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Exploring changes in world production and trade: Insights from the 2018 update of OECD's ICIO/ TIVA database

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EXPLORING CHANGES IN WORLD PRODUCTION AND TRADE

INSIGHTS FROM THE 2018 UPDATE OF OECD'S ICIO/TIVA DATABASE

Joaquim J.M. GUILHOTO, Geoffrey J.D. HEWINGS (University of Illinois), Nick JOHNSTONE (IEA), Colin WEBB and Norihiko YAMANO

Abstract

This paper explores changes in the structure of trade in value added drawing on the newly-released 2018 update to the ICIO/TiVA database that covers 64 countries (plus an aggregate "Rest of World), and 36 industries. Exploring the data over the period from 2005 to 2015, selected aspects of world-wide changes in international production systems were uncovered with subsequent attention to four key sectors that are heavily integrated in the world trading system: Textiles & Apparel; Chemicals; ICT and Electronics; and, Motor Vehicles. And finally providing some insights into the employment and environmental impacts of trade.

There is considerable heterogeneity in recent developments, with some countries experiencing declines in their integration in global value chains (such as France, Germany and Korea), while others experienced growth (such as Australia and Norway) and still other countries (such as the Russia Federation) have experienced a more cyclical pattern of growth and decline followed by modest growth. At the regional level, overall the sourcing of trade changed very little (intra- versus inter-regional), with the notable exception of East and Southeast Asia where it is striking the role played by the Chinese economy in the regional and global trade. In Europe and North America, the changes in intra-regional trade were very small.

Attention is also directed to the increasing role of services in manufacturing exports; for all countries, this share has increased over the period from 2005 to 2015 with most countries recording values between 25% and 40%. In addition, non-resident expenditures (primarily from tourism) recorded some important changes. For over half the countries, the contributions account for less than 5% of total exports but for some countries, such as Greece, the share exceeds 20%.

The paper also explores aspects of changes in labor demand and the contributions to greenhouse gas emissions, areas in which the application of the ICIO/TiVA database is particularly enlightening. Many countries that have already been actively participating in GVCs are increasingly looking to "upgrade" their GVC activities to higher value added stages of production, and to accomplish this skilled labor plays a key role. The distinction between accounting for pollution at the source of production or the source of final consumption has occupied a prominent role in the academic literature, with concerns that efforts to mitigate GHGs in one set of countries resulting in counterbalancing emissions from other countries through imports.

Keywords: Inter-Country Input-Output; Trade in Value Added, Trade in Employment, CO_2 Emissions Embodied in Trade, International Trade

JEL Code: F14, F15, F16, F18, R15, C67

Table of contents

Abstract **3**

Executive Summary **8**

1. Introduction **10**

2. (De) globalisation? **11**

3. Globalisation or regionalisation? **16**

4. Sectoral changes **26**

4.1. Textiles and apparel 27
4.2. Chemical and pharmaceutical products 29
4.3. Computer, electronic and optical products 31
4.4. Motor vehicles 35

5. The changing role of services **39**

6. Extensions: labour market and climate change impacts **42**

6.1. Labour market impacts 42
6.2. Climate change impacts 45

7. Concluding remarks **48**

End Notes 49

References **50**

Annex A. TiVA 2018 geographical coverage **53**

Annex B. Expanded data used in charts **55**

Tables

Table B.1. Foreign value added shares of total exports, 2010 = 1.00, by region (Figure 2.1) 55
Table B.2. Foreign value added shares of total exports for selected countries, 2010 = 1.00 (Figure 2.2) 55
Table B.3. Foreign value added share of total gross exports, *as a percentage of total gross exports* (Figure 2.3) 56
Table B.4. Foreign value added share of manufactured exports, *as a percentage of total manufactured exports* (Figure 2.4) 57
Table B.5. Domestic value added embodied in foreign exports, *as a percentage of total gross exports* (Figure 2.5) 58
Table B.6. Regional demand for manufactured goods, 2005 and 2015, *by economy or region of value added origin, percentage shares of total* (Figure 3.1) 59
Table B.7. Regional demand for manufactured goods and business services, 2005 and 2015, *by economy or region of value added origin, percentage shares of total* (Figure 3.2) 60
Table B.8. Origin of foreign value added in domestic final demand for manufactured goods and business services. I*ntra-regional versus extra-regional (ROW) origin, selected countries, 2005 to 2015, USD Millions and percentage shares* (Figure 3.3) 61

Table B.9. Domestic value added in foreign final demand for manufactured goods and business services. *Intra-regional versus extra-regional (ROW) demand, selected countries, 2005 to 2015, USD Millions and percentage shares* (Figure 3.4) 62
Table B.10. Foreign value added in domestic final demand for manufactured goods, *intra-regional versus extra-regional (ROW) origin, selected countries, 2005 to 2015, USD Millions and percentage shares* (Figure 3.5) 63
Table B.11. Domestic value added in foreign final demand for manufactured goods, *intra-regional versus extra-regional (ROW) demand, selected countries, 2005 to 2015, USD Millions and percentage shares* (Figure 3.6) 64
Table B.12. Final destination of intermediate exports by importing region, *intra-regional versus extra-regional, selected countries, 2005 to 2015, USD Million* (Figure 3.7) 65
Table B.13. Foreign value added embodied in domestic final demand by sector, global average, 2015. A*s a percentage of total domestic demand* (Figure 4.1) 67
Table B.14. Foreign value added embodied in domestic final demand, by sector, OECD average, 2015. A*s a percentage of total domestic demand* (Figure 4.2) 68
Table B.15. Global demand for Textiles and apparel, by country or region of final demand and origin of value added, *percentage shares of total, 2005 and 2015* (Figure 4.3) 69
Table B.16. Regional demand for Textiles and apparel by economy or region of value added origin, *percentage shares of total, 2005 and 2015* (Figure 4.4) 69
Table B.17. Foreign value added embodied in domestic demand for Textiles and apparel by source region, *as a percentage of total domestic demand* (Figure 4.5) 70
Table B.18. Global demand for Chemical and pharmaceutical products, by country or region of final demand and origin of value added, *percentage shares of total, 2005 and 2015* (Figure 4.6) 72
Table B.19. Regional demand for Chemical and pharmaceutical products, by economy or region of value added origin, *percentage shares of total, 2005 and 2015* (Figure 4.7) 72
Table B.20. Foreign value added embodied in domestic demand for Chemical and pharmaceutical products, by source region, 2015, *as a percentage of total domestic demand* (Figure 4.8) 73
Table B.21. Global demand for Computer, electronic and optical products, by country or region of final demand and origin of value added, *percentage shares of total, 2005 and 2015* (Figure 4.9) 75
Table B.22. Regional demand for Computer, electronic and optical products, by economy or region of value added origin, *percentage shares of total, 2005 and 2015* (Figure 4.10) 75
Table B.23. Foreign value added embodied in domestic demand for Computer, electronic and optical products, by source region, 2015, *as a percentage of total domestic demand* (Figure 4.11) 76
Table B.24. Global demand for Motor vehicles, by country or region of final demand and origin of value added, *percentage shares of total, 2005 and 2015* (Figure 4.12) 78
Table B.25. Regional demand for Motor vehicles by economy or region of value added origin, *percentage shares of total, 2005 and 2015* (Figure 4.13) 78
Table B.26. Foreign value added embodied in domestic demand for Motor vehicles, by source region, *as a percentage of total domestic demand* (Figure 4.14) 79
Table B.27. Services value added embodied in manufactured exports, by domestic and foreign origin, 2015, *as a percentage of total manufacturing exports* (Figure 5.1) 81
Table B.28. Non-residents' expenditure by origin of value added, 2015 *as a percentage of total gross exports* (Figure 5.2) 83
Table B.29. Jobs in the business sector sustained by foreign demand, by region of demand, 2015, *as a percentage of total business sector employment* (Figure 6.1) 84

Table B.30. Labour compensation of employees in business sector embodied in foreign demand, by region of demand, 2015, *as a percentage of total business sector labour compensation of employees* (Figure 6.2) 86
Table B.31. High-skilled employment in manufacturing meeting domestic and foreign demand, 2015, *as a percentage of total manufacturing employment* (Figure 6.3)..... 88
Table B.32. CO_2 emissions from fuel combustion (OECD and non-OECD countries), consumption-based and production-based (Gt CO2) (Figure 6.4) 89
Table B.33. Per capita CO_2 emissions from fuel combustion, consumption-based and production-based (tonnes CO2) (Figure 6.5) 90
Table B.34. Share of CO2 emitted abroad in total CO2 embodied in domestic final demand (Figure 6.6)..... 92
Table B.35. Regional demand for information industries products, 2005 and 2015, by country or region of value added origin, *percentage shares of total* (Box 4.1)..... 94
Table B.36. US imports of electronics, machinery and transport equipment from Mexico, by country or region origin of value added, 2005 to 2015, USD billions (Box 4.2)..... 94
Table B.37. US imports of electronics, machinery and transport equipment from Mexico, by country or region and industry origin of value added, 2015, USD millions (Box 4.2) 95

Figures

Figure 2.1. Foreign value added shares of total exports, 2010 = 1.00, by region..... 12
Figure 2.2. Foreign value added shares of total exports, 2010 = 1.00, selected countries 12
Figure 2.3. Foreign value added share of total gross exports, *as a percentage of total gross exports* .. 13
Figure 2.4. Foreign value added share of manufactured exports, *as a percentage of total manufactured exports* 14
Figure 2.5. Domestic value added embodied in foreign exports, *as a percentage of total gross exports* 15
Figure 3.1. Regional demand for manufactured goods, 2005 and 2015, *by economy or region of value added origin, percentage shares of total* 17
Figure 3.2. Regional demand for manufactured goods and business services, 2005 and 2015, *by economy or region of value added origin, percentage shares of total* 18
Figure 3.3. Origin of foreign value added in domestic final demand for manufactured goods and business services, *intra-regional versus extra-regional (ROW) origin, selected countries, 2005 to 2015, USD Millions and percentage shares*..... 19
Figure 3.4. Domestic value added in foreign final demand for manufactured goods and business services, *intra-regional versus extra-regional (ROW) demand, selected countries, 2005 to 2015, USD Millions and percentage shares*..... 20
Figure 3.5. Foreign value added in domestic final demand for manufactured goods, *intra-regional versus extra-regional (ROW) origin, selected countries, 2005 to 2015, USD Millions and percentage shares*..... 21
Figure 3.6. Domestic value added in foreign final demand for manufactured goods, *intra-regional versus extra-regional (ROW) demand, selected countries, 2005 to 2015, USD Millions and percentage shares*..... 22
Figure 3.7. Final destination of intermediate exports by importing region, *intra-regional versus extra-regional, selected countries, 2005 to 2015, as a percentage share of total intermediate export*..... 25
Figure 4.1. Foreign value added embodied in domestic final demand by sector, global average, 2015, *as a percentage of total domestic demand*..... 26
Figure 4.2 Foreign value added embodied in domestic final demand, by sector, OECD average, 2015, *as a percentage of total domestic demand*..... 27

Figure 4.3. Global demand for Textiles and apparel, by country or region of final demand and origin of value added, *percentage shares of total, 2005 and 2015* 28
Figure 4.4. . Regional demand for Textiles and apparel by economy or region of value added origin, *percentage shares of total, 2005 and 2015* 28
Figure 4.5. Foreign value added embodied in domestic demand for Textiles and apparel by source region, *as a percentage of total domestic demand* 29
Figure 4.6. Global demand for Chemical and pharmaceutical products, by country or region of final demand and origin of value added, *percentage shares of total, 2005 and 2015* 30
Figure 4.7. Regional demand for Chemical and pharmaceutical products, by economy or region of value added origin, *percentage shares of total, 2005 and 2015* 30
Figure 4.8. Foreign value added embodied in domestic demand for Chemical and pharmaceutical products, by source region, 2015, *as a percentage of total domestic demand* 31
Figure 4.9. Global demand for Computer, electronic and optical products, by country or region of final demand and origin of value added, *percentage shares of total, 2005 and 2015* 32
Figure 4.10. Regional demand for Computer, electronic and optical products, by economy or region of value added origin, *percentage shares of total, 2005 and 2015* 32
Figure 4.11. Foreign value added embodied in domestic demand for Computer, electronic and optical products, by source region, 2015, *as a percentage of total domestic demand* 33
Figure 4.12. Global demand for Motor vehicles, by country or region of final demand and origin of value added, *percentage shares of total, 2005 and 2015* 35
Figure 4.13. Regional demand for Motor vehicles by economy or region of value added origin, *percentage shares of total, 2005 and 2015* 36
Figure 4.14. Foreign value added embodied in domestic demand for Motor vehicles, by source region, *as a percentage of total domestic demand* 37
Figure 5.1. Services value added embodied in manufactured exports, by domestic and foreign origin, 2015, *as a percentage of total manufacturing exports* 40
Figure 5.2. Non-resident households' expenditure by origin of value added, 2015 *as a percentage of total gross exports* 41
Figure 6.1. Jobs in the business sector sustained by foreign demand, by region of demand, 2015, *as a percentage of total business sector employment* 43
Figure 6.2. Labour compensation of employees in business sector embodied in foreign demand, by region of demand, 2015, *as a percentage of total business sector labour compensation of employees* 44
Figure 6.3. High-skilled employment in manufacturing meeting domestic and foreign demand, 2015, *as a percentage of total manufacturing employment* 44
Figure 6.4. CO_2 emissions from fuel combustion (OECD and non-OECD countries), consumption-based and production-based (Gt CO_2) 45
Figure 6.5. Per capita CO_2 emissions from fuel combustion, consumption-based and production-based (tonnes CO_2) 46
Figure 6.6. Share of CO_2 emitted abroad in total CO_2 embodied in domestic final demand 47

Boxes

Box 4.1. The Case of "Information industries" 34
Box 4.2. Origin of Value added in US imports from Mexico 38

Executive Summary

This report explores changes in the structure of world production and trade drawing on the recently released 2018 update of OECD's Inter-Country Input-Output (ICIO) database and related collection of Trade in Value Added (TiVA) indicators[1]. Selected aspects of worldwide changes in international production systems are analysed over the period 2005 to 2015 with particular attention given to four key sectors heavily integrated in global production systems. Finally, some insights into the impacts of global value chains (GVCs) on employment and the environment are provided.

There is considerable heterogeneity in recent developments, with some countries (such as France, Germany and Korea) experiencing declines in their integration into GVCs, others experiencing growth (such as Australia and Norway) while others (for example, the Russian Federation) have experienced a more cyclical pattern of growth and decline followed by modest growth. For the OECD as a whole, the growth in the level of integration into GVCs from 2005 was interrupted by the Great Recession (2008-09); from 2009 to 2012, there was a period of pronounced growth but in the last three years, the curve has turned downwards again. While East and Southeast Asia had a similar pattern through to 2012, growth has continued since, with little evidence of a downturn. Other major regions, such as the European Union and North America, experienced similar trends to OECD as a whole. Overall the sourcing of trade, intra- versus inter-regional, changed very little with the notable exception of East and Southeast Asia where the role played by the Chinese economy in regional and global trade is striking. The increased dependence and integration among the East and Southeast Asian economies is a result of the organisation within the region to produce goods and services to fulfil the growing extra-regional demand and, domestic demand in the People's Republic of China (hereafter "China"). In the European Union and North America, changes in intra-regional trade were relatively small.

The characteristics of international trade vary across sectors. Four manufacturing sectors heavily involved in global value chains were chosen for more detailed analysis, namely: Textiles and apparel; Chemicals and pharmaceutical products; Computer, electronic and optical products; and, Motor vehicles[2].

For the Textiles and apparel sector, the European Union's shares of global final demand and value added witnessed some of the largest declines – almost 10 and 13 percentage points respectively; North America also recorded declines of 7 and 6 percentage points with respect to final demand and value added respectively. Much of this change in global final demand was counterbalanced by China (gains of 7 and 15 percentage points) and the rest of the World (7 and 3 percentage points). Within East and Southeast Asia, China's share of final demand increased from 49% to 70% with declines in Japan and Korea. Intra- versus inter-regional sourcing did change, with the European Union, for example, experiencing a decrease in the former from 70% to 52%.

For Chemical and pharmaceuticals, changes were much smaller. For example, North America's share of global final demand declined from 36% to 33% while the share of global value added declined from 32% to 29%. The European Union's decline was more pronounced – a drop in the share of final demand from 32% to 20% with a corresponding decline in value added from 33% to 24%. Most of the increases in final demand were recorded in China (increasing its share from 6% to 16%) and the rest of the World (from

11% to 15%). The corresponding value added share of China increased from 6% to 16% while the rest of the World's share increased from 16% to 17%.

For Computer, electronic and optical products, the changes were most often in a different direction. The value added sourced from within the United States to meet US final demand for Computer, electronic and optical products increased from 81% to 85%. In China the share increased from 59% to 70% while for the European Union, the share declined from 82% to 79%. For the US, the composition of external sources of value added changed more markedly with Japan's share declining (from 12% to 5%), while the share from China increased from 18% to 28%.

The Motor vehicles sector was one of seven sectors that recorded declines in the foreign value added content of domestic final demand at the global level. The share in global final demand of North America increased from 32% to 35% while the European Union's share declined (33% to 18%) as did Japan's (from 8% to 3%) much of which was offset by China's increasing share (6% to 21%). In global value added terms, North America increased its share from 24% to 26% while Japan's share declined by almost 50% (14% to 7%) with China's share more than tripling, from 6 to 21%.

Attention is also directed towards the increasing role of services in international trade. For most countries, the service content of manufactured exports increased between 2005 and 2015. For most OECD countries, services value added accounts for between 25% and 40% of the value of manufactured exports.

In addition to cross-border transactions, goods and services (such as transport and accommodation) can also be exported via non-resident expenditure on the domestic territory (e.g. from tourism activities or presence of foreign students). While for many countries such spending accounts for less than 5% of total exports, for some, such as Greece, Costa Rica, New Zealand and Turkey the share exceeds 20%.

The last two sections explore other consequences of GVCs, notably the impacts on domestic labour markets and the environment - areas in which the application of ICIO tables can be particularly enlightening[3]. Many countries that are already actively participating in GVCs are increasingly looking to "upgrade" their GVC activities to higher value added stages of production, and to accomplish this, skilled labour plays a key role. It is interesting to note that for some relatively large European economies (e.g. Germany, France, Italy, Sweden, and the Netherlands) foreign final demand is more important than domestic final demand in supporting high-skilled employment. Much of this is attributable to *intra*-regional fragmentation of production.

The distinction between accounting for pollution at the source of production or at the source of final consumption has occupied a prominent role in the academic literature, with concerns that efforts to mitigate greenhouse gases (GHGs) in one set of countries can result in counterbalancing emissions from other countries through imports. Our results reveal that for CO_2 emissions from fuel combustion, net imports by OECD countries from non-OECD countries fell from 2.1 to 1.6 Gigatonnes (Gt) between 2005 and 2015.

1. Introduction

Over the last 50 years, despite various economic crises, including the recent slowdown in the international trade following the Great Financial Crisis, it is impressive how the structure of global trade has changed, with predominantly bilateral trade relationships morphing into more global networks of international production. This is partly a consequence of multilateral agreements and the associated reduction in tariffs. At the same time, international transportation and transfer costs have moved steadily downwards in real terms as larger vessels and more efficient movement (containerization) have yielded significant savings to shippers.

In recent decades, production has been split into optimal subsets to exploit scale economies at each stage; increasingly, this production is being organised across many different countries, where location-specific competitive advantages can be exploited. Taking advantage of these developments, multinational firms have embraced new global organisational structures characterised as the *international fragmentation of production*.[4] Lower trade and transportation costs make this new spatial organization of production possible and one outcome has been an increase in the number of "border crossings" associated with the final assembly of a good.

As a result, production systems can now be incredibly complex and fragmented. However, a drawback of fragmentation comes from increased vulnerability to disruptions in production, whether generated by unexpected natural events (hurricanes, floods, earthquakes) or human-induced events such as labour disputes (e.g. a strike in a component manufacturing facility) and trade wars with the imposition of higher tariffs and retaliatory actions. Constraints on access to inputs from a source at one specific point in the supply chain can bring a global assembly line to a halt, particularly since pressures for efficiency have all but eliminated secondary sources for the supply of key components.

Changing patterns of global value chains (GVCs) effect not only trade, but also associated factors of production such as labour markets and capital flows. Many ancillary impacts are also apparent such as income distribution, poverty and pollution emissions. In this report, the impacts of GVCs on labour markets are examined by focusing on employment sustained by production to meet foreign demand and, the related skill composition. In addition, increased internationalization of production co-exists with increased interdependence of other systems, with climate change (as a global public "bad") being an obvious example. This report also considers the manner in which the fragmentation of production can serve as a mechanism through which CO_2 emissions are embodied in trade through indirect linkages.

The next section examines recent changes in globalisation. The following section reviews evidence on how these changes are manifested in intra-regional or extra-regional trade. Section 4 focuses on four manufacturing sectors that are major participants in global trade. The role of services in international trade is then explored in more detail in Section 5. The penultimate section offers some insights into changes in global demand for labour market skills and, the impact of trade on CO_2 emissions, exploring distinctions between production-based and consumption-based assessments. The concluding section offers some potential avenues for further analysis. The geographical coverage of TiVA 2018 and the data used in the charts are provided in the Annexes.

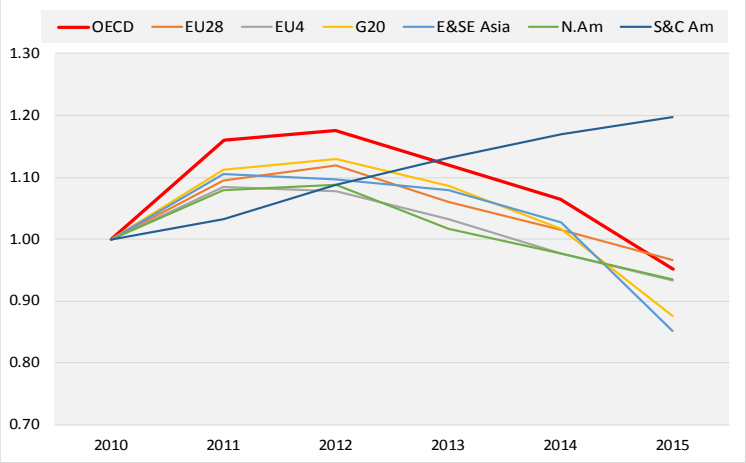
2. (De) globalisation?

In recent years, and especially since the recovery from the Great Financial Crisis, there has been considerable discussion about the degree to which trade may have been affected by more protectionist movements within major world economies, or even planned policies to reduce external dependence. In the last decade, several organizations have assembled multi-country trade databases based on harmonised input-output data. As a result, there has been a dramatic increase in the number of academic papers that have drawn upon one or more of these databases to explore changes in the structure of the global trading economy.[5] The OECD's recently released Inter-Country Input-Output (ICIO) tables and related collection of Trade in Value Added (TiVA) indicators[6] (hereinafter referred to as the OECD ICIO/TiVA database) serve as the principle sources for the results presented in this paper.

Relative to previous versions of the OECD ICIO/TiVA database, there have been a number of methodological developments with important implications for analysis, among which: a) use of statistics defined according to the 2008 System of National Accounts (SNA 2008) while previously, SNA 1993 statistics were used; b) under SNA 2008, expenditures on Research and Development (R&D) and Weapons systems (warships, submarines, military aircraft, tanks, etc.) are recorded as gross fixed capital formation (GFCF), i.e. investments, rather than as intermediate inputs – the practice under SNA 1993; c) the "change in ownership principle", under SNA 2008, and the treatment of transactions due to processing a ("manufacturing services on physical inputs owned by others"); d) use of an industry list based on the 4th revision of the International Standard Industrial Classification (ISIC Rev.4) while in the previous versions ISIC Rev.3 was used; and e) the possibility to access new and revised statistics.[7]

Many measures have been developed in recent years to provide insights into global production and trade, often based on the origins of value added in gross exports or, in final demand. A popular indicator is foreign value added share of total exports (often considered as a measure of backward linkages in GVCs) presented in Figure 2.1 to Figure 2.4. For major blocs of countries, over the most recent years, the general trend in foreign contents of exports has been downward. The notable exception is South and Central America, where there has been a marked increase over the period, albeit from relatively low levels. Figure 2.2 shows that the patterns of change can be very different at the individual country level with very distinctive trends even within the same trading bloc (see the different trajectories of the United States, Canada and Mexico). For some countries the trend has changed (e.g. Japan) with increases through 2014 then had a sharp downward trend. In the case of the Russian Federation, the experience is the opposite, although less pronounced in magnitude.

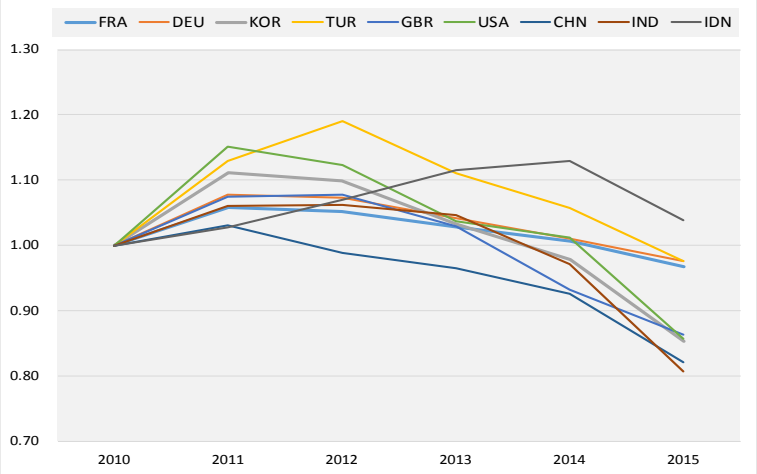
Figure 2.1. Foreign value added shares of total exports, 2010 = 1.00, by region



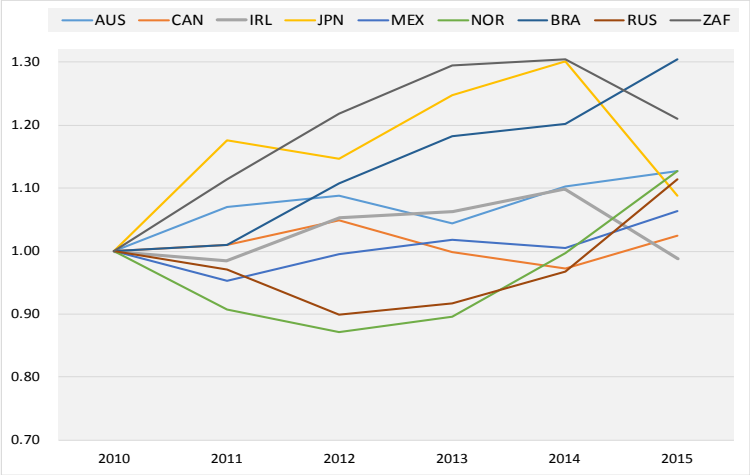
Source: Estimation based on OECD's Inter-Country Input-Output (ICIO) Database, 2018

Figure 2.2. Foreign value added shares of total exports, 2010 = 1.00, selected countries

Selected countries experiencing declines



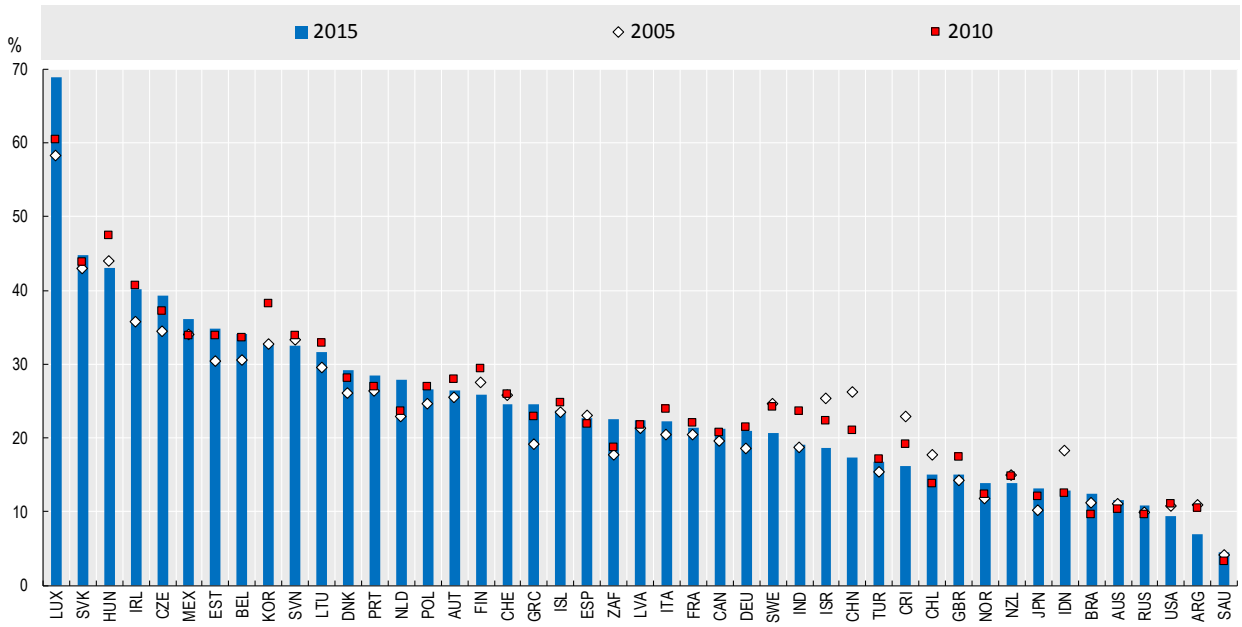
Selected countries experiencing increases



Source: OECD, Trade in Value Added (TiVA) database, http://oe.cd/tiva, 2018.

