, TKM, VEN, WSM
	5	BEN, BFA, BGD, CIV, FJI, GHA, GIN, GRL, JOR, KEN, LBR, MKD, MLI, MWI, PRY, SDN, TCD, TZA, YEM, ZWE
	6	DZA, GUY, JAM, KAZ, PER, SEN, SLE

Network	Cluster number	Countries
Asia (14 countries)	1	ABW, AND, ARE, BGR, BHR, BTN, CHE, CHL, COG, COL, GIN, GRC, HKG, IND, ISL, JAM, KAZ, LAO, LBY, MDG, MKD, NCL, NGA, PRK, RUS, STP, TJK, TTO, TZA, UKR, VEN, VGB, ZAF, ZMB, ZWE
	2	AFG, BEN, BFA, BRA, CAF, CIV, CMR, DJI, ETH, GHA, GMB, GNB, GNQ, GUY, KIR, MDA, MLI, MMR, MWI, PNG, PYF, SDN, SLB, SOM, SUR, TCD, TGO, UGA, VUT, YUG
	3	AGO, AIA, ARG, BGD, BHS, BLZ, CAN, COM, CPV, CUB, CYP, DZA, ECU, FJI, FLK, FSM, GAB, GRD, GRL, GTM, HTI, IDN, IRQ, KEN, KGZ, LBN, LKA, LVA, MDV, MHL, MNP, MUS, NER, NFK, NIC, NPL, NZL, PAK, PAN, PLW, PRY, SEN, SHN, SLV, SYR, TKM, TON, TUV, URY, UZB, VCT, WSM, YEM
	4	ALB, ARM, AUS, BDI, BOL, DMA, EGY, ERI, GEO, LBR, MNG, MRT, NRU, PER, RWA, SLE
	5	ATG, AUT, AZE, BIH, BLR, BLX, BMU, BRB, BRN, CCK, CHN, COK, CRI, CXR, CYM, CZE, DEU, DNK, DOM, ESP, EST, FIN, FRA, GBR, GIB, HND, HRV, HUN, IRL, IRN, ISR, ITA, JOR, JPN, KHM, KNA, KOR, KWT, LCA, LTU, MAC, MAR, MEX, MLT, MOZ, MSR, MYS, NIU, NLD, NOR, OMN, PCN, PHL, POL, PRT, QAT, ROU, SAU, SGP, SMR, SPM, SVK, SVN, SWE, SYC, TCA, THA, TKL, TUN, TUR, TWN, USA, VNM, WLF

Source: Author's elaboration.

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