EXPORTING TO THE WORLD: EU REGIONS AND TRADE

AmCham EU
SPEAKING FOR AMERICAN BUSINESS IN EUROPE

LE Europe

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FOREWORD

You don't have to be an economist to understand the value of trade. A simple trip to the local supermarket provides ample proof – aisles laden with thousands of products that have travelled the world over through complex supply chains to land on our plates. Trade is also a key driver of business, with thousands of companies, big and small, signing deals to sell goods and services across international borders every day.

Trade brings efficiencies, by allowing countries to focus on producing and exporting what they are relatively better at producing, while importing from other countries the goods and services that they are relatively less able to produce domestically. Openness to trade brings greater choice for consumers; cheaper prices due to greater competition; and encourages higher productivity and innovation thanks to the free flow of ideas and technologies.

The EU is a fine example of what openness to trade can bring: it is the engine of economic prosperity in the bloc. Trade in goods and services accounts for over one-third of EU GDP. One in seven jobs in the EU is supported by exporting activities.

However, even before the pandemic struck, global trade growth was being challenged by escalating trade tensions, rising protectionism and a growing mistrust of multilateralism. In light of the grave disruptions to vital supplies brought on by the pandemic, concerns about critical dependencies within the complex global value chains that deliver goods and services across the world have surfaced. Meanwhile, fears abound of the impact of globalisation on local communities.

As leading global companies, we believe we have a responsibility to contribute to the public debate on the impacts of trade. This new research explores the effect of exports on employment and output across EU regions. It also features case studies and stories of cooperation between American companies and local businesses. As the global geopolitical landscape shifts, globalised commercial ties based on the principles of free trade are increasingly under scrutiny. It is important to continue to make the case for openness and its positive outcomes for local communities in the EU. For an open and outward-looking EU is a more prosperous, innovative and efficient EU – and can remain the most attractive place for American companies to conduct their business abroad.

Susan Danger
CEO, AmCham EU

COMPANY TESTIMONIALS

The publication contains testimonials from European companies who work directly with American companies. These testimonials highlight the positive impact of the presence of multinationals in regions for local businesses. The seven examples embedded in the publication demonstrate how local businesses benefit from the presence of a multinational in their region as a part of the supply chain ecosystem that the multinational uses to export its goods and/or services abroad. They also highlight how local businesses can leverage the presence of a multinational in their region to be able to expand their own good/service offering beyond their local market.

CASE STUDIES

As a separate insert, the publication also includes 11 regional case studies, which aim to tell the story of how the industrial make-up and infrastructure of a region – as well as the skills base of its workforce – can influence the benefit it accrues from exports. The case studies cover a broad geographic and socio-economic range of regions, which exhibit the diversity of the EU.
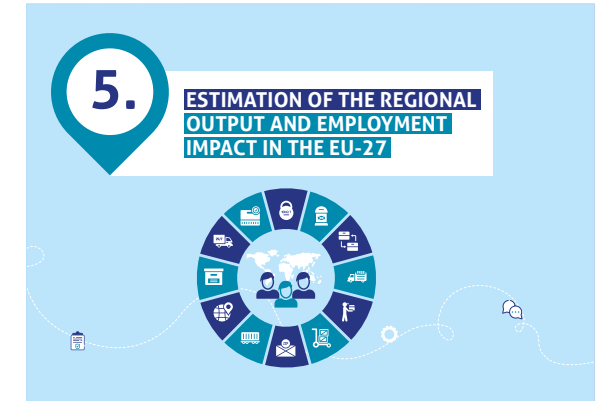
NEW REGIONAL DATA

Chapter five presents a table containing comprehensive data points for each region in the scope of the study. Using an econometric input-output analysis, the data show how an increase by 1% of national exports affects regional output and employment. It considers both the direct and indirect effects of national exports on a regional economy. It also shows the real jobs impact in a region for a 1% growth in exports, as well as the real impact on regional jobs of the country's export performance in 2019.

EXECUTIVE SUMMARY

The EU and international trade

The EU is a major player in the global economy. Exports of goods and services have been a vital component of the European economy in the years following the great financial crisis of 2008/2009. Nowadays, much of international trade occurs within global value chains which, currently, account for about 70% of international trade.

The EU economy is an open economy whose prosperity depends to a significant degree on its export performance. EU exports of goods grew more quickly than both world GDP and EU GDP from 2009 to 2019. In fact, the level of growth of exports of goods and services from 2000 to 2019 in the EU accounted for 57% of the total increase in final demand over the same period. Exports are an engine of economic growth for the EU and its Member States.

Imports of goods and services into the EU and Member States have also increased during the same period. Some of these imports displaced regional domestic employment and production of businesses or even whole industries. While globalisation can have some negative consequences, it is important to remember the very positive contribution made by exports to the EU economy: exports to outside the EU supported 36 million jobs in the EU or slightly more than 15% of total EU employment in 2017 - 1 in 7 jobs in the EU depends on such exports.

International trade in context

Elevated trade tensions in 2019, coupled with the outbreak of COVID-19 in 2020 have had a detrimental impact on international trade. However, the level of international trade is still considerably higher than 10 years ago and is showing signs of recovering, in line with economic developments in major economies. The evolution of the COVID-19 pandemic will continue to shape the evolution of international trade in the coming months.

The local impact of international trade

The present study assesses the extent to which the regions of the European economy have shared in the growth stimulus resulting from the significant expansion of EU exports.

Regions can benefit from international exports in three main ways:

1. Direct exports: some businesses in a region may export directly to clients outside their national market.
2. Indirect exports: some businesses in a region may export indirectly by selling their products and services to other domestic businesses which export themselves to end-users outside their national markets or businesses which are part of global value chains.
3. Increased demand as a result of exports: some businesses in a region may not export directly or indirectly but may nevertheless benefit from the domestic demand resulting from the direct or indirect export activity of businesses located in the same region or other regions of their home country.

Key findings

Overall, the study finds that, across all regions in the period covered by the data:

1. Exports add regional jobs: every percentage point of growth in national exports led to an average increase of 0.9% in both regional output and regional employment.

2. Every single region benefits from an increase in exports: the regional impact of an increase in national exports varied markedly across and within Member States. However, all regions benefitted from the growth in exports over the past decade, regardless of whether their GDP per capita was above or below the EU-27 average.
3. The positive impact of exports is not driven by the relative wealth of regions: there exists no systematic correlation between a region's GDP per capita and the estimated regional output and employment impacts of exporting to the world.

The recipe for regional success

The analysis and case studies undertaken for the study show that the industrial fabric of a regional economy is a key factor explaining differences in regional employment impacts. A strong manufacturing industry invariably leads to stronger regional economic performance. It is, however, not the only cause. A number of additional factors which are conducive to high quality employment and output growth include:

- The importance of labour force skills. The share of employment in high-tech and knowledge-intensive industries and the education level of the labour force are found by the study to be important determinants of the extent to which regions can benefit from strong foreign demand. No public policy can directly increase the share of employment in high-tech and knowledge-intensive industries. However, policymakers can contribute to the growth of the share of such employment in a region by:
  - ensuring through the provision of relevant education and training that businesses in these industries have access to the required skills which, according to various surveys, is a major challenge in many regions; and
  - stimulating through public policies the growth of such high-tech or knowledge-intensive businesses in a region and/or attracting such

businesses to a region. Such policy actions will contribute to improve the competitiveness and standards of living of a region and strengthen the impact of exports on regional employment and output.
- Innovation capacity and technological readiness. Strong regional innovation systems, a capacity to bring innovations to market by economic actors (private and public) and business flexibility to adopt new technologies are important contributors to a region's competitiveness. Numerous EU, national and regional policies are being implemented or planned to strengthen the regions' innovation capacity and technological readiness. Such policies, through their impacts on innovation and technological change, will contribute to raise regional employment and output through various mechanisms, including strong exports.
- Good transport and communications infrastructures and economic stability. These are necessary but not sufficient conditions for ensuring that businesses in a region can make the most of the opportunities offered by the global economy.

The role of business and government

Both governments and businesses have an important role to play in ensuring that the various factors described above are conducive to a strong regional export performance. To ensure that a region's businesses can compete successfully in the global economy, public authorities have to support and stimulate, together with learning and research institutions, regional upskilling, technological development and innovation.

In addition, governments should also ensure that the regional infrastructure, especially in terms of transport and communications, is efficient and supports the activities of exporting companies.

INTRODUCTION

The international trade frictions of recent years and the 2020 supply disruptions caused by COVID-19 lockdowns in countries playing a key role in global value chains are viewed by a number of people as casting a long shadow on the benefits of globalisation, and in particular, international trade in goods and services. In this context it is important to remember that, throughout the world, many jobs depend on international trade, even in countries where the benefits of international trade are questioned more intensely.

The present study aims to show that exporting supports employment and economic activity throughout the EU. Exports of goods and services from the EU to countries outside the EU are an important driver of overall employment in the EU. Such extra-EU exports supported 36 million jobs in the EU or slightly more than 15% of total EU employment in 2017.[1] 1 in 7 jobs in the EU depends on exports to countries outside the EU. Moreover, the number of jobs supported by exports to outside the EU rose by two thirds from 2000 to 2017. Nearly 14 million of these workers are women.[2]

The present report complements the numerous studies focusing on exports, production and employment at an EU or national level by examining how the various regions of the EU have benefitted in terms of employment and output growth from the recent boom in exports of goods and services produced by businesses located in the 27 Member States of the EU (EU-27).

Imports of goods and services into the EU and Member States have also increased during the same period. As will be shown in Chapter 2, these imports have increased more slowly than exports. Imported goods and services are sold either a) directly or indirectly through intermediaries to end-users such as consumers or public sector entities or b) to businesses for use in their production of goods and services which are then sold to domestic users or exported. The share of imports embodied in exports ranged in 2016 from 19.2% in Croatia to 67.4% in Luxembourg.[3]

Imports increase the choice and varieties of goods and services that consumers and businesses can buy. However, some imports displace regional domestic employment and production of businesses or even whole industries which are less competitive than foreign producers or domestic producers whose production facilities are at least partially located abroad.

Such displacement effects can result in higher unemployment if the regional employment market was already sluggish before the displacement actually occurred and/or the businesses whose

36 million jobs in the EU are supported by exports outside the EU

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1   2017 is the most recent year for which the data required to compute the number of jobs supported by exports to outside the EU are available.
2   See webpage 'Trade and jobs' of the European Commission Directorate General for International Trade https://ec.europa.eu/trade/policy/in-focus/trade-and-jobs/
3   See OECD database 'Trade in Value Added' Principal indicators, Foreign value added share of gross exports.

production is displaced by imports are large relative to the size of the regional labour market. To deal with the adverse consequences of import displacement, public authorities can and should implement programmes which assist affected workers in both the short and long run, and businesses to restructure and identify new products and markets in which they could be competitive. A pan-European example of such public sector assistance is the European Globalisation Adjustment Fund which provides support to people losing their jobs as a result of major structural changes in world trade patterns due to globalisation, e.g. when a large company shuts down or production is moved outside the EU, or as a result of the global economic and financial crisis.[4]

As the focus of the present study is on the regional impact of greater export activity, the issue of the regional impact of increased imports is outside the scope of the study although it is recognised that the regional impacts of greater imports can be significant in some regions and merits further analysis.

What to expect in the chapters

The first chapter of the study provides background information on worldwide trends in international trade and global value chains, and briefly discusses the impact of COVID-19 on international trade.

The second chapter reviews how exports contribute to the growth of the EU economy and how businesses participate in international trade through global value chains.

The third chapter provides background information on the diversity of the EU's regions.

The fourth chapter presents the key findings of the analysis of the regional impact of international exports on regional output and employment in the EU.

The fifth chapter includes a table containing comprehensive data points for each region in the scope of the study.

Finally, a number of **annexes** describe in detail the methodologies used to estimate the regional employment impact of exports and additional statistical material.
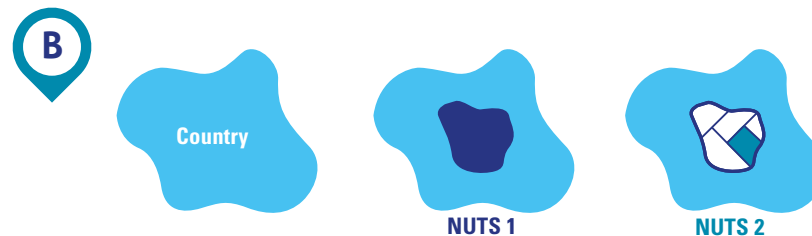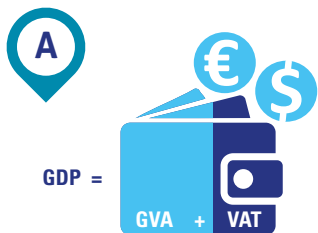
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4   See https://ec.europa.eu/social/main.jsp?catId=326&langId=en for details.

Key economic concepts used in the study

Employment or number of jobs	These two terms are used interchangeably in the study and cover all employees and self-employed persons of a geographic or economic entity such as a country, region, industry, etc. The measure of employment used in the report includes all persons, aged 15 and over who performed any hours of work during the reference week for pay, profit or family gain.
Final demand	The demand from domestic and international consumers, governments and businesses.
Foreign demand	The demand for domestic goods and services from foreign customers.
Global value chain (GVC)	A production process in which different stages are located across different countries. **Backward integration** Backward integration is the use of imported goods and services in the exports of a country. **Forward integration** Forward integration is the use of a country's goods and services in the exports of another country.
Gross domestic product (GDP)	The total value of goods and services produced in a geographic entity such as a country, region, etc.
Gross value added (GVA) or output	The total value of goods and services produced in an industry of an economic entity such as a country, region, etc. It is similar to GDP but is measured at factor costs while GDP is measured at market prices. The difference between the measure at market prices and factor costs is equal to indirect taxes levied on final sales goods and services net of subsidies applicable at the sale stage.
Services industries	All industries whose output is intangible, i.e. does not involve the production of a physical good.

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5   See https://ec.europa.eu/eurostat/web/nuts/background for more details on the NUTS classification.

NUTS 2 region 	The nomenclature of territorial units for statistics (*nomenclature des unités territoriales statistiques – NUTS*) is a geographical system, according to which the territory of the European Union is divided into hierarchical geographic levels. The NUTS 1 level corresponds to the major socio-economic regions in a Member State and often NUTS 1 regions are the major administrative and political sub-national entities of a Member State such as the Länder in Germany and the provinces in Belgium. The NUTS 2 regions are the basic regions for the application of regional policies in the EU. At the present time, the minimum and maximum population sizes of a NUTS 2 region are 800,000 and 3,000,000 respectively. Due to their small size, Cyprus, Luxembourg and Malta are not divided into NUTS 2 regions but the whole country is a NUTS 2 region.
Merchandise exports	This is equal to goods exports and covers • primary products comprising raw materials and resources used in the productive process; • intermediate products comprising semi-finished goods that are used in the production of other products; • consumer products which are products that are intended for final consumption; • capital goods which are manufacturing goods such as machinery that are intended to be used in the production of other goods.
Manufacturing sector	The sector which produces physical goods other than agricultural and mining products and construction.

1.

RECENT TRENDS IN INTERNATIONAL EXPORTS

The introduction highlighted the fact that one in seven jobs in the EU depends on exports to countries outside the EU. As background information for the discussion of the regional employment impact of international exports, the present chapter provides a short overview of the developments in worldwide and EU exports from 2000 to 2019. It also reviews trends in global value chains. Finally, it discusses the impact of COVID-19 on the underlying trends in international trade.

1.1 Developments in world and EU merchandise trade from 2000 to 2019

Trends in worldwide merchandise trade and EU merchandise exports since 2000 are characterised by two distinct periods:

- From 2000 to 2008, both the volume of worldwide merchandise trade and EU merchandise exports grew faster than world GDP (at constant prices).
- However, since the downturn in international trade caused by the great financial crisis of 2008/09, the volume of worldwide merchandise trade has grown by slightly less than the increase in worldwide GDP (in real terms) from 2009 to 2019 while the opposite is true in the case of EU merchandise exports. In fact, over this period, EU merchandise exports (in volume) increased by almost 12 percentage points more than world GDP (Figure 1).