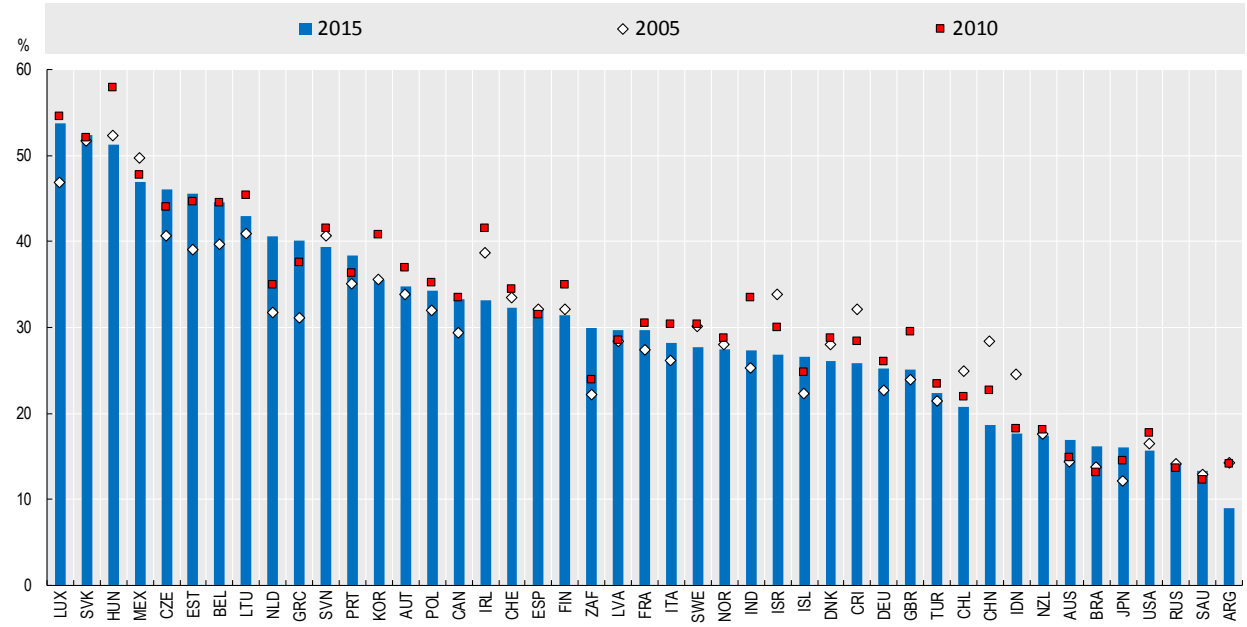
Figure 2.3 and Figure 2.4 help cast light on more recent trends. From 2005 to 2015, eight countries reduced their dependence on foreign value added in their supply chains (backward linkage in GVCs), with China exhibiting one of the steepest declines (by ten percentage points). The countries that experienced large increases in the foreign content of exports tended to be small in terms of the volume of trade; most European countries increased their use of foreign inputs as did Canada while Mexico and USA, slightly reduced theirs. Most of these changes were associated with shifts in demand for manufactured goods.

Figure 2.3. Foreign value added share of total gross exports, *as a percentage of total gross exports*



Source: OECD, Trade in Value Added (TiVA) database, http://oe.cd/tiva, 2018.

Figure 2.4. Foreign value added share of manufactured exports, *as a percentage of total manufactured exports*

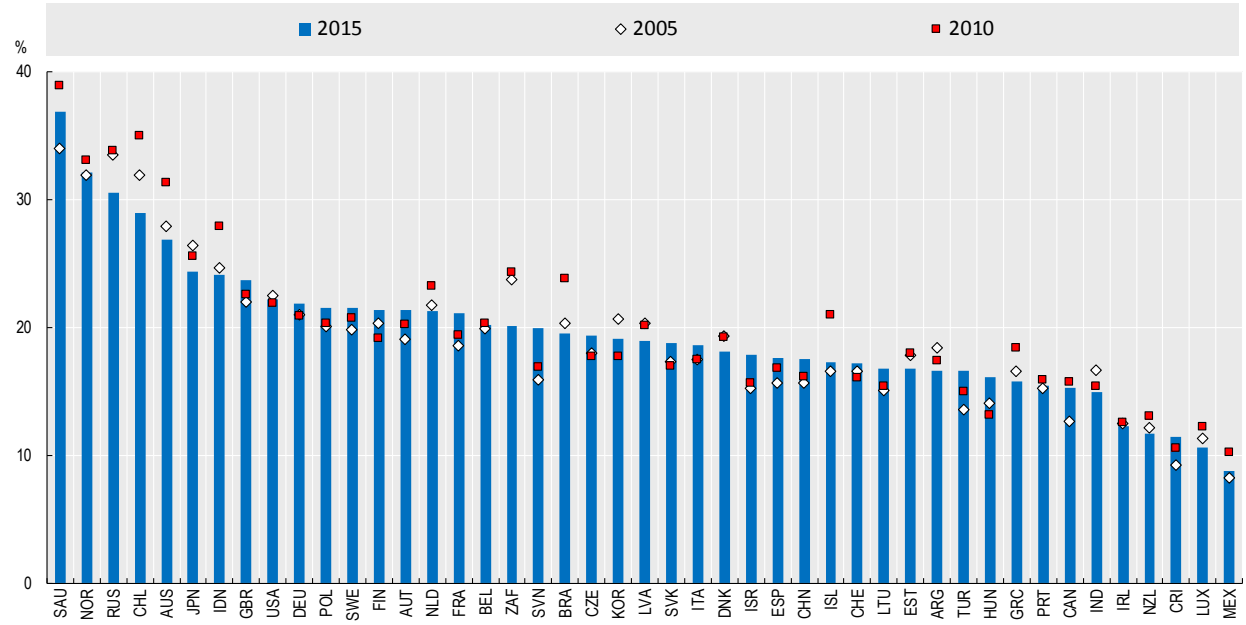


Source: OECD, Trade in Value Added (TiVA) database, http://oe.cd/tiva, 2018.

In contrast to backward linkage analysis, forward linkage analysis (measured as domestic value added embodied in foreign exports) reveals a greater mixture of patterns over time (see Figure 2.5) with slightly more countries exhibiting an increasing share, even if the changes were of a very small order of magnitude for most countries. While changes in backward linkages reflect the flexibility that firms have demonstrated in their capacity to change the geographical source of supplies in response to changing in relative prices, forward linkages tend to reflect in large part the consequence of trade agreements that may have been negotiated for many years. As such forward linkages generally adjust somewhat more slowly to changing economic conditions than backward linkages.

The analysis provided in this section, being of an aggregate nature, is complemented in the next section, which explores the role played by some of the main countries, as well as three trade regions (North America[8], the European Union and, East and Southeast Asia[9]) in the globalisation process of the international trade.

Figure 2.5. Domestic value added embodied in foreign exports, *as a percentage of total gross exports*



Source: OECD, Trade in Value Added (TiVA) database, http://oe.cd/tiva, 2018.

3. Globalisation or regionalisation?

On the basis of analysis through to 2009, Johnson and Noguera (2017) presented a number of stylised facts, including the findings that:[10]

Distance is negatively correlated with changes in the bilateral ratio of value added to gross exports, so that the largest declines in value added to export ratios are concentrated among spatially proximate trading partners.

Adoption of regional trade agreements is associated with declines in the ratio of bilateral value added to gross exports. On the latter point, the authors note that the declines in the ratios are much greater in cases whether there is a customs union or common market among countries.

To determine whether or not this has been affected by the Great Financial Crisis and the continuous rise of China in global markets, this section looks more closely at the extent to which recent trends in globalisation (or de-globalisation) at the aggregate level for individual countries are a reflection of intra-regional or extra-regional trends. Indeed, the spatial focus of attention of Johnson and Noguera (2017) was on the degree of fragmentation within and outside regions, where the regions considered were North America, East and Southeast Asia and Europe, for the years 1975, 1985, 1995 and 2005. They concluded that the rise of fragmentation seems to be related to increased regionalisation of international trade. Does this still hold true?

Figure 3.1 through Figure 3.7 attempt to unravel some of the heterogeneity at the regional level by distinguishing between *intra-regional* and *inter-regional* changes in the source of the value added in the regional demand. Figure 3.1 shows regional demand for manufactured goods, while Figure 3.2 shows the same information, but considering both manufactures and business services[11]. As business services usually represent a large share of the economies' output and are more directed to the internal market, this leads to smaller changes, from 2005 to 2015, in the *intra*-regional value added shares of demand than when considering only business services. However, in both cases, a decline can be observed in the *intra*-regional flows for North America and the European Union (EU28), while for East and Southeast Asian demand for manufactures, an increase in the intra-regional origin of value added is apparent. This finding provides an indication of different directions taken in different regions, which can be explained in part by the continuous rise of China in the international market as well as in the continued growth of its domestic economy.

Looking at the internal composition of the regional demand in Europe, one can observe small changes within the European Union, with Italy and France loosing participation, the United Kingdom remaining stable while Germany and EU13[12] increased their shares.

For intra-regional trade in East and Southeast Asia, China's increasing role is very evident, with its *intra*-regional share more than doubling, from 22.4% to 55.8% when considering both manufactures and business services, and from 31.4% to 63.3% when considering manufactures only. On the other hand, a major decrease in participation in *intra*-regional trade is observed for Japan with its share declining by more than half in both cases, from 55.3% to 23.6% in manufactures and business services and from 45.3% to 16.2% in manufactures only. Korea and Chinese Taipei show a small decline in their share while the rest of East and Southeast Asia shows a small increase.

For *inter*-regional demand, the patterns are different for each region analysed: a) for North American demand, there is an increase in shares of value added originating from East and Southeast Asia, mainly offset by a decrease in the *intra*-regional share: b) for the Europe Union there is an increase in the shares of all *inter*-regional supply while the *intra*-regional share has fallen; and c) for East and Southeast Asia demand, when considering both manufactures and business services there are small changes in the shares of originating regions - however, when considering manufactures only, there is reduction in the shares of demand originating from other regions. Overall, these changes point to an increase in the demand for *intra*-regional goods in East and Southeast Asia, and an increase in the share of this region as a supplier to the other regions; this result is strongly influenced by the size and the continuous growth of China domestic economy, and especially by the growth of its exports and imports.

Figure 3.1. Regional demand for manufactured goods, 2005 and 2015, *by economy or region of value added origin, percentage shares of total*



Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

Figure 3.2. Regional demand for manufactured goods and business services, 2005 and 2015, *by economy or region of value added origin, percentage shares of total*



Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

The previous analysis considers the total demand of the countries, sourced either from the domestic market or the imports from other countries, either *intra* or *inter*-regional. To actually see if countries are trading more intra- or inter-regionally, the values presented in Figure 3.3, Figure 3.4, Figure 3.5 and Figure 3.6 refer only to the trade of major players in international trade, i.e. a) France, Germany and United Kingdom in the European Union; b) the United States in North America; and c) Japan, Korea and China in East and Southeast Asia. Figure 3.3 shows the origin of foreign value added in domestic final demand (i.e. from the import perspective), and Figure 3.4 shows the domestic value added in foreign final demand (i.e. from the export perspective). Taken in combination these figures allow a better understanding of how the countries are integrated in the international market, and the extent to which this integration is *intra*-regional or *inter*-regional (Rest of the World – ROW). Figure 3.3 and Figure 3.4 considers both manufactures and business services, while Figure 3.5 and Figure 3.6 considers manufactures only.

Figure 3.3. Origin of foreign value added in domestic final demand for manufactured goods and business services, *intra-regional versus extra-regional (ROW) origin, selected countries, 2005 to 2015, USD Millions and percentage shares*



Source: Estimation based on OECD's Inter-Country Input-Output (ICIO) Database, 2018.

Figure 3.4. Domestic value added in foreign final demand for manufactured goods and business services, *intra-regional versus extra-regional (ROW) demand, selected countries, 2005 to 2015, USD Millions and percentage shares*



Source: Estimation based on OECD's Inter-Country Input-Output (ICIO) Database, 2018.

Figure 3.5. Foreign value added in domestic final demand for manufactured goods, *intra-regional versus extra-regional (ROW) origin, selected countries, 2005 to 2015, USD Millions and percentage shares*



Source: Estimation based on OECD's Inter-Country Input-Output (ICIO) Database, 2018

Figure 3.6. Domestic value added in foreign final demand for manufactured goods, *intra-regional versus extra-regional (ROW) demand, selected countries, 2005 to 2015, USD Millions and percentage shares*



Source: Estimation based on OECD's Inter-Country Input-Output (ICIO) Database, 2018

For the selected countries in North America and European Union, there is an increase in *inter*-regional integration from 2005 to 2015, with some oscillations, in both exports and imports of value added, and hence a decrease in role of the *intra*-regional production in meeting final demand. This result is influenced a great deal by the fact that China is considered *extra*-regional in these cases.

For the selected East and Southeast Asian countries, the trends are different, but, also greatly influenced by the trade with China. Japan and Korea's inter-regional relationships have diminished a little, as the importance of the *intra*-regional trade for these countries has increased - especially prominent being the increase in the dependence of their trade with China. On the other hand, given its economic size, one observes that at the same time that China increases the share of the *intra*-regional trade of the other economies in East and Southeast Asia. China's economy is large enough to record an increase in its share of trade in value added with the rest of the world.

Another important question concerns the destination of intermediate products exported by countries. Are they being incorporated in products for final consumption within the region? Do they return to the exporting country embodied in imports or are they embodied in exports for *extra*-regional final consumption? Figure 3.7 shows the final destination of intermediate exports by importer region, e.g. intermediate goods exported by France to the European Union can end up being embodied in final goods sold in France, other European Union countries or, the rest of the world.

The selected European countries (France, Germany, and the United Kingdom) have similar patterns in terms of the final destination of intermediates: between 4% and 6% of the intermediates exported to the European Union return to these countries, 70% to 75% stay within other EU countries, while 20% to 25% are embodied in goods exported to the rest of the world. For *extra*-regional exports, between 1% and 2% return to the exporting country, 5% to 8% go to other countries in the EU, while 90% to 95% remain outside the region. *Extra*-regional exports of intermediates that return to the exporting country and region are lower than intra-regional exports that end up outside the EU. As a result, from the exporter side, these countries are exporting more to the rest of the world than reported trade statistics may suggest.

For the United States, of the intermediates exported to the other North American countries (Canada and Mexico), around 30% returns to the US, while around 57% stays in the region. For the *extra*-regional exports, about 6% returns to the US, 1% goes to the rest of North American and 93% remains to meet *extra*-regional demand. For the US in particular, *extra*-regional exports that return to the exporting country are greater than the exports to regional neighbours that end up further afield; the US is exporting less to the rest of the world than reported trade statistics may suggest.

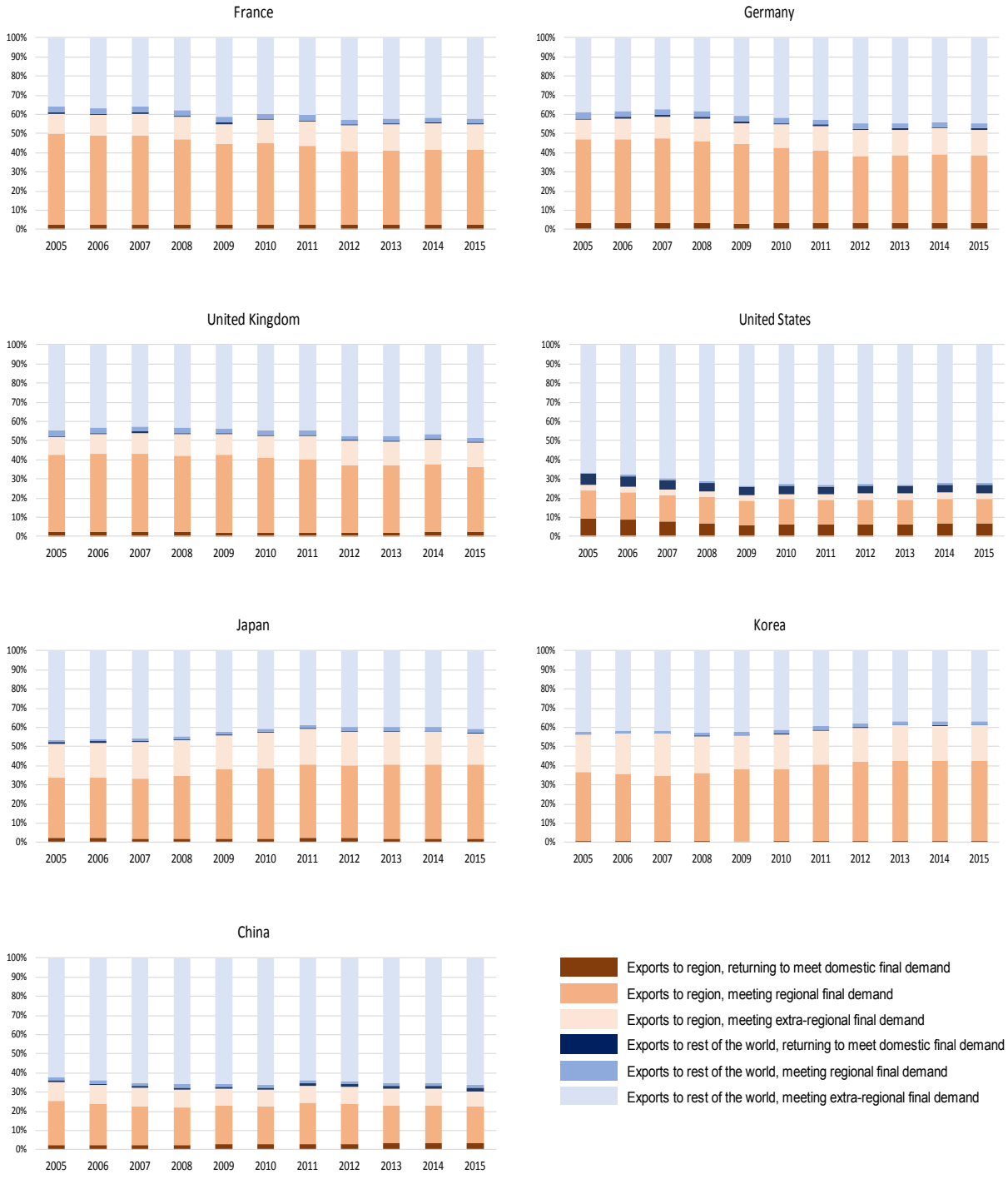
Among the selected countries in East and Southeast Asia, China has the highest share of inter-regional exports of intermediates that return to the country. In 2015, about 10% of the value added returned to China, 63% remained in the region and 27% was exported to the rest of the world. Japan and Korea have similar patterns for *intra*-regional exports, with about 68% remaining in other countries in the region. For Korea, around 1.5% of *intra*-regional exports return, while for Japan, between 3% and 4%. For all three countries, around one-third of *intra*-regional exports are subsequently embodied in exports to the rest of the world. For *extra*-regional exports of intermediates, the great majority remain outside the region, around 95%.

These results help shed some light on what is happening in terms of evolution in international trade and the interconnections among countries; the central role played by China is clearly evident in explaining the results. The increased dependence and integration among the East and Southeast Asia economies is a result of organisation within the region to produce goods and services to fulfil the growing *extra*-regional demand and Chinese domestic demand.

It is striking how one country, China, has influenced the way international trade has evolved in the last 10 to 20 years. Despite a decreasing share of exports going to other East and Southeast Asian economies, China's volume of trade is sufficiently large to make the region, and the rest of the world more generally, highly dependent on the Chinese economy. This transformation reflects in large part the development of the Chinese economy in terms of size and technology. Looking ahead, factors like new technology and intangibles[13] will continue to have a crucial role in shaping the evolution of international trade.

The next section focuses of how the intensity of trade has been changing in four sectors that are major players in the global trade. They have been chosen because they represent different aspects of trade in goods, ranging from textiles and apparel to motor vehicles, chemicals and, computers and electronics. Each of these sectors has a very distinctive set of trading patterns and are sectors that have experienced some of the most important changes in the structure of their GVCs over the past few decades.

Figure 3.7. Final destination of intermediate exports by importing region, *intra-regional versus extra-regional, selected countries, 2005 to 2015, as a percentage share of total intermediate export*

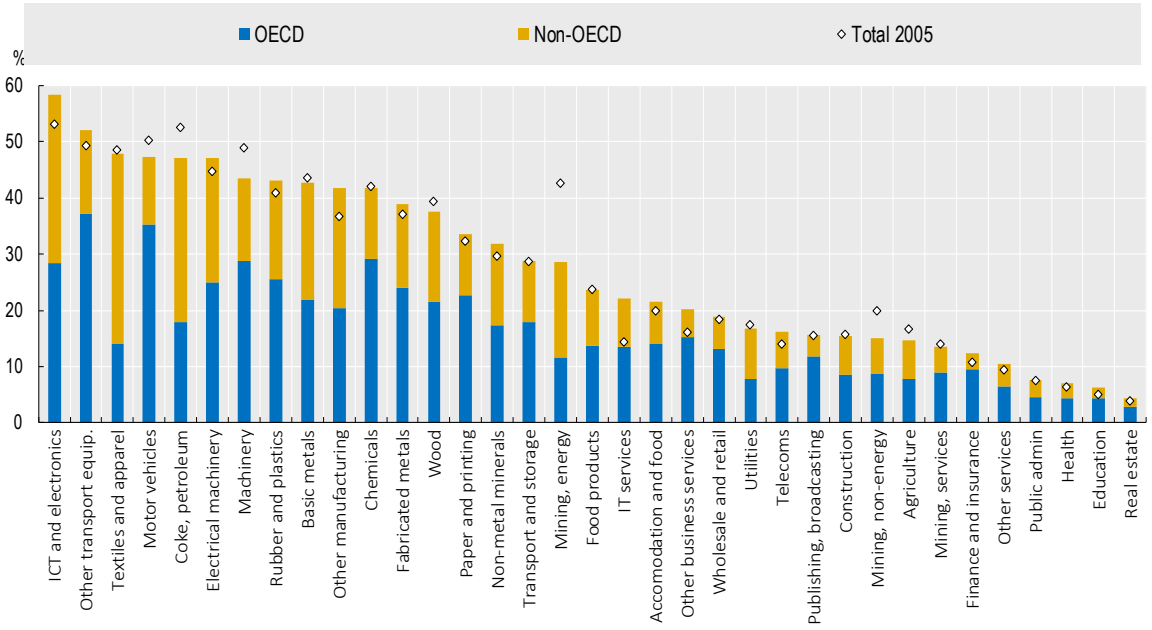


Source: Estimations based on OECD's Inter-Country Input-Output (ICIO) Database, 2018

4. Sectoral changes

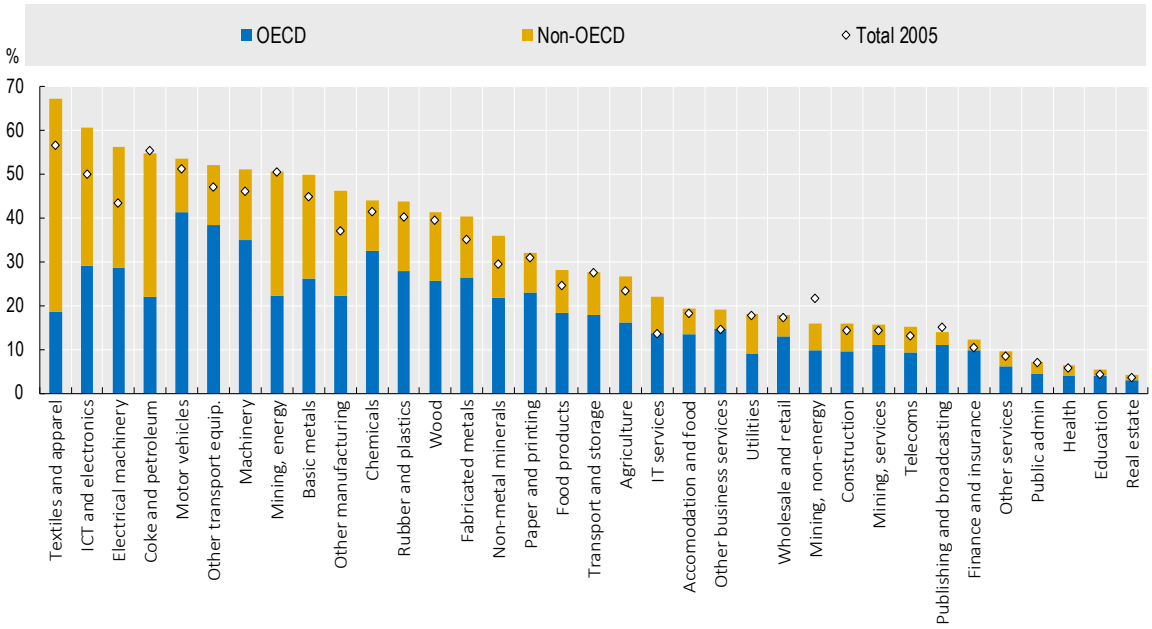
For the sectoral analysis, four highly fragmented sectors, **Textiles and apparel**, **Chemicals and pharmaceuticals, Computer, electronic and optical products** (or "ICT and electronics") and, **Motor vehicles**, were chosen for more detailed inspection in order to identify whether there were pronounced differences in terms of increasing or decreasing fragmentation and changing spatial linkages. Before proceeding to the analysis of these four individual sectors, Figure 4.1 explores the sectoral changes at the world level (global average) over the period between 2005 and 2015, for shares of foreign value added embodied in domestic final demand, split into the origin of the value added: OECD and non-OECD countries. Seven sectors recorded declines in foreign value added shares in domestic final demand – Motor vehicles, Coke and petroleum, Mining (energy, non-energy and services) and Agriculture being the most prominent. For the other sectors, there was increasing dependence. For some sectors, the share of value added accounted for by non-OECD countries was very large (e.g. textiles). Figure 4.2 highlights these changes in terms of the OECD countries average.

Figure 4.1. Foreign value added embodied in domestic final demand by sector, global average, 2015, *as a percentage of total domestic demand*



Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

Figure 4.2 Foreign value added embodied in domestic final demand, by sector, OECD average, 2015, *as a percentage of total domestic demand*

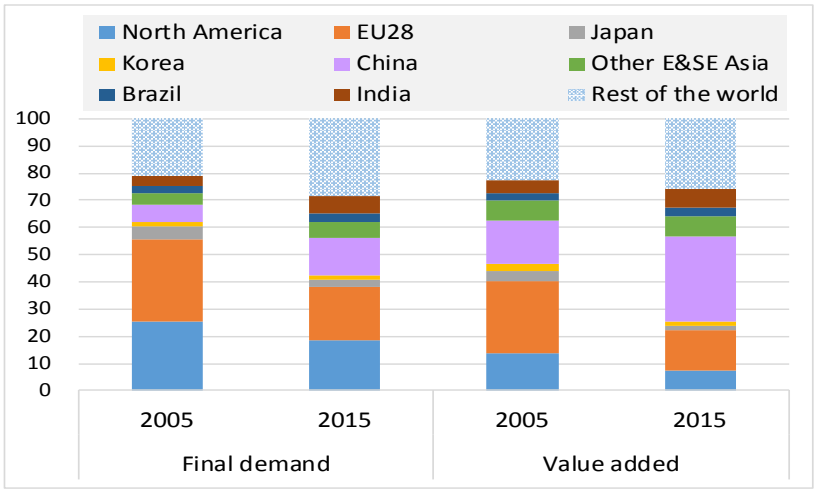


Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

4.1. Textiles and apparel

Figure 4.3 shows on the left where the valued added of Textiles and apparel is consumed while in the right shows where it is produced, one can see that the European Union (EU28) shares of final demand and value added production witnessed some of the largest declines – around 10 and 12 percentage points respectively. The North American share of global final demand declined by 7 percentage points with a similar decrease of 6 percentage points in the share of value added originating there. China accounted for most of the gains; final demand and value added increased by over 7 and 15 percentage points respectively. There were also gains in the rest of the world of 7 and 3 percentage points respectively. Over a ten-year period, these represent major shifts in both the location of value added and demand. In the case of East and Southeast Asia, China's share increased significantly from 49% to 70%, primarily at the expense of Japan and Korea.

Figure 4.3. Global demand for Textiles and apparel, by country or region of final demand and origin of value added, *percentage shares of total, 2005 and 2015*



Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

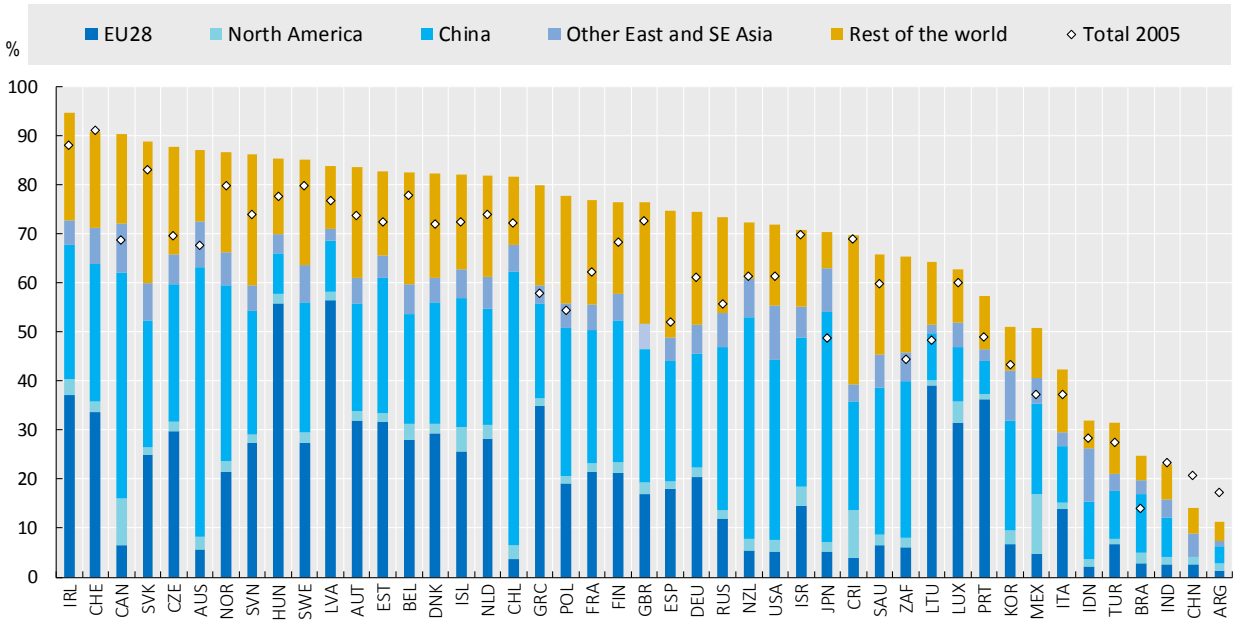
Figure 4.4. . Regional demand for Textiles and apparel by economy or region of value added origin, *percentage shares of total, 2005 and 2015*



Source: Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

Figure 4.5 presents the individual country data that reflect these macroeconomic changes with an increasing dependence on foreign value added although there was some heterogeneity in the mix of sources of this foreign value added. The shares across major regions (EU 28, North America, China etc.) tended not to be concentrated in one particular external region, perhaps reflecting consumers' increasing love of variety in demand for textiles and related products. Even in North America, Figure 4.4, 32% of the demand (in terms of value added) is *intra*-regional but this has declined from 46% in 2005; the change in location can be explained by the share of over 46% (growing from 30% in 2005) that is sourced in East and Southeast Asia while rest of the world share has remained constant at around 16%. For Europe, a similar pattern of spatial exchange can be seen, with the *intra*-regional share declining from 70% to 52%.

Figure 4.5. Foreign value added embodied in domestic demand for Textiles and apparel by source region, *as a percentage of total domestic demand*

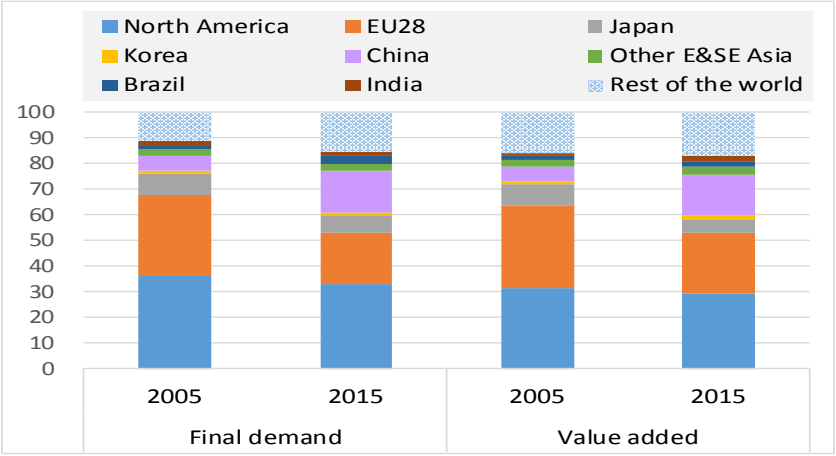


Source: Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

4.2. Chemical and pharmaceutical products

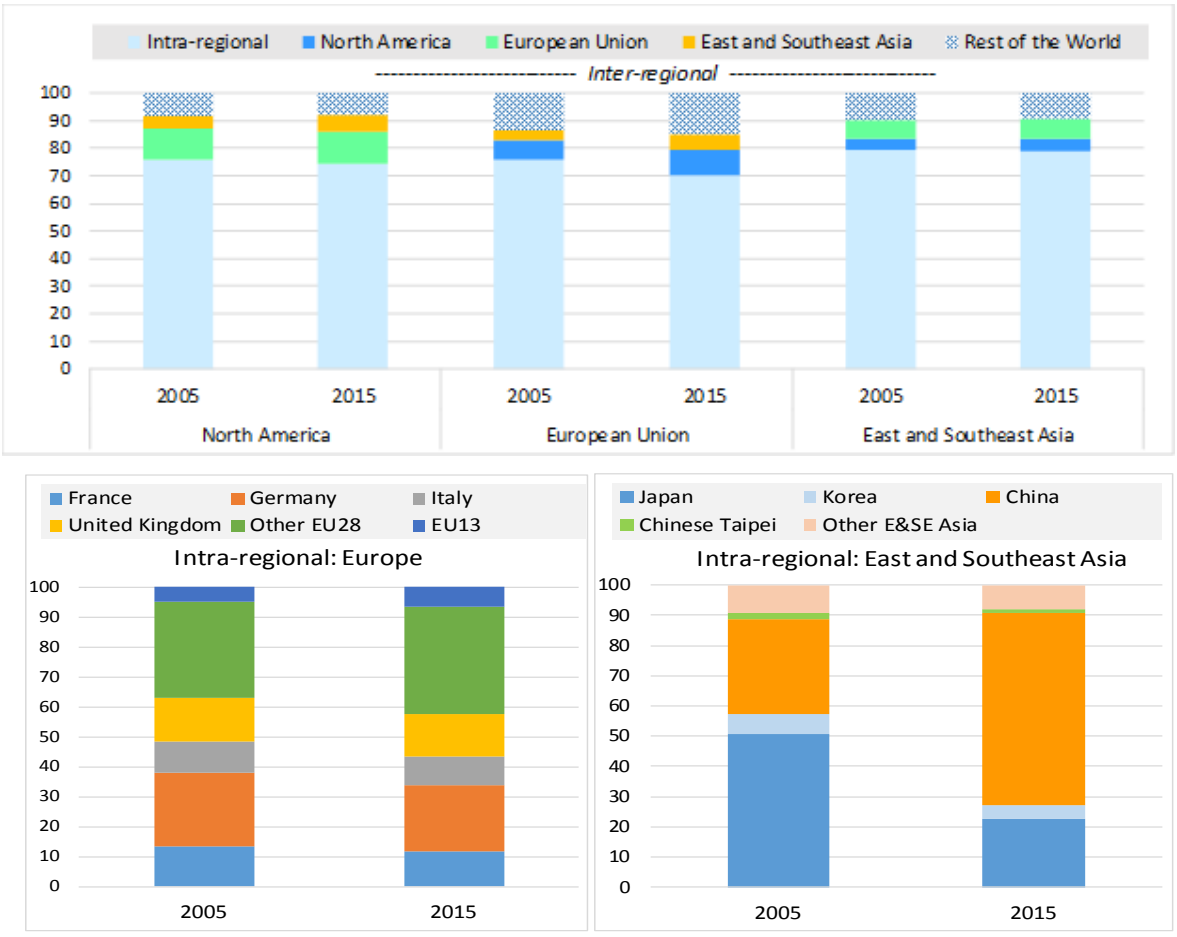
In contrast to the textiles industry, the changes recorded in the Chemicals and pharmaceutical sector were much smaller (Figure 4.6). North American share of global final demand declined from 36% to 33% and its share of value added dropped from 31% to 29%. The decline in the European Union was more pronounced with final demand declining by 12 percentage points (from 32% to 20%) with a loss of value added share of more than 9 percentage points (32% to 23%). Most of the positive changes in final demand were recorded in China (with a gain from 6% to 16%). Similarly for value added there was an increase of 10 percentage points in China's share (see Figure 4.6).

Figure 4.6. Global demand for Chemical and pharmaceutical products, by country or region of final demand and origin of value added, *percentage shares of total, 2005 and 2015*



Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

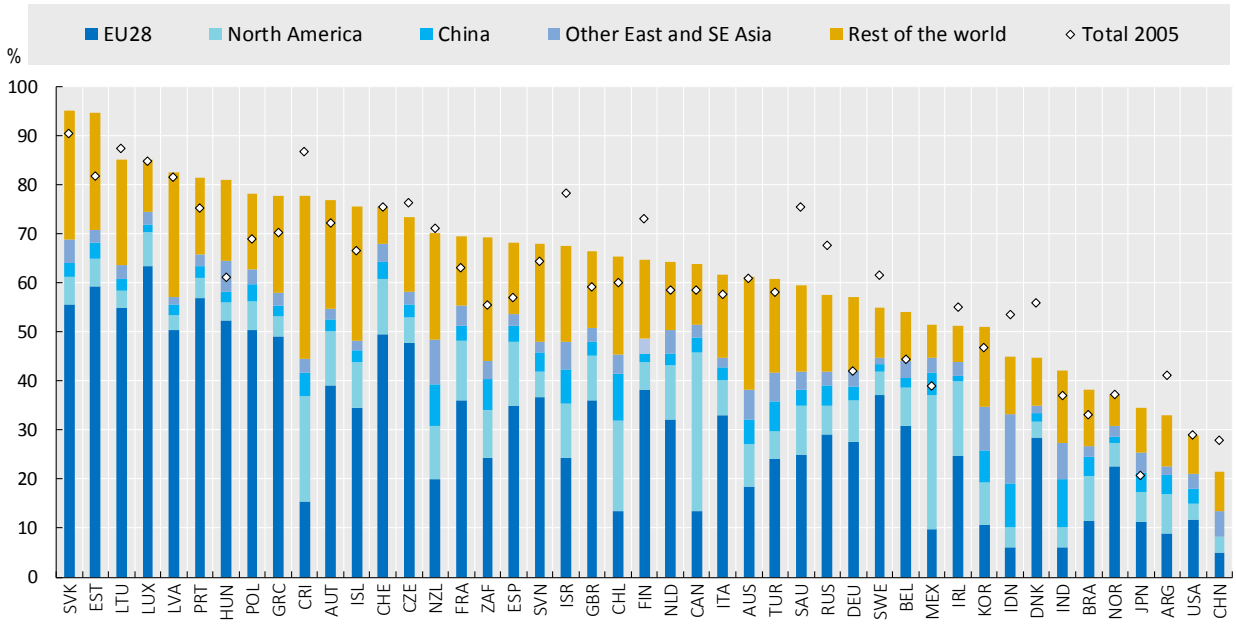
Figure 4.7. Regional demand for Chemical and pharmaceutical products, by economy or region of value added origin, *percentage shares of total, 2005 and 2015*



Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

The changes at the country level (Figure 4.8) show that about half of the countries decreased their dependence on foreign sources of foreign value added in domestic final demand while the other half increased it from their 2005 values. The geographical dependence was still dominated by the imported demand from the region in which the individual country was located, such that this industry is more regionalised in sourcing than the textiles sector. China's share in this case was modest except from its own domestic demand. For the European Union, Figure 4.7, there was a decline from 76% to 70% in the percentage of the demand sourced within the region. The equivalent decline in North America was just over 1 percentage point. Some of the more dramatic changes occurred in East and Southeast Asia where Japan experienced a declining share of intra-regional demand from 51% to 23%; in contrast, China's share increased from 31% to 64%.

Figure 4.8. Foreign value added embodied in domestic demand for Chemical and pharmaceutical products, by source region, 2015, *as a percentage of total domestic demand*

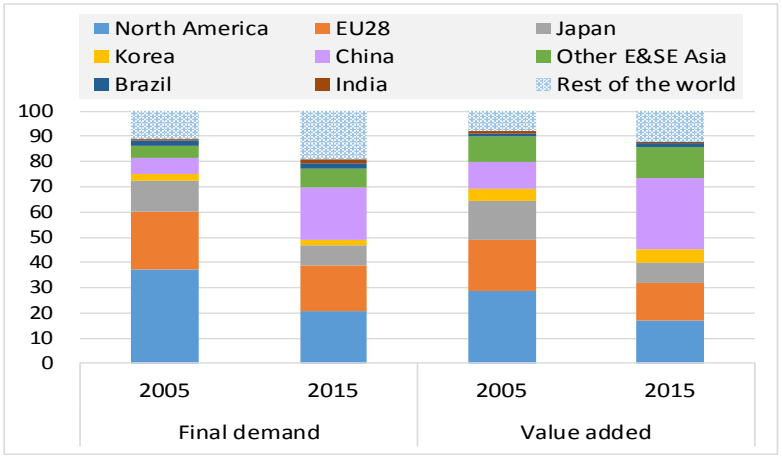


Source: Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

4.3. Computer, electronic and optical products

The Computer, electronic and optical products sector experienced some significant shifts in the geographical origin of demand or the location of value added (Figure 4.9 and Figure 4.10). North America's share of demand declined from 37% to 21% while China's share increased from 6% to 20%. The other major increase took place in the rest of world with its shares increasing from 11% to 19%. The share for the European Union, Korea and Japan all declined with Japan's decline the most prominent of these three. In terms of value added, the reallocation followed similar patterns to those of final demand; North America's share declined by 11 percentage points to 17% while China's increased to 28%, an 18 percentage point increase. The European Union's and Japan's shares declined by 5 and 8 percentage points but Korea's share was stable. Value added demand in the rest of the world increased by almost 4 percentage points.

Figure 4.9. Global demand for Computer, electronic and optical products, by country or region of final demand and origin of value added, *percentage shares of total, 2005 and 2015*



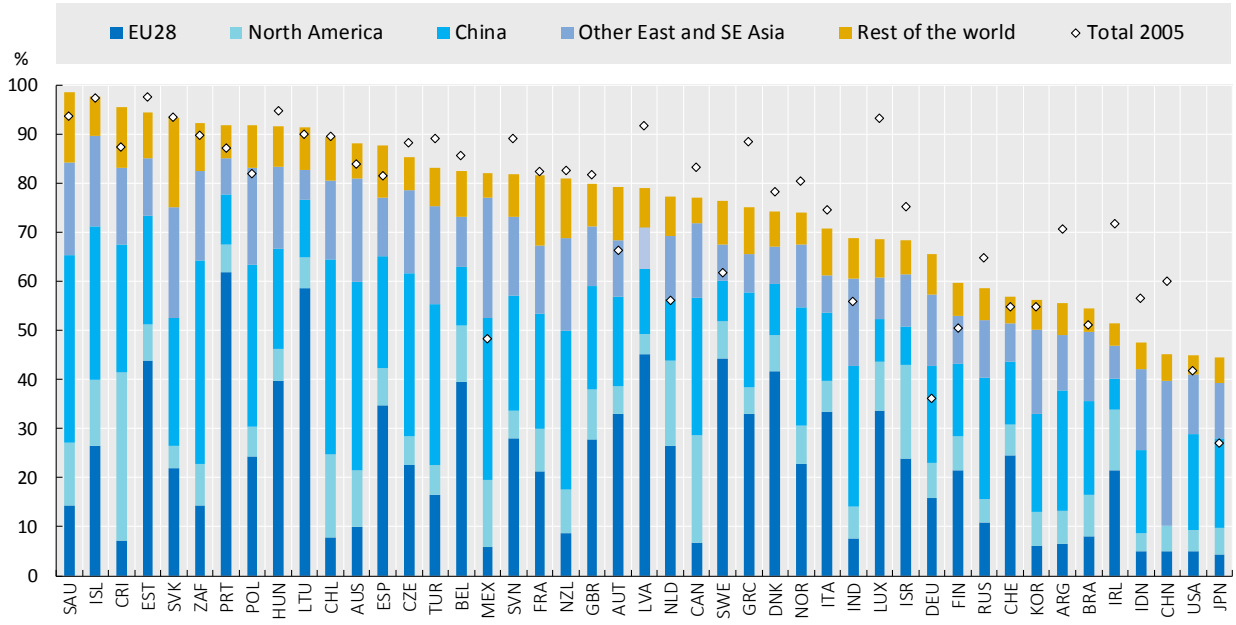
Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

Figure 4.10. Regional demand for Computer, electronic and optical products, by economy or region of value added origin, *percentage shares of total, 2005 and 2015*



Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

Figure 4.11. Foreign value added embodied in domestic demand for Computer, electronic and optical products, by source region, 2015, *as a percentage of total domestic demand*



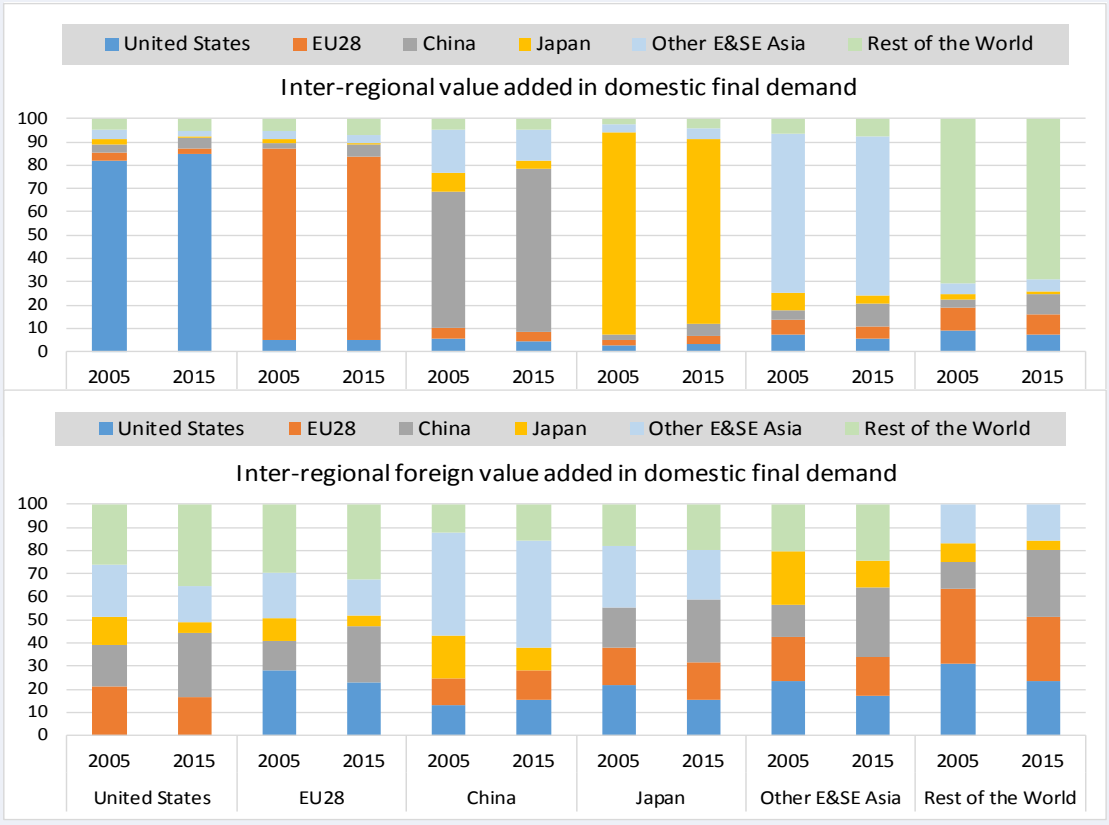
Source: Estimation based on OECD's Inter-Country Input-Output Database (2018)

Box 4.1. The Case of "Information industries"

While indicators for the manufacture of Computer, electronic and optical products (ISIC Rev.4 Division 26) have been presented above, given the importance of ICT in general, this Box considers the broader "information industries" sector encompassing both manufacturing and related ICT services (Divisions 58 to 63).

Between 2005 and 2015, the value added sourced in the United States to meet US final demand for "information industries" products increased from 82% to 85%. In China, the equivalent share increased from 59% to 70% while for the European Union (EU28), the share fell from 82% to 78%. Looking at the origins of foreign content of domestic demand: in the United States, sourcing from Japan declined (from 12% to 5%) while the share from China increased from 18% to 28%. For the European Union, a similar pattern of reallocation prevailed. Japan's domestic share declined from 10% to 5% and most of this change was offset by an increased dependence on Chinese sources. The rest of the world saw a pattern of declining dependence on the European Union, the United States and Japan and a significant increase in sourcing from China (from 12% to 29%).

Regional demand for information industries products , 2005 and 2015
by country or region of value added origin, percentage shares of total

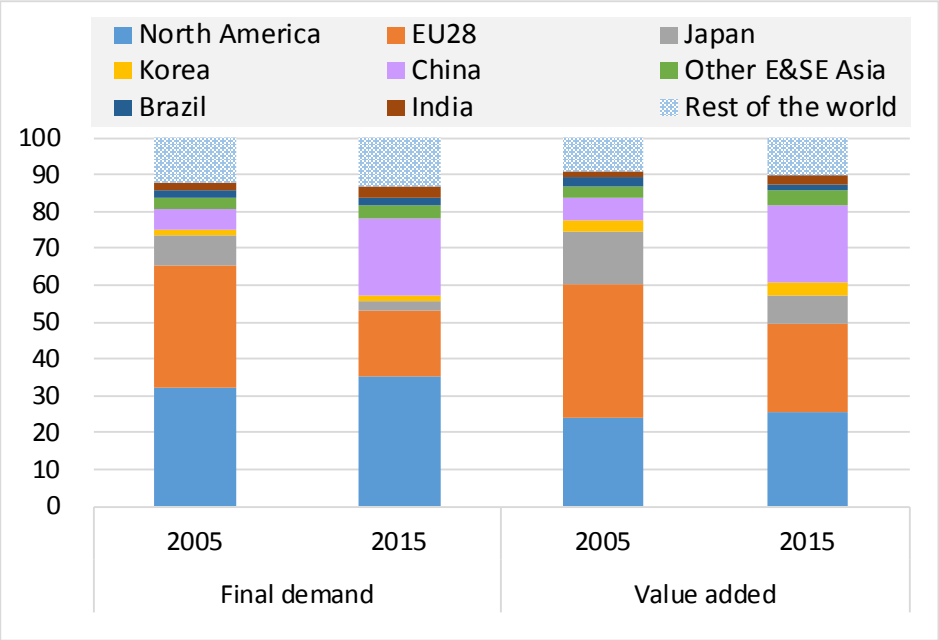


Source: Estimation based on OECD's Inter-Country Input-Output Database, 2018

4.4. Motor vehicles

Figure 4.12 highlights some important changes in the share of North America in final demand, in this case increasing from 32% to 35% while Europe's share declined (33% to 18%) as did Japan's, registering a decline from 8% to 3% much of which was accounted for by China's increasing share (6% to 21%). In value added terms, North America increased by just around 2 percentage point while Japan declined by almost 50% (14% to 7%) with China's share following the change in demand, increasing almost four times from 6% to 24%.

Figure 4.12. Global demand for Motor vehicles, by country or region of final demand and origin of value added, *percentage shares of total, 2005 and 2015*



Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand.*

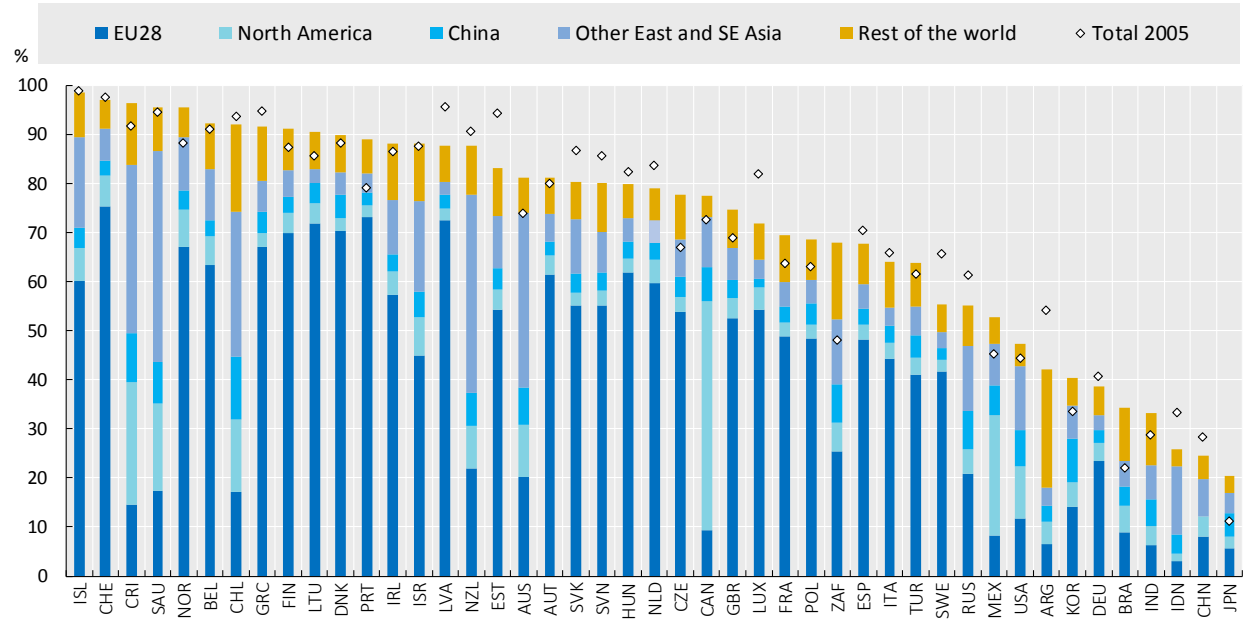
Figure 4.13. Regional demand for Motor vehicles by economy or region of value added origin, *percentage shares of total, 2005 and 2015*



Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

The *intra*-regional shares of demand changed little over this period moving by between 1 and 3 percentage points (Figure 4.13 and Figure 4.14). Most of the declines in North America and Europe were matched by increases in demand from East and Southeast Asia. However, within this latter region, the changes were very significant; Japan declined from 51% to 14% while China increased from 27% to 69%. Within Europe, the changes were small with Germany increasing its share while the shares of France and Italy declined. Once again, the foreign value added share in domestic final demand witnessed a combination of declines and modest increases at the individual country level. These changes were relatively modest but, for over half the countries, over 70% of value added is sourced outside the country.

Figure 4.14. Foreign value added embodied in domestic demand for Motor vehicles, by source region, ***as a percentage of total domestic demand***



Source: Estimation based on OECD's Inter-Country Input-Output Database (2018)

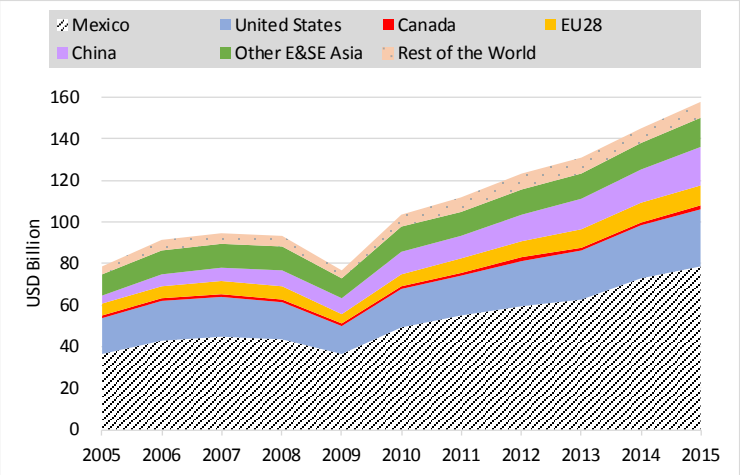
In the introduction, it was noted that fragmentation has been a major characteristic of GVCs, made possible by the provision of a variety of services that has facilitated the efficient movement of components from one location to another. In the next section, attention is directed to the role of services in manufacturing exports.