1 in 7 jobs in the EU

depends on **exports to countries outside the EU**

Figure 1 World GDP, world merchandise trade and EU merchandise exports – cumulative growth from 2000-2008 and 2009 to 20199

- ■ World GDP (volume)
- ■ World merchandise trade (volume)
- ■ EU merchandise exports (volume)
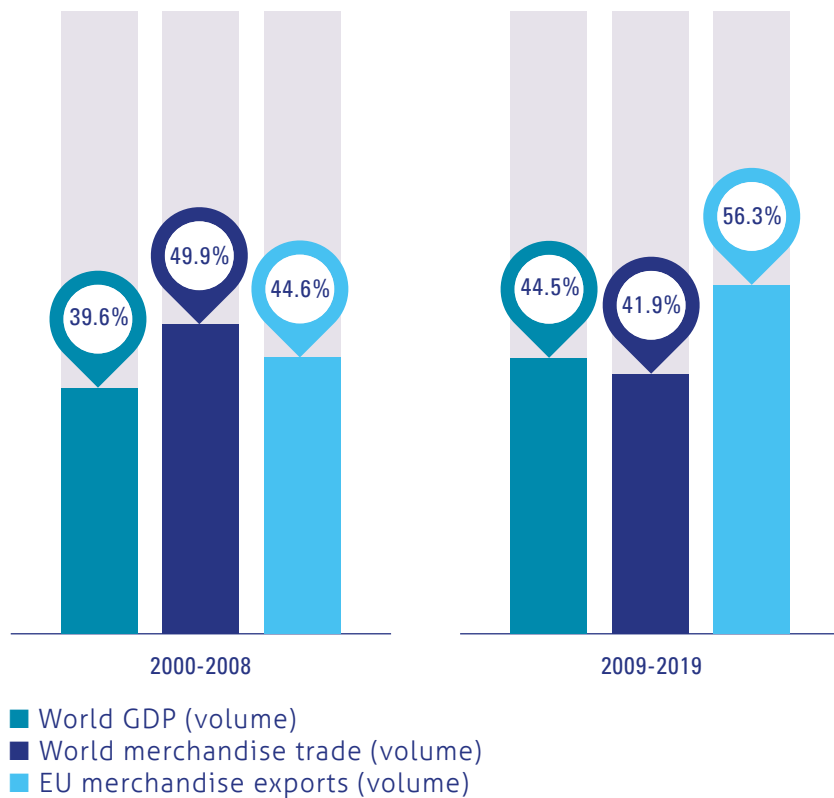
Source: CPB WORLD TRADE MONITOR September 2020, Eurostat and IMF World Economic Outlook

Figure 2 World GDP, world merchandise trade and EU merchandise exports – annual level (2010 =100) from 2000-2019

- ■ EU-28 merchandise exports (volume) 2010 = 100
- ■ World GDP (volume) 2010 = 100
- ■ World merchandise trade (volume) 2010 = 100
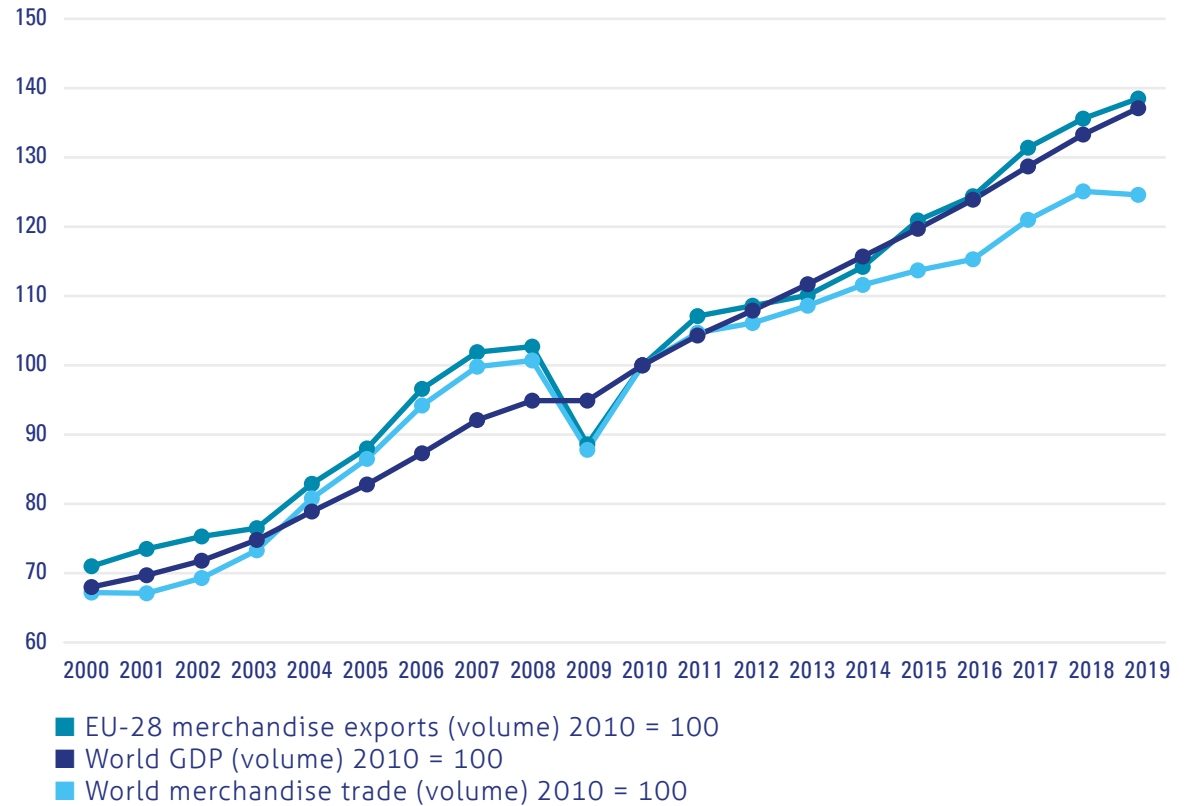
Source: CPB WORLD TRADE MONITOR September 2020, Eurostat and IMF World Economic Outlook

1.2 International trade and global value chains

According to the OECD, global value chains now account for about 70% of international trade and direct sales to consumers abroad for only about 30%.[6] Participating in global value chains is thus essential for many businesses, especially small and medium enterprises (SMEs) if they wish to benefit from the overall growth in world demand for goods and services.

Global value chains are production processes in which the different production stages are located across different countries. For example, an intermediate electronic component producer located in country X1 may buy materials, goods and services from producers located in countries Y1, Y2, Y3 and Y4 etc.

The producer located in country X1 then sells the electronic component to a producer in country V producing an electronic part which incorporates electronic components (and materials and services) from many different suppliers located in different countries X1, X2, X3, X4, etc. The electronic part produced in country V is then shipped to an assembler in country W combining in an end-product the electronic parts from a number of parts producers located in different countries as well as services and materials. Finally, the assembled end-product is then shipped for sale to consumers or businesses in many different countries.

As a result, the intermediate electronic product produced in country X1 may cross several borders, either as the product itself or as incorporated in another product, before it reaches the end-user.

Figure 3 shows the various forms of trade through which domestic production enters international trade, either through direct sales to end-users in another country or through simple or complex global value chains.

70%
Global value chains

International Trade

30%
Direct sales to consumers

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6   See https://www.oecd.org/trade/topics/global-value-chains-and-trade/.

Figure 3 **Exports and global value chain**

Domestic production

Is the product sold to the end-user directly (consumer or company)?

YES

Is the product sold in the same country?

YES → **DIRECT SALES TO DOMESTIC END-USERS**

NO → **DIRECT SALES TO FOREIGN END-USERS**

NO

It is an intermediate product it will be sold to at least one other company before being sold to the end-user

Is the product sold in the same country?

YES → **INDIRECT SALES TO DOMESTIC END-USERS**

NO

Does the product cross a border only one time?

YES → **SIMPLE GLOBAL VALUE CHAIN**

the initial product is sold as intermediate product to another domestic company which exports the product to an end-user in another country

NO → **COMPLEX GLOBAL VALUE CHAIN**

the initial product is sold to a foreign company (directly or not); it is then incorporated into another product and exported again at least once

■ Domestic trade ■ International trade

Source: Figure is based on Figure 1.1 in WTO et al. (2019), Technological innovation, supply chain trade, and workers in a globalised world, Global Value Chain Technological Report 2019

Global value chains result in the backward and forward integration of national economies into the global economy. Backward integration measures the extent to which a country's exports embed goods and services from other countries while forward integration measures the extent to which a country's exports of goods and services are embedded in the exports of other countries.

Key points to note about recent developments in global value chains[7] are that:

- The growth of global value chains has slowed since the great financial crisis of 2008/09 while these global value chains, especially the complex global value chains grew considerably faster than GDP from 2000 to 2007 (Figure 4).
- Intra-regional global value chain trade increased in Asia (China and other Asian economies) while in North America and Europe intra-regional global value chain trade decreased somewhat relative to inter-regional global value chain trade between these two regions and Asia.
- China has emerged as an important centre for traditional bilateral trade and in simple global value chains while the USA and Germany are the most important centres in complex global value chains.

Global value chains are
a vital source of demand
for businesses
especially SMEs

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7   For a detailed discussion of the latest developments in global value chains see WTO et al. (2020).

Figure 4 **Share of domestic production (as a % of GDP) sold domestically and abroad – world 1995 to 2017**
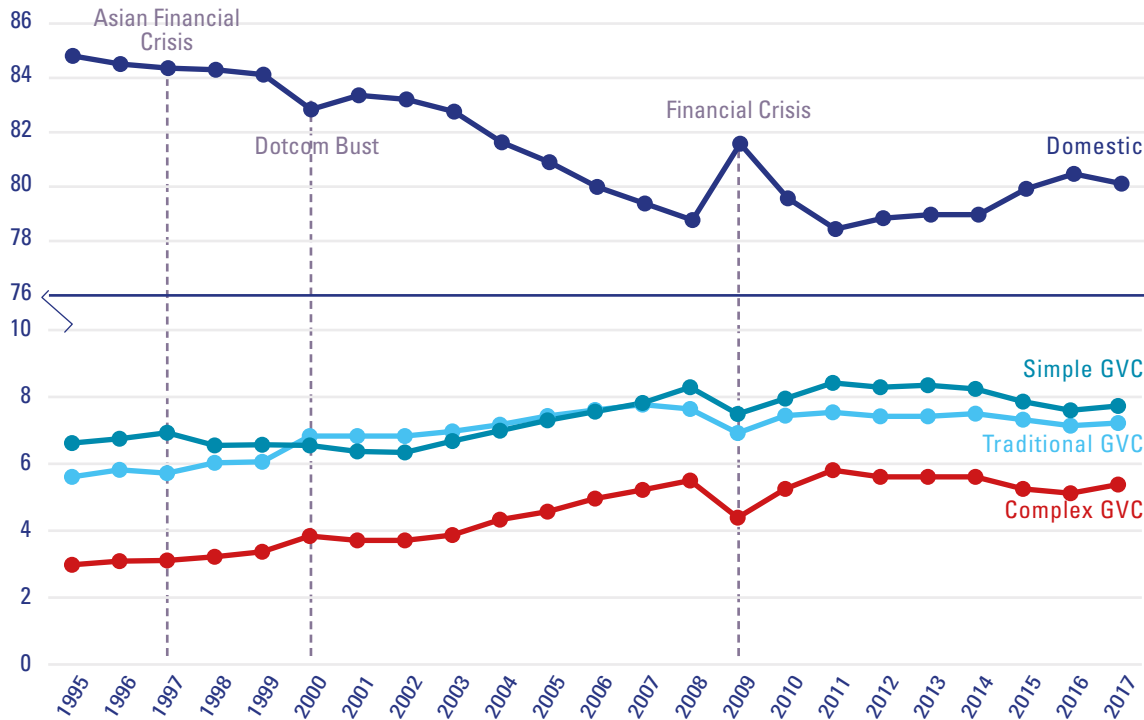
Source: Figure is Figure 1.2 in WTO et al. (2019), Technological innovation, supply chain trade, and workers in a globalised world, Global Value Chain Technological Report 2019

Reaching the world thanks to local suppliers

The Van Berkel Group is located in Veghel, a town in the North Brabant region of the Netherlands. The company, founded in 1955 as a family company in agriculture, has expanded and diversified into many new sectors. In 2003, Van Berkel Logistics was established, with shipping services starting up in 2005, in the form of container transportation by barge from Veghel to Rotterdam and Antwerp. Back then the company would ship 3000 containers per year. Fast forward to 2020, and that figure sits at 52 000 per year. The family company has grown to 210 employees across the whole group, with 90 employees dedicated to its logistics branch.

Van Berkel's collaboration with Mars began in 2013. Mars represents an important client for the logistics company, with orders for around 5000 container shipments per year. Of these, 60% are 'deep sea' shipments across the globe, versus 40% 'short sea' locations. However, Van Berkel's partnership with Mars goes beyond simply shipping. Van Berkel is integrated into Mars factory processes, and the 'make and ship' principle ensures that whatever Mars produces can go directly into a container, which will be shipped on demand. Van Berkel's service offering also encompasses quality control of containers. Thanks to Van Berkel's logistics services, Mars products are able to reach consumers around the world who can enjoy the familiar taste of their renowned confectionery.

Acknowledgement: *Michel van Dijk, Director, Van Berkel Logistics*

1.3 International trade in services

Although services account for most of the gross value added in all industrialised countries, their share in total exports of goods and services is considerably smaller. For example, services (other than public administration, defence and social security) generated 66.2% of the EU-27 GDP in 2018 but such services accounted for only 27.7% of the EU-27 exports of goods and services in that year, up slightly from 24.4% in 2010.

The services sector includes all industries whose output is intangible, i.e. does not involve the production of a physical good. These industries include retail and wholesale trade, accommodation and food service activities, transportation and storage activities, information and communication, financial services, real estate, professional, scientific and technical activities, administrative and support service activities, public administration and defence; compulsory social security, education, human health and social work activities and arts, entertainment and recreation activities.

Some services are rarely traded internationally if at all (for example, services to persons), while many other services (for example, business-to-business services) are exported directly and indirectly through global value chains. Taking account of the value of services embedded in exports of goods or other services, i.e. the value of services included in a value chain, raises the share of services in total exports to slightly above 50% in the case of the EU. [8]

Figure 5 **Share of EU-27 exports of services in total EU-27 exports of goods and services**
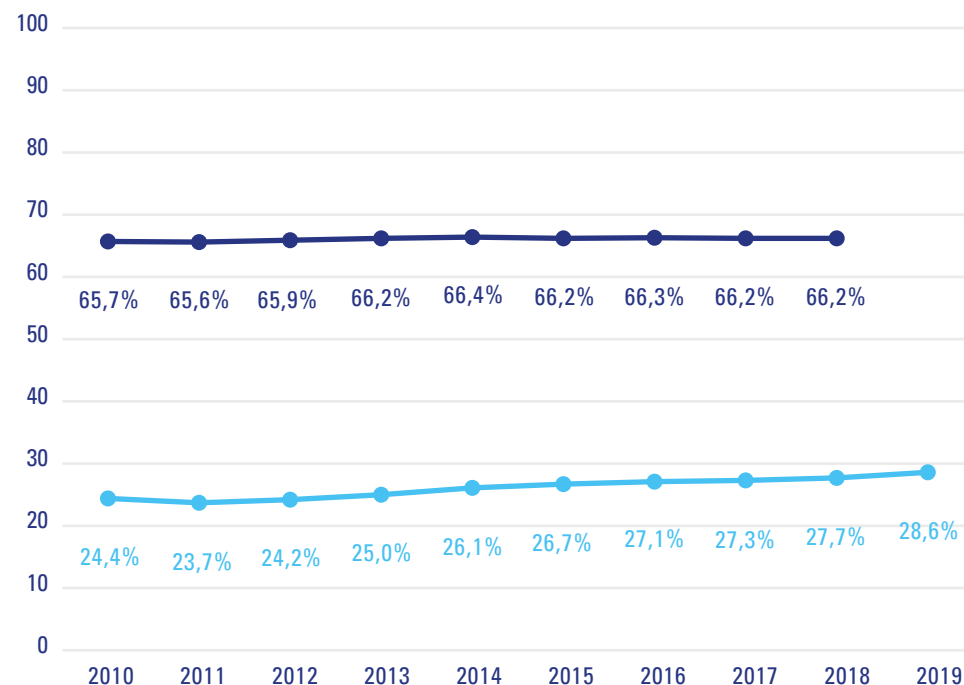
- ■ EU-27 share of services (other than public administration, defence and social security) in total GVA
- ■ EU-27 share of services in exports of goods and services

Source: Eurostat

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8   Lanz and Maurer (2015)

1.4 Digital trade

Nowadays, some goods and services are traded digitally. 'While there is no single recognised and accepted definition of digital trade, there is a growing consensus that it encompasses digitally-enabled transactions of trade in goods and services that can either be digitally or physically delivered, and that involve consumers, firms, and governments. That is, while all forms of digital trade are enabled by digital technologies, not all digital trade is digitally delivered. For instance, digital trade also involves digitally enabled but physically delivered trade in goods and services such as the purchase of a book through an on-line marketplace, or booking a stay in an apartment through a matching application.'[9]