Box 4.2. Origin of Value added in US imports from Mexico

The complex manner in which global and regional integration in value chains interact can be further illustrated by analysing the domestic value added content of imports. For example, US value added embodied in US imports of "electronics, machinery and transport equipment" (ISIC Rev.4 Divisions 26 to 30) from Mexico. The share of value added directly sourced from Mexico slightly increased over the period 2005-2015 (from 46% to 50%). While US value added content fell (22% to 18%), China's value added embodied in these US imports from Mexico increased from 5% to 12%.

US imports of electronics, machinery and transport equipment from Mexico

by country or region origin of value added, 2005 to 2015, USD Billions

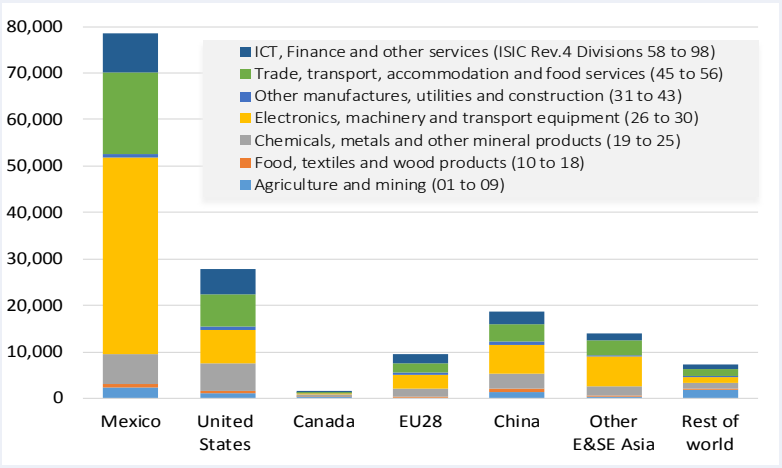


Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in gross imports*

A closer look at regions for 2015, reveals differences in the *industries* of origin of value added. Besides the electronic, machinery and transport equipment industries themselves, the main source of manufacturing value added was from "Chemicals, metals and other mineral products" (Divisions 19 to 25). Services accounted for 45% of US valued added embodied in US imports from Mexico.

US imports of electronics, machinery and transport equipment from Mexico

by country or region and industry origin of value added, 2015, USD millions



Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in gross imports*

5. The changing role of services

While Johnson and Noguera (2012) used input-output tables in their analysis, they did not fully exploit the ability to explore changes in production structure, and specifically the increased role of services in the export of manufactured goods. As early as the 1980s, analysts began to notice that part of the decline in manufacturing, as measured by shares of employment or value added in the total economy, could be attributed to the outsourcing of service activities that were once included under the umbrella of manufacturing. These activities ranged from janitorial and food services to transportation services (for inputs and outputs) and a variety of business services such as legal and insurance activities.

While outsourcing of service sector functions by manufacturing firms is likely to have significant implications for "domestic" value chains, the extent to which it affects global value chains will depend upon the degree to which service sector functions can be traded internationally and hence, offshored. While many factors determine the propensity for offshoring service activities, such as technological advances (especially digitalisation), the depth and breadth of service sector trade liberalization will be important. Moreover, such opportunities are likely to vary within and across regions.

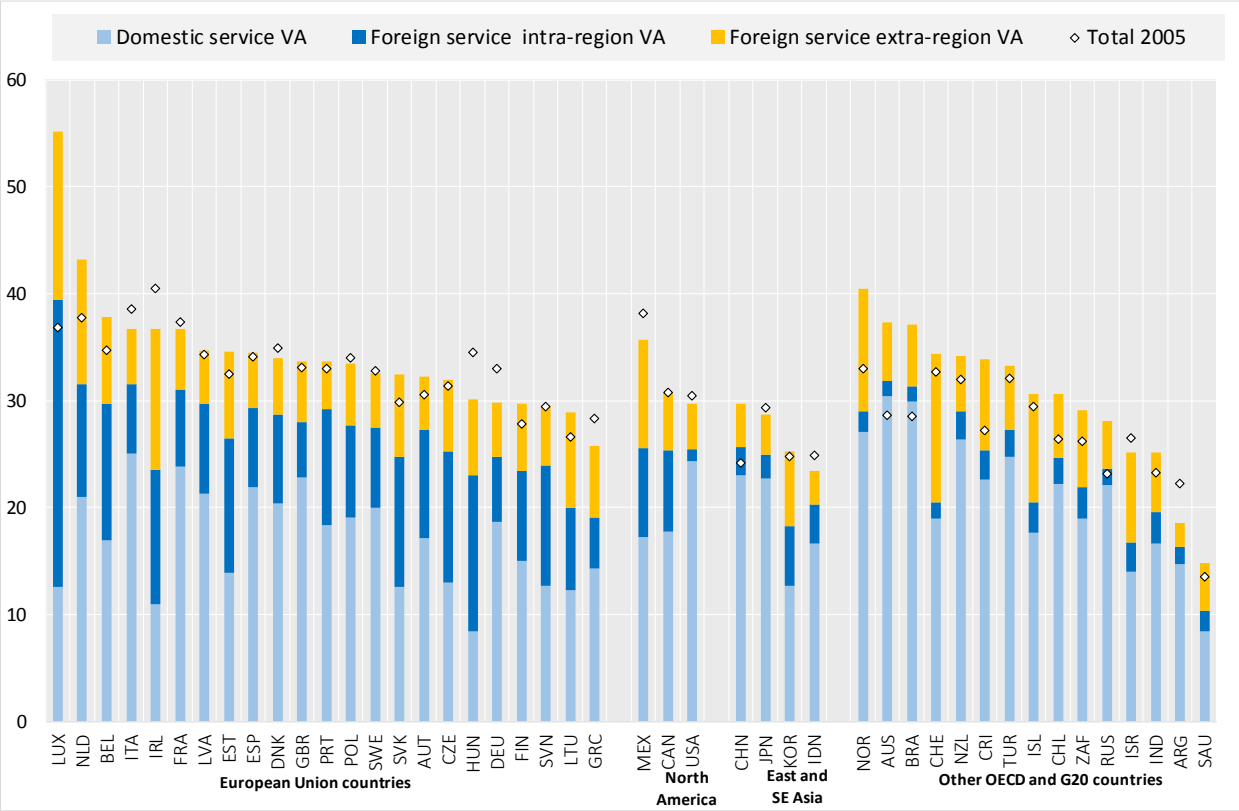
While the ICIO/TiVA database infrastructure cannot distinguish between a general propensity to outsource from the specific propensity to offshore, it is possible to cast some light on the overall effect. Figure 5.1 highlights the role of services by showing the service sector value added content of manufactured exports by origin, domestic or foreign, of the services value added. For most OECD and G20 countries, the total service value added content ranges between 25% and 40%, with many experiencing an increase over the period from 2005 to 2015. There is a wide variation in the mix of domestic and foreign contributions; for Luxembourg, 43 percent points of the 55% share of services was imported in 2015, while for India, foreign services value added accounted for 7 percent points of the 23% total share. Splitting foreign services content of manufactured exports into intra-regional and extra-regional origin, reveals that in the European Union, on average, about 58% of the foreign value added is intra-regional i.e. originating from other EU countries - the share exceeding 60% for many of the smaller countries.

The significant contribution of services is partly due to their role in facilitating exporting activities – for example, the trade and transportation services required to move manufactured goods from producers to consumers abroad and, the IT, telecommunications and financial services that ensure orders are processed and paid for efficiently.

An often overlooked contribution to value added in an economy is the role of non-resident expenditure. In addition to cross-border transactions, goods and services can be exported via non-resident spending on the domestic territory e.g. due to tourism activities or the presence of foreign students. Figure 5.2 shows value added origins of non-resident household expenditure. While for many countries such spending accounts for less than 5% of total exports, for some, such as Greece, Costa Rica, New Zealand and Turkey the share exceeds 15%. Spending on final goods and services by non-residents (e.g. accommodation and food services) has a notable *indirect* impact on the activities of upstream suppliers (e.g. the food and agricultural sector supplying restaurants), both domestic and foreign. On average, indirect domestic value added content accounted for about a third of spending by non-resident households in 2015. Tourism is one of the fastest growing sectors worldwide and is likely to continue to have a significant impact not only in countries that have

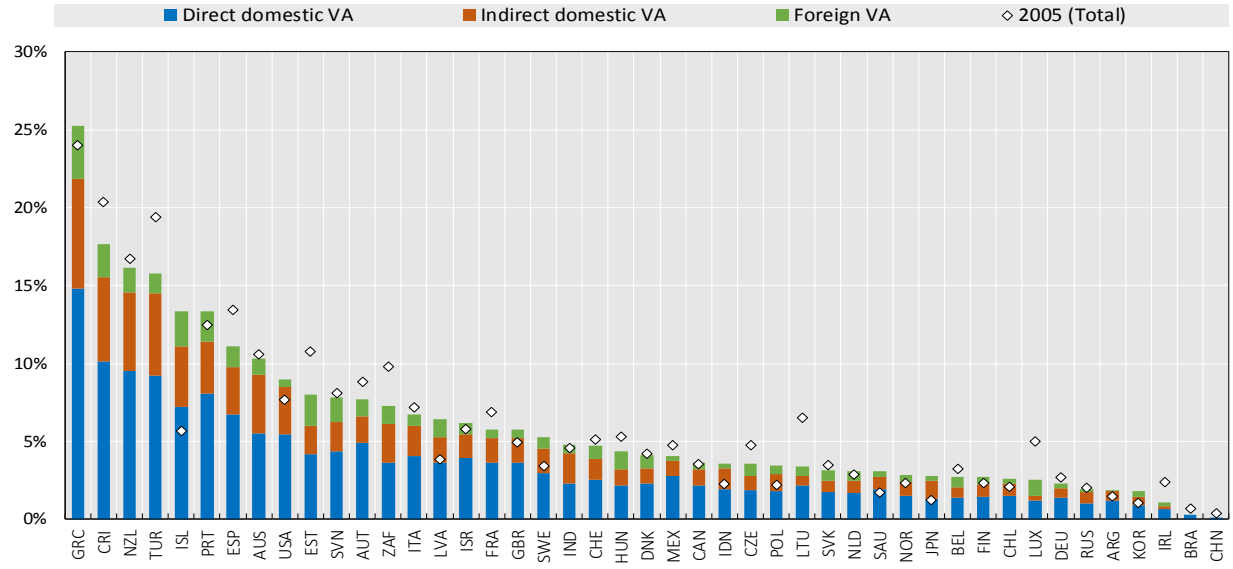
historically been major destinations but also to countries that are increasingly being explored by tourists who are seeking variety by finding new so-called secondary destinations.

Figure 5.1. Services value added embodied in manufactured exports, by domestic and foreign origin, 2015, *as a percentage of total manufacturing exports*



Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in gross exports*

Figure 5.2. Non-resident households' expenditure by origin of value added, 2015
as a percentage of total gross exports



Source: Estimation based on OECD's Inter-Country Input-Output (ICIO) Database, 2018

6. Extensions: labour market and climate change impacts

This section provides evidence based on analytical "extensions" using the ICIO tables. Results are presented for two important issues associated with the international fragmentation of production – labour market impacts and carbon emission impacts. In the former case, attention focuses on skilled labour, with the recognition that the mix of skills within a workforce plays an important role in affecting the distribution of income within a country – and between countries. The second issue, CO_2 emissions, has been an increasing source of concern, with debate about the most appropriate way to measure the emissions – by location of production or by location of consumption – in order to better grasp trends in emissions and the implications of policy settings.

6.1. Labour market impacts

As noted in De Backer and Flaig (2017), many stages of production in different manufacturing industries have been relocated to emerging economies as sourcing inputs from producers in countries with lower real wages has lowered production costs. Moreover, with many economies facing the prospect of declining workforces, the opportunities for emerging economies to capture increasing shares of the GVCs would seem to increasing. As a result of the higher population growth in emerging economies in East and Southeast Asia and Africa, over 1 billion additional persons are projected to be of working age over the coming years (OECD, 2016). With increased fragmentation of production processes, countries in these regions can specialise in very specific production activities rather than seeking to develop activities across the whole value chain.

Using the OECD Trade in Employment (TiM) database[14], Figure 6.1 and Figure 6.2 presents jobs and labour compensation in the business sector sustained by foreign demand, disaggregated by region of demand. On average in OECD countries, there has been an increase over time but there are some important variations by country with Chile and China decreasing their external dependence while for most European Union (EU28) countries and the United States, the dependence increased, although not dramatically (1-3 percentage points in most cases). A similar pattern may be found in Figure 6.2 when the data are presented in terms of labour compensation.

Many countries that have already been actively participating in GVCs are increasingly looking to "upgrade" their GVC activities to higher value added stages of production. However, contrast the findings reported in section 4; this has been the case for China in motor vehicles but not for Mexico. In the former case, there has been a clear substitution of domestic intermediate inputs for imported ones. In Mexico's case, the intermediates are primarily imported. The final impact on value added will be very different. Further, the skill requirements are likely to be different and hence the returns to labour will be much higher in China's case (even after adjusting for purchasing power parity differences).

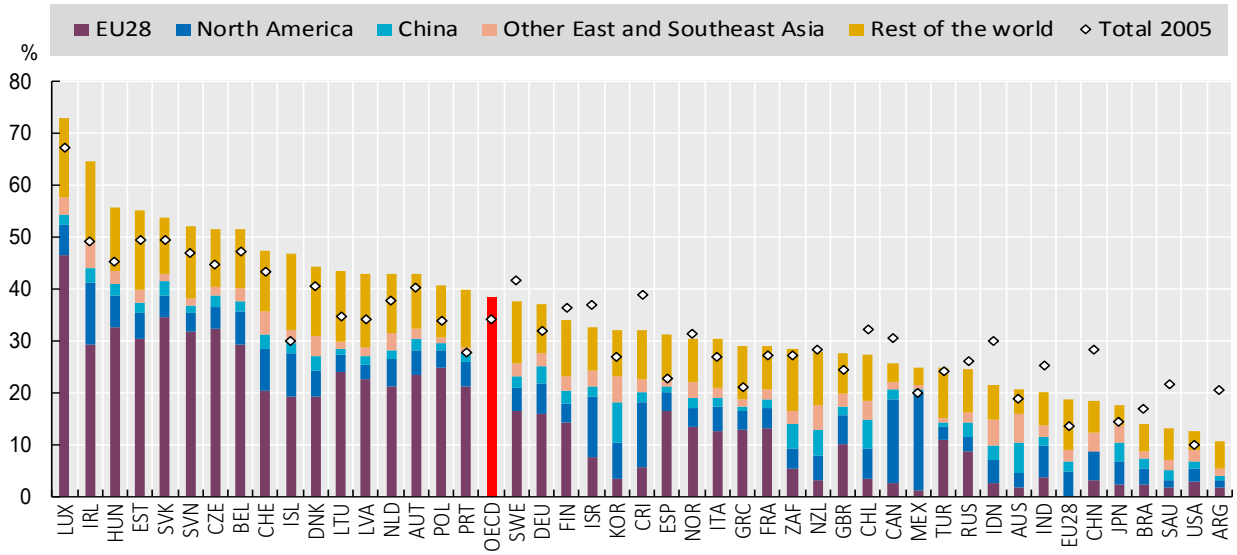
There is a rich literature on the implications for workers with different skills, with Feenstra and Hanson (1996, 1999) providing some of the first robust evidence that the rise of outsourcing accounted for a significant part of the increase in the relative demand for skilled labour in US manufacturing industries in the 1980s. Geishecker (2006) undertook a similar study for Germany and found that the growth of international outsourcing in the 1990s partly explained the decline in demand for manual workers in manufacturing. More recently there has been a rich vein of work looking at the implications for workers engaged

in tasks that are susceptible to automation (see Marcolin *et al*. 2016 and Grundke *et al*. 2017). These issues form the basis for increasing attention on the income inequality implications for increasing fragmentation; in many developed economies over the last two decades, the elimination of manufacturing jobs has eliminated opportunities for many manual workers. However, demand for highly skilled manufacturing workers remains high, thus setting in motion the dynamics of increasing income inequality.

While again, for the OECD as a whole, there was an increase, many countries such as China, Brazil and Argentina experienced a decrease. Figure 6.3 delves further into the labour contribution by focusing on high-skilled employment[15] in manufacturing. Increasingly, new developments in manufacturing (such as 3-D technology) have changed the skill-requirements for workers; in some cases, this has been accompanied by re-shoring of an activity away from cheaper labour sources abroad back to higher labour cost locations that are nearer to the sources of demand. (See De Backer and Flaig 2017 and De Backer *et al*. 2018). The improvements in efficiency, the decreases in transportation and coordination costs often overcome higher labour costs. This will be a focus for change over the next decade; in some countries, concerns are emerging about the mismatch of skills, with labour shortages, resulting from the absence of appropriate training programmes, limiting the uptake of some advanced manufacturing technologies.

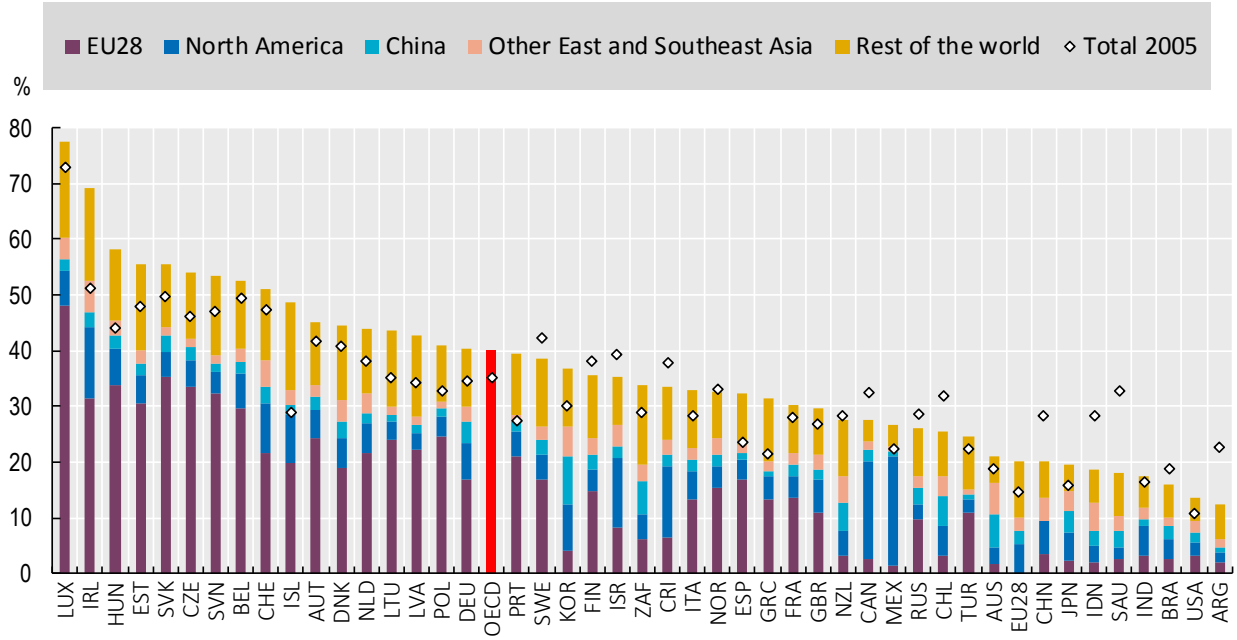
Looking more closely at the case of skills composition, Figure 6.3 presents data for high-skilled employment as a percentage of total manufacturing employment, with respect to both domestic final demand and foreign final demand. It is interesting to note that for some relatively large European economies (e.g. Germany, France, Italy, Sweden, and Netherlands) foreign final demand is more important than domestic final demand in supporting high-skilled employment. Much of this is, of course, attributable to intra-regional fragmentation.

Figure 6.1. Jobs in the business sector sustained by foreign demand, by region of demand, 2015, *as a percentage of total business sector employment*



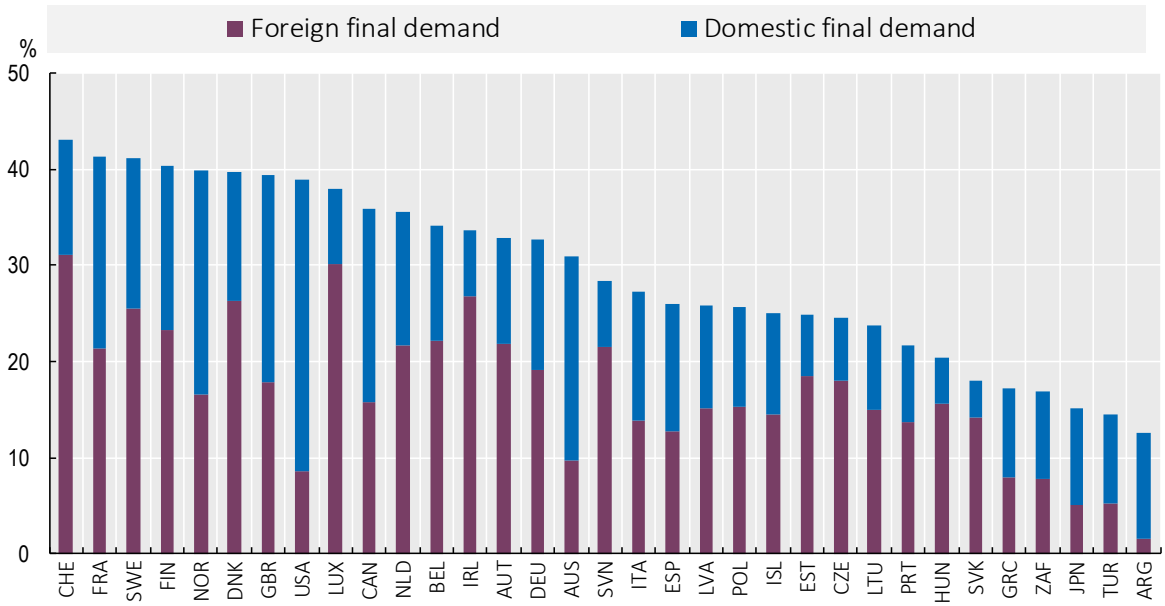
Source: OECD, Trade in Employment database, http://oe.cd/io-emp, 2019

Figure 6.2. Labour compensation of employees in business sector embodied in foreign demand, by region of demand, 2015, *as a percentage of total business sector labour compensation of employees*



Source: OECD, Trade in Employment database, http://oe.cd/io-emp, 2019

Figure 6.3. High-skilled employment in manufacturing meeting domestic and foreign demand, 2015, *as a percentage of total manufacturing employment*

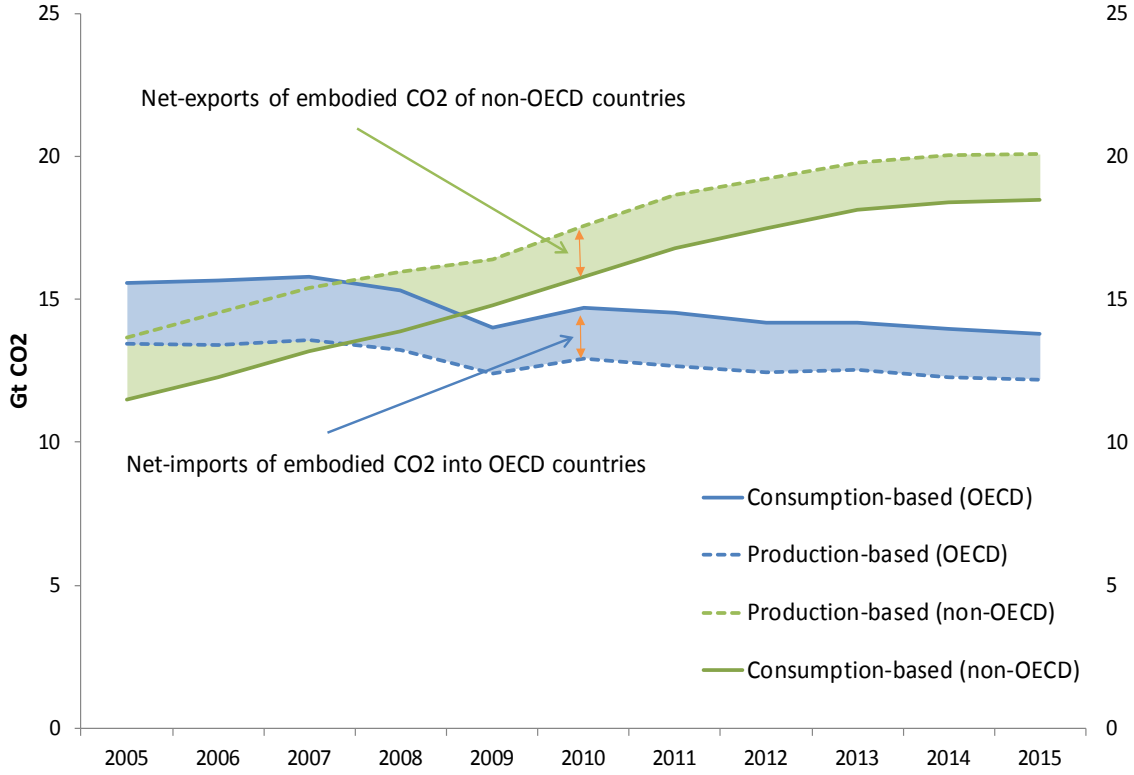


Source: Estimation based on OECD's Inter-Country Input-Output and STAN Databases, 2018

6.2. Climate change impacts

How do changes in the international fragmentation of production affect the volume and spatial pattern of greenhouse gas (GHG) emissions? The OECD has been addressing these issues for some time: see, for example, Wiebe and Yamano (2016) and Yamano and Guilhoto (2019) for a discussion on carbon dioxide (CO_2) emissions using estimates based on ICIO tables. Drawing on the 2018 update, Figure 6.4 compares aggregate OECD and aggregate non-OECD production-based emissions, where CO_2 is allocated to the location in which the goods or services are produced; and, consumption-based emissions i.e. where CO_2 is allocated to the locations in which consumption occurs. Net imports of CO_2 emissions from fuel combustion by OECD countries from non-OECD countries are estimated to have fallen from 2.1 to 1.6 Gigatonnes (Gt) between 2005 and 20

Figure 6.4. CO_2 emissions from fuel combustion (OECD and non-OECD countries), consumption-based and production-based (Gt CO_2)



Source: OECD's Carbon dioxide (CO_2) emissions embodied in international trade ($TECO_2$) database (http://oe.cd/io-co2), 2019.

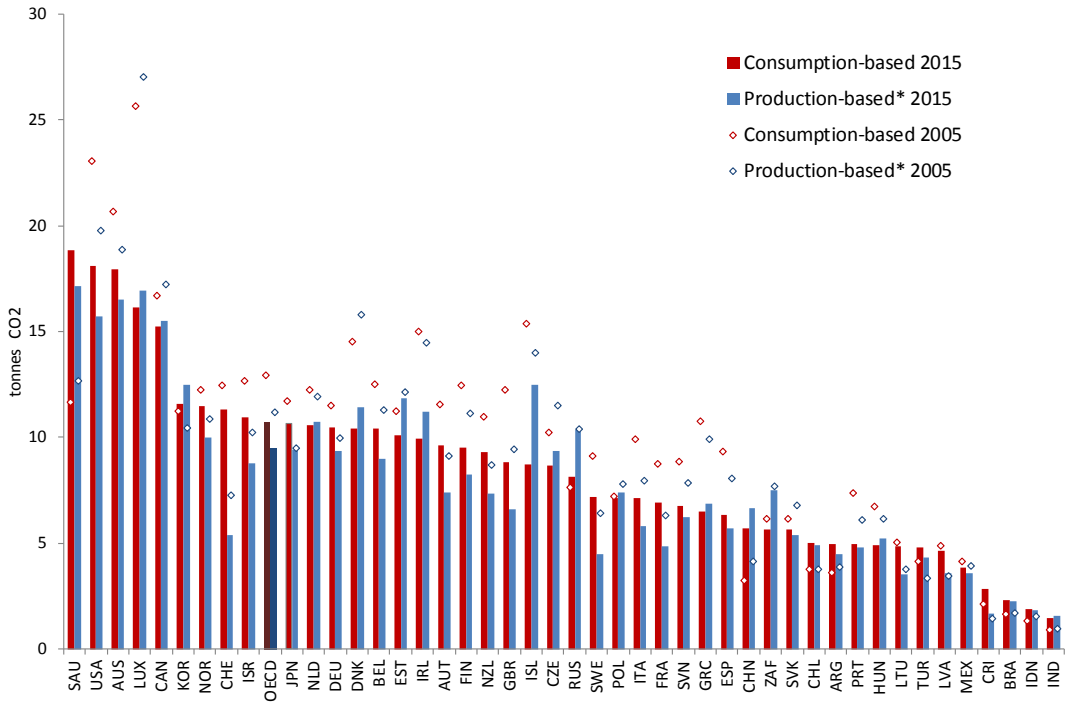
Figure 6.5 examines production-based and consumption-based CO_2 emissions *per capita*, based on fuel combustion. One encouraging feature of this chart is the decline over the period 2005-2015.

Figure 6.6 complementing Figure 6.4, presents the share of CO2 emitted abroad, sourced from OECD and non-OECD regions, embodied in final demand. The data reveal that the overall decline in the imports of CO2 did not happen in a uniform way; some countries, intentionally or not, are still following a strategy that outsources emissions.

The distinction between production-based and consumption-based emissions is directly relevant for on-going policy discussions. Recognizing that developed countries were principally responsible for the high levels of GHGs in the atmosphere at the time of signing of the Kyoto Protocol in 1997, the Protocol placed a heavier burden on developed nations under the principle of "common but differentiated responsibilities." (see Rose, 1998 and Ringius *et al*., 2002).[16] This language has spawned a lively debate about what constitutes a "fair" allocation of rights to emit GHGs and the burden associated with its mitigation, and such debates have informed subsequent negotiations at meetings of the Conference of the Parties (COPs).

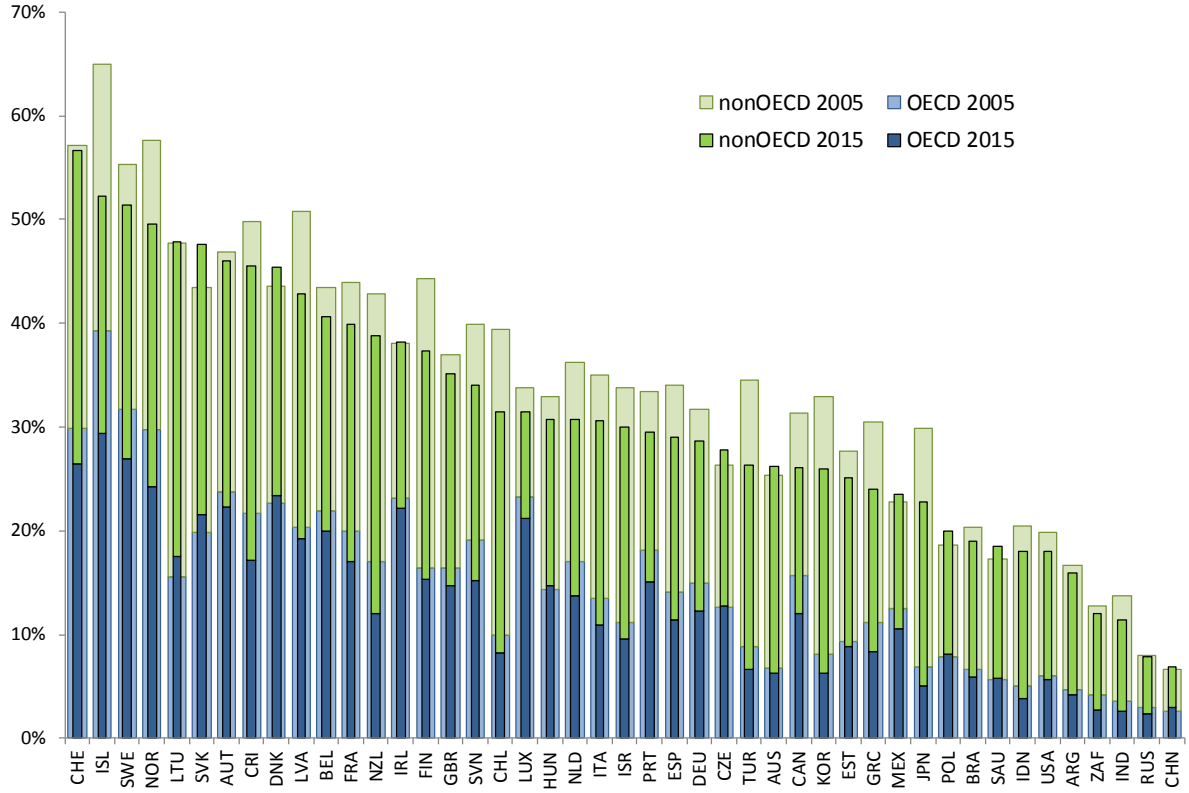
Even if consumption-based emissions accounting is not considered to be appropriate for the allocation of rights and burdens, it can be helpful to better understand the forces that are driving trends and patterns in global emission levels. Indeed, a comparison of disaggregated production-based and consumption-based measures of emissions is arguably the most appropriate means to assess the importance of carbon leakage in a world of heterogeneous climate policy settings. Countries with ambitious climate mitigation targets may achieve decoupling of production-based emissions from economic growth by offshoring domestic production abroad, with some of the emissions coming home through the "back door" in the form of carbon-intensive imports (Weber and Peters, 2009).

Figure 6.5. Per capita CO_2 emissions from fuel combustion, consumption-based and production-based (tonnes CO_2)



Source: OECD's Carbon dioxide (CO_2) emissions embodied in international trade ($TECO_2$) database (http://oe.cd/io-co2), 2019

Figure 6.6. Share of CO_2 emitted abroad in total CO_2 embodied in domestic final demand



Source: OECD's Carbon dioxide (CO_2) emissions embodied in international trade ($TECO_2$) database (http://oe.cd/io-co2), 2019

7. Concluding remarks

Drawing upon the 2018 update of the OECD ICIO/TiVA database, this paper highlight results from 2005 to 2015, a period during in which a major global recession occurred. As some of the changes may reflect a "hangover" from this massive downturn, a more detailed analysis, using this database, can untangle the changes due to the downturn itself and from those associated with structural change such as changing competitive advantage, changes in firm ownership and changes in the location of final expenditures.

In addition, recent trade disputes have created some uncertainty about the stability of global patterns of trade. The prospect of the United Kingdom leaving the European Union may induce further destabilisation and highlights an important issue that has further affected the international structure of production after the period analysed here. Moreover, the analysis presented in this report focuses at the level of the nation-state; however, the sub-national economies of many of these countries are very heterogeneous.

Recent analysis of the regional impacts of Brexit on the local economies of the United Kingdom (Dhingra, *et al*., 2017) and on the regional economies of the European Union (Chen *et al*., 2017) highlight this important heterogeneity. For example, Chen *et al*. (2017) showed that the impacts on the regions of Spain and Portugal would be very small; in contrast, the forecasts were for significant impacts on many regions in Germany and significant variation across the regions of the United Kingdom. Earlier work by Haddad and Hewings (2005) found that reduction in external tariffs in Brazil had a positive impact on almost all sectors in the more prosperous centre-south regions of the country and a decidedly negative impact on sectors in the Northeast of the country. Dietzenbacher, Guilhoto and Imori (2013) by developing a methodology to combining subnational models with a global input-output models have analysed the role played by Brazilian regions in the global value chain (GVC). Yamano (2017) has developed a methodology to link the OECD Inter-Country Input-Output database with subnational input-output tables to enable analysis of the sub-national impacts of changes in fragmentation, globalisation and so forth.

The OECD ICIO/TiVA database provides a rich data infrastructure to analyse these and other policy-relevant questions. For example, uncertainties in the political sphere about the benefits from enhanced global trade and multilateral trade agreements are likely to generate changes that could be assessed. Similarly, the effects of unexpected events (such as earthquakes or floods) on global value chains could be analysed. In addition, the links between trade, investment and innovation could be further analysed, with a specific focus on the role of multi-national enterprises and other types of firms. Issues related to employment market impacts and CO_2 emissions have also been raised in this report, but examination of the links with policy settings are clearly areas in which further analysis is warranted.

End Notes

[1] TiVA indicators are provided for 64 economies (plus an aggregate "Rest of World") and, 36 unique industries and related industry aggregates, see Annex A, OECD (2018a), OECD (2018b), and Guilhoto *et al*. (2019).

[2] These manufacturing sectors are defined according to ISIC Revision 4. Divisions 13 to 15: Textiles and apparel; Divisions 20 and 21: Chemical and pharmaceutical products; Division 26: Computer, electronic and optical products; and, Division 29: Motor vehicles

[3] See OECD's Trade in Employment (TiM) database (http://oe.cd/io-emp) and OECD's Carbon dioxide (CO_2) emissions embodied in international trade ($TECO_2$) database (http://oe.cd/io-co2).

[4] See Jones and Kierzkowski (2005) for a discussion of the "international fragmentation perspective". Also, Fujita and Thisse (2006) who presented these developments in the context of the *New Economic Geography* paradigm.

[5] Discussion of how the choice of methodologies and world input-output databases can have an impact in the results and analysis of globalisation can be found in the papers by Koopman *et al*. (2014), Owen *et al*. (2016), Lenaerts and Merlevede (2016), Reich (2018), and Los *et al*. (2016).

[6] See http://oe.cd/icio, http://oe.cd/tiva, Guilhoto *et al.* (2019).

[7] For further details see www.oecd.org/industry/ind/tiva-2018-differences-tiva-2016.pdf.

[8] North America comprises Canada, USA, and Mexico.

[9] East and Southeast Asia includes Brunei Darussalam, Cambodia, China, Hong Kong (China), Indonesia, Japan, Korea, Malaysia, Philippines, Singapore, Thailand, Chinese Taipei and Viet Nam.

[10] Additional work in estimating the value added embodied in trade can also be found in Reimer, (2006), Stehrer (2012), Koopman *et al*. (2012, 2014), and Los *et al*. (2015, 2016).

[11] Manufactures are defined as ISIC Rev.4 Divisions 10 to 33, while Business services cover Divisions 45 to 82.

[12] EU13 refers to the countries who joined the European Union on or after 1st May 2004: Bulgaria, Croatia, Cyprus*, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia.
**Note by Turkey:* The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".
Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

[13] For example, advances in biotechnology, nanotechnology, digital technology (blockchains, 3D printing etc.) and their related R&D, innovation and patenting activities and, increased international supply of high technology intermediate products.

[14] See http://oe.cd/io-emp, Horvát et al. (2019).

[15] The definition of high-skilled employment used here is based on occupations and refers to major groups 1 to 3 of the International Standard Classification of Occupations, 2008 (ISCO-08).

[16] Article 3.1 of the UNFCCC (1992) "the Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities." Article 3.2 distinguishes between developed and developing countries, and states that full consideration "should be given to the specific needs and circumstances" of developing countries:
https://unfccc.int/resource/docs/convkp/conveng.pdf

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Annex A. TiVA 2018 geographical coverage

TiVA 2018 Country List

N.	Code	Country	N.	Code	Country
1	AUS	Australia	37	ARG	Argentina
2	AUT	Austria	38	BRA	Brazil
3	BEL	Belgium	39	BRN	Brunei Darussalam
4	CAN	Canada	40	BGR	Bulgaria
5	CHL	Chile	41	KHM	Cambodia
6	CZE	Czech Republic	42	CHN	China (People's Republic of)
7	DNK	Denmark	43	COL	Colombia
8	EST	Estonia	44	CRI	Costa Rica
9	FIN	Finland	45	HRV	Croatia
10	FRA	France	46	CYP	Cyprus
11	DEU	Germany	47	IND	India
12	GRC	Greece	48	IDN	Indonesia
13	HUN	Hungary	49	HKG	Hong Kong, China
14	ISL	Iceland	50	KAZ	Kazakhstan
15	IRL	Ireland	51	MYS	Malaysia
16	ISR	Israel	52	MLT	Malta
17	ITA	Italy	53	MAR	Morocco
18	JPN	Japan	54	PER	Peru
19	KOR	Korea	55	PHL	Philippines
20	LVA	Latvia	56	ROU	Romania
21	LTU	Lithuania	57	RUS	Russian Federation
22	LUX	Luxembourg	58	SAU	Saudi Arabia
23	MEX	Mexico	59	SGP	Singapore
24	NLD	Netherlands	60	ZAF	South Africa
25	NZL	New Zealand	61	TWN	Chinese Taipei
26	NOR	Norway	62	THA	Thailand
27	POL	Poland	63	TUN	Tunisia
28	PRT	Portugal	64	VNM	Viet Nam
29	SVK	Slovak Republic	65	ROW	Rest of the World
30	SVN	Slovenia			
31	ESP	Spain			
32	SWE	Sweden			
33	CHE	Switzerland			
34	TUR	Turkey			
35	GBR	United Kingdom			
36	USA	United States			

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Note: Countries 1 to 36, in blue, are OECD member countries

TiVA 2018 Regions List

N.	Region	Heading	Countries
1	OECD	OECD member countries	Countries 01 to 36
2	NONOECD	Non-OECD economies and aggregates	Countries 37 to 65
3	APEC	Asia-Pacific Economic Cooperation[1]	AUS, CAN, CHL, JPN, KOR, MEX, NZL, USA, BRN, CHN, HKG, IDN, MYS, PER, PHL, RUS, SGP, THA, TWN, VNM
4	ASEAN	Association of South East Asian Nations[2]	BRN, IDN, KHM, MYS, PHL, SGP, THA, VNM
5	EASIA	Eastern Asia	JPN, KOR, CHN, HKG, TWN
6	EU28	European Union (28 countries)	AUT, BEL, CZE, DNK, EST, FIN, FRA, DEU, GRC, HUN, IRL, ITA, LVA, LTU, LUX, NLD, POL, PRT, SVK, SVN, ESP, SWE, GBR, BGR, CYP, HRV, MLT, ROU
7	EU15	European Union (15 countries)	AUT, BEL, DNK, FIN, FRA, DEU, GRC, IRL, ITA, LUX, NLD, PRT, ESP, SWE, GBR
8	EU13	EU28 excluding EU15	CZE, EST, HUN, LVA, LTU, POL, SVK, SVN, BGR, CYP, HRV, MLT, ROU
9	EA19	Euro area (19 countries)	AUT, BEL, EST, FIN, FRA, DEU, GRC, IRL, ITA, LVA, LTU, LUX, NLD, PRT, SVK, SVN, ESP, CYP, MLT
10	EA12	Euro area (12 countries)	AUT, BEL, FIN, FRA, DEU, GRC, IRL, ITA, LUX, NLD, PRT, ESP
11	G20	Group of Twenty	AUS, CAN, JPN, KOR, MEX, TUR, USA, ARG, BRA, CHN, IND, IDN, RUS, SAU, ZAF, EU28

World divided into regions

N.	Region	Heading	Countries
12	ZEUR	Europe	AUT, BEL, CZE, DNK, EST, FIN, FRA, DEU, GRC, HUN, ISL, IRL, ITA, LVA, LTU, LUX, NLD, NOR, POL, PRT, SVK, SVN, ESP, SWE, CHE, GBR, BGR, CYP, HRV, MLT, ROU, RUS
13	ZASI	East and South East Asia	JPN, KOR, BRN, CHN, HKG, IDN, KHM, MYS, PHL, SGP, THA, TWN, VNM
14	ZNAM	North American Free Trade Association	CAN, MEX, USA
15	ZOTH	Other regions	AUS, ISR, NZL, TUR, IND, KAZ, MAR, SAU, TUN, ZAF, ROW
16	ZSCA	South and Central America	CHL, ARG, BRA, COL, CRI, PER
17	WLD	World	
18	DXD	Domestic	Dummy partner used in the diagonal for some indicators.

Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".

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Notes: OECD member countries are in blue; 1. APEC country not included in 2018 TiVA database: Papua New Guinea; 2. ASEAN countries not included in 2018 TiVA database: Lao PDR and Myanmar.

Annex B. Expanded data used in charts

Table B.1. Foreign value added shares of total exports, 2010 = 1.00, by region (Figure 2.1)

Year	OECD	EU28	EU4	G20	E&SE Asia	N.Am	S&C Am
2010	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2011	1.16	1.09	1.08	1.11	1.11	1.08	1.03
2012	1.17	1.12	1.08	1.13	1.10	1.09	1.09
2013	1.12	1.06	1.03	1.09	1.08	1.02	1.13
2014	1.06	1.01	0.98	1.02	1.03	0.98	1.17
2015	0.95	0.97	0.93	0.88	0.85	0.93	1.20

Source: OECD, Trade in Value Added (TiVA) database, http://oe.cd/tiva, 2018.

Table B.2. Foreign value added shares of total exports for selected countries, 2010 = 1.00 (Figure 2.2)

Year	FRA	DEU	KOR	TUR	GBR	USA	CHN	IND	IDN
2010	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2011	1.06	1.08	1.11	1.13	1.08	1.15	1.03	1.06	1.03
2012	1.05	1.07	1.10	1.19	1.08	1.12	0.99	1.06	1.07
2013	1.03	1.04	1.03	1.11	1.03	1.04	0.97	1.05	1.12
2014	1.01	1.01	0.98	1.06	0.93	1.01	0.93	0.97	1.13
2015	0.97	0.98	0.85	0.98	0.86	0.86	0.82	0.81	1.04

Year	AUS	CAN	IRL	JPN	MEX	NOR	BRA	RUS	ZAF
2010	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2011	1.07	1.01	0.99	1.18	0.95	0.91	1.01	0.97	1.11
2012	1.09	1.05	1.05	1.15	1.00	0.87	1.11	0.90	1.22
2013	1.04	1.00	1.06	1.25	1.02	0.90	1.18	0.92	1.30
2014	1.10	0.97	1.10	1.30	1.01	1.00	1.20	0.97	1.30
2015	1.13	1.02	0.99	1.09	1.06	1.13	1.30	1.11	1.21

Source: OECD, Trade in Value Added (TiVA) database, http://oe.cd/tiva, 2018.

Table B.3. Foreign value added share of total gross exports, *as a percentage of total gross exports* (Figure 2.3)

Country	2005	2010	2015	Country	2005	2010	2015
AUS	11.1	10.3	11.6	ARG	11.0	10.6	6.9
AUT	25.5	28.0	26.5	BRA	11.2	9.6	12.5
BEL	30.6	33.5	34.1	BRN	7.5	7.5	5.4
CAN	19.6	20.7	21.2	BGR	32.4	34.1	36.2
CHL	17.7	13.8	15.1	KHM	29.5	26.6	26.9
CZE	34.4	37.2	39.3	CHN	26.3	21.1	17.3
DNK	26.2	28.0	29.3	COL	10.5	8.0	11.6
EST	30.4	33.9	34.8	CRI	22.9	19.1	16.2
FIN	27.5	29.4	25.9	HRV	22.3	20.7	20.0
FRA	20.4	22.1	21.4	CYP	23.6	25.4	27.8
DEU	18.6	21.5	21.0	IND	18.8	23.6	19.1
GRC	19.1	23.0	24.5	IDN	18.4	12.5	12.9
HUN	44.0	47.5	43.1	HKG	27.7	31.6	26.6
ISL	23.4	24.7	23.7	KAZ	20.3	9.6	6.5
IRL	35.7	40.7	40.2	MYS	45.0	40.6	36.9
ISR	25.3	22.3	18.6	MLT	50.9	64.3	59.1
ITA	20.5	24.0	22.2	MAR	22.7	23.0	25.7
JPN	10.2	12.2	13.2	PER	13.3	12.3	10.3
KOR	32.7	38.2	32.6	PHL	26.3	23.9	22.0
LVA	21.4	21.8	22.4	ROU	27.6	21.1	22.9
LTU	29.5	32.8	31.6	RUS	9.9	9.7	10.8
LUX	58.2	60.4	68.8	SAU	4.1	3.3	4.6
MEX	34.0	33.9	36.1	SGP	42.8	41.3	40.9
NLD	22.9	23.6	27.9	ZAF	17.8	18.7	22.6
NZL	14.9	14.9	13.8	TWN	37.1	41.5	32.4
NOR	11.8	12.3	13.9	THA	38.4	36.0	33.6
POL	24.7	26.9	26.6	TUN	25.4	26.6	28.5
PRT	26.4	26.9	28.4	VNM	36.1	40.5	44.5
SVK	43.0	43.9	44.8	ROW	13.4	11.8	12.0
SVN	33.3	33.9	32.5				
ESP	23.0	21.9	22.7				
SWE	24.6	24.3	20.7				
CHE	25.8	25.9	24.6				
TUR	15.4	17.2	16.8				
GBR	14.3	17.5	15.1				
USA	10.8	11.1	9.5				

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Source: OECD, Trade in Value Added (TiVA) database, http://oe.cd/tiva, 2018.

Table B.4. Foreign value added share of manufactured exports, *as a percentage of total manufactured exports* (Figure 2.4)

Country	2005	2010	2015	Country	2005	2010	2015
AUS	14.3	14.9	16.9	ARG	14.3	14.1	9.0
AUT	33.8	36.9	34.7	BRA	13.7	13.1	16.2
BEL	39.7	44.5	44.5	BRN	25.1	17.1	20.6
CAN	29.4	33.5	33.3	BGR	45.5	45.1	48.4
CHL	24.9	21.9	20.8	KHM	39.7	33.7	34.9
CZE	40.6	44.0	46.0	CHN	28.4	22.6	18.7
DNK	28.0	28.8	26.1	COL	17.1	15.0	22.3
EST	39.1	44.6	45.6	CRI	32.1	28.4	25.9
FIN	32.1	35.0	31.4	HRV	31.6	30.4	29.4
FRA	27.4	30.5	29.6	CYP	30.5	35.0	31.9
DEU	22.7	26.0	25.2	IND	25.2	33.5	27.3
GRC	31.1	37.6	40.0	IDN	24.6	18.3	17.6
HUN	52.3	57.9	51.3	HKG	35.5	42.4	47.7
ISL	22.3	24.8	26.6	KAZ	20.3	10.8	7.8
IRL	38.6	41.5	33.1	MYS	54.2	49.7	44.6
ISR	33.8	30.0	26.8	MLT	61.0	60.9	54.3
ITA	26.2	30.4	28.2	MAR	31.8	31.6	33.7
JPN	12.1	14.5	16.0	PER	17.1	18.9	15.0
KOR	35.5	40.8	35.5	PHL	32.8	31.1	30.7
LVA	28.4	28.5	29.7	ROU	33.7	23.2	29.8
LTU	40.9	45.3	42.9	RUS	14.1	13.7	14.1
LUX	46.9	54.6	53.8	SAU	12.9	12.3	13.3
MEX	49.7	47.7	46.9	SGP	51.0	49.6	50.0
NLD	31.8	34.9	40.6	ZAF	22.2	23.9	29.9
NZL	17.6	18.0	17.4	TWN	42.7	47.3	37.6
NOR	28.0	28.8	27.4	THA	44.3	42.1	40.4
POL	32.0	35.2	34.3	TUN	31.9	35.3	33.5
PRT	35.1	36.3	38.4	VNM	41.8	45.5	48.2
SVK	51.7	52.1	52.4	ROW	22.6	20.7	20.1
SVN	40.6	41.6	39.3				
ESP	32.1	31.5	32.0				
SWE	30.2	30.4	27.7				
CHE	33.5	34.4	32.2				
TUR	21.4	23.4	22.4				
GBR	23.9	29.5	25.1				
USA	16.5	17.7	15.6				

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Source: OECD, Trade in Value Added (TiVA) database, http://oe.cd/tiva, 2018.

Table B.5. Domestic value added embodied in foreign exports, *as a percentage of total gross exports* (Figure 2.5)

Country	2005	2010	2015	Country	2005	2010	2015
AUS	27.9	31.3	26.8	ARG	18.4	17.4	16.6
AUT	19.1	20.2	21.3	BRA	20.3	23.9	19.6
BEL	19.9	20.3	20.2	BRN	29.8	32.4	41.1
CAN	12.6	15.8	15.3	BGR	13.3	14.1	16.0
CHL	31.9	35.0	28.9	KHM	15.9	15.0	18.0
CZE	17.9	17.7	19.4	CHN	15.6	16.2	17.5
DNK	19.3	19.2	18.1	COL	18.3	22.9	21.9
EST	17.8	17.9	16.8	CRI	9.3	10.6	11.4
FIN	20.3	19.1	21.4	HRV	10.4	12.5	12.4
FRA	18.5	19.4	21.2	CYP	13.5	17.6	16.8
DEU	21.0	20.9	21.9	IND	16.6	15.4	14.9
GRC	16.6	18.4	15.8	IDN	24.6	27.9	24.1
HUN	14.1	13.2	16.1	HKG	17.6	15.8	15.7
ISL	16.6	21.0	17.3	KAZ	31.5	34.8	35.1
IRL	12.5	12.6	12.2	MYS	16.0	17.3	18.7
ISR	15.2	15.7	17.9	MLT	10.4	6.9	7.0
ITA	17.5	17.5	18.6	MAR	17.1	17.8	17.5
JPN	26.4	25.6	24.4	PER	31.7	39.1	29.4
KOR	20.6	17.8	19.1	PHL	20.1	23.0	22.4
LVA	20.3	20.1	19.0	ROU	16.4	20.0	21.3
LTU	15.1	15.4	16.8	RUS	33.5	33.8	30.5
LUX	11.3	12.3	10.6	SAU	34.0	38.9	36.8
MEX	8.3	10.3	8.8	SGP	20.9	20.6	20.9
NLD	21.7	23.3	21.3	ZAF	23.8	24.3	20.1
NZL	12.1	13.1	11.7	TWN	22.8	20.5	24.4
NOR	31.9	33.1	32.1	THA	15.4	14.9	13.8
POL	20.0	20.3	21.5	TUN	17.2	17.7	16.1
PRT	15.2	15.9	15.4	VNM	14.5	12.5	11.1
SVK	17.3	17.0	18.8	ROW	24.6	28.8	27.5
SVN	15.9	16.9	20.0				
ESP	15.6	16.8	17.6				
SWE	19.8	20.7	21.5				
CHE	16.6	16.1	17.2				
TUR	13.5	15.0	16.6				
GBR	22.0	22.6	23.7				
USA	22.5	21.9	22.2				

Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".
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Source: OECD, Trade in Value Added (TiVA) database, http://oe.cd/tiva, 2018.