1.5 International trade and COVID-19

COVID-19 has had a devastating effect on the volume of international merchandise trade – world merchandise trade fell by 17% from December 2019 to May 2020, about the same as the drop of 18.9% from July 2008 to May 2009 during great financial crisis.
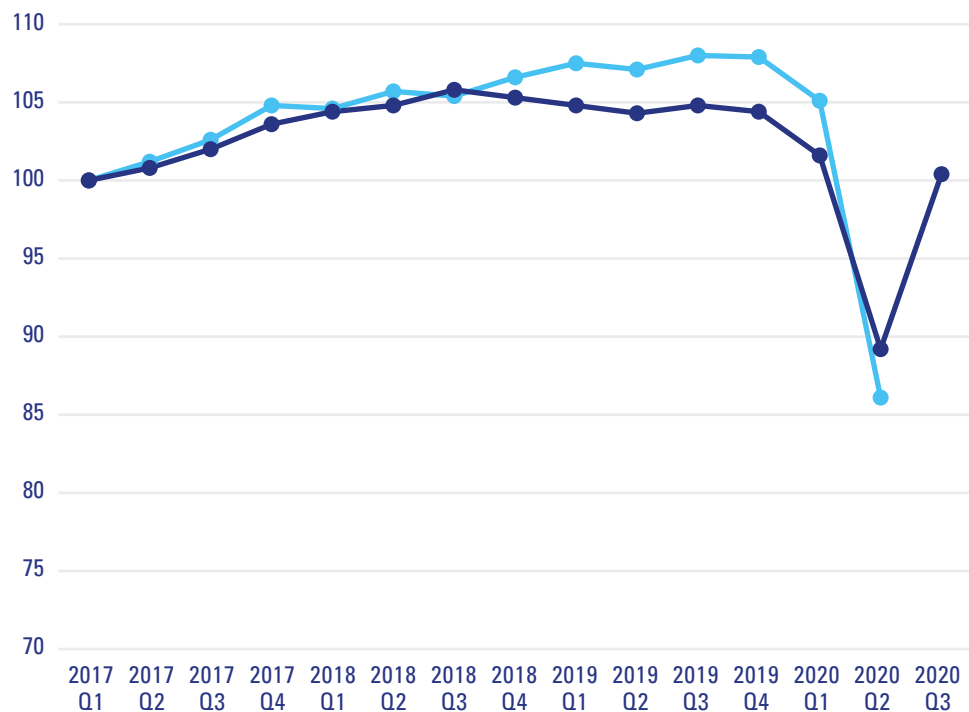
This decline reflects the combined effects of a supply shock and a demand shock as, in a large number of countries, production and consumption were curtailed through lockdowns and other sanitary measures to contain and reduce the spread of the virus. The initial production lockdowns in early 2020, especially in China, disrupted many international supply chains, spread the production interruptions or declines throughout the world and led businesses to re-organise supply chains by shifting production back home or to countries less affected by the virus.

When COVID-19 hit the world in 2020, world merchandise trade was already weighed down by persistent trade tensions as well as by weaker global GDP growth. In fact, the volume of world trade in merchandise had already been in slow decline since the third quarter of 2018. EU merchandise exports do not show such a trend of decline and continued to grow through 2018 and 2019 (Figure 6). However, in the first two quarters of 2020, world and EU merchandise exports posted sharp declines (-15% and -20% respectively). Recent data show that in July 2021 the level of world merchandise trade was 3.8% higher than its pre-pandemic level in the fourth quarter of 2019. Reflecting the rebound in world economic activity, the recovery in world merchandise trade occurred largely in the last two quarters of 2020 and the first quarter of 2021.

World merchandise trade fell by

17%

from December 2019 to May 2020

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9   See OECD webpage on digital trade https://www.oecd.org/trade/topics/digital-trade/#:~:text=What%20is%20digital%20trade%3F,consumers%2C%20firms%2C%20and%20governments.

Figure 6 World and EU-27 merchandise trade – quarterly level (2010 =100) from 2017 Q1 to 2020 Q3

■ World merchandise trade (volume)
■ EU-27 merchandise exports (volume)

Source: CPB WORLD TRADE MONITOR May 2020 and Eurostat

Looking further ahead, merchandise trade will recover gradually as economic activity eventually returns to pre-COVID-19 levels and sustained growth but the recovery in merchandise trade may be dampened by continued trade disputes and some relocation of production to the home countries of businesses with cross-border supply chains.

Collins Aerospace*

Fostering innovation through collaborative partnerships

Despite only having 10,000 inhabitants, Figeac in south-west France is home to a whole ecosystem of aerospace companies and suppliers. Collins Aerospace, a Raytheon Technologies company, is one of them. Its Ratier-Figeac unit is an internationally renowned centre of excellence for propellers. Collins Aerospace Ratier-Figeac employs 1,200 people in four key business segments. Its main undertaking is propellers, which account for about 60% of the Ratier-Figeac unit's activities. 60% of its total global expenditure on local suppliers is in France.

Collins Aerospace Ratier-Figeac calls on hundreds of local suppliers in the French market. Their overall reactivity; their geographic proximity; and their agile and innovative dynamic are all valued assets for Collins Aerospace. By working with suppliers, Collins Aerospace supports an estimated 600 jobs in France on top of its direct employees.

A specific example of an outsourced service is propeller painting. Collins Aerospace Ratier-Figeac contracts the services of two local suppliers to perform the finishing and painting of their propeller blades within a lead time of 3 days. Traditionally competitors, the two companies have recently teamed up to collaborate on a technological innovation in their sandblasting processes before painting the blades. They have partnered up to automatise the process of sandblasting, adding even greater quality and efficiency to their collective service.

For local suppliers such as the paint shops in Figeac, working with Collins Aerospace is a great opportunity: It is a well-known brand, with a focus on producing the highest quality. As the example of the paint shops attests, Collins Aerospace provides support to local suppliers to achieve the levels of service demanded. In turn, Collins Aerospace counts on its suppliers to deliver its reputed equipment.

*A Raytheon Technologies company

Acknowledgement: *Patrick Derbois, Director of Supply Chains, Collins Propeller Systems*

2.

## INTERNATIONAL TRADE AND THE EU ECONOMY

The present chapter reviews the recent international trade performance of the EU and discusses how EU businesses participate in international trade through global economy value chains. It also highlights the importance of the Single Market as an export destination for EU Member States, analyses how exports contributed to the growth of the EU economy since 2010 and provides estimates of the impact of extra-EU exports on employment in each Member State.

2.1 The recent international trade performance of the EU economy

The EU economy is an open economy whose prosperity depends to a significant degree on its export performance. In this regard it should be noted that EU-27 exports of goods grew more quickly than world GDP from 2009 to 2019 and faster than EU-27 GDP (58.1% versus 16.5%) over this period. The past decade saw also very strong cumulative growth in exports of services from 2009 to 2010, especially relative to GDP (50.7% versus 16.5%).

Figure 7 **EU-27 exports and imports of goods and services from 2000 to 2020**
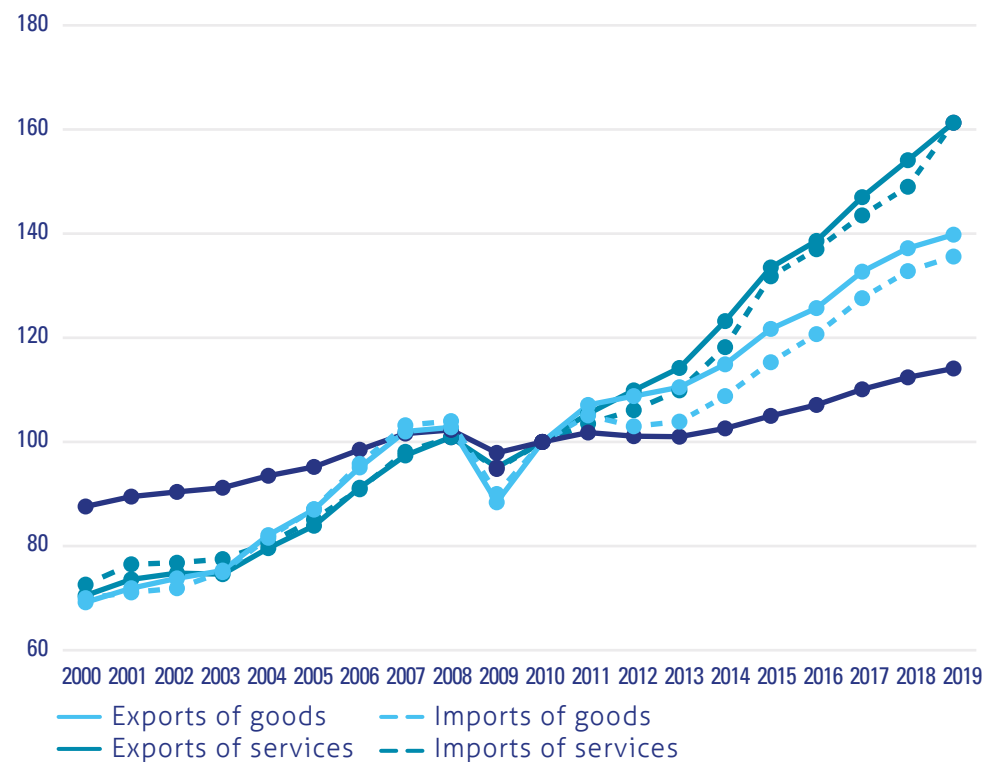
Source: Eurostat

Figure 8 **Cumulative growth (in %) in EU-27 GDP, exports and imports of goods and services from 2000 to 2008 and 2009 to 2019**

- 2000-2008
- 2009-2019
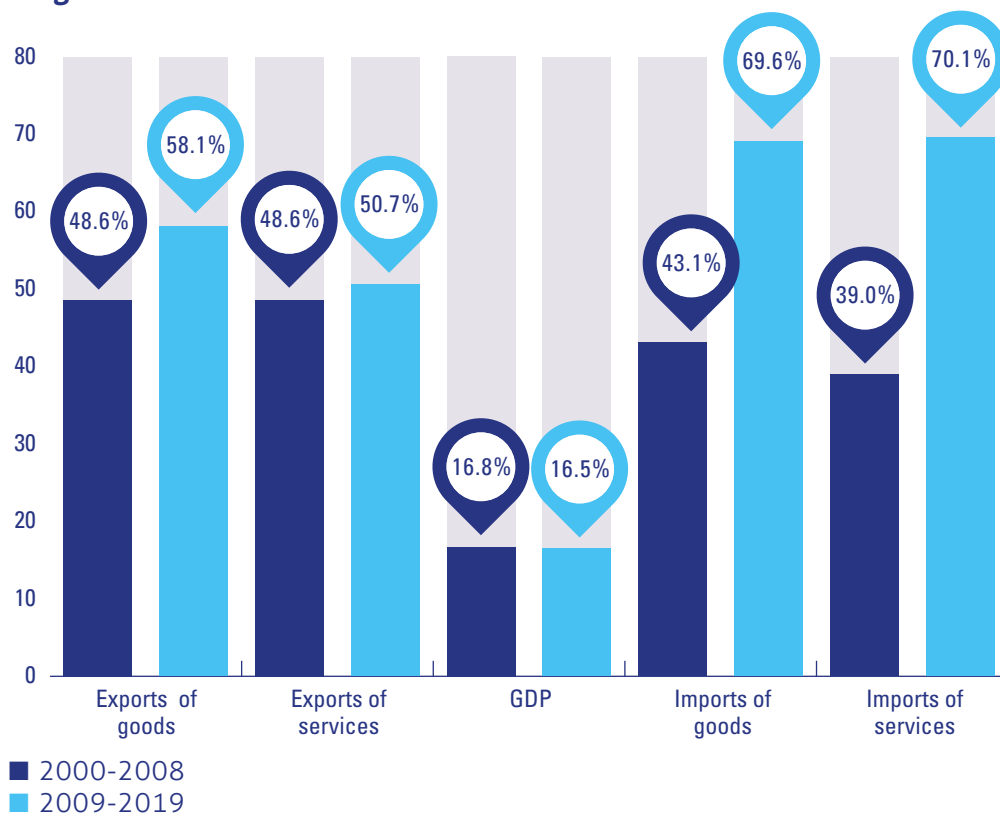
Source: Eurostat

Exports were a major source of economic growth in all EU-27 Member States from 2009 to 2019. In fact, in all but one Member State, exports provided strong upward uplift to growth as they grew much more rapidly than GDP from 2009 to 2019 (Figure 9):

- In Romania, cumulative export growth from 2009 to 2019 was 111 percentage points higher than cumulative GDP growth over the same period;
- In a further 13 Member States (BG, CY, CZ, EE, EL, HR, IE, LT, LV, PL, PT, SI and SK), the difference between the cumulative growth in exports exceeded the cumulative GDP growth by more than 50 percentage points;
- In seven Member States (AU, DE, ES, FR, HU, IT and NL) the difference in the cumulative growth of exports and GDP ranged from 34 to 47 percentage points;
- In six Member States (BE, DK, FI, LU and SE) the difference ranged from 18 to 28 percentage points; and
- In Malta, the contribution of exports to economic growth was more muted as cumulative GDP growth exceeded cumulative export growth by 10 percentage points.

Figure 9 **Difference (in percentage points) between the cumulative growth in Member State exports of goods and services (in volume) and GDP (in volume) from 2009 to 2019**

Country	Value
MT	-1
FI	20
SL	22
DK	22
LU	23
BE	28
FR	34
AT	36
DE	37
IT	40
HU	43
NL	44
EU - 27	44
ES	47
CZ	50
HR	53
LV	53
CY	55
SI	56
BG	57
SK	57
EE	58
EL	61
PL	65
PT	66
IE	69
LT	80
RO	111
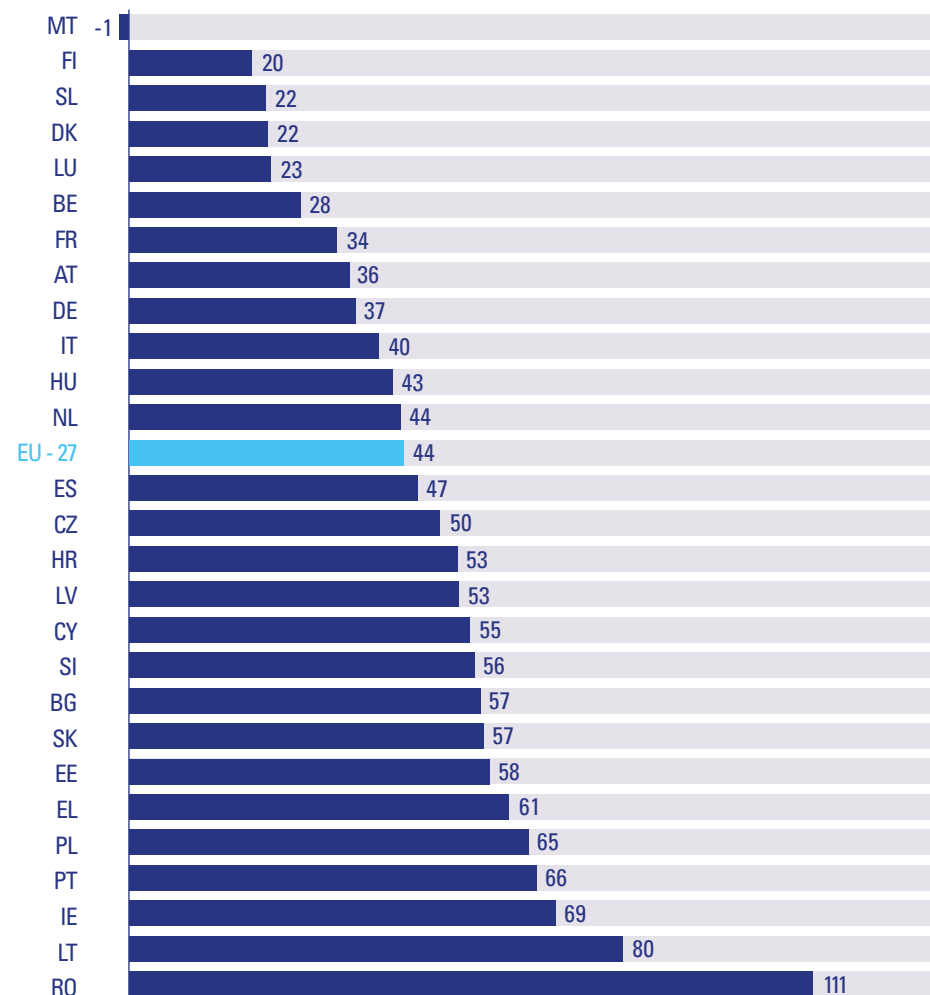
Source: Eurostat

2.2 The importance of the Single Market

The Single Market is a key export market for all EU Member States. Except in the case of Cyprus and Ireland, exports of goods to other EU-27 Member States accounted in 2019 for more than 50% of all goods exports of each Member State, and for even more than 75% in the case of Czechia, Hungary, Luxembourg, Poland, Portugal, Romania and Slovakia (Figure 10). The Single Market is slightly less important for Member States' services exports as it absorbs more than 50% of such exports in the case of only 17 Member States. But even when the Single Market is relatively less important as a services export market, it still absorbs no less than 29% of such exports and, in many cases, between 40% and 49% of such exports (Figure 10).

The Single Market

is a key export market for all EU Member States

Figure 10 **Share of goods and services exports to the Single Market in total goods and services exports by EU-27 Member States (2019 for goods and 2018 for services)**

	SK	LU	CZ	HU	PL	RO	SI	PT	EE	AT	HR	NL	BE	BG	LV	ES	LT	FI	MT	DK	DE	SE	EL	FR	IT	CY	IE
Goods	80	80	79	78	74	73	72	71	69	68	66	65	65	64	62	60	55	55	54	53	52	52	52	51	51	41	37
Services	73	59	61	62	62	73	77	56	66	73	65	53	61	57	58	49	64	49	52	38	42	42	39	44	48	32	29

■ Goods
■ Services
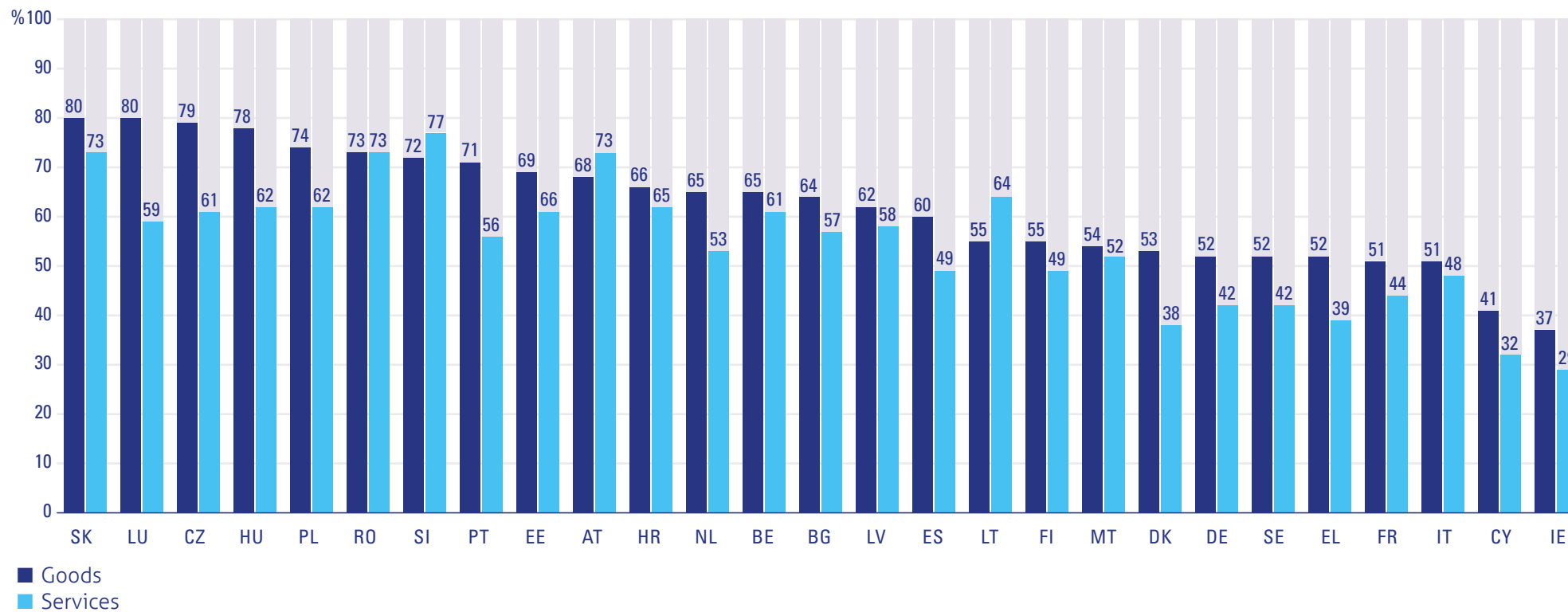
Source: Eurostat

2.3 The contribution of exports to the growth of the EU economy since 2010

The previous section highlighted the fact that, in all but one EU-27 Member State, exports grew much more rapidly than GDP. The present section reviews in greater detail the extent to which this strong growth in exports was a key engine of economic growth in EU Member States over the period 2009 -2019.

A good metric for assessing the contribution of exports to economic growth is the share of exports of goods and services in a country's or region's final demand (i.e. the demand from domestic and international consumers, governments and businesses) addressed to domestic and foreign producers of goods and services. In short, this metric shows the importance of the demand for a country's goods and services emanating from abroad. As some of the final demand will be met by imports of goods and services, a country's or region's gross domestic product (GDP) is equal to final demand minus imports.

Overall, the foreign demand for domestically produced goods and services is an important component of final demand in all Member States:

- The contribution of exports of goods and services to the EU-27 Member States' economy varied greatly in 2019 with the share of such exports in final demand ranging from a minimum of 24% (France) to a maximum of 76% (Luxembourg) in 2019 (Figure 11).
- Moreover, exports accounted for between one third and one half of final demand in 2019 in 19 Member States (Figure 11).

Case study ①

Poland: export-led economic growth

See case study supplement for full story.
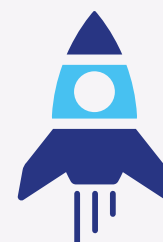
Exports were a key engine of economic growth over the last 20 years

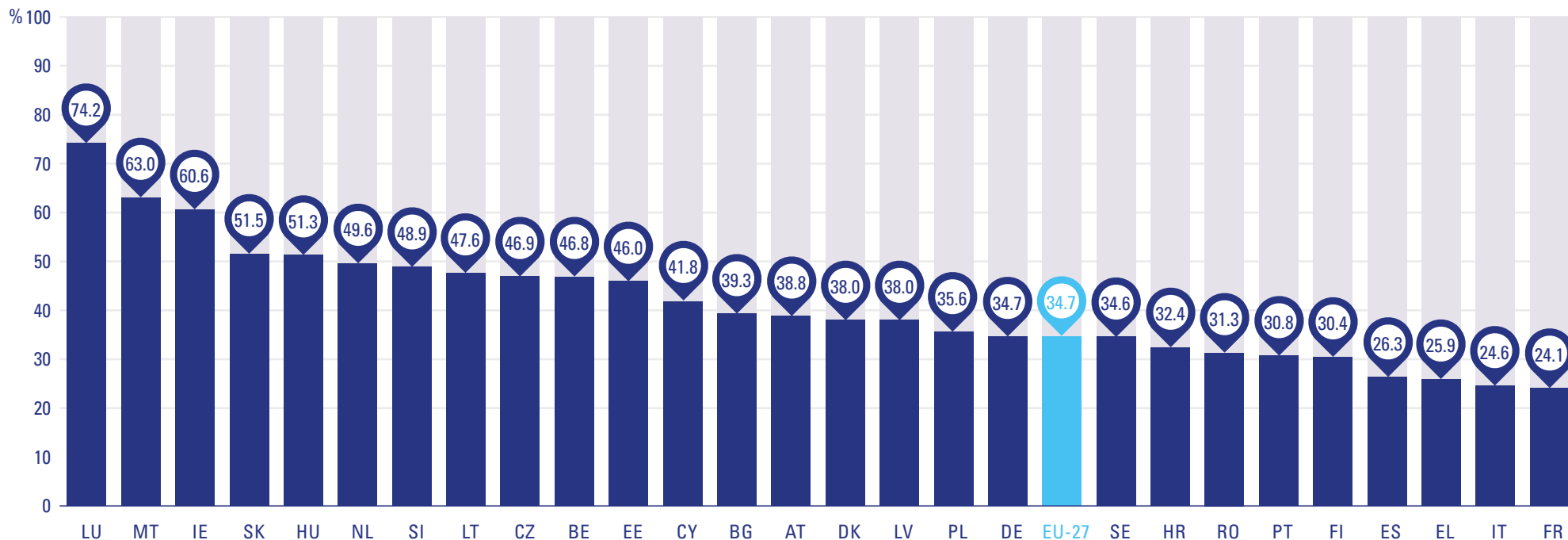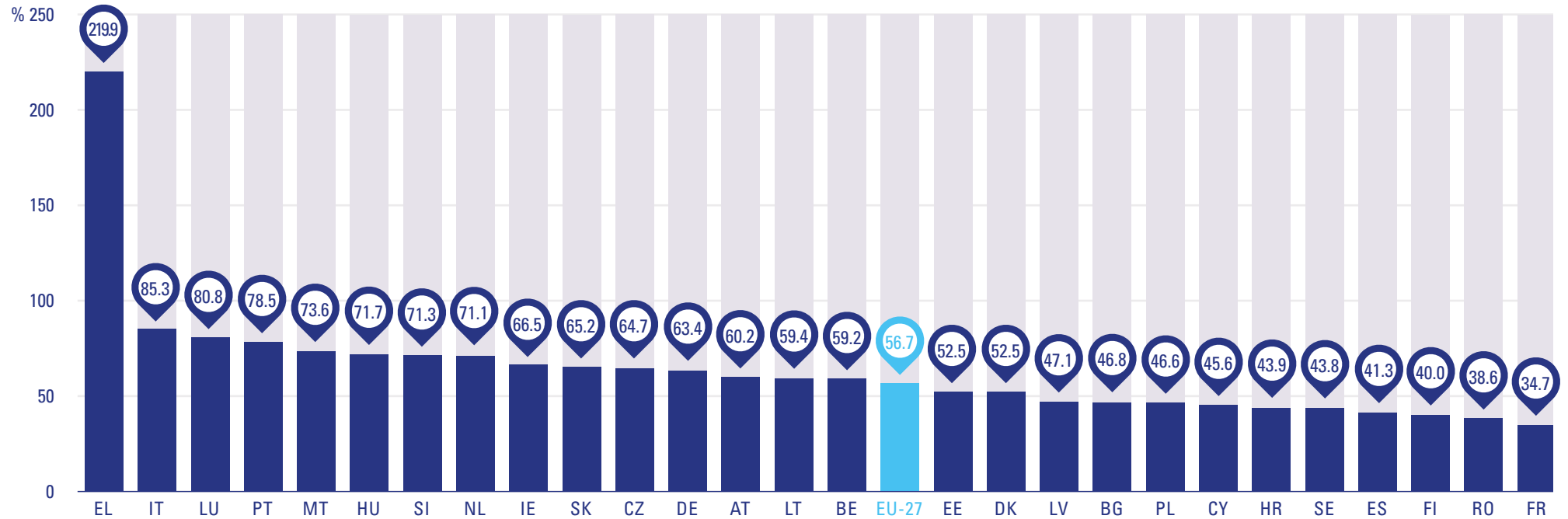**Figure 11** **Share of exports of goods and services in final demand in the EU-27 and EU Member States - 2019**

Note: Exports of goods and services and final demand are expressed in constant 2015 prices
Source: Eurostat, data downloaded 10 October 2020

Not only did exports of goods and services account for an important share of Member States' final demand in 2019, but these exports were a key engine of economic growth over the last 20 years:

- at the EU-27 level, the growth of exports of goods and services from 2000 to 2019 accounted for 57% of the total increase in final demand over the same period (Figure 12);

- such export growth accounted for more than 50% of the growth in final demand from 2000 to 2019 in 17 Member States (Figure 12); and

- moreover, in all Member States, exports of goods and services contributed more to the increase in final demand from 2000 to 2019 than would have been expected on the basis of the average 2000-2003 share of such exports in final demand – all the countries are above the 45° line in Figure 13.

Figure 12 **Contribution (in %) of the increase in exports of goods and services to the increase in final demand in the EU-27 and EU Member States from 2000 to 2019**

% 250

| EL | IT | LU | PT | MT | HU | SI | NL | IE | SK | CZ | DE | AT | LT | BE | EU-27 | EE | DK | LV | BG | PL | CY | HR | SE | ES | FI | RO | FR |
|219.9|85.3|80.8|78.5|73.6|71.7|71.3|71.1|66.5|65.2|64.7|63.4|60.2|59.4|59.2|56.7|52.5|52.5|47.1|46.8|46.6|45.6|43.9|43.8|41.3|40.0|38.6|34.7|

Note: Exports of goods and services and final demand are expressed in constant 2015 prices
Source: Eurostat, data downloaded 10 October 2020

Figure 13 Contribution (in %) of the increase in exports of goods and services to the increase in final demand from 2000 to 2019 and average share (in %) of exports of goods and services in final demand over 2000 to 2002
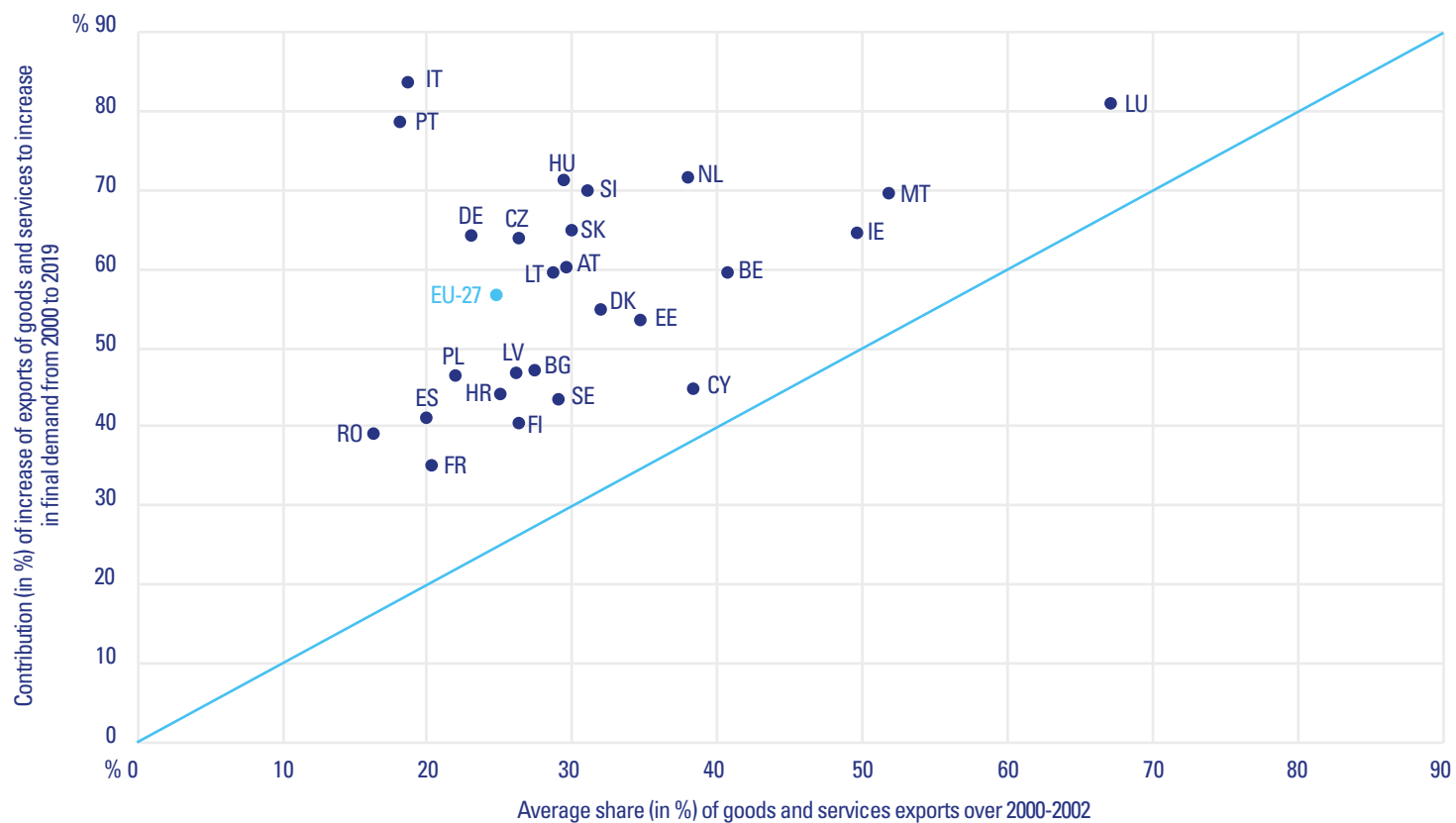
Note: Greece not shown because the contribution of the increase in exports of goods and services to the increase in final demand is equal to 220%. Exports of goods and services and final demand are expressed in constant 2015 prices

Source: EC DG Economic and Financial Affairs AMECO database, data downloaded 27 May 2020

2.4 The participation of EU businesses in global value chains

As already noted in section 1.2, global value chains account for about 70% of international trade and many European companies are involved in such value chains. To assess the extent to which European companies participate in global value chains, the discussion below uses information from the OECD's database *Trade in Value Added*.