Table B.6. Regional demand for manufactured goods, 2005 and 2015, *by economy or region of value added origin, percentage shares of total* (Figure 3.1)

Region	North America		European Union		East and Southeast Asia	
	2005	2015	2005	2015	2005	2015
Intra-regional	72.2	69.8	77.7	71.5	81.5	83.2
North America	0.0	0.0	4.4	5.1	5.0	4.3
European Union	7.8	7.8	0.0	0.0	5.5	5.2
East and Southeast Asia	12.3	15.4	6.8	10.7	0.0	0.0
Rest of the World	7.7	7.0	11.1	12.7	8.0	7.3

Intra-regional: East and Southeast Asia		
Country or Region	2005	2015
Japan	45.3	16.2
Korea	7.5	5.2
China	31.4	63.3
Chinese Taipei	3.7	2.5
Other E&SE Asia	12.2	12.8

Intra-regional: Europe		
Country or Region	2005	2015
France	13.3	12.0
Germany	25.8	25.8
Italy	14.8	12.5
United Kingdom	11.8	11.8
EU13	7.9	10.8
Other EU28	26.3	27.1

Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

Table B.7. Regional demand for manufactured goods and business services, 2005 and 2015, *by economy or region of value added origin, percentage shares of total* (Figure 3.2)

Region	North America		European Union		East and Southeast Asia	
	2005	2015	2005	2015	2005	2015
Intra-regional	87.4	86.8	87.9	85.0	87.7	87.7
North America	0.0	0.0	2.9	3.5	3.4	3.3
European Union	4.1	3.8	0.0	0.0	3.5	3.3
East and Southeast Asia	4.7	6.0	3.0	4.5	0.0	0.0
Rest of the World	3.7	3.5	6.2	7.0	5.4	5.6

Intra-regional: East and Southeast Asia		
Country or Region	2005	2015
Japan	55.3	23.6
Korea	8.7	6.1
China	22.4	55.8
Chinese Taipei	3.3	2.3
Other E&SE Asia	10.3	12.3

Intra-regional: Europe		
Country or Region	2005	2015
France	15.2	15.1
Germany	19.7	20.2
Italy	13.4	11.7
United Kingdom	17.3	17.9
EU13	6.4	8.4
Other EU28	27.9	26.9

Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

Table B.8. Origin of foreign value added in domestic final demand for manufactured goods and business services. I*ntra-regional versus extra-regional (ROW) origin, selected countries, 2005 to 2015, USD Millions and percentage shares* (Figure 3.3)

Year	FRA-EU28	FRA-ROW	FRA-ROW (%)	DEU-EU28	*DEU-ROW*	*DEU-ROW (%)*
2005	209 557	164 731	44.0	260 976	*210 700*	*44.7*
2006	221 599	183 387	45.3	280 959	*246 541*	*46.7*
2007	260 995	215 315	45.2	310 412	*279 575*	*47.4*
2008	286 929	250 231	46.6	338 463	*338 339*	*50.0*
2009	240 829	210 499	46.6	298 199	*269 226*	*47.4*
2010	246 815	223 254	47.5	307 375	*323 548*	*51.3*
2011	270 524	262 136	49.2	344 015	*380 294*	*52.5*
2012	251 529	251 280	50.0	318 192	*365 533*	*53.5*
2013	264 698	260 007	49.6	343 840	*369 014*	*51.8*
2014	274 909	258 854	48.5	355 320	*371 224*	*51.1*
2015	236 392	225 623	48.8	303 813	*322 202*	*51.5*

Year	GBR-EU28	GBR-ROW	GBR-ROW (%)	USA - N.Am.	*USA - ROW*	*USA-ROW (%)*
2005	222 644	221 683	49.9	262 668	*1 139 891*	*81.3*
2006	231 604	245 166	51.4	284 443	*1 258 373*	*81.6*
2007	267 545	277 871	50.9	294 268	*1 331 283*	*81.9*
2008	261 253	283 123	52.0	298 926	1 413 595	82.5
2009	202 448	229 739	53.2	223 731	1 113 454	83.3
2010	209 603	253 524	54.7	265 406	1 261 722	82.6
2011	227 789	275 521	54.7	300 911	1 421 987	82.5
2012	223 423	286 503	56.2	306 318	1 479 512	82.8
2013	238 521	292 901	55.1	313 729	1 481 413	82.5
2014	261 648	304 946	53.8	333 749	1 546 252	82.2
2015	241 178	285 336	54.2	309 848	1 536 637	83.2

Year	JPN - Asia	JPN - ROW	JPN-ROW (%)	KOR - Asia	KOR - ROW	KOR-ROW (%)
2005	128 592	295 958	69.7	63 323	101 614	61.6
2006	141 749	324 104	69.6	72 496	121 264	62.6
2007	150 449	338 473	69.2	85 365	137 349	61.7
2008	178 915	412 767	69.8	91 553	149 430	62.0
2009	152 298	306 710	66.8	76 589	118 607	60.8
2010	185 703	359 325	65.9	90 037	151 592	62.7
2011	231 159	440 914	65.6	111 889	180 606	61.7
2012	254 027	468 661	64.8	110 143	185 728	62.8
2013	246 362	434 399	63.8	108 527	190 929	63.8
2014	261 344	440 342	62.8	108 683	196 452	64.4
2015	226 979	340 762	60.0	107 148	165 872	60.8

Year	CHN- Asia	CHN - ROW	CHN-ROW (%)
2005	151 943	205 529	57.5
2006	165 152	243 814	59.6
2007	185 195	293 399	61.3
2008	208 092	386 193	65.0
2009	221 483	389 368	63.7
2010	282 081	511 428	64.5
2011	343 005	710 818	67.5
2012	360 602	795 698	68.8
2013	385 772	873 735	69.4
2014	421 373	953 917	69.4
2015	410 450	842 717	67.2

Source: Estimation based on OECD's Inter-Country Input-Output (ICIO) Database, 2018.

Table B.9. Domestic value added in foreign final demand for manufactured goods and business services. ***Intra-regional versus extra-regional (ROW) demand, selected countries, 2005 to 2015, USD Millions and percentage shares*** **(Figure 3.4)**

Year	FRA-EU28	FRA-ROW	FRA-ROW (%)	DEU-EU28	DEU-ROW	DEU-ROW (%)
2005	203 981	152 296	42.7	316 871	274 674	46.4
2006	208 234	165 087	44.2	346 016	303 671	46.7
2007	238 486	187 401	44.0	418 660	350 836	45.6
2008	250 920	214 646	46.1	446 946	404 444	47.5
2009	202 002	192 400	48.8	353 224	347 992	49.6
2010	202 263	193 811	48.9	362 016	389 152	51.8
2011	219 818	223 039	50.4	392 529	449 164	53.4
2012	200 588	228 291	53.2	358 745	466 519	56.5
2013	212 669	241 436	53.2	377 489	491 882	56.6
2014	223 808	247 690	52.5	405 140	514 108	55.9
2015	195 430	227 682	53.8	359 816	477 034	57.0

Year	GBR-EU28	GBR-ROW	GBR-ROW (%)	USA - N.Am.	USA - ROW	USA-ROW (%)
2005	169 334	201 520	54.3	199 609	628 617	75.9
2006	184 382	218 159	54.2	221 369	704 609	76.1
2007	214 084	246 361	53.5	239 142	804 586	77.1
2008	211 770	246 751	53.8	251 796	888 765	77.9
2009	170 940	205 962	54.6	214 011	826 955	79.4
2010	174 224	220 704	55.9	253 712	905 776	78.1
2011	192 057	254 968	57.0	277 176	1 005 218	78.4
2012	176 809	269 349	60.4	290 183	1 066 497	78.6
2013	185 119	283 325	60.5	298 121	1 119 839	79.0
2014	196 647	299 784	60.4	310 411	1 168 974	79.0
2015	178 101	292 081	62.1	293 253	1 163 707	79.9

Year	JPN - Asia	JPN - ROW	JPN-ROW (%)	KOR - Asia	KOR - ROW	KOR-ROW (%)
2005	159 166	330 704	67.5	62 865	120 287	65.7
2006	160 133	345 738	68.3	67 164	133 202	66.5
2007	171 985	370 847	68.3	75 549	154 341	67.1
2008	193 551	397 004	67.2	77 134	156 979	67.1
2009	176 744	297 065	62.7	78 534	141 333	64.3
2010	230 588	355 118	60.6	97 453	165 504	62.9
2011	250 726	355 990	58.7	115 707	182 191	61.2
2012	249 802	362 972	59.2	129 128	187 095	59.2
2013	221 738	329 603	59.8	141 417	199 067	58.5
2014	234 264	338 248	59.1	151 721	206 863	57.7
2015	222 083	327 901	59.6	145 446	205 225	58.5

Year	CHN- Asia	CHN - ROW	CHN-ROW (%)
2005	102 623	332 479	76.4
2006	121 718	429 042	77.9
2007	145 511	569 008	79.6
2008	176 986	696 153	79.7
2009	158 636	610 109	79.4
2010	186 531	744 301	80.0
2011	247 695	899 057	78.4
2012	280 176	981 505	77.8
2013	297 899	1 070 844	78.2
2014	325 223	1 168 907	78.2
2015	317 125	1 189 914	79.0

Source: Estimation based on OECD's Inter-Country Input-Output (ICIO) Database, 2018.

Table B.10. Foreign value added in domestic final demand for manufactured goods, *intra-regional versus extra-regional (ROW) origin, selected countries, 2005 to 2015, USD Millions and percentage shares* (Figure 3.5)

Year	FRA-EU28	FRA-ROW	FRA-ROW (%)	DEU-EU28	DEU-ROW	DEU-ROW (%)
2005	114 330	90 860	44.3	134 226	116 511	46.47
2006	119 308	99 904	45.6	145 273	141 662	49.37
2007	139 601	117 390	45.7	159 969	160 033	50.01
2008	149 765	134 548	47.3	178 999	199 410	52.70
2009	122 841	112 206	47.7	152 541	152 530	50.00
2010	122 481	117 607	49.0	158 949	192 240	54.74
2011	133 970	136 884	50.5	177 647	222 780	55.64
2012	122 737	130 087	51.5	162 937	209 086	56.20
2013	126 695	133 400	51.3	172 985	207 422	54.53
2014	129 417	133 374	50.8	180 029	211 022	53.96
2015	106 611	113 127	51.5	140 913	169 597	54.62

Year	GBR-EU28	GBR-ROW	GBR-ROW (%)	USA - N. Am.	USA - ROW	USA-ROW (%)
2005	114 556	113 787	49.8	141 058	664 391	82.49
2006	117 886	123 963	51.3	156 309	736 304	82.49
2007	136 481	141 777	51.0	163 288	783 571	82.75
2008	131 758	144 273	52.3	166 777	816 927	83.05
2009	100 922	113 673	53.0	126 961	648 274	83.62
2010	106 113	129 750	55.0	152 074	747 818	83.10
2011	116 120	141 993	55.0	176 740	851 356	82.81
2012	114 509	147 296	56.3	182 056	898 828	83.16
2013	124 027	149 192	54.6	186 736	890 644	82.67
2014	137 477	160 179	53.8	195 430	921 702	82.51
2015	126 434	145 933	53.6	182 925	912 153	83.30

Year	JPN - Asia	JPN - ROW	JPN-ROW (%)	KOR - Asia	KOR - ROW	KOR-ROW (%)
2005	77 227	137 837	64.09	31 888	43 857	57.90
2006	85 573	153 264	64.17	36 298	52 772	59.25
2007	90 571	159 535	63.79	43 111	59 817	58.12
2008	108 043	193 642	64.19	46 356	61 594	57.06
2009	91 362	138 756	60.30	38 210	47 719	55.53
2010	113 856	166 732	59.42	46 915	62 950	57.30
2011	140 208	204 140	59.28	58 044	77 070	57.04
2012	153 434	214 097	58.25	58 528	78 801	57.38
2013	149 972	195 437	56.58	56 982	82 474	59.14
2014	160 068	194 990	54.92	58 169	86 649	59.83
2015	137 118	150 938	52.40	55 864	71 858	56.26

Year	CHN- Asia	CHN - ROW	CHN-ROW (%)
2005	93 693	113 158	54.71
2006	101 918	134 949	56.97
2007	113 393	159 158	58.40
2008	129 371	209 623	61.84
2009	140 651	219 969	61.00
2010	186 835	295 814	61.29
2011	220 497	398 435	64.37
2012	226 550	433 183	65.66
2013	239 598	482 345	66.81
2014	257 703	524 343	67.05
2015	237 416	441 525	65.03

Source: Estimation based on OECD's Inter-Country Input-Output (ICIO) Database, 2018

Table B.11. Domestic value added in foreign final demand for manufactured goods, *intra-regional versus extra-regional (ROW) demand, selected countries, 2005 to 2015, USD Millions and percentage shares* (Figure 3.6)

Year	FRA-EU28	FRA-ROW	FRA-ROW (%)	DEU-EU28	DEU-ROW	DEU-ROW (%)
2005	107 748	80 222	42.7	188 288	162 854	46.4
2006	109 115	87 057	44.4	203 825	180 820	47.0
2007	123 765	97 373	44.0	247 997	208 554	45.7
2008	129 596	112 599	46.5	259 662	245 338	48.6
2009	101 874	99 210	49.3	197 915	207 290	51.2
2010	100 358	100 881	50.1	205 573	236 034	53.4
2011	107 848	114 906	51.6	225 969	276 829	55.1
2012	97 053	119 083	55.1	206 265	288 219	58.3
2013	102 301	125 371	55.1	218 253	307 039	58.5
2014	106 832	127 211	54.4	233 866	318 906	57.7
2015	91 070	117 584	56.4	202 283	291 761	59.1

Year	GBR-EU28	GBR-ROW	GBR-ROW (%)	USA - N. Am.	USA - ROW	USA-ROW (%)
2005	72 061	81 246	53.0	101 411	288 927	74.0
2006	77 063	85 005	52.5	111 835	324 530	74.4
2007	87 600	96 155	52.3	120 591	365 064	75.2
2008	86 028	100 191	53.8	123 763	409 099	76.8
2009	67 964	80 971	54.4	99 796	369 856	78.8
2010	70 788	89 679	55.9	120 229	407 375	77.2
2011	78 802	104 427	57.0	133 101	449 911	77.2
2012	70 362	110 420	61.1	141 324	477 155	77.1
2013	73 458	114 358	60.9	143 398	498 270	77.7
2014	77 723	121 489	61.0	147 220	520 558	78.0
2015	66 195	119 282	64.3	137 066	505 227	78.7

Year	JPN - Asia	JPN - ROW	JPN-ROW (%)	KOR - Asia	KOR - ROW	KOR-ROW (%)
2005	96 153	215 897	69.2	38 575	85 140	68.8
2006	96 067	228 829	70.4	41 414	93 792	69.4
2007	103 134	244 364	70.3	46 491	107 359	69.8
2008	117 734	260 495	68.9	46 428	109 012	70.1
2009	108 723	187 639	63.3	49 834	99 789	66.7
2010	146 362	229 437	61.1	63 461	116 715	64.8
2011	157 601	230 923	59.4	74 526	129 032	63.4
2012	155 968	237 769	60.4	81 731	130 911	61.6
2013	135 806	214 214	61.2	90 794	140 689	60.8
2014	141 523	213 825	60.2	96 240	142 711	59.7
2015	129 384	203 468	61.1	89 786	140 331	61.0

Year	CHN- Asia	CHN - ROW	CHN-ROW (%)
2005	67 061	240 862	78.2
2006	79 615	309 225	79.5
2007	96 158	412 796	81.1
2008	117 414	500 989	81.0
2009	106 435	449 007	80.8
2010	127 635	548 118	81.1
2011	166 771	662 225	79.9
2012	189 708	720 221	79.2
2013	201 071	779 595	79.5
2014	219 686	844 685	79.4
2015	208 807	840 239	80.1

Source: Estimation based on OECD's Inter-Country Input-Output (ICIO) Database, 2018

Table B.12. Final destination of intermediate exports by importing region, *intra-regional versus extra-regional, selected countries, 2005 to 2015, USD Million* (Figure 3.7)

FRA	INTRA			ROW			TOTAL
	DOM	INTRAREG	ROW	DOM	INTRAREG	ROW	
2005	7 159	131 529	28 779	1 766	8 415	99 800	277 449
2006	7 501	139 489	32 549	1 805	9 275	110 582	301 201
2007	8 824	162 321	38 981	2 207	10 853	124 728	347 915
2008	9 642	173 299	44 572	2 354	12 128	145 608	387 601
2009	6 592	128 141	31 928	1 864	9 053	125 222	302 800
2010	7 974	143 282	41 116	1 865	9 418	132 996	336 651
2011	9 553	161 708	50 978	2 204	10 875	159 111	394 430
2012	8 419	145 006	50 933	2 047	9 875	160 860	377 141
2013	8 977	152 556	54 050	2 169	9 900	166 728	394 379
2014	9 518	160 331	55 712	2 117	9 850	169 420	406 948
2015	7 904	140 823	48 908	1 754	8 322	151 665	359 376

DEU	INTRA			ROW			TOTAL
	DOM	INTRAREG	ROW	DOM	INTRAREG	ROW	
2005	16 325	207 483	48 914	3 690	14 395	185 905	476 712
2006	18 842	239 013	60 420	4 417	16 451	209 231	548 375
2007	21 853	291 183	75 037	5 587	20 581	247 044	661 285
2008	23 837	310 139	84 724	6 537	22 746	278 256	726 239
2009	17 442	232 040	60 833	4 815	16 594	228 760	560 485
2010	21 424	253 279	78 122	5 860	18 140	268 894	645 721
2011	25 858	281 566	95 770	6 852	20 069	317 671	747 786
2012	23 005	254 004	98 020	6 082	18 360	325 278	724 749
2013	25 136	262 578	101 143	6 392	19 102	334 254	748 604
2014	27 303	280 269	105 567	6 051	19 146	345 756	784 093
2015	22 213	250 783	92 425	5 048	16 817	314 925	702 212

GBR	INTRA			ROW			TOTAL
	DOM	INTRAREG	ROW	DOM	INTRAREG	ROW	
2005	7 076	124 199	29 421	1 945	8 409	138 789	309 839
2006	7 886	140 327	35 786	2 073	8 921	148 947	343 939
2007	9 477	163 303	43 876	2 380	11 137	170 467	400 639
2008	9 200	164 467	45 930	2 171	11 531	177 162	410 461
2009	6 436	133 860	35 395	1 569	8 192	144 786	330 237
2010	7 108	140 096	40 922	1 700	8 634	159 083	357 542
2011	8 301	157 111	51 020	1 798	10 038	184 874	413 142
2012	8 655	145 141	52 464	1 887	9 545	196 279	413 971
2013	8 989	147 375	53 384	1 948	9 957	201 096	422 750
2014	9 705	153 869	55 869	2 027	9 899	203 569	434 937
2015	9 012	134 150	50 286	1 873	8 685	190 973	394 980

USA	INTRA			ROW			TOTAL
	DOM	INTRAREG	ROW	DOM	INTRAREG	ROW	
2005	58 063	94 200	17 021	36 007	5 552	418 376	629 220
2006	62 149	102 872	19 842	40 420	6 700	482 486	714 469
2007	61 197	109 848	23 704	41 446	7 175	560 884	804 254
2008	62 106	121 243	28 327	42 072	7 826	642 033	903 607
2009	45 055	98 967	20 796	32 858	5 886	562 864	766 428
2010	57 446	115 248	25 841	39 248	7 431	648 051	893 265
2011	64 199	132 267	31 888	43 380	8 611	761 674	1 042 019
2012	68 158	137 948	34 374	44 191	8 802	784 391	1 077 864
2013	71 281	140 244	35 031	43 901	8 911	808 242	1 107 611
2014	76 565	150 076	35 276	46 303	8 844	828 725	1 145 788
2015	74 299	138 478	29 068	48 594	8 421	781 294	1 080 152

Continue ...

Table B.12. continued

JPN	INTRA			ROW			TOTAL
	DOM	INTRAREG	ROW	DOM	INTRAREG	ROW	
2005	9 154	116 287	65 981	2 149	4 316	172 807	370 694
2006	9 057	125 132	73 994	2 219	4 907	183 834	399 142
2007	8 872	138 392	84 298	2 313	5 706	202 552	442 134
2008	10 282	158 987	90 690	2 756	6 888	216 788	486 391
2009	6 840	133 091	65 500	1 629	4 892	156 308	368 259
2010	9 403	170 684	85 638	2 094	7 031	189 011	463 860
2011	11 018	195 676	94 038	2 524	8 957	197 029	509 241
2012	11 203	188 726	88 253	2 584	9 073	197 733	497 572
2013	8 999	173 534	77 857	2 189	8 853	178 735	450 168
2014	9 371	183 248	79 644	2 280	9 732	188 758	473 032
2015	7 555	165 292	69 343	1 863	8 289	172 634	424 975

KOR	INTRA			ROW			TOTAL
	DOM	INTRAREG	ROW	DOM	INTRAREG	ROW	
2005	1 757	71 340	38 809	415	2 901	84 170	199 392
2006	2 181	79 719	47 488	501	3 359	95 035	228 284
2007	2 575	91 024	58 182	611	3 907	111 593	267 891
2008	2 520	107 014	57 627	690	5 165	128 447	301 463
2009	1 644	94 314	43 773	466	4 031	106 001	250 231
2010	2 200	117 053	57 601	684	5 569	129 538	312 645
2011	3 246	156 474	68 969	879	7 582	153 727	390 876
2012	3 133	169 906	73 237	867	8 321	155 578	411 042
2013	3 035	175 009	77 009	857	8 629	153 017	417 557
2014	3 051	178 645	77 239	873	9 058	156 586	425 451
2015	2 968	160 310	70 630	717	7 314	140 536	382 476

CHN	INTRA			ROW			TOTAL
	DOM	INTRAREG	ROW	DOM	INTRAREG	ROW	
2005	8 010	87 657	36 980	2 234	5 879	233 938	374 698
2006	10 215	104 315	47 122	3 193	7 623	305 718	478 185
2007	13 087	122 434	59 158	4 488	9 307	394 064	602 538
2008	16 687	144 632	69 900	6 501	12 348	484 050	734 118
2009	15 280	116 862	52 785	5 537	8 156	380 189	578 809
2010	20 271	143 521	64 991	8 161	11 446	484 096	732 486
2011	29 071	198 091	85 647	12 542	15 543	594 633	935 527
2012	29 896	210 437	87 355	14 173	17 248	639 953	999 062
2013	34 928	216 854	91 870	17 172	18 392	709 015	1 088 230
2014	40 691	234 240	100 531	21 017	19 385	773 104	1 188 968
2015	40 970	228 206	97 793	20 535	18 488	800 053	1 206 043

Source: Estimations based on OECD's Inter-Country Input-Output (ICIO) Database, 2018

Table B.13. Foreign value added embodied in domestic final demand by sector, global average, 2015. As *a percentage of total domestic demand* (Figure 4.1)

Industry	2015			2005
	OECD	NON-OECD	Total	
Agriculture	7.8	6.8	14.6	16.6
Mining, energy	11.5	17.0	28.6	42.7
Mining, non-energy	8.8	6.3	15.1	20.0
Mining, services	8.9	4.7	13.6	14.1
Food products	13.7	10.0	23.6	23.7
Textiles & apparel	14.2	33.7	47.9	48.6
Wood	21.6	16.0	37.5	39.3
Paper and printing	22.8	10.9	33.6	32.4
Coke, petroleum	18.0	29.2	47.2	52.5
Chemicals	29.1	12.7	41.8	42.0
Rubber & plastics	25.6	17.5	43.1	40.8
Non-metal minerals	17.3	14.5	31.8	29.7
Basic metals	22.0	20.7	42.7	43.6
Fabricated metals	24.0	14.9	38.8	37.0
ICT & electronics	28.4	30.0	58.4	53.1
Electrical machinery	24.9	22.2	47.1	44.7
Machinery	28.9	14.7	43.6	48.9
Motor vehicles	35.2	12.0	47.2	50.3
Other transport	37.2	14.9	52.1	49.3
Other manufacturing	20.5	21.4	41.9	36.7
Utilities	7.8	8.9	16.7	17.4
Construction	8.6	6.8	15.5	15.7
Wholesale & retail	13.1	5.7	18.9	18.4
Transport & storage	18.0	10.9	28.9	28.8
Accommodation & food	14.2	7.4	21.5	19.9
Publishing, broadcasting	11.8	3.8	15.6	15.5
Telecoms	9.8	6.5	16.2	14.0
IT services	13.6	8.5	22.2	14.4
Finance & insurance	9.6	2.7	12.4	10.8
Real estate	2.9	1.4	4.3	4.0
Other business services	15.3	4.8	20.2	16.0
Public admin	4.5	3.0	7.6	7.5
Education	4.4	1.9	6.3	5.1
Health	4.4	2.7	7.1	6.3
Other services	6.4	4.2	10.6	9.5
Private households	0.0	0.0	0.0	0.0

Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

Table B.14. Foreign value added embodied in domestic final demand, by sector, OECD average, 2015. As *a percentage of total domestic demand* (Figure 4.2)

Industry	2015			2005
	OECD	NON-OECD	Total	
Agriculture	16.1	10.4	26.5	23.3
Mining, energy	22.1	28.4	50.5	50.6
Mining, non-energy	9.7	6.2	15.9	21.7
Mining, services	11.0	4.7	15.7	14.4
Food products	18.3	9.8	28.1	24.7
Textiles & apparel	18.7	48.5	67.1	56.5
Wood	25.7	15.8	41.4	39.6
Paper and printing	23.1	8.9	32.0	30.9
Coke & petroleum	22.1	32.7	54.8	55.2
Chemicals	32.5	11.4	43.9	41.5
Rubber & plastics	27.9	15.9	43.8	40.2
Non-metal minerals	21.7	14.4	36.1	29.4
Basic metals	26.2	23.7	49.9	44.9
Fabricated metals	26.4	13.9	40.3	35.0
ICT & electronics	29.0	31.7	60.7	50.0
Electrical machinery	28.6	27.7	56.2	43.4
Machinery	35.0	16.2	51.2	46.0
Motor vehicles	41.4	12.1	53.5	51.1
Other transport	38.4	13.7	52.1	47.2
Other manufacturing	22.2	24.0	46.3	37.1
Utilities	9.1	9.0	18.0	17.7
Construction	9.6	6.2	15.8	14.4
Wholesale & retail	12.9	5.0	17.9	17.2
Transport & storage	17.9	9.7	27.6	27.5
Accommodation & food	13.6	5.6	19.2	18.1
Publishing & broadcasting	11.0	3.0	14.0	15.1
Telecoms	9.3	5.8	15.2	13.1
IT services	13.6	8.5	22.1	13.5
Finance & insurance	9.7	2.5	12.2	10.4
Real estate	2.9	1.2	4.1	3.7
Other business services	14.8	4.2	19.0	14.6
Public admin	4.4	2.8	7.2	7.0
Education	4.0	1.5	5.4	4.3
Health	4.0	2.3	6.3	5.7
Other services	6.0	3.5	9.5	8.5
Private households	0.0	0.0	0.0	0.0

Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

Table B.15. Global demand for Textiles and apparel, by country or region of final demand and origin of value added, *percentage shares of total, 2005 and 2015* (Figure 4.3)

Country or Region	Final demand		Value added	
	2005	2015	2005	2015
North America	25.6	18.3	13.6	7.5
EU28	30.3	20.0	26.9	14.6
Japan	4.4	2.5	3.6	1.5
Korea	2.0	1.8	2.4	1.8
China	6.2	13.7	16.1	31.2
Other E&SE Asia	4.2	5.8	7.1	7.6
Brazil	2.5	3.3	2.7	2.9
India	3.8	6.3	5.1	7.3
Rest of the world	21.1	28.4	22.4	25.6

Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

Table B.16. Regional demand for Textiles and apparel by economy or region of value added origin, *percentage shares of total, 2005 and 2015* (Figure 4.4)

Region	North America		European Union		East and Southeast Asia	
	2005	2015	2005	2015	2005	2015
Intra-regional	45.8	32.3	69.8	52.3	85.3	88.3
North America	0.0	0.0	1.9	1.9	2.5	1.8
European Union	7.8	5.3	0.0	0.0	5.7	3.7
East and Southeast Asia	29.8	46.3	12.3	25.7	0.0	0.0
Rest of the World	16.6	16.1	15.9	20.1	6.5	6.2

Intra-regional: East and Southeast Asia		
Country or Region	2005	2015
Japan	18.8	4.8
Korea	10.2	5.7
China	48.7	69.6
Chinese Taipei	4.1	1.6
Other E&SE Asia	18.2	18.3

Intra-regional: Europe		
Country or Region	2005	2015
France	10.6	8.4
Germany	13.9	13.0
Italy	32.1	34.6
United Kingdom	9.1	11.7
EU13	8.4	9.8
Other EU28	25.9	22.5

Source: Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

Table B.17. Foreign value added embodied in domestic demand for Textiles and apparel by source region, *as a percentage of total domestic demand* (Figure 4.5)

Country	2015						2005
	EU28	N. Am.	CHN	Other E&SE Asia	ROW	Total	
AUS	5.6	2.7	54.8	9.4	14.4	87.0	67.6
AUT	31.9	1.9	22.0	5.2	22.6	83.6	73.7
BEL	28.1	3.1	22.6	6.0	22.8	82.5	77.8
CAN	6.4	9.6	46.0	10.0	18.2	90.3	68.7
CHL	3.7	2.9	55.8	5.5	13.8	81.6	72.3
CZE	29.8	1.8	28.2	6.1	21.8	87.7	69.7
DNK	29.4	1.9	24.8	5.0	21.3	82.4	71.9
EST	31.7	1.7	27.7	4.5	17.1	82.7	72.4
FIN	21.3	2.0	28.9	5.5	18.7	76.5	68.2
FRA	21.4	1.9	27.1	5.3	21.2	76.9	62.2
DEU	20.3	2.1	23.3	5.8	23.0	74.4	61.1
GRC	34.9	1.7	19.2	3.8	20.3	79.9	57.9
HUN	55.9	1.8	8.5	3.8	15.3	85.2	77.6
ISL	25.7	4.9	26.2	6.0	19.2	82.1	72.4
IRL	37.1	3.3	27.3	4.8	22.0	94.7	88.1
ISR	14.6	4.0	30.3	6.4	15.5	70.8	69.8
ITA	13.9	1.4	11.5	2.7	13.0	42.4	37.2
JPN	5.3	1.8	46.9	9.1	7.4	70.4	48.7
KOR	6.7	2.9	22.4	10.3	8.8	51.0	43.4
LVA	56.5	1.8	10.4	2.4	12.8	83.9	76.9
LTU	39.0	1.2	9.4	1.8	12.9	64.3	48.3
LUX	31.5	4.2	11.2	4.8	11.1	62.9	60.0
MEX	4.8	12.2	18.4	5.3	10.2	50.8	37.3
NLD	28.3	2.7	23.8	6.4	20.7	81.8	73.9
NZL	5.4	2.4	45.2	7.7	11.6	72.4	61.4
NOR	21.4	2.1	35.9	6.6	20.5	86.7	79.8
POL	19.0	1.5	30.3	5.0	22.0	77.8	54.4
PRT	36.2	1.2	6.7	2.3	10.9	57.4	49.0
SVK	24.9	1.6	25.8	7.5	28.9	88.7	83.1
SVN	27.4	1.7	25.2	5.3	26.6	86.2	73.9
ESP	18.0	1.6	24.5	4.8	25.9	74.7	52.0
SWE	27.4	2.2	26.4	7.5	21.5	85.0	79.8
CHE	33.6	2.2	28.0	7.4	19.5	90.8	91.2
TUR	6.8	1.1	9.6	3.6	10.5	31.6	27.6
GBR	17.0	2.3	27.2	5.3	24.6	76.4	72.6
USA	5.2	2.4	36.5	11.1	16.5	71.8	61.4

Continue …

Table B.17. continued

Country	2015						2005
	EU28	N. Am.	CHN	Other E&SE Asia	ROW	Total	
ARG	1.3	1.4	3.6	1.1	3.8	11.3	17.2
BRA	2.9	2.1	11.8	3.0	5.0	24.8	14.1
BRN	3.0	1.5	8.4	11.9	3.6	28.5	48.2
BGR	27.6	1.2	3.5	1.4	12.5	46.3	43.1
KHM	2.0	1.1	35.5	14.6	4.4	57.6	71.8
CHN	2.6	1.5	0.0	4.9	5.3	14.2	20.8
COL	3.0	4.2	20.6	4.2	10.1	42.2	28.1
CRI	3.9	9.8	22.2	3.3	30.5	69.8	68.8
HRV	52.1	1.2	6.8	1.7	12.1	73.9	65.1
CYP	59.8	1.7	11.2	2.9	15.2	90.8	79.7
IND	2.6	1.5	8.1	3.6	7.2	23.0	23.4
IDN	2.2	1.5	11.8	10.8	5.5	31.8	28.2
HKG	8.7	2.4	44.9	6.7	6.8	69.5	71.8
KAZ	8.4	1.9	31.4	3.9	36.1	81.8	68.1
MYS	4.9	2.6	27.3	14.9	9.9	59.6	70.2
MLT	47.4	3.5	11.6	3.7	14.5	80.7	78.5
MAR	25.9	1.3	14.4	3.0	12.6	57.2	64.3
PER	2.4	3.3	20.6	3.6	9.7	39.5	26.0
PHL	2.3	1.7	11.0	9.7	4.1	28.8	27.0
ROU	38.7	1.0	5.7	1.7	9.3	56.5	72.3
RUS	12.0	1.7	33.2	6.9	19.7	73.5	55.6
SAU	6.5	2.2	30.0	6.6	20.6	65.8	59.9
SGP	11.6	4.6	23.8	28.7	15.7	84.4	88.4
ZAF	6.1	2.0	31.8	5.9	19.6	65.4	44.4
TWN	6.7	3.1	29.2	14.3	13.2	66.5	54.4
THA	3.6	1.9	10.8	7.4	7.5	31.2	32.3
TUN	27.7	1.1	6.4	2.0	13.0	50.2	57.5
VNM	4.4	2.7	26.1	18.6	9.6	61.4	62.0
ROW	6.8	2.6	14.7	4.9	7.3	36.3	36.3

Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".
Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Source: OECD, Trade in Value Added (TiVA) database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

Table B.18. Global demand for Chemical and pharmaceutical products, by country or region of final demand and origin of value added, *percentage shares of total, 2005 and 2015* (Figure 4.6)

Country or Region	Final demand		Value added	
	2005	2015	2005	2015
North America	36.3	33.0	31.5	29.2
EU28	31.5	20.2	32.0	23.7
Japan	8.4	6.5	8.4	5.6
Korea	1.3	1.1	1.3	1.4
China	5.8	16.1	5.5	15.8
Other E&SE Asia	2.3	2.6	2.7	3.1
Brazil	1.8	3.2	1.6	2.4
India	1.2	1.9	1.3	2.1
Rest of the world	11.4	15.2	15.6	16.7

Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

Table B.19. Regional demand for Chemical and pharmaceutical products, by economy or region of value added origin, *percentage shares of total, 2005 and 2015* (Figure 4.7)

Region	North America		European Union		East and Southeast Asia	
	2005	2015	2005	2015	2005	2015
Intra-regional	75.8	74.3	76.0	70.4	79.2	78.6
North America	0.0	0.0	6.7	8.9	4.4	4.6
European Union	11.2	11.7	0.0	0.0	6.3	7.4
East and Southeast Asia	4.8	6.1	3.7	5.7	0.0	0.0
Rest of the World	8.2	7.9	13.6	15.1	10.0	9.5

Intra-regional: East and Southeast Asia		
Country or Region	2005	2015
Japan	50.6	22.8
Korea	6.8	4.3
China	31.4	63.6
Chinese Taipei	2.2	1.4
Other E&SE Asia	9.1	7.9

Intra-regional: Europe		
Country or Region	2005	2015
France	13.3	12.0
Germany	24.7	22.0
Italy	10.3	9.5
United Kingdom	14.7	14.1
EU13	5.0	6.5
Other EU28	32.0	35.9

Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*

Table B.20. Foreign value added embodied in domestic demand for Chemical and pharmaceutical products, by source region, 2015, *as a percentage of total domestic demand* (Figure 4.8)

Country	2015						2005
	EU28	N. Am.	CHN	Other E&SE Asia	ROW	Total	
AUS	18.5	8.7	4.9	6.2	23.0	61.2	61.0
AUT	39.1	11.1	2.3	2.2	22.2	76.9	72.2
BEL	30.7	8.0	1.8	3.6	9.9	54.1	44.4
CAN	13.4	32.5	3.1	2.5	12.4	63.9	58.5
CHL	13.5	18.4	9.5	4.0	20.0	65.4	60.1
CZE	47.8	5.2	2.6	2.5	15.3	73.4	76.3
DNK	28.5	3.2	1.6	1.5	9.8	44.7	55.9
EST	59.2	5.8	3.2	2.7	23.8	94.6	81.8
FIN	38.1	5.7	1.8	3.0	16.0	64.7	73.1
FRA	36.1	12.1	3.0	4.1	14.1	69.4	63.0
DEU	27.6	8.5	2.8	3.2	15.0	57.1	42.1
GRC	49.2	4.0	2.1	2.8	19.8	77.8	70.3
HUN	52.3	3.8	2.1	6.3	16.6	81.0	61.2
ISL	34.5	9.4	2.5	2.0	27.3	75.5	66.5
IRL	24.8	15.1	1.2	2.8	7.4	51.3	55.1
ISR	24.3	11.1	7.0	5.6	19.5	67.6	78.2
ITA	33.1	7.2	2.5	2.1	16.8	61.6	57.6
JPN	11.3	6.1	3.9	4.1	9.0	34.4	20.7
KOR	10.6	8.7	6.5	8.9	16.3	51.0	46.7
LVA	50.4	3.0	2.1	1.6	25.3	82.4	81.5
LTU	55.0	3.5	2.5	2.7	21.5	85.1	87.4
LUX	63.5	6.8	1.7	2.4	10.7	85.1	84.7
MEX	9.9	27.2	4.7	2.9	6.9	51.5	39.1
NLD	32.1	11.1	2.5	4.6	14.0	64.2	58.5
NZL	19.9	11.0	8.5	9.1	21.8	70.2	71.1
NOR	22.6	4.7	1.5	2.2	6.4	37.4	37.2
POL	50.3	5.9	3.5	3.0	15.5	78.2	68.8
PRT	57.0	4.1	2.3	2.5	15.6	81.5	75.2
SVK	55.6	5.7	2.9	4.7	26.2	95.1	90.4
SVN	36.7	5.1	4.0	2.2	20.0	68.0	64.3
ESP	35.0	12.9	3.3	2.5	14.6	68.2	57.0
SWE	37.1	4.9	1.4	1.4	10.1	54.9	61.6
CHE	49.5	11.2	3.5	3.7	7.5	75.5	75.5
TUR	24.0	5.7	6.1	5.8	19.1	60.8	58.0
GBR	36.1	9.1	2.9	2.8	15.7	66.5	59.1
USA	11.7	3.3	3.0	3.0	7.8	28.9	29.1

Continue ...

Table B.20. continued

Country	2015						2005
	EU28	N. Am.	CHN	Other E&SE Asia	ROW	Total	
ARG	9.0	7.9	4.0	1.7	10.5	33.1	41.2
BRA	11.5	9.1	4.0	2.2	11.5	38.3	33.0
BRN	6.3	5.2	3.1	26.4	8.1	49.3	72.5
BGR	55.7	3.3	5.2	2.0	23.0	89.1	70.4
KHM	7.5	3.6	15.9	29.8	14.4	71.3	80.6
CHN	5.0	3.2	0.0	5.2	8.1	21.5	28.0
COL	14.0	20.9	6.8	3.3	15.7	60.7	48.7
CRI	15.5	21.4	4.8	2.8	33.2	77.7	86.8
HRV	35.3	2.5	1.6	2.7	14.2	56.3	53.8
CYP	46.8	3.1	5.1	3.7	18.1	76.8	76.6
IND	6.0	4.2	9.8	7.3	14.8	42.1	36.9
IDN	6.0	4.3	8.9	14.2	11.6	44.9	53.6
HKG	12.0	6.9	12.3	15.3	12.1	58.6	54.2
KAZ	28.6	6.6	7.0	3.4	31.4	77.0	88.4
MYS	14.8	7.8	9.4	17.9	16.7	66.6	71.2
MLT	37.6	5.3	6.8	3.7	25.2	78.5	69.9
MAR	27.9	4.8	3.6	2.2	21.1	59.6	64.4
PER	9.0	16.1	8.9	4.7	21.8	60.5	55.1
PHL	9.2	7.0	10.2	22.1	14.4	63.0	51.6
ROU	54.0	3.9	2.3	2.0	18.2	80.4	76.4
RUS	29.2	5.9	4.1	2.7	15.8	57.6	67.7
SAU	25.0	10.0	3.3	3.7	17.6	59.5	75.5
SGP	10.3	8.6	3.3	14.4	17.9	54.5	47.4
ZAF	24.2	9.8	6.4	3.6	25.2	69.2	55.4
TWN	13.8	10.8	8.1	16.5	22.5	71.6	71.5
THA	13.3	8.1	10.8	15.0	18.8	66.1	62.6
TUN	35.7	5.1	3.6	3.0	23.2	70.6	71.3
VNM	15.7	6.3	15.1	21.2	21.0	79.4	79.7
ROW	20.2	7.7	5.3	5.2	14.3	52.7	49.2

Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".
Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Source: OECD, Trade in Value Added (TiVA) database, http://oe.cd/tiva, 2018, Origi*n of value added in final demand*

Table B.21. Global demand for Computer, electronic and optical products, by country or region of final demand and origin of value added, *percentage shares of total, 2005 and 2015* (Figure 4.9)

Country or Region	Final demand		Value added	
	2005	2015	2005	2015
North America	37.3	20.9	28.7	17.1
EU28	22.7	18.1	20.3	15.0
Japan	12.6	7.9	15.3	7.8
Korea	2.3	2.3	5.1	5.5
China	6.3	20.4	10.4	28.0
Other E&SE Asia	4.9	7.6	10.0	12.4
Brazil	2.2	2.3	1.5	1.3
India	0.8	1.7	0.6	0.9
Rest of the world	10.9	18.9	8.2	11.9

Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*.

Table B.22. Regional demand for Computer, electronic and optical products, by economy or region of value added origin, *percentage shares of total, 2005 and 2015* (Figure 4.10)

Region	North America		European Union		East and Southeast Asia	
	2005	2015	2005	2015	2005	2015
Intra-regional	61.9	55.3	60.3	51.0	82.1	83.2
North America	0.0	0.0	9.0	8.4	7.7	5.9
European Union	6.2	5.2	0.0	0.0	5.6	5.2
East and Southeast Asia	27.6	35.3	23.0	31.3	0.0	0.0
Rest of the World	4.3	4.3	7.8	9.3	4.6	5.7

Intra-regional: East and Southeast Asia		
Country or Region	2005	2015
Japan	51.0	19.0
Korea	10.9	10.8
China	18.2	45.5
Chinese Taipei	9.6	10.2
Other E&SE Asia	10.3	14.5

Intra-regional: Europe		
Country or Region	2005	2015
France	10.2	10.0
Germany	32.0	30.4
Italy	8.1	8.5
United Kingdom	10.5	9.7
EU13	6.8	10.8
Other EU28	32.5	30.6

Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*.

Table B.23. Foreign value added embodied in domestic demand for Computer, electronic and optical products, by source region, 2015, *as a percentage of total domestic demand* (Figure 4.11)

Country	2015						2005
	EU28	N. Am.	CHN	Other E&SE Asia	ROW	Total	
AUS	10.0	11.4	38.4	21.1	7.3	88.3	84.0
AUT	32.9	5.7	18.3	11.5	10.9	79.3	66.4
BEL	39.6	11.4	11.9	10.2	9.5	82.5	85.6
CAN	6.7	22.0	28.1	15.0	5.3	77.1	83.4
CHL	7.8	16.9	39.8	16.0	9.0	89.5	89.5
CZE	22.7	5.8	33.2	16.9	6.6	85.2	88.3
DNK	41.7	7.5	10.3	7.6	7.2	74.2	78.3
EST	43.9	7.3	22.1	11.7	9.4	94.4	97.6
FIN	21.6	6.8	14.8	9.9	6.7	59.7	50.5
FRA	21.2	8.6	23.4	14.0	14.4	81.7	82.4
DEU	15.8	7.2	19.8	14.6	8.3	65.7	36.2
GRC	33.1	5.2	19.3	7.9	9.5	75.0	88.4
HUN	39.8	6.6	20.3	16.6	8.4	91.7	94.7
ISL	26.6	13.3	31.3	18.5	8.1	97.8	97.3
IRL	21.6	12.3	6.4	6.7	4.5	51.4	71.7
ISR	23.9	19.1	7.8	10.6	7.0	68.5	75.2
ITA	33.4	6.4	13.7	7.6	9.6	70.8	74.6
JPN	4.4	5.3	18.2	11.2	5.2	44.4	27.0
KOR	6.0	7.0	20.0	17.1	6.2	56.3	54.9
LVA	45.3	4.1	13.1	8.5	8.1	79.1	91.7
LTU	58.6	6.3	11.7	6.2	8.7	91.5	90.0
LUX	33.7	10.0	8.7	8.3	8.0	68.7	93.2
MEX	5.9	13.7	33.0	24.5	5.2	82.2	48.3
NLD	26.5	17.2	12.6	12.8	8.1	77.4	56.0
NZL	8.6	9.1	32.2	18.9	12.1	80.9	82.6
NOR	22.8	7.9	24.0	12.9	6.6	74.1	80.4
POL	24.3	6.2	32.9	19.7	8.7	91.8	81.9
PRT	61.9	5.6	10.2	7.5	6.7	91.9	87.1
SVK	22.0	4.5	26.2	22.5	18.1	93.3	93.5
SVN	28.0	5.7	23.4	16.0	8.7	81.8	89.0
ESP	34.7	7.7	22.7	11.9	10.6	87.6	81.6
SWE	44.3	7.5	8.3	7.4	8.8	76.4	61.8
CHE	24.6	6.1	13.0	7.8	5.5	57.0	54.9
TUR	16.4	6.2	32.7	20.0	7.8	83.1	89.1
GBR	27.8	10.3	20.9	12.2	8.6	79.8	81.7
USA	4.9	4.4	19.5	12.2	4.1	45.0	41.7

Continue ...

Table B.23. continued

Country	2015						2005
	EU28	N. Am.	CHN	Other E&SE Asia	ROW	Total	
ARG	6.5	6.7	24.6	11.2	6.4	55.5	70.7
BRA	8.0	8.4	19.2	14.1	4.8	54.6	51.1
BRN	10.7	8.6	13.9	20.2	9.1	62.5	66.8
BGR	56.2	6.7	11.0	10.1	11.6	95.6	87.0
KHM	3.7	3.2	18.8	22.7	7.3	55.8	76.0
CHN	4.9	5.3	0.0	29.5	5.3	45.1	60.0
COL	8.9	18.3	45.7	17.7	8.3	99.0	99.4
CRI	7.3	34.3	25.9	15.7	12.5	95.6	87.4
HRV	50.6	4.9	10.6	6.2	8.4	80.8	81.6
CYP	48.3	6.4	9.8	7.8	15.0	87.2	95.9
IND	7.6	6.5	28.6	17.9	8.3	68.9	55.9
IDN	5.0	3.8	16.9	16.4	5.5	47.6	56.5
HKG	6.9	9.1	17.3	15.9	9.9	59.1	43.4
KAZ	14.4	6.6	26.6	13.2	35.1	96.0	97.3
MYS	8.6	11.1	19.7	31.0	7.3	77.6	95.3
MLT	46.7	7.2	8.1	18.7	11.2	91.9	97.9
MAR	28.2	6.3	24.8	14.4	9.7	83.4	95.0
PER	7.6	14.5	44.7	19.4	7.4	93.5	90.2
PHL	9.0	13.9	13.5	35.7	5.8	77.9	88.5
ROU	49.5	5.2	14.3	8.8	8.2	86.0	79.4
RUS	10.9	4.8	24.7	11.6	6.5	58.5	64.7
SAU	14.4	12.6	38.3	18.9	14.2	98.5	93.7
SGP	9.6	10.2	3.9	15.1	9.9	48.7	47.7
ZAF	14.4	8.5	41.3	18.3	9.9	92.4	89.7
TWN	4.8	6.1	16.4	19.1	6.6	53.0	62.1
THA	6.6	7.9	26.1	30.7	8.3	79.6	86.3
TUN	25.1	3.6	20.1	10.2	7.0	66.0	67.5
VNM	5.8	7.0	31.1	38.7	10.4	92.8	75.7
ROW	10.7	7.0	20.9	13.8	7.5	59.8	61.5

Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".
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Source: OECD, Trade in Value Added (TiVA) database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*.

Table B.24. Global demand for Motor vehicles, by country or region of final demand and origin of value added, *percentage shares of total, 2005 and 2015* (Figure 4.12)

Country or Region	Final demand		Value added	
	2005	2015	2005	2015
North America	32.0	35.3	24.2	25.8
EU28	33.4	17.8	36.1	24.0
Japan	7.9	2.6	14.4	7.5
Korea	1.8	1.5	3.2	3.6
China	5.6	20.7	5.9	20.6
Other E&SE Asia	3.0	3.7	2.9	4.1
Brazil	2.2	2.1	2.5	2.0
India	1.8	3.0	1.6	2.6
Rest of the world	12.3	13.3	9.2	9.9

Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*.

Table B.25. Regional demand for Motor vehicles by economy or region of value added origin, *percentage shares of total, 2005 and 2015* (Figure 4.13)

Region	North America		European Union		East and Southeast Asia	
	2005	2015	2005	2015	2005	2015
Intra-regional	67.6	64.4	83.2	80.8	86.4	82.6
North America	0.0	0.0	3.0	3.5	2.8	4.0
European Union	11.4	11.3	0.0	0.0	5.7	8.3
East and Southeast Asia	16.6	19.7	7.1	8.0	0.0	0.0
Rest of the World	4.4	4.6	6.7	7.7	5.1	5.1

Intra-regional: East and Southeast Asia		
Country or Region	2005	2015
Japan	51.5	14.1
Korea	9.6	6.2
China	27.4	68.9
Chinese Taipei	2.5	1.7
Other E&SE Asia	9.0	9.0

Intra-regional: Europe		
Country or Region	2005	2015
France	15.1	10.5
Germany	37.5	40.9
Italy	9.1	7.1
United Kingdom	9.1	8.6
EU13	8.2	12.9
Other EU28	21.0	20.1

Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*.

Table B.26. Foreign value added embodied in domestic demand for Motor vehicles, by source region, *as a percentage of total domestic demand* (Figure 4.14)

Country	2015						2005
	EU28	N. Am.	CHN	Other E&SE Asia	ROW	Total	
AUS	20.1	10.7	7.6	35.7	7.1	81.2	74.0
AUT	61.5	4.0	2.6	5.7	7.4	81.2	80.1
BEL	63.5	5.8	3.3	10.4	9.4	92.3	91.0
CAN	9.3	46.6	7.1	10.1	4.3	77.5	72.5
CHL	17.2	14.7	12.8	29.5	17.7	92.0	93.8
CZE	53.9	3.0	4.0	7.6	9.1	77.7	67.0
DNK	70.4	2.7	4.6	4.6	7.7	90.0	88.2
EST	54.2	4.1	4.5	10.5	9.9	83.2	94.2
FIN	69.9	4.1	3.3	5.5	8.3	91.1	87.3
FRA	48.9	2.9	3.2	5.0	9.5	69.5	63.7
DEU	23.4	3.7	2.6	3.1	5.9	38.7	40.7
GRC	67.1	2.8	4.2	6.4	11.2	91.7	94.8
HUN	62.0	2.8	3.3	4.9	6.8	79.8	82.3
ISL	60.1	6.8	4.1	18.4	9.2	98.5	99.0
IRL	57.3	4.8	3.5	11.1	11.5	88.2	86.6
ISR	44.9	7.8	5.4	18.4	11.7	88.1	87.7
ITA	44.2	3.3	3.5	3.8	9.4	64.1	65.8
JPN	5.8	2.3	4.7	4.1	3.5	20.4	11.1
KOR	14.2	5.0	8.7	6.7	5.7	40.4	33.5
LVA	72.5	2.3	2.8	2.6	7.4	87.7	95.6
LTU	71.9	4.2	4.1	2.7	7.7	90.5	85.7
LUX	54.4	4.6	1.8	3.8	7.5	71.9	82.0
MEX	8.2	24.6	6.1	8.4	5.5	52.8	45.2
NLD	59.7	4.8	3.4	4.7	6.4	78.9	83.8
NZL	22.0	8.6	6.6	40.5	9.8	87.6	90.6
NOR	67.0	7.7	3.8	10.9	6.0	95.5	88.2
POL	48.4	2.9	4.3	4.7	8.3	68.6	63.2
PRT	73.2	2.3	2.6	3.9	6.9	89.0	79.1
SVK	55.1	2.7	3.8	11.0	7.7	80.4	86.7
SVN	55.2	3.0	3.6	8.4	9.9	80.1	85.6
ESP	48.2	2.9	3.4	5.0	8.1	67.6	70.5
SWE	41.7	2.4	2.2	3.4	5.5	55.3	65.7
CHE	75.3	6.4	2.8	6.6	5.8	97.0	97.5
TUR	41.1	3.5	4.5	5.8	9.0	63.9	61.6
GBR	52.6	3.9	3.7	6.5	7.8	74.6	69.0
USA	11.7	10.7	7.4	12.9	4.6	47.2	44.5

Continue ...

Table B.26. continued

Country	2015						2005
	EU28	N. Am.	CHN	Other E&SE Asia	ROW	Total	
ARG	6.6	4.5	3.4	3.5	24.1	42.1	54.1
BRA	8.8	5.6	3.8	5.2	11.0	34.4	22.0
BRN	18.2	4.6	7.3	34.1	6.8	71.0	79.9
BGR	65.7	2.4	3.5	3.5	12.7	87.7	94.9
KHM	5.8	9.6	9.8	38.2	4.5	67.9	65.1
CHN	8.0	4.1	0.0	7.6	4.8	24.6	28.4
COL	10.0	16.0	8.0	11.3	22.1	67.4	53.6
CRI	14.5	24.9	10.1	34.3	12.6	96.5	91.7
HRV	77.9	2.5	2.7	3.0	7.6	93.6	87.5
CYP	66.8	3.0	3.4	16.1	9.2	98.4	97.3
IND	6.4	3.8	5.4	7.0	10.7	33.3	28.7
IDN	3.0	1.5	3.9	14.0	3.4	25.9	33.4
HKG	12.3	9.0	12.0	15.4	9.3	57.9	37.7
KAZ	17.3	4.0	10.3	10.3	43.5	85.5	96.6
MYS	11.9	4.4	13.9	29.6	9.3	69.1	73.5
MLT	46.3	3.5	2.8	12.9	17.5	83.1	93.7
MAR	63.0	5.9	4.4	9.0	12.2	94.5	82.1
PER	10.5	12.0	13.4	25.0	15.9	76.8	63.8
PHL	5.2	3.6	9.0	38.1	6.1	62.0	54.4
ROU	42.3	2.0	2.5	2.2	8.3	57.2	64.3
RUS	20.9	4.9	7.9	13.1	8.3	55.1	61.3
SAU	17.5	17.8	8.4	43.1	8.9	95.6	94.6
SGP	34.0	10.0	7.6	30.7	7.8	90.1	94.5
ZAF	25.3	6.0	7.8	13.3	15.4	67.9	48.1
TWN	17.3	5.0	8.9	21.8	9.5	62.5	61.2
THA	8.1	4.3	12.3	29.7	8.5	62.8	62.8
TUN	40.8	2.5	5.2	9.3	12.0	69.8	71.5
VNM	6.0	3.4	21.5	25.1	7.9	63.8	56.2
ROW	18.5	7.3	7.4	14.1	7.9	55.2	62.7

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Source: OECD, Trade in Value Added (TiVA) database, http://oe.cd/tiva, 2018, *Origin of value added in final demand*.