This database provides information on the proportion of the total value of a country's exports that is accounted for by foreign goods and services which are embedded in these exports. This proportion is the backward integration share in analyses of global value chains. The foreign businesses from which the domestic businesses purchase goods and services and embed this foreign supply in their exports are either foreign subsidiaries of the purchasers or independent businesses.
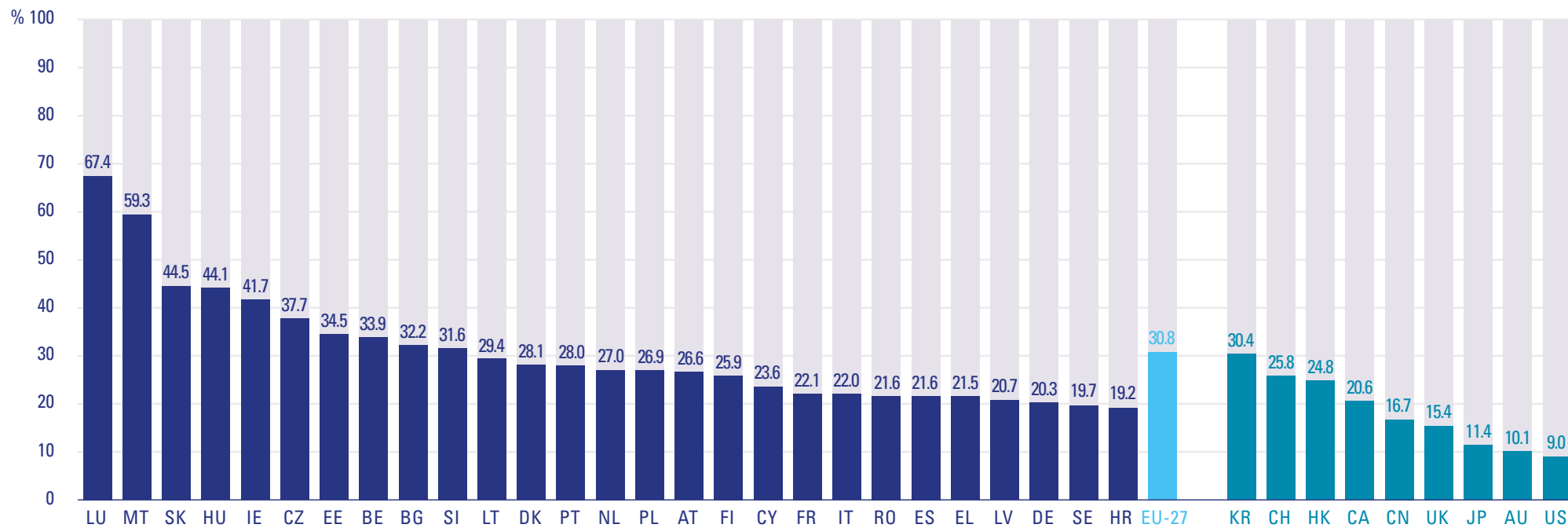
Overall, foreign goods and services embedded in a country's exports accounted, on average across the EU, for 30.8% of the total value of Member States' exports (Figure 14), about the same as in Korea and somewhat higher than in Switzerland and Hong Kong.

Within the EU, the highest foreign contents of a Member State's exports are recorded in 2016 in Luxembourg and Malta, where the foreign content accounts for 67% and 59% of the export value respectively, followed by Slovakia and Hungary (foreign export content of 45% and 44% respectively), while the lowest is observed in Germany (20%), Sweden (20%) and Croatia (19%). Nevertheless, the foreign content share of the exports of these last three Member States is still higher than in China (17%), the United Kingdom (15%), Japan (11%), Australia (10%) and the USA (9%).

Overall, the data show that the economies of the Member States rely to a greater extent on foreign goods and services for their exports than many other major exporting economies.

EU exports

30.8%

Foreign goods and services embedded in Member State exports (average)

Figure 14 **Share of foreign goods and services embedded in exports of Member States and other selected countries - 2016**

	LU	MT	SK	HU	IE	CZ	EE	BE	BG	SI	LT	DK	PT	NL	PL	AT	FI	CY	FR	IT	RO	ES	EL	LV	DE	SE	HR	EU-27	KR	CH	HK	CA	CN	UK	JP	AU	US
%	67.4	59.3	44.5	44.1	41.7	37.7	34.5	33.9	32.2	31.6	29.4	28.1	28.0	27.0	26.9	26.6	25.9	23.6	22.1	22.0	21.6	21.6	21.5	20.7	20.3	19.7	19.2	30.8	30.4	25.8	24.8	20.6	16.7	15.4	11.4	10.1	9.0

Note: EU-27 = average of EU Member States
Source: OECD Trade in Value added database, Principal indicators, Foreign value-added share of gross exports

The OECD database can also be used to assess the extent to which EU businesses are integrated in complex global value chains by selling products and services to businesses outside their home country which in turn embed this supply in their own exports. This is the forward integration measure in complex global value chain analysis focusing on goods and services produced in a given country and which cross international borders at least twice, once as stand-alone goods and services and at least once a goods and services embedded in other goods and services.

On average, 18% of the value of exports of goods and services produced by businesses of Member States is embedded in exports of other countries,

which is lower than in Australia (27%), Japan (24%), USA (22%) and South Korea (19%).

In contrast to the backward integration measure, the range of the forward integration measure varies much less across Member States, from 7% in Malta to between 20% and 24% in Germany, Poland, Sweden, Finland, Austria, Romania, the Netherlands, France, Belgium and Slovenia. Overall, exports of goods and services produced by businesses of different Member States are less frequently incorporated in the exports of other countries in the world than the exports of many of the comparator countries.

Figure 15 **Share of home country exports of goods and services which are embedded in exports by all the countries of the world except the home country in total exports of the home country - Member States and other selected countries 2015**
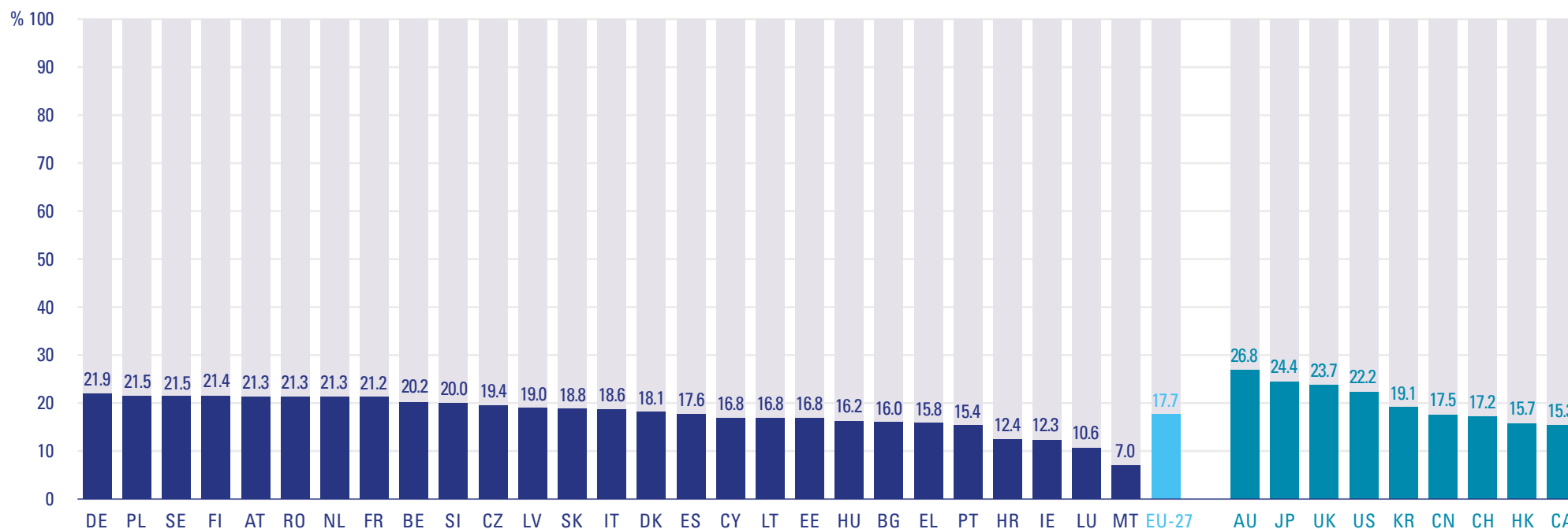
Note: EU-27 = average of EU Member States
Source: OECD Trade in Value added database, Principal indicators, Domestic value added in foreign exports as a share of gross exports, by foreign exporting country

Among EU Member States, no relationship between the level of exports of goods and services (as a percentage of GDP) and the importance of forward integration into complex value chains (Figure 16) appears to exist when three clear outliers (Ireland, Luxembourg and Malta) are not taken into account. For example, in 2015[10], exports of goods and services in Member States with a relatively high forward integration share (more than 20%) accounted for between 31% of GDP (France) and 84% of GDP (The Netherlands); while exports of goods and services in Member States with a more moderate forward integration share (15% to 20%) accounted for between 30% of GDP (Italy) and 96% of GDP (Slovakia).

The results presented above suggest that the form of a Member State's international trade (direct sales, simple global value chains and complex value chains) is not correlated with the importance of international trade for each Member State. This depends on a number of other factors such as, for example, the types of goods and services produced and the presence of domestic and foreign multinationals.

## Looking local to deliver core IT services

AES Bulgaria is part of The AES Corporation in the Eurasia region covering markets from the Netherlands up to Vietnam. The Eurasia Shared Services Center, based in Sofia, delivers financial, IT, supply chain, human resources and communications services for the company's businesses in five countries.

The AES IT and digital team is made up of 10 employees, who are spread across the businesses in the Eurasia region. In order to be able to deliver core IT and business services, AES relies on the services more than 10 local suppliers in areas such as IT infrastructure, telephony and cybersecurity. AES counts on local suppliers for a flexible workforce with a high degree of specialised skill and expertise, and rapid response capacities in order to ensure business continuity.

In its work with local telecoms providers in Sofia, the AES IT team has benefitted from suppliers' willingness to go beyond their off-the-shelf service offering for their client. One such example is local telecoms provider Telenor, who was able to offer an innovative service for mobile phone cost management. The new service allowed every AES employee in Bulgaria to have visibility and control over their phone bill and especially over the roaming costs. Moreover, Telenor was able to offer so called pool-based services – such as internet and internet in roaming. This was a key achievement because as a consequence, the Bulgarian entities were able to optimise mobile phone bills by more than 50%. This innovation then went on to become a part of their wider service offering.

AES' work with local suppliers is mutually beneficial. Aside from the obvious financial potential of working with such a big client, local suppliers can develop their own markets with innovative new services developed in tandem with their multinational client. Finally, working with a company with multinational presence provides potential to expand beyond local markets. Meanwhile, AES can continue to deliver reliable, affordable and sustainable energy to its Eurasia customers.

Acknowledgement: *Petar Radev, IT director, AES Eurasia Shared Services Center*

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10   2015 is the last year for which data on forward integration into value chains do exist.
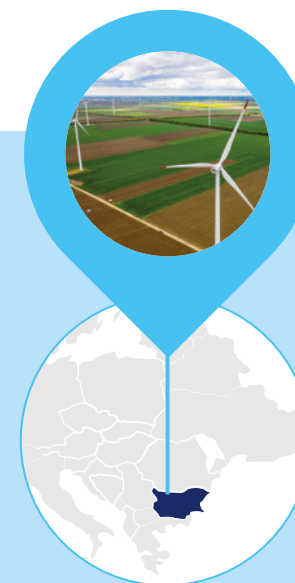
Figure 16 Share of home country exports of goods and services which are embedded in exports by all the countries of the world except the home country in total exports of the home country - Member States and other selected countries 2015
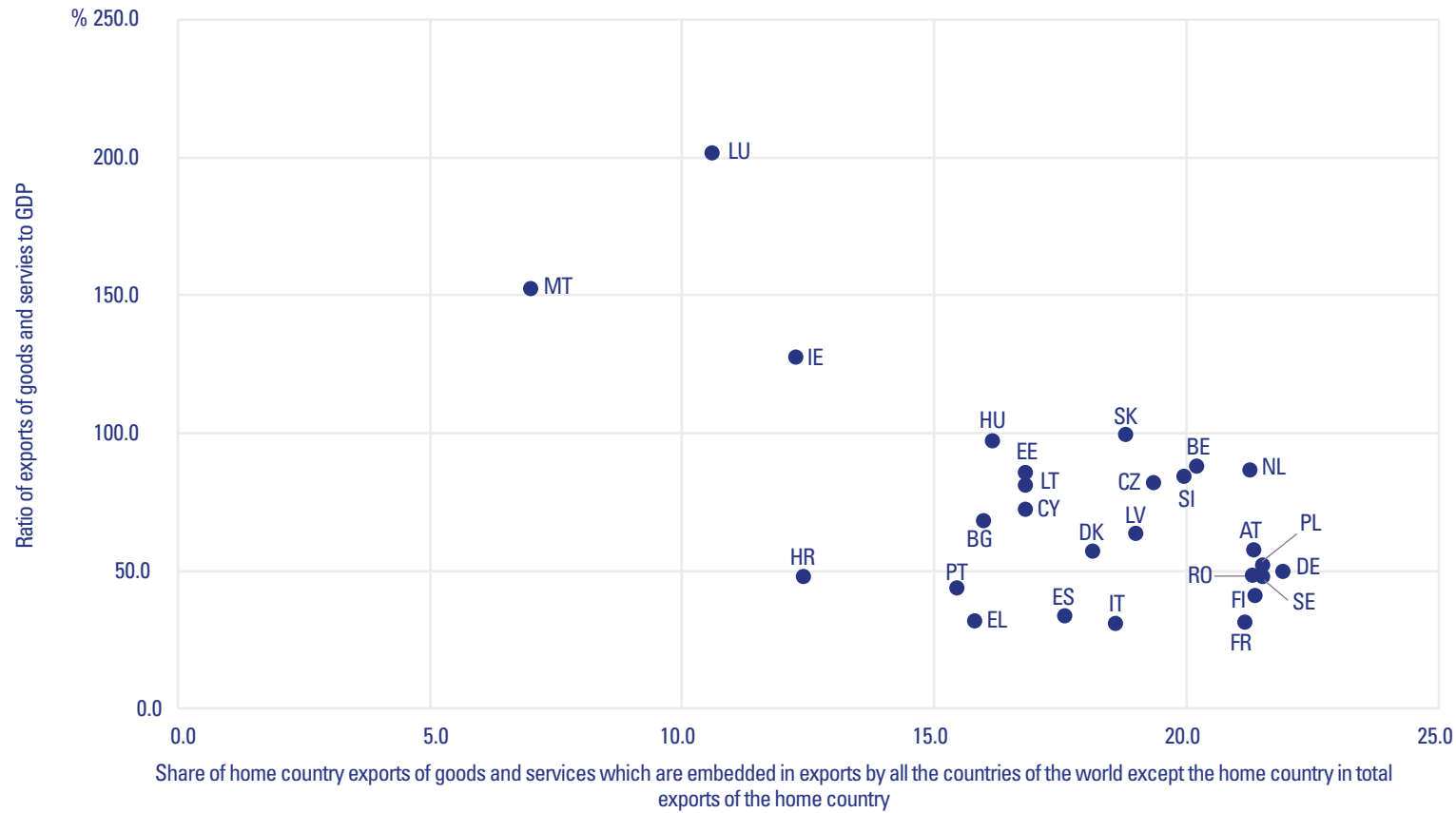
Source: OECD Trade in Value added database, Principal indicators, Domestic value added in foreign exports as a share of gross exports, by foreign exporting country and Eurostat

2.5 Employment impacts of exports by Member States to outside the EU

Section 2.4 showed that some of the exports of a Member State embody goods and services imported from other countries through backward integration in value chains and some exports will themselves be embedded in goods and services of foreign producers. Moreover, as noted in the introduction, 1 in 7 jobs in the EU, i.e. around 36 million jobs, were supported by the EU exports to countries outside the EU in 2017.

This section examines the effect of such exports on domestic employment at the Member State level. First, it reviews the importance for each Member State of the jobs supported by exports to outside the EU. Second, it shows for each Member State how these export-supported jobs are distributed between export jobs created directly in the Member State and jobs created indirectly. These indirect jobs are created through the exports of businesses which are located in other Member States and embedded goods and services produced by businesses from the Member State, i.e. through the forward integration channel of global value chains.

The share of the total number of jobs supported by extra-EU exports ranged from 10.5% in Spain to 32.8% in Ireland and Luxembourg in 2017. However, in the case of the vast majority of Member States (16 out of 27), the employment contribution ranged from 13% to 22%. In other words, between 1 in 4 jobs and 1 in 8 jobs depended on extra-EU exports in these twenty Member States. Some of these jobs resulted from sales of goods and services to businesses in other Member States and these businesses then embedded these goods and services in exports to outside the EU.

These jobs supported indirectly by extra-EU exports accounted for one or more jobs in every five jobs supported by extra-EU exports. The share

of jobs supported indirectly in the total number of jobs supported by extra-EU exports exceeded 40% in Czechia, Hungary, Malta, Poland and Slovakia, ranged between 30% and 40% in Austria, the Netherlands and Slovenia and between 20 and 30% in Belgium, Estonia, Latvia, Luxembourg, Sweden and Romania.
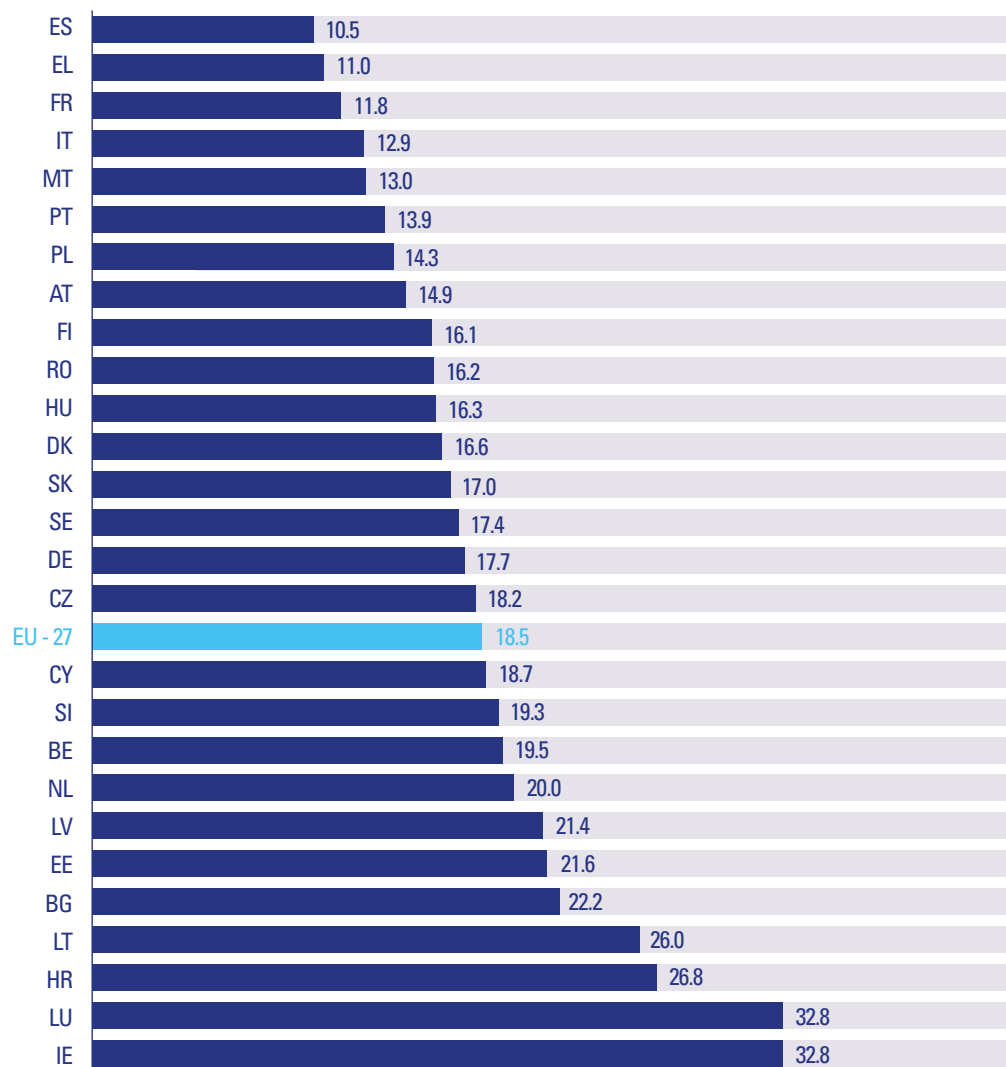
Case study 2

Hungary: selling abroad creates jobs at home
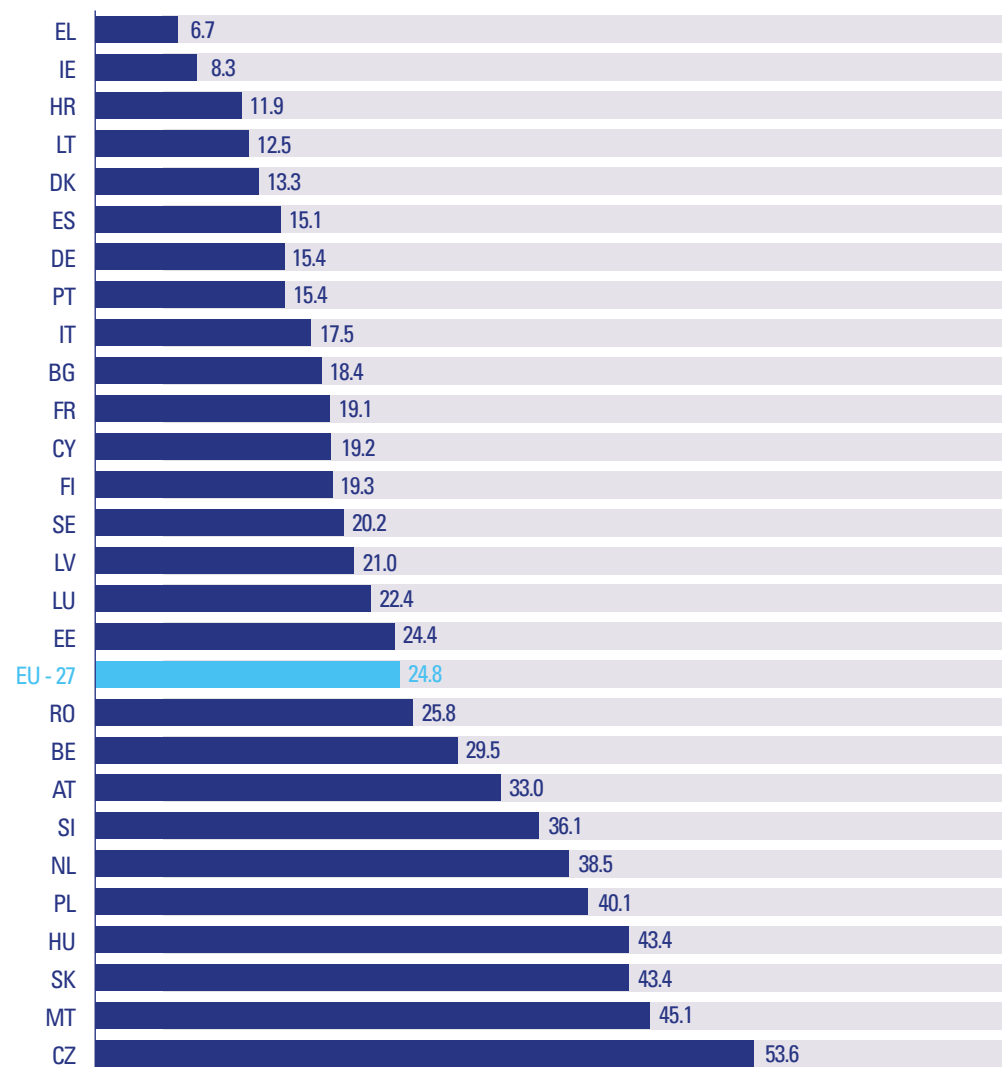
See case study supplement for full story.

Figure 17 Employment supported by EU exports as a percentage of total employment, by Member State - 2017

ES	10.5
EL	11.0
FR	11.8
IT	12.9
MT	13.0
PT	13.9
PL	14.3
AT	14.9
FI	16.1
RO	16.2
HU	16.3
DK	16.6
SK	17.0
SE	17.4
DE	17.7
CZ	18.2
EU - 27	18.5
CY	18.7
SI	19.3
BE	19.5
NL	20.0
LV	21.4
EE	21.6
BG	22.2
LT	26.0
HR	26.8
LU	32.8
IE	32.8

Note: EU-27 = average of Member States
Source: Arto et al. (2018) EU Exports to the World: Effects on Employment

Figure 18 Share (in %) of jobs supported indirectly by extra-EU exports in total jobs supported by extra-EU exports - 2017

EL	6.7
IE	8.3
HR	11.9
LT	12.5
DK	13.3
ES	15.1
DE	15.4
PT	15.4
IT	17.5
BG	18.4
FR	19.1
CY	19.2
FI	19.3
SE	20.2
LV	21.0
LU	22.4
EE	24.4
EU - 27	24.8
RO	25.8
BE	29.5
AT	33.0
SI	36.1
NL	38.5
PL	40.1
HU	43.4
SK	43.4
MT	45.1
CZ	53.6

Note: EU-27 = average of Member States
Source: Arto et al. (2018) EU Exports to the World: Effects on Employment

3.

THE DIVERSITY OF THE EU'S REGIONS

The analysis of the regional impact of international exports provides an estimate of the impact on regional employment and output. It also assesses whether the impact varies based on the region's income level. In particular, the study examines whether greater export activity benefits only richer regions in the EU or whether all regions stand to gain from such activity. Per capita economy-wide income[11] levels vary markedly across the EU. For example, in Luxembourg, the GDP per capita was 328% of the EU average in 2019, while it was only 28% in Bulgaria. Therefore, the present section provides information on regional income disparities in the EU.

A strong reliance on exports as a source of final demand is not a characteristic unique to Member States with higher incomes. In fact, as shown by Figure 19, the share of exports in final demand in 2019 is higher than the EU average in 10 Member States with a lower GDP per capita than the EU average in 2019. These are the Member States in the right hand-side blue line bubble.

In contrast, the share of exports in final demand is somewhat lower or only slightly higher than the EU average in a number of richer Member States, i.e. those with a GDP per capita which is above the EU average. These are the Member States in the left hand-side blue line dashed box in Figure 19.

In short, exports are an important source of growth for all Member States, especially many less well-off Member States.

Optimising distribution with local services

HP Inc. is a multinational information technology company that develops personal computers, printers and 3D printing solutions. Distribution centres located in Germany serve as the epicentre of the company's European operations, with finished products arriving from its international factories, ready for shipment.

HP Inc. contracts three distribution partners in Germany. Among these, one is a local distribution company, by the name of LGI. LGI has been working with HP Inc. for 20 years, since it was founded as a spin-off from the company itself. Originally, HP Inc. was LGI's only customer, but nowadays the company accounts for 20% of LGI's custom. LGI employs 300-500 people for HP Inc.-related activity. They run one of HP Inc.'s German distribution centres – operating the warehouse, providing storage solutions, packaging products, loading them into trucks and shipping them to their destination. LGI also manages inventory and returns on behalf of HP Inc.

For local suppliers, working with HP Inc. is advantageous because it provides an opportunity to find innovative solutions to specific problems. Smaller local suppliers are often more capable of providing niche services than global competitors. For example, in order to manage its logistics activity, HP Inc. enlisted the services of a local partner, which was able to offer HP Inc. a specific optimisation tool to match its particular needs. The service offering was customised to HP Inc.'s use-case to such a degree that no other global supplier on the market could rival the service.

Thanks to local suppliers, HP Inc. benefits from flexibility gains. By outsourcing, the company can reduce sunk costs in warehousing infrastructure and resources. HP Inc. can therefore focus its resources on its core competency of producing its best-in-class technology hardware.

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11   Economy-wide income is equal to GDP.

The regional employment and output analyses were undertaken for 209 regions. Figure 20 shows the number of regions per Member State. In all countries but France, these regions are the NUTS 2 regions. In the case of France, the regions are those used by INSEE in its statistics. The number of regions in Poland is not shown in the map as regional output data do not exist for Poland. Therefore, the regional impact analysis could not be undertaken for Poland. Moreover, in the case of the small Member States, i.e. Estonia, Cyprus, Latvia, Luxembourg and Malta, the NUTS 2 region covers the whole country.
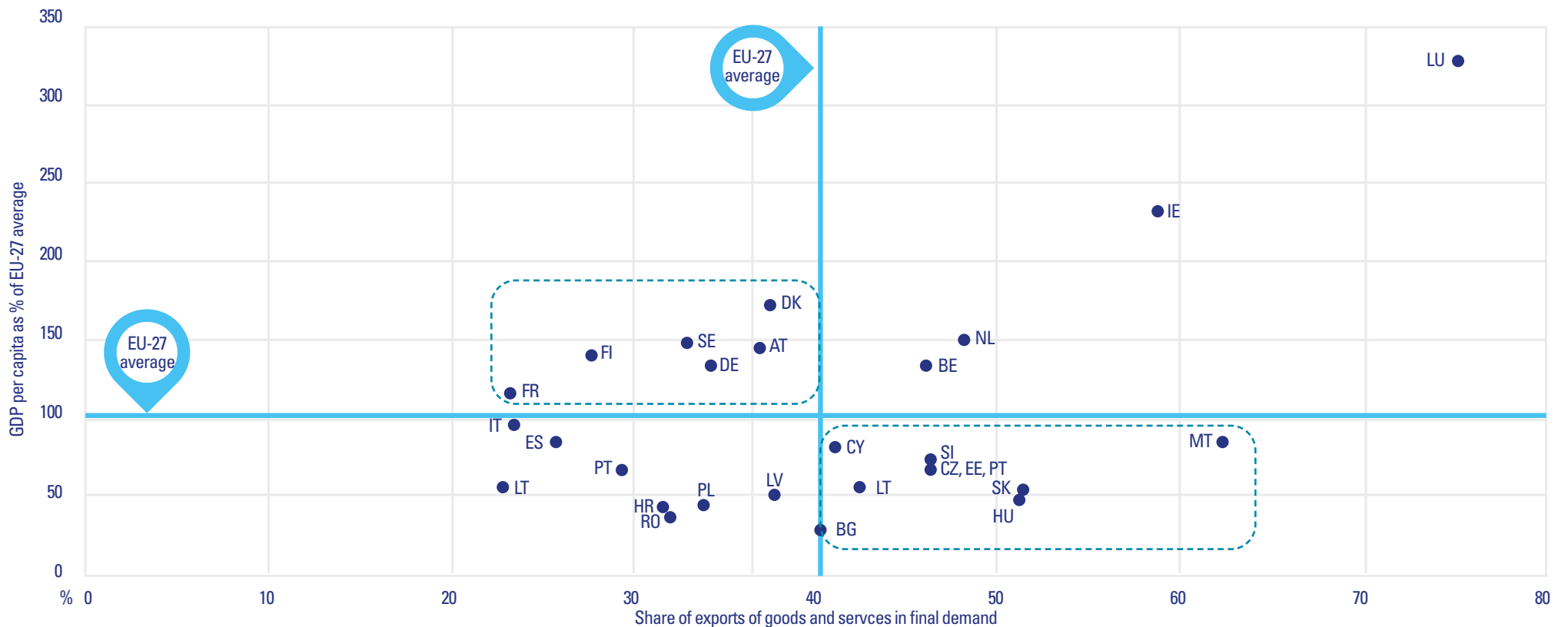
Regions of different Member States can have