Table B.27. Services value added embodied in manufactured exports, by domestic and foreign origin, 2015, *as a percentage of total manufacturing exports* (Figure 5.1)

Country	2015				2005
	DVA	FVA Intra-region	FVA extra-region	Total	
AUS	30.4	1.4	5.4	37.3	28.6
AUT	17.2	10.1	5.0	32.3	30.6
BEL	17.0	12.7	8.1	37.8	34.7
CAN	17.8	7.6	5.4	30.8	30.7
CHL	22.2	2.5	5.9	30.6	26.4
CZE	13.0	12.2	6.7	31.9	31.4
DNK	20.4	8.3	5.2	33.9	34.9
EST	13.9	12.6	8.1	34.5	32.5
FIN	15.1	8.4	6.3	29.7	27.8
FRA	23.9	7.2	5.6	36.7	37.4
DEU	18.7	6.1	5.1	29.8	33.0
GRC	14.4	4.7	6.7	25.7	28.4
HUN	8.4	14.6	7.1	30.1	34.5
ISL	17.6	2.9	10.1	30.6	29.4
IRL	11.0	12.5	13.2	36.7	40.5
ISR	14.1	2.7	8.4	25.2	26.5
ITA	25.1	6.4	5.2	36.7	38.6
JPN	22.7	2.2	3.8	28.7	29.3
KOR	12.7	5.6	7.0	25.3	24.8
LVA	21.3	8.5	4.9	34.6	34.3
LTU	12.3	7.7	8.9	28.9	26.6
LUX	12.6	26.8	15.8	55.2	36.8
MEX	17.2	8.4	10.1	35.7	38.2
NLD	21.0	10.5	11.7	43.2	37.7
NZL	26.4	2.6	5.2	34.2	32.0
NOR	27.1	1.9	11.4	40.4	33.0
POL	19.1	8.6	5.8	33.4	34.0
PRT	18.4	10.8	4.5	33.6	33.0
SVK	12.6	12.2	7.7	32.5	29.9
SVN	12.7	11.3	5.6	29.6	29.4
ESP	22.0	7.3	5.2	34.5	34.2
SWE	20.0	7.5	5.1	32.6	32.8
CHE	18.9	1.5	13.9	34.4	32.8
TUR	24.7	2.5	6.0	33.2	32.1
GBR	22.8	5.2	5.7	33.7	33.1
USA	24.3	1.2	4.2	29.7	30.5

Continue …

Table B.27. continued

Country	2015				2005
	DVA	FVA Intra-region	FVA extra-region	Total	
ARG	14.8	1.6	2.3	18.6	22.3
BRA	29.9	1.5	5.8	37.1	28.5
BRN	7.3	5.0	3.4	15.7	21.5
BGR	14.1	10.7	8.6	33.4	26.7
KHM	6.2	10.9	3.1	20.2	21.7
CHN	23.0	2.6	4.1	29.7	24.2
COL	19.8	1.9	6.9	28.5	25.4
CRI	22.6	2.8	8.4	33.8	27.2
HRV	15.7	9.1	3.6	28.4	28.3
CYP	18.2	10.3	7.6	36.1	31.3
IND	16.6	2.9	5.6	25.2	23.3
IDN	16.6	3.6	3.2	23.4	24.9
HKG	17.3	9.1	13.2	39.7	59.7
KAZ	17.6	1.5	1.7	20.7	25.8
MYS	10.0	9.4	8.6	28.0	29.9
MLT	12.2	20.3	13.2	45.7	37.9
MAR	7.4	3.3	11.0	21.7	21.2
PER	18.4	1.8	4.5	24.6	24.5
PHL	11.4	6.8	4.7	22.9	22.6
ROU	15.0	8.9	4.1	28.0	27.7
RUS	22.1	1.5	4.5	28.1	23.2
SAU	8.5	1.9	4.4	14.8	13.6
SGP	19.7	9.4	18.1	47.2	42.5
ZAF	19.0	2.9	7.2	29.1	26.3
TWN	13.6	6.6	5.9	26.1	30.0
THA	12.9	7.7	6.6	27.2	29.6
TUN	10.4	3.1	11.3	24.9	27.5
VNM	7.0	11.4	6.4	24.8	22.8
ROW	14.7	2.1	7.0	23.9	25.0

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Source: OECD, Trade in Value Added (TiVA) database, http://oe.cd/tiva, 2018, *Origin of value added in gross exports*

Table B.28. Non-residents' expenditure by origin of value added, 2015
***as a percentage of total gross exports* (Figure 5.2)**

Country	2015				2005
	Direct domestic	Indirect domestic	Foreign	Total	
AUS	5.5	3.8	1.0	10.3	10.6
AUT	4.9	1.7	1.1	7.7	8.8
BEL	1.4	0.6	0.7	2.7	3.2
CAN	2.2	1.0	0.4	3.6	3.5
CHL	1.5	0.8	0.3	2.6	2.1
CZE	1.9	0.9	0.8	3.5	4.7
DNK	2.3	1.0	0.9	4.1	4.2
EST	4.2	1.9	2.0	8.0	10.8
FIN	1.5	0.8	0.5	2.7	2.3
FRA	3.6	1.6	0.6	5.8	6.9
DEU	1.4	0.6	0.3	2.3	2.7
GRC	14.8	7.1	3.4	25.3	24.0
HUN	2.2	1.1	1.2	4.4	5.3
ISL	7.2	3.9	2.3	13.4	5.7
IRL	0.7	0.2	0.3	1.1	2.4
ISR	3.9	1.5	0.7	6.2	5.8
ITA	4.1	1.9	0.7	6.7	7.2
JPN	1.3	1.2	0.3	2.8	1.2
KOR	0.9	0.6	0.3	1.8	1.0
LVA	3.6	1.6	1.2	6.4	3.8
LTU	2.2	0.6	0.6	3.4	6.5
LUX	1.2	0.3	1.0	2.5	5.0
MEX	2.8	1.0	0.3	4.1	4.8
NLD	1.7	0.8	0.6	3.1	2.9
NZL	9.5	5.0	1.6	16.2	16.7
NOR	1.5	0.9	0.4	2.8	2.3
POL	1.8	1.1	0.6	3.4	2.2
PRT	8.1	3.3	1.9	13.3	12.4
SVK	1.8	0.7	0.7	3.2	3.5
SVN	4.4	1.9	1.6	7.8	8.1
ESP	6.7	3.1	1.3	11.1	13.4
SWE	3.0	1.6	0.8	5.3	3.4
CHE	2.5	1.4	0.9	4.7	5.1
TUR	9.2	5.3	1.3	15.8	19.4
GBR	3.6	1.6	0.6	5.7	4.9
USA	5.4	3.0	0.5	9.0	7.6
ARG	1.2	0.6	0.1	1.9	1.5
BRA	0.3	0.2	0.0	0.5	0.7
CHN	0.1	0.1	0.0	0.2	0.4
CRI	10.1	5.4	2.1	17.7	20.4
IND	2.3	1.9	0.5	4.8	4.6
IDN	1.9	1.3	0.3	3.6	2.2
RUS	1.0	0.7	0.2	1.9	2.0
SAU	1.9	0.7	0.4	3.1	1.7
ZAF	3.6	2.5	1.2	7.3	9.8

Source: Estimation based on OECD's Inter-Country Input-Output (ICIO) Database, 2018

Table B.29. Jobs in the business sector sustained by foreign demand, by region of demand, 2015, *as a percentage of total business sector employment* (Figure 6.1)

Economy	2015						2005
	EU28	North America	China	Other E & SE Asia	Rest of the world	Total	
OECD	-	-	-	-	-	38.3	34.0
EU28	-	4.7	2.0	2.1	9.7	18.6	13.4
AUS	1.8	2.8	5.8	5.5	4.8	20.7	18.7
AUT	23.5	4.7	2.2	1.9	10.4	42.7	40.1
BEL	29.1	6.6	1.9	2.5	11.3	51.4	47.1
CAN	2.6	16.0	1.9	1.6	3.5	25.5	30.6
CHL	3.4	5.7	5.5	3.8	8.7	27.2	32.2
CZE	32.1	4.4	2.2	1.6	11.3	51.6	44.7
DNK	19.1	5.1	2.8	4.0	13.4	44.3	40.6
EST	30.4	4.8	2.1	2.3	15.3	55.0	49.3
FIN	14.1	3.7	2.5	2.9	10.7	33.9	36.2
FRA	13.1	3.7	1.9	2.0	8.2	28.9	27.0
DEU	15.8	5.8	3.2	2.6	9.6	37.1	31.9
GRC	12.7	3.7	0.8	1.5	10.4	29.0	20.9
HUN	32.5	6.0	2.4	2.4	12.2	55.5	45.1
ISL	19.1	8.4	1.9	2.5	14.7	46.7	30.0
IRL	29.3	11.9	2.7	5.2	15.2	64.4	49.0
ISR	7.6	11.5	2.0	3.3	8.2	32.6	36.8
ITA	12.5	4.7	1.8	1.9	9.4	30.2	26.8
JPN	2.2	4.5	3.6	3.4	4.1	17.7	14.4
KOR	3.5	6.8	7.7	5.1	8.8	31.9	26.8
LVA	22.6	2.8	1.7	1.5	14.3	42.9	34.2
LTU	23.8	3.3	1.2	1.4	13.5	43.3	34.6
LUX	46.5	5.8	2.0	3.2	15.5	73.0	67.2
MEX	1.3	18.4	0.9	0.8	3.4	24.9	19.9
NLD	21.2	5.2	1.8	3.3	11.4	42.9	37.6
NZL	3.2	4.6	5.1	4.7	10.2	27.7	28.4
NOR	13.4	3.6	2.0	3.0	8.3	30.2	31.4
POL	24.7	3.3	1.4	1.2	9.8	40.5	33.7
PRT	21.3	4.6	1.6	1.3	10.9	39.7	27.7
SVK	34.4	4.2	2.7	1.5	10.8	53.7	49.3
SVN	31.7	3.6	1.6	1.4	13.7	51.9	46.8
ESP	16.3	3.6	1.1	1.3	8.8	31.2	22.8
SWE	16.3	4.5	2.4	2.4	11.8	37.4	41.5
CHE	20.2	8.0	3.0	4.3	11.6	47.2	43.1
TUR	10.9	2.4	0.8	0.8	9.7	24.7	24.1
GBR	10.2	5.5	1.5	2.4	7.8	27.4	24.4
USA	2.8	2.4	1.6	2.0	3.8	12.6	10.0

Continue …

Table B.29. continued

Economy	2015						2005
	EU28	North America	China	Other E & SE Asia	Rest of the world	Total	
ARG	1.8	1.4	0.8	1.1	5.3	10.5	20.4
BRA	2.4	3.0	2.0	1.3	5.2	13.9	16.8
BGR	26.2	3.2	1.8	1.6	15.5	48.2	37.5
CHN	3.1	5.6	0.0	3.7	5.9	18.3	28.3
COL	1.5	4.5	0.9	0.5	4.6	12.0	14.2
CRI	5.5	12.5	2.1	2.3	9.5	31.9	38.8
HRV	23.5	2.9	1.2	1.1	11.6	40.4	35.2
CYP	16.8	2.3	2.0	3.3	22.1	46.6	42.8
IND	3.7	6.0	1.7	2.3	6.4	20.1	25.3
IDN	2.5	4.3	2.8	5.2	6.6	21.5	29.8
MLT	34.0	4.3	4.2	4.8	14.8	62.0	57.5
ROU	20.6	2.9	1.6	1.2	9.0	35.4	34.7
RUS	8.7	2.6	2.8	2.1	8.2	24.4	26.1
SAU	1.7	1.4	2.0	1.8	6.1	13.0	21.6
ZAF	5.3	4.0	4.6	2.5	11.9	28.3	27.2

Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".
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Source: OECD, Trade in Employment database, http://oe.cd/io-emp, 2019

Table B.30. Labour compensation of employees in business sector embodied in foreign demand, by region of demand, 2015, *as a percentage of total business sector labour compensation of employees* (Figure 6.2)

Economy	2015						2005
	EU28	North America	China	Other E & SE Asia	Rest of the world	Total	
OECD	40.0	0.0	0.0	0.0	0.0	40.0	35.1
EU28	0.0	5.3	2.3	2.4	10.1	20.2	14.6
AUS	1.8	2.7	5.9	5.8	4.8	21.1	18.9
AUT	24.3	5.1	2.4	2.1	11.2	45.1	41.6
BEL	29.5	6.3	2.1	2.6	12.0	52.5	49.5
CAN	2.7	17.4	2.1	1.7	3.7	27.6	32.5
CHL	3.2	5.2	5.4	3.6	8.0	25.5	31.7
CZE	33.5	4.7	2.3	1.6	11.9	54.1	46.3
DNK	19.0	5.3	2.8	4.0	13.5	44.6	40.8
EST	30.6	5.0	2.2	2.4	15.6	55.6	47.9
FIN	14.8	4.0	2.6	3.0	11.2	35.5	38.2
FRA	13.6	3.9	2.0	2.1	8.6	30.1	28.0
DEU	17.0	6.5	3.7	2.8	10.4	40.4	34.4
GRC	13.4	4.0	0.9	1.7	11.4	31.4	21.5
HUN	33.8	6.5	2.6	2.5	12.9	58.3	44.0
ISL	19.8	8.7	1.9	2.7	15.8	48.8	28.8
IRL	31.3	12.9	2.8	5.7	16.7	69.3	51.3
ISR	8.3	12.3	2.3	3.8	8.7	35.4	39.2
ITA	13.3	5.1	2.0	2.0	10.4	32.8	28.4
JPN	2.4	5.0	3.9	3.6	4.5	19.4	15.8
KOR	4.2	8.1	8.7	5.4	10.3	36.7	30.2
LVA	22.3	2.8	1.6	1.6	14.6	42.9	34.2
LTU	23.9	3.4	1.2	1.5	13.5	43.5	35.1
LUX	48.2	6.1	2.2	3.8	17.4	77.6	72.9
MEX	1.4	19.5	1.1	0.9	3.8	26.7	22.5
NLD	21.7	5.2	1.9	3.4	11.6	44.0	38.2
NZL	3.0	4.5	5.1	4.7	10.2	27.6	28.3
NOR	15.4	3.9	2.0	3.1	8.4	32.7	33.1
POL	24.7	3.4	1.4	1.2	10.0	40.9	32.8
PRT	21.0	4.6	1.6	1.3	11.1	39.6	27.5
SVK	35.2	4.5	2.9	1.5	11.3	55.6	49.6
SVN	32.4	3.7	1.6	1.5	14.4	53.6	47.0
ESP	16.7	3.8	1.2	1.3	9.3	32.4	23.6
SWE	16.8	4.6	2.5	2.5	12.0	38.5	42.4
CHE	21.5	9.0	3.2	4.7	12.7	51.1	47.5
TUR	10.9	2.5	0.9	0.8	9.7	24.7	22.3
GBR	10.9	6.1	1.7	2.6	8.4	29.7	26.7
USA	3.1	2.5	1.6	2.2	4.1	13.5	10.8

Continue …

Table B.30. continued

Economy	2015						2005
	EU28	North America	China	Other E & SE Asia	Rest of the world	Total	
ARG	2.0	1.9	0.9	1.2	6.3	12.3	22.7
BRA	2.6	3.6	2.4	1.5	6.0	16.1	18.9
BRN	1.4	2.1	2.3	14.4	7.0	27.2	41.2
BGR	26.2	3.3	1.9	1.6	15.5	48.5	38.0
KHM	6.1	8.0	3.9	8.8	7.4	34.1	36.9
CHN	3.4	6.1	0.0	4.0	6.5	20.1	28.4
COL	2.1	5.7	1.4	0.7	5.0	14.8	16.2
CRI	6.4	12.7	2.1	2.7	9.6	33.6	37.9
HRV	22.6	2.9	1.2	1.1	11.3	39.1	33.3
CYP	17.7	2.5	2.1	3.7	23.6	49.6	44.6
IND	3.1	5.3	1.2	2.2	5.7	17.6	16.3
IDN	2.0	3.0	2.7	5.1	6.0	18.8	28.3
HKG	6.6	5.3	13.1	7.5	9.4	41.8	43.8
KAZ	10.6	2.4	4.4	1.4	8.8	27.6	40.8
MYS	5.4	8.4	9.6	12.1	11.4	47.0	57.9
MLT	37.5	4.4	4.3	4.7	16.3	67.1	62.2
MAR	15.5	3.6	1.3	2.0	11.6	33.9	37.3
PER	2.5	5.3	4.2	1.7	5.8	19.5	25.8
PHL	4.0	7.9	4.9	9.0	5.4	31.1	29.0
ROU	21.7	3.2	1.6	1.3	9.7	37.4	33.2
RUS	9.6	2.8	2.9	2.3	8.5	26.1	28.5
SAU	2.5	2.2	2.8	2.7	7.9	18.1	32.7
SGP	12.4	9.5	9.2	19.1	17.8	68.0	69.8
ZAF	6.0	4.4	6.0	3.0	14.4	33.9	28.8
TWN	5.5	10.6	15.8	10.2	9.4	51.4	48.1
THA	6.1	8.8	8.2	12.7	15.5	51.4	47.5
TUN	24.8	3.0	1.2	1.3	10.8	41.0	46.6
VNM	6.6	13.4	6.8	12.5	11.6	50.8	42.1

Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".
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Source: OECD, Trade in Employment database, http://oe.cd/io-emp, 2019.

Table B.31. High-skilled employment in manufacturing meeting domestic and foreign demand, 2015, *as a percentage of total manufacturing employment* (Figure 6.3)

Country	Foreign final demand	Domestic final demand
AUS	9.7	21.3
AUT	21.9	10.9
BEL	22.2	11.9
CAN	15.8	20.0
CZE	17.9	6.6
DNK	26.3	13.5
EST	18.6	6.3
FIN	23.2	17.1
FRA	21.4	20.0
DEU	19.2	13.5
GRC	8.0	9.3
HUN	15.6	4.8
ISL	14.5	10.6
IRL	26.8	6.9
ITA	13.9	13.4
JPN	5.0	10.1
LVA	15.1	10.7
LTU	14.9	8.8
LUX	30.1	7.9
NLD	21.6	13.9
NOR	16.6	23.3
POL	15.3	10.4
PRT	13.7	8.0
SVK	14.2	3.8
SVN	21.6	6.8
ESP	12.8	13.1
SWE	25.5	15.6
CHE	31.2	12.0
TUR	5.2	9.3
GBR	17.9	21.4
USA	8.5	30.3
ARG	1.5	11.1
ZAF	7.7	9.1

Source: OECD, Trade in Employment database, http://oe.cd/io-emp, 2019.

Table B.32. CO_2 emissions from fuel combustion (OECD and non-OECD countries), consumption-based and production-based (Gt CO2) (Figure 6.4)

Year	OECD			non-OECD		
	Consumption	Production	Balance Net Importers	Consumption	Production	Balance Net exporters
2005	15.6	13.4	2.1	11.5	13.6	-2.1
2006	15.7	13.4	2.3	12.3	14.5	-2.3
2007	15.8	13.6	2.2	13.2	15.4	-2.2
2008	15.3	13.2	2.1	13.9	16.0	-2.1
2009	14.0	12.4	1.6	14.8	16.4	-1.6
2010	14.7	12.9	1.8	15.8	17.6	-1.8
2011	14.5	12.7	1.9	16.8	18.7	-1.9
2012	14.2	12.5	1.7	17.5	19.2	-1.7
2013	14.2	12.5	1.6	18.1	19.8	-1.6
2014	13.9	12.3	1.7	18.4	20.0	-1.7
2015	13.8	12.2	1.6	18.5	20.1	-1.6

Source: OECD's Carbon dioxide (CO_2) emissions embodied in international trade (TECO2) database (http://oe.cd/io-co2), 2019.

Table B.33. Per capita CO_2 emissions from fuel combustion, consumption-based and production-based (tonnes CO2) (Figure 6.5)

Country	2005		2015	
	Consumption	Production	Consumption	Production
OECD	13.0	11.2	10.8	9.5
AUS	20.7	18.9	17.9	16.5
AUT	11.5	9.1	9.6	7.4
BEL	12.5	11.3	10.4	9.0
CAN	16.7	17.2	15.2	15.5
CHL	3.8	3.8	5.0	4.9
CZE	10.2	11.5	8.7	9.4
DNK	14.5	15.8	10.4	11.4
EST	11.2	12.2	10.1	11.9
FIN	12.4	11.1	9.5	8.3
FRA	8.8	6.3	6.9	4.8
DEU	11.5	10.0	10.4	9.4
GRC	10.8	9.9	6.5	6.9
HUN	6.8	6.2	4.9	5.2
ISL	15.4	14.0	8.7	12.5
IRL	15.0	14.5	9.9	11.2
ISR	12.7	10.2	10.9	8.8
ITA	9.9	7.9	7.1	5.8
JPN	11.7	9.5	10.6	9.4
KOR	11.2	10.5	11.6	12.5
LVA	4.9	3.5	4.6	3.6
LTU	5.0	3.8	4.8	3.5
LUX	25.6	27.1	16.1	16.9
MEX	4.1	3.9	3.9	3.6
NLD	12.3	12.0	10.6	10.7
NZL	11.0	8.7	9.3	7.4
NOR	12.2	10.9	11.5	10.0
POL	7.2	7.8	7.2	7.4
PRT	7.4	6.1	5.0	4.8
SVK	6.1	6.8	5.6	5.4
SVN	8.9	7.8	6.7	6.2
ESP	9.3	8.0	6.3	5.7
SWE	9.1	6.4	7.2	4.5
CHE	12.5	7.2	11.3	5.4
TUR	4.1	3.3	4.8	4.3
GBR	12.2	9.4	8.8	6.6
USA	23.0	19.8	18.1	15.7

Continue …

Table B.33. continued

Country	2005		2015	
	Consumption	Production	Consumption	Production
ARG	3.6	3.9	5.0	4.5
BRA	1.7	1.7	2.3	2.2
BRN	11.2	14.1	15.3	16.1
BGR	5.1	6.1	4.8	6.1
KHM	0.5	0.2	0.8	0.6
CHN	3.2	4.1	5.7	6.6
COL	1.5	1.3	2.0	1.7
CRI	2.1	1.5	2.8	1.7
HRV	5.6	4.4	4.0	3.6
CYP	10.6	10.1	6.8	6.3
IND	0.9	0.9	1.5	1.6
IDN	1.3	1.5	1.9	1.9
HKG	10.5	8.7	14.4	9.7
KAZ	6.5	10.2	10.2	12.8
MYS	4.8	6.6	6.8	7.8
MLT	7.3	8.8	6.1	7.3
MAR	1.5	1.4	1.9	1.7
PER	1.1	1.0	2.0	1.6
PHL	0.9	0.9	1.3	1.1
ROU	4.1	4.3	3.6	3.6
RUS	7.7	10.4	8.1	10.3
SAU	11.7	12.7	18.9	17.2
SGP	11.3	16.4	12.7	22.1
ZAF	6.2	7.7	5.7	7.5
TWN	10.4	11.9	9.0	11.4
THA	3.0	3.3	3.4	3.9
TUN	2.1	2.1	2.6	2.4
VNM	0.9	1.0	1.6	1.9
ROW	1.4	1.5	1.7	1.6

Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".
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Source: OECD's Carbon dioxide (CO_2) emissions embodied in international trade (TECO2) database (http://oe.cd/io-co2), 2019.

Table B.34. Share of CO2 emitted abroad in total CO2 embodied in domestic final demand (Figure 6.6)

Country	2005			2015		
	OECD	Non-OECD	Total foreign	OECD	Non-OECD	Total foreign
AUS	6.7	18.7	25.4	7.2	22.7	29.9
AUT	23.8	23.1	46.9	25.4	27.1	52.6
BEL	22.0	21.6	43.5	22.8	23.6	46.4
CAN	15.7	15.7	31.3	13.8	16.0	29.8
CHL	10.0	29.4	39.4	9.5	26.5	36.0
CZE	12.7	13.7	26.3	14.6	17.2	31.8
DNK	22.7	20.9	43.6	26.7	25.3	52.0
EST	9.3	18.4	27.7	10.1	18.5	28.6
FIN	16.5	27.9	44.3	17.6	25.1	42.6
FRA	20.0	23.9	43.9	19.4	26.1	45.6
DEU	15.0	16.7	31.7	14.0	18.7	32.8
GRC	11.2	19.3	30.5	9.5	17.8	27.4
HUN	14.3	18.6	32.9	16.8	18.3	35.1
ISL	39.3	25.7	65.0	33.6	26.2	59.8
IRL	23.2	14.9	38.1	25.3	18.3	43.6
ISR	11.2	22.7	33.8	10.9	23.3	34.3
ITA	13.5	21.5	35.0	12.5	22.4	34.9
JPN	6.9	23.0	29.8	5.8	20.2	26.0
KOR	8.2	24.7	32.9	7.1	22.6	29.7
LVA	20.4	30.4	50.8	21.9	27.0	48.9
LTU	15.5	32.2	47.8	20.1	34.6	54.7
LUX	23.3	10.4	33.7	24.2	11.8	36.0
MEX	12.5	10.2	22.7	12.1	14.8	26.9
NLD	17.0	19.3	36.2	15.7	19.4	35.1
NZL	17.0	25.8	42.8	13.7	30.6	44.3
NOR	29.8	27.9	57.6	27.8	28.9	56.6
POL	7.9	10.8	18.7	9.2	13.6	22.8
PRT	18.2	15.2	33.4	17.2	16.5	33.8
SVK	19.9	23.6	43.5	24.6	29.7	54.3
SVN	19.1	20.8	39.9	17.4	21.6	38.9
ESP	14.2	19.9	34.1	13.0	20.1	33.1
SWE	31.8	23.6	55.4	30.8	27.9	58.7
CHE	29.9	27.3	57.2	30.2	34.5	64.7
TUR	8.9	25.6	34.5	7.6	22.5	30.1
GBR	16.4	20.6	37.0	16.8	23.3	40.1
USA	6.1	13.8	19.9	6.5	14.1	20.6

Continue ...

Table B.34. continued

Country	2005			2015		
	OECD	Non-OECD	Total foreign	OECD	Non-OECD	Total foreign
ARG	4.7	12.0	16.7	4.8	13.5	18.3
BRA	6.7	13.7	20.4	6.8	14.9	21.7
BRN	10.1	19.1	29.2	8.7	20.5	29.2
BGR	8.0	13.8	21.8	10.1	16.3	26.5
KHM	7.0	52.9	59.9	5.5	39.3	44.8
CHN	2.6	4.0	6.6	3.3	4.6	7.9
COL	10.6	19.0	29.6	11.4	22.5	34.0
CRI	21.7	28.1	49.8	19.6	32.5	52.1
HRV	16.7	21.8	38.5	16.1	16.3	32.4
CYP	15.7	22.0	37.6	17.2	25.4	42.6
IND	3.5	10.2	13.8	3.0	10.0	13.1
IDN	5.0	15.4	20.4	4.4	16.2	20.6
HKG	17.8	43.3	61.2	19.1	45.6	64.7
KAZ	2.7	15.1	17.9	2.1	13.0	15.2
MYS	9.1	22.2	31.3	6.5	21.8	28.3
MLT	21.0	18.9	39.9	22.0	22.3	44.3
MAR	9.7	16.4	26.2	11.0	15.5	26.5
PER	11.0	21.3	32.4	11.4	25.2	36.6
PHL	7.8	16.9	24.7	7.9	24.8	32.7
ROU	8.5	14.6	23.1	12.1	16.1	28.2
RUS	2.9	5.1	8.0	2.6	6.3	9.0
SAU	5.7	11.6	17.3	6.6	14.6	21.1
SGP	18.6	42.0	60.6	18.4	42.4	60.9
ZAF	4.2	8.6	12.8	3.1	10.6	13.7
TWN	12.4	24.9	37.3	10.2	25.1	35.3
THA	9.4	24.9	34.3	7.9	26.1	34.1
TUN	11.1	16.2	27.3	8.4	15.9	24.4
VNM	6.9	30.6	37.5	8.3	30.2	38.4
ROW	7.3	14.2	21.5	7.7	16.9	24.6

Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".
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Source: OECD's Carbon dioxide (CO_2) emissions embodied in international trade (TECO2) database (http://oe.cd/io-co2), 2019.

Table B.35. Regional demand for information industries products, 2005 and 2015, by country or region of value added origin, *percentage shares of total* (Box 4.1)

Inter-regional value added in domestic final demand

Country or region	United States		EU28		China		Japan		Other E&SE Asia		Rest of the World	
	2005	2015	2005	2015	2005	2015	2005	2015	2005	2015	2005	2015
United States	81.8	84.9	5.1	4.9	5.5	4.6	2.8	3.3	7.5	5.4	9.2	7.4
EU28	3.9	2.5	82.0	78.6	4.8	3.7	2.1	3.3	6.0	5.4	9.5	8.5
China	3.2	4.2	2.3	5.2	58.6	70.4	2.3	5.6	4.4	9.5	3.5	9.0
Japan	2.2	0.7	1.8	1.0	7.6	2.9	86.9	79.2	7.4	3.7	2.3	1.2
Other E&SE Asia	4.1	2.3	3.5	3.3	18.5	13.6	3.5	4.5	68.2	68.4	5.0	4.9
Rest of the World	4.8	5.4	5.4	7.0	5.0	4.7	2.4	4.1	6.5	7.6	70.5	69.0

Inter-regional foreign value added in domestic final demand

Country or region	United States		EU28		China		Japan		Other E&SE Asia		Rest of the World	
	2005	2015	2005	2015	2005	2015	2005	2015	2005	2015	2005	2015
United States	0.0	0.0	28.4	22.9	13.2	15.5	21.7	15.7	23.7	17.2	31.3	23.8
EU28	21.4	16.5	0.0	0.0	11.6	12.6	16.1	16.1	18.8	17.1	32.2	27.4
China	17.6	27.9	12.6	24.2	0.0	0.0	17.5	27.0	13.8	30.1	11.8	28.9
Japan	12.2	4.7	10.0	4.7	18.4	9.9	0.0	0.0	23.2	11.6	7.8	3.9
Other E&SE Asia	22.5	15.5	19.2	15.6	44.7	46.1	26.7	21.5	0.0	0.0	16.9	16.0
Rest of the World	26.3	35.4	29.8	32.6	12.1	15.8	18.1	19.7	20.5	24.1	0.0	0.0

Source: Estimation based on OECD's Inter-Country Input-Output Database, 2018

Table B.36. US imports of electronics, machinery and transport equipment from Mexico, by country or region origin of value added, 2005 to 2015, USD billions (Box 4.2)

Year	Mexico	USA	Canada	EU28	China	Other E&SE Asia	Rest of the World
2005	36.5	17.4	1.1	5.6	3.9	10.1	4.1
2006	42.8	19.2	1.3	5.9	5.4	11.6	5.1
2007	45.0	18.8	1.4	6.3	6.4	11.7	5.1
2008	43.8	17.4	1.4	6.5	7.7	11.1	5.5
2009	36.6	13.5	1.0	4.7	7.7	9.6	3.8
2010	49.5	18.1	1.4	6.1	10.3	12.3	6.0
2011	54.9	19.2	1.6	6.8	10.9	11.3	6.8
2012	59.4	21.7	1.7	7.9	12.8	12.1	7.4
2013	62.5	23.4	1.7	8.7	14.7	12.5	7.4
2014	72.8	25.3	1.9	9.0	15.9	12.9	7.5
2015	78.5	27.9	1.7	9.5	18.7	14.0	7.3

Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in gross imports*

Table B.37. US imports of electronics, machinery and transport equipment from Mexico, by country or region and industry origin of value added, 2015, USD millions (Box 4.2)

Industry	Mexico	USA	Canada	EU28	China	Other E&SE Asia	Rest of the world
Agriculture and mining (ISIC Rev.4 Divisions 01 to 09)	2 341	1 106	344	126	1 271	310	1 990
Food, textiles and wood products (10 to 18)	765	593	40	195	736	240	188
Chemicals, metals and other mineral products (19 to 25)	6 547	5 756	397	1 808	3 438	2 096	1 284
Electronics, machinery and transport equipment (26 to 30)	42 097	7 389	269	2 888	6 067	6 379	1 090
Other manufactures, utilities and construction (31 to 43)	822	527	73	497	720	388	318
Trade, transport, accommodation and food services (45 to 56)	17 489	6 959	345	2 041	3 720	2 981	1 485
ICT, Finance and other services (58 to 98)	8 404	5 525	260	1 988	2 705	1 587	974
TOTAL	78 463	27 855	1 727	9 544	18 658	13 981	7 329

Source: OECD, Trade in Value Added database, http://oe.cd/tiva, 2018, *Origin of value added in gross imports*