more in common
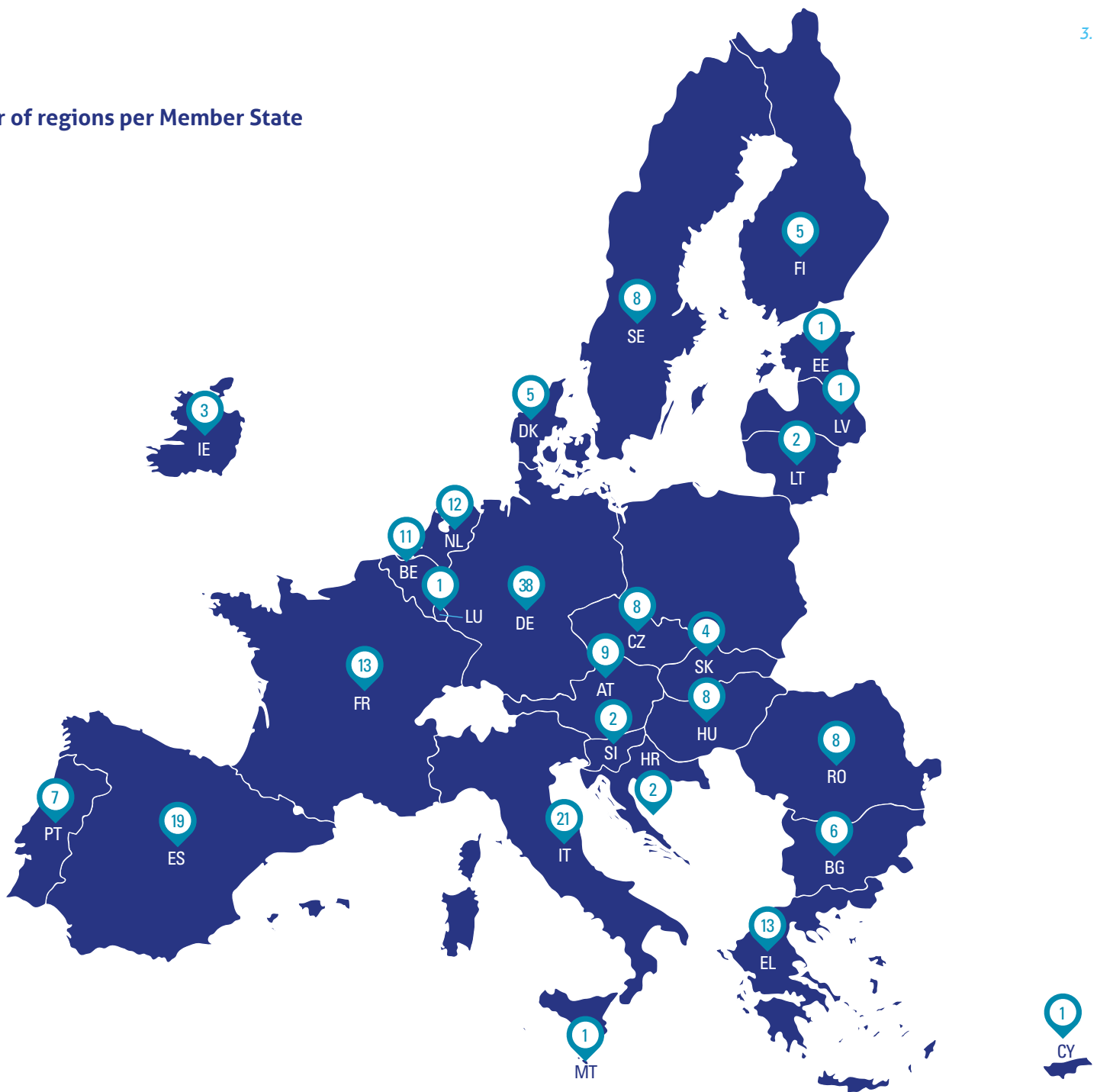
economically than regions within the same Member State

Figure 19 **Share (in %) of exports of goods and services in final demand in 2019 and ratio of GDP per capita to EU GDP per capita in 2018**

Source: OECD Trade in Value added database, Principal indicators, Domestic value added in foreign exports as a share of gross exports, by foreign exporting country and Eurostat

Figure 20 **Number of regions per Member State**

FI 5
SE 8
EE 1
LV 1
LT 2
DK 5
IE 3
NL 12
BE 11
LU 1
DE 38
CZ 8
SK 4
AT 9
HU 8
SI 2
HR 2
RO 8
FR 13
PT 7
ES 19
IT 21
BG 6
EL 13
CY 1
MT 1

Source: Eurostat and INSEE

It is also important to note that the size of the regions varies across Member States. For example, the median regional share[12] of total employment ranges from 2.3% in Germany to 50% in Croatia, Lithuania and Slovenia. Similarly, the median regional output share ranges from 2.2% in Germany to 50% in Croatia, Lithuania and Slovenia.

Regional differences within Member States and across Member States in GDP per capita are large in a number of cases. To bring these differences to the fore, Table 2 provides information on GDP per capita (relative to the EU average) and lists the NUTS 2 regions within a Member State with the highest and lowest GDP per capita and provides the difference (in percentage points) between the two regions.

For example, GDP per capita in Austria stood at 141% of the EU average in 2018, and the region with the highest GDP per capita in Austria was Salzburg (169% of the EU average) while Burgenland was the Austrian region with the lowest GDP per capita (99% of the EU average) and the difference was 70 percentage points.

Case study ③

Southern, Ireland and Kontinentalna Hrvatska: a comparison

See case study supplement for full story.
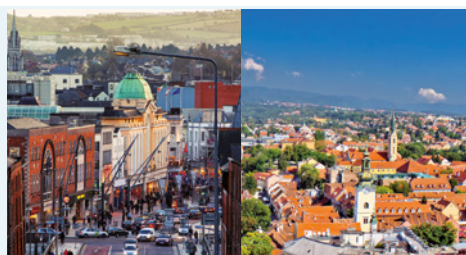
Table 1 **Median regional employment and output share - 2018**

Country	Median regional employment share in total employment	Median regional output share in total output
BE	9.19%	7.45%
BG	12.83%	11.35%
CZ	11.23%	10.75%
DK	20.06%	19.03%
DE	2.33%	2.21%
EE	100.00%	100.00%
IE	32.37%	39.17%
EL	5.09%	4.46%
ES	3.12%	3.08%
FR	7.64%	7.07%
HR	50.00%	50.00%
IT	2.72%	2.45%
CY	100.00%	100.00%
LV	100.00%	99.86%
LT	50.00%	50.00%
LU	100.00%	100.00%
HU	10.01%	9.77%
MT	100.00%	99.85%
NL	6.50%	5.67%
AT	9.16%	8.99%
PT	6.52%	6.42%
RO	12.31%	10.82%
SI	50.00%	50.00%
SK	23.60%	24.90%
FI	20.89%	19.61%
SE	11.07%	10.03%

Source: Eurostat and INSEE

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12   The median share is the preferred metric in this analysis as the value of the average share is affected by any large outliers in the data while the value of the median share is not.

The key points to note about national and regional differences in GDP per capita (relative to the EU average) are that:

- GDP per capita (as a percent of the EU-27 average) ranged in 2018[13] from 318% in Luxembourg to 26% in Bulgaria (Table 2);
- The differences in regional GDP per capita among the group of regions with a GDP per capita above the EU-27 average and among the group of regions with a GDP per capita below the EU-27 average are smaller than inter-country differences in GDP per capita, meaning that, in a number of cases, there are greater similarities between regions of different Member States than between Member States overall:
  - the difference in GDP per capita (as a percent of the EU average) among the richest regions of Member States at 213 percentage points is almost ¼ smaller than the difference in national GDP per capita (the Southern Ireland region with a GDP per capita of 254% of the EU average versus the Kontinentalna Hrvatska region of Croatia with a GDP per capita of 41% of the EU average);
  - moreover, the difference between the regions of Member States with the lowest GDP per capita is even much lower (the Norra Mellansverige region of Sweden with a GDP per capita of 121% of the EU average versus the Severozapaden region of Bulgaria with a GDP of capita 17% of the EU average);
- a number of the richest regions in less well-off Member States posted in 2018 a GDP per capita which was higher than in some of the regions with the lowest per capita GDP in richer Member States.

In light of the marked difference of GDP per capita within and across Member States, the analysis of the regional impact of international export activity will not only examine the extent to which regions benefit from such activity but also more specifically whether regions with a GDP per capita below the EU-average benefit to a greater or lesser extent than richer regions.

Exports are an **important source of growth** for all Member States

Case study 7

Vzhodna Slovenija, Slovenia: manufacturing as a driver of growth

See case study supplement for full story.

Table 2 GDP per capita (euro per inhabitant in percentage of the EU average) - 2018

Country	Country level	Region with highest level	Highest regional level	Region with lowest level	Lowest regional level	Difference between highest and lowest regional levels
AT	141	Salzburg	169	Burgenland	99	70
BE	130	Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest	224	Prov. Luxembourg	80	144
BG	26	Yugozapaden	42	Severozapaden	17	25
CY	78					
CZ	63	Praha	133	Severozápad	44	89
DE	130	Hamburg	209	Mecklenburg-Vorpommern	89	120
DK	168	Hovedstaden	216	Sjælland	115	101
EE	64					
EL	56	Attiki	75	Voreio Aigaio	38	37
ES	83	Comunidad de Madrid	113	Ciudad Autónoma de Melilla (ES)	60	53
FI	137	Helsinki-Uusimaa	177	Pohjois- ja Itä-Suomi	115	62
FR	113	Île de France	193	Mayotte	32	161
HR	41	Kontinentalna Hrvatska	41	Jadranska Hrvatska	39	2
HU	44	Budapest	90	Észak-Alföld	28	62
IE	215	Southern	254	Northern and Western	82	172
IT	94	Provincia Autonoma di Bolzano/Bozen	152	Calabria	55	97
LT	52	Sostines regionas	76	Vidurio ir vakaru Lietuvos regionas	43	33
LU	318	-	-	-	-	-
LV	49	-	-	-	-	-
MT	82	-	-	-	-	-
NL	145	Noord-Holland	190	Friesland	99	91
PL	42	Warszawski stoleczny	92	Lubelskie	28	64
PT	64	Área Metropolitana de Lisboa	83	Norte	54	29
RO	34	Bucuresti - Ilfov	78	Nord-Est	21	57
SE	150	Stockholm	202	Norra Mellansverige	121	81
SI	71	Zahodna Slovenija	85	Vzhodna Slovenija	59	26
SK	53	Bratislavský kraj	125	Východné Slovensko	38	87

Notes: The French regions include the overseas départements. No regional data are available for Cyprus, Latvia, Luxembourg and Malta
Source: Eurostat

Figure 21 National GDP per capita (relative to EU average) in EU Member States and highest and lowest GDP per capita (relative to EU average) in each Member State in 2018
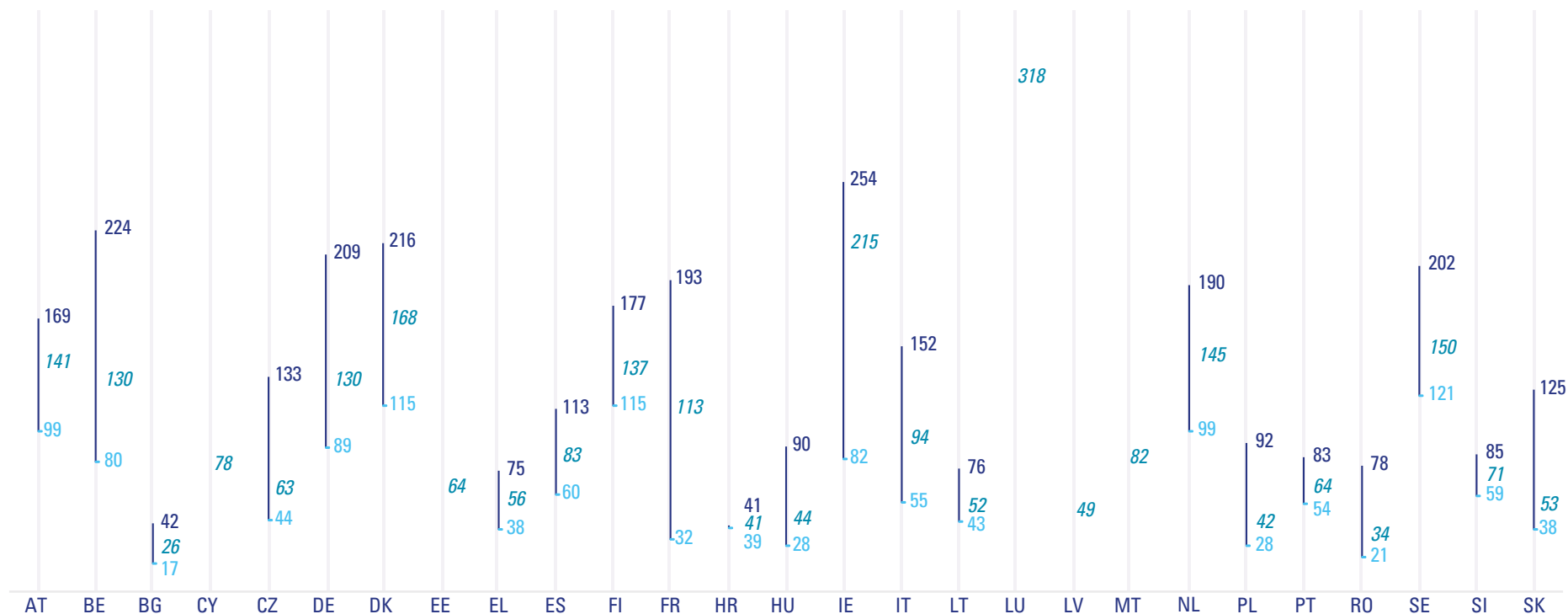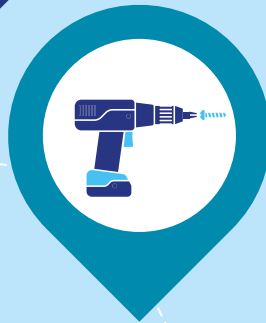

Notes: The French regions include the overseas 'départements'. No regional data are available for Cyprus, Latvia, Luxembourg and Malta.
Source: Eurostat

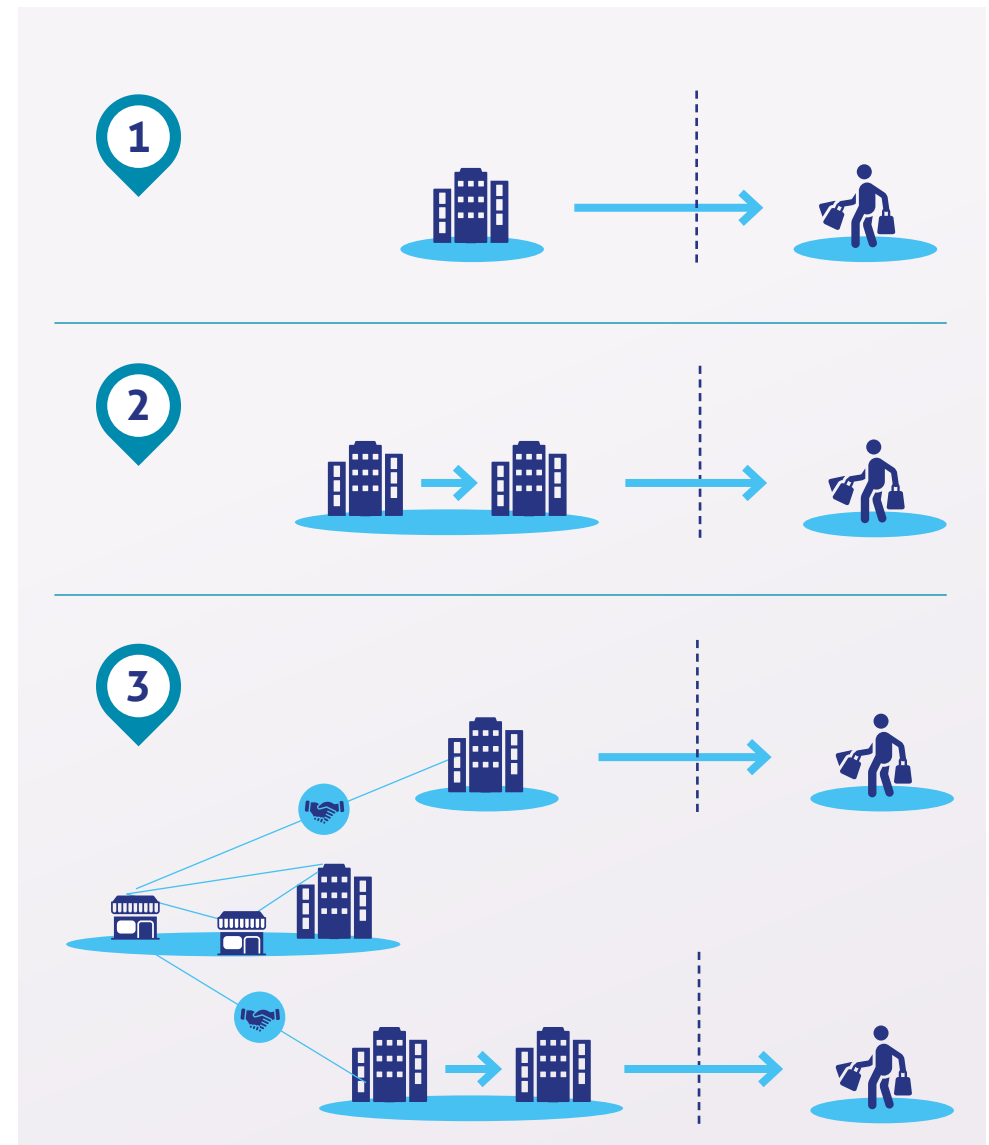# 4. THE IMPACT OF INTERNATIONAL EXPORTS ON REGIONAL EMPLOYMENT AND OUTPUT

The present chapter explains first how regions benefit from growth in international exports. Next, it describes the methodological approach to estimate the impact of exports on regional employment and output, and then presents the results of the statistical analysis.

4.1 How do regions benefit from growth in international exports?

Regions can benefit from international exports through three different channels:

1 Some businesses in a region may export directly to clients outside their national market. Such clients, i.e. consumers, businesses and governments, may be end-users of the products or services exported by the region's businesses or businesses in international global value chains.[14]

2 Some businesses in a region may export indirectly by selling their products and services to other domestic businesses which export themselves to end-users outside their national markets or businesses which are part of global value chains.

3 Some businesses in a region may not export directly or indirectly but may nevertheless benefit from the domestic demand resulting from the direct or indirect export activity of businesses located in the same region or other regions of their home country. This effect arises from the fact that the salaries and benefits and dividends paid by businesses exporting directly and indirectly will be spent on a wide range of goods and services produced by a variety of businesses, including domestic non-exporting businesses.

The analysis presented in this chapter provides not only an estimate of the total output and employment impact but also of the direct and indirect impact, with the latter being equal to the sum of the indirect export and domestic demand impacts.

A strong export ecosystem is both a cause and an indirect benefit of strong exports. Such an ecosystem comprises public government departments and agencies, organisations and businesses supporting enterprises engaged in exports or considering exporting and promoting the country's or region's 'brand'. Such services and a well-functioning and efficient transport infrastructure are key foundations of a country's or region's export performance. The support services provided by the ecosystem include, for example, assisting business in identifying, understanding and accessing new export markets and opportunities, dealing with export/import and customs formalities, providing export finance and export credit risk insurance and offering exporting or potentially exporting business mentoring and networking opportunities.

A true partner of French aerospace

Boeing has been a true partner of the French aerospace industry for 60 years. Its operations include commercial aviation, defence and space and global services activities across three French locations, including headquarters in Paris, as well as sites in Toulouse and Senlis.

Annually, Boeing spends approximately $6.3bn – in direct sales alone – in France, a country reputed for its very strong aerospace sector. There are more than 100 French suppliers involved in Boeing's programmes, which equates to more than 35,000 jobs. More than 50 of the 100 French suppliers are directly contracted by Boeing.

One such supplier is Safran Group. A global brand in its own right, Safran Group's partnership with Boeing has gone from strength to strength since 1974 when CFM International, a joint venture involving the Aircraft Engines division of Safran, became the sole engine supplier to the Boeing 737. Safran Group is contributing to the success of most of Boeing's programmes, including the 777X, the most recent aircraft still in development, for which it provides engine components, fuel distribution, gauging systems, electric wiring, galleys and evacuation slides. Safran Group also works with Boeing on a new landing gear for its 2020 ecoDemonstrator flight test research programme. Safran Landing Systems has been able to provide a bespoke piece of technology to match Boeing's specific noise-reduction needs, reducing the noise of the landing gear by 20% on standard programmes.

Working with Boeing entails a number of advantages for local suppliers. These include diversification of their customer pool; reduced dependency towards a single original equipment manufacturer; job creation; and development of pioneering new technologies. The company counts on an ecosystem of local suppliers with unique expertise and know-how in order to deliver its world-renowned carriers and systems across the globe.

Acknowledgement: *Jeremy Rostain, Global Supplier Development Manager – Boeing*

4.2 Methodological approach to estimate the regional employment and output impact of exports

A major challenge for any pan-European analysis of the regional impact of international export activity is the lack of data on exports of goods and services by regional economies. Such data exist only at the national level in many Member States. In principle, in the absence of regional data on international trade, one could investigate the regional impact of international exports through three different approaches using data from Eurostat, namely 1) an analysis using input-output data; 2) a correlation analysis; and 3) an econometric analysis using Granger causality estimation[15]. After investigating the advantages and disadvantages of the three possible approaches, the approach using input-output data was chosen as it is the most comprehensive and uses granular data. Two types of Eurostat data are used in such an analysis, namely: 1) input-output data at industry level, by country; and 2) industry output at regional level, by country.

Figure 22 Description of input-output analysis methodology
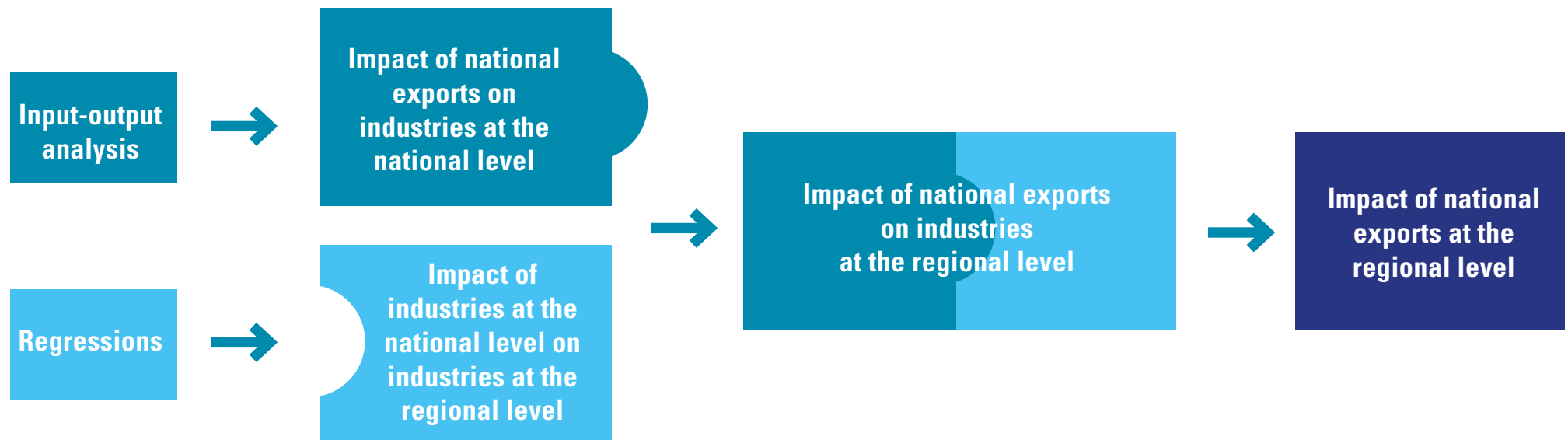
Source: LE Europe

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15 Essentially, if a variable X Granger-causes another variable, then past values of X should contain information that helps predict Y above and beyond the information contained in past values of Y alone.

As Figure 22 shows, from the input-output data, an estimate of the impact that national exports have on an industry's output in a Member State can be derived. This impact combines a direct impact which measures only the output and employment response of industries experiencing increased foreign demand for their goods and an indirect (or induced impact) which measures the impact on industries supplying the industries whose exports are increasing. From the regional industry output data, a regression analysis can be used to estimate the impact that output growth in the industry at the national level will have on the same industry at the regional level. The regression estimates can then be used to translate the impact of national exports on an industry at the national level to the regional level.

The total impact of exports on a region is the sum of all the output impacts that national exports have on the industries in the region. The impact can also be expressed in employment terms by using the employment to output ratio for each region's industry. The method is explained in greater detail in Annex 1. To express the input-output estimates in employment terms, the following steps are followed:

- The average employment-output ratio in 2001-2018 is calculated at the industry level in each region[16]. The ratio defines the number of people in employment per Euro of output in each industry at the regional level.
- Input-output analysis provides an estimate of the impact of national exports on the output of a region's industry in Euros terms. This estimate is multiplied by the ratio from step 1. This gives the expected change in employment of the region's industry resulted from the Euro increase in output associated with a one percent increase in national exports.
- Step 1 and 2 are carried out for all the industries in a region. The sum of changes in employment is the estimated regional employment impact.

Partnering up to meet local customers' needs

SLTN is an IT company based in Hilversum, the Netherlands. Founded in 1997, the company has grown from strength to strength, posting an annual turnover of more than €175 million in the latest fiscal year. SLTN engages a of total 500+ employees across its three divisions of IT products, services and consulting as well as a further 100 local subcontractors for specialised skills and projects.

SLTN's customer and partner base comprises corporates and large enterprises. One of these partners is the American multinational Dell Technologies – a household name in computer technology. SLTN's relationship with Dell Technologies began in 2007. The partnership now accounts for around 40% of SLTN's IT product division revenues, while around 200 staff and up to 40 contractors work on Dell Technologies projects.

As a multinational US corporation, Dell Technologies leans on local expertise of its suppliers to help it better serve local customers' needs. One such example is the provision of private cloud services. More and more customers in Europe are keen to move to cloud-based services but, concerned to retain control of their data, also seek alternatives to public cloud services as part of a multi-cloud strategy. Such cases highlight the full value of SLTN's partnership with Dell. Using Dell Technologies hardware and software, SLTN is able to furnish private cloud solutions to local customers, enabling them to comply with local data protection rules, among other advantages.

Working with Dell Technologies for over a decade has proved to be very fruitful for SLTN as one of the Netherlands' largest unlisted companies, allowing them to reinforce their brand reputation and to expand their reach in the Dutch market. At the same time, the partnership enabled Dell Technologies to provide end-to-end solutions and to better address the needs of their Dutch business customers.

Acknowledgement: *Eugene Tuijnman, CEO SLTN & chairman of Dell EMC EMEA Partner Advisory Board*

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16   This is calculated as the ratio of the sum of annual employment levels to the sum of annual output levels from 2001 to 2018.

4.3 Estimated regional output and employment impacts

Overall, across all regions and the period covered by the data, a one percent growth in exports increased regional output and regional employment by an average of 0.9% (Table 3). Moreover, the detailed results reported in Annex 4 show that an increase in exports stimulated output in all regions in all Member States. However, the regional impact varied markedly across and within Member States (see, for example, the results reported in Table 4 which shows for each Member State the region with the highest and lowest output and employment impacts and the size of these impacts). The difference in regional impact depends largely on the industry composition of a region's production. Typically, regions where export-oriented, goods-producing industries account for a large share of total regional output benefit more from overall growth in exports.

Three different output and employment impacts are presented in Table 3, namely the overall impact, the direct impact showing the output and employment response of industries benefitting directly from the growth in exports and the indirect impact. The latter captures the change in output and employment associated with the increased purchases of goods and services from various industries in the region by the industries benefitting directly from the export growth.

The direct impact of growth in exports on regional output and employment is by far the most important (relative to the indirect impact and aggregate demand effect). Across all regions, the average direct impact was on average about 8 times as large as the indirect impact (0.7% versus 0.2%).

Case study (5)

Área Metropolitana de Lisboa, Portugal: a different industrial fabric

See case study supplement for full story.

Table 3 **Summary statistics – regional output and employment impact**

	Total regional output impact of trade	Direct regional output impact of trade	Indirect regional output impact of trade	Total regional employment impact of trade	Direct regional employment impact of trade	Indirect regional employment impact of trade
Mean – all regions	0.9%	0.7%	0.2%	0.9%	0.7%	0.2%
Median – all regions	0.7%	0.5%	0.2%	0.8%	0.6%	0.2%
Maximum – all regions	4.8%	3.6%	1.2%	5.3%	4.0%	1.3%
Minimum – all regions	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%

Source: LE Europe calculations

Table 4 Highest and lowest regional output and employment impact in each Member State

NUTS2 Region	Total regional output impact of trade	Direct regional output impact of trade	Indirect regional output impact of trade	Total regional employment impact of trade	Direct regional employment impact of trade	Indirect regional employment impact of trade
Austria						
Steiermark (AT22)	1.22%	0.98%	0.24%	1.14%	0.90%	0.24%
AT11 - Burgenland (AT)	0.21%	0.13%	0.08%	0.26%	0.16%	0.11%
Belgium						
BE31 - Prov. Brabant wallon	1.62%	1.32%	0.30%	1.30%	1.02%	0.28%
BE24 - Prov. Vlaams-Brabant	0.36%	0.27%	0.09%	0.39%	0.29%	0.10%
Bulgaria						
BG32 - Severen tsentralen	0.55%	0.40%	0.15%	0.90%	0.66%	0.24%
BG34 - Yugoiztochen	0.25%	0.18%	0.07%	0.57%	0.41%	0.16%
Croatia						
HR04 - Kontinentalna Hrvatska	0.38%	0.27%	0.11%	0.49%	0.35%	0.14%
HR03 - Jadranska Hrvatska	0.35%	0.24%	0.11%	0.45%	0.33%	0.13%
Czechia						
CZ02 - Střední Cechy	3.10%	2.34%	0.76%	3.47%	2.60%	0.87%
CZ01 - Praha	0.61%	0.38%	0.23%	0.80%	0.49%	0.31%
Cyprus						
CY00 - Kypros	0.45%	0.30%	0.15%	0.54%	0.37%	0.17%
Denmark						
DK02 - Sjælland	1.45%	1.10%	0.35%	1.06%	0.80%	0.25%
DK01 - Hovedstaden	0.54%	0.35%	0.19%	0.44%	0.28%	0.16%
Estonia						
EE00 - Eesti	0.88%	0.64%	0.25%	1.57%	1.17%	0.40%

NUTS2 Region	Total regional output impact of trade	Direct regional output impact of trade	Indirect regional output impact of trade	Total regional employment impact of trade	Direct regional employment impact of trade	Indirect regional employment impact of trade
Finland						
FI19 - Länsi-Suomi	1.89%	1.39%	0.50%	1.53%	1.12%	0.42%
FI1B - Helsinki-Uusimaa	1.53%	1.11%	0.42%	1.07%	0.76%	0.31%
France						
FR1 - Île de France	0.21%	0.12%	0.09%	0.21%	0.12%	0.09%
FRJ - Languedoc-Roussillon - Midi-Pyrénées	0.13%	0.07%	0.06%	0.14%	0.08%	0.06%
Germany						
DE91 - Braunschweig	3.79%	3.12%	0.66%	3.12%	2.53%	0.59%
DE30 - Berlin	0.38%	0.24%	0.14%	0.39%	0.23%	0.16%
Greece						
EL64 - Sterea Ellada	0.40%	0.29%	0.10%	0.29%	0.21%	0.08%
EL53 - Dytiki Makedonia	0.15%	0.09%	0.06%	0.24%	0.17%	0.07%
Hungary						
HU31 - Észak-Magyarország	4.76%	3.56%	1.19%	5.31%	3.97%	1.34%
HU11 - Budapest	1.12%	0.79%	0.33%	1.28%	0.91%	0.37%
Ireland						
IE05 - Southern	2.59%	1.69%	0.89%	1.32%	0.83%	0.49%
IE04 - Northern and Western	0.17%	0.08%	0.09%	0.12%	0.05%	0.07%
Italy						
ITC1 - Piemonte	1.01%	0.72%	0.29%	1.17%	0.84%	0.34%
ITF6 - Calabria	0.17%	0.09%	0.08%	0.27%	0.15%	0.12%
Latvia						
LV00 - Latvija	0.67%	0.50%	0.17%	1.11%	0.85%	0.26%
Lithuania						
LT02 - Vidurio ir vakaru Lietuvos regionas	0.74%	0.58%	0.17%	0.98%	0.74%	0.23%
LT01 - Sostines regionas	0.60%	0.45%	0.15%	0.81%	0.61%	0.20%

NUTS2 Region	Total regional output impact of trade	Direct regional output impact of trade	Indirect regional output impact of trade	Total regional employment impact of trade	Direct regional employment impact of trade	Indirect regional employment impact of trade
Luxembourg						
LU00 - Luxembourg	0.31%	0.19%	0.11%	0.36%	0.25%	0.11%
Malta						
MT00 - Malta	0.37%	0.26%	0.12%	0.42%	0.30%	0.12%
The Netherlands						
NL34 - Zeeland	1.79%	1.50%	0.29%	1.07%	0.88%	0.19%
NL31 - Utrecht	0.37%	0.26%	0.11%	0.31%	0.22%	0.10%
Portugal						
PT18 - Alentejo	1.08%	0.84%	0.24%	1.20%	0.91%	0.28%
PT20 - Região Autónoma dos Açores (PT)	0.15%	0.10%	0.05%	0.20%	0.14%	0.06%
Romania						
RO31 - Sud - Muntenia	1.09%	0.85%	0.23%	1.20%	0.90%	0.30%
RO32 - Bucuresti - Ilfov	0.48%	0.34%	0.14%	0.63%	0.46%	0.17%
Slovakia						
SK02 - Západné Slovensko	1.50%	1.19%	0.31%	2.21%	1.75%	0.46%
SK01 - Bratislavský kraj	0.91%	0.66%	0.25%	1.10%	0.76%	0.34%
Slovenia						
SI03 - Vzhodna Slovenija	2.21%	1.78%	0.42%	2.71%	2.18%	0.53%
SI04 - Zahodna Slovenija	1.45%	1.14%	0.32%	1.76%	1.37%	0.38%
Spain						
ES12 - Principado de Asturias	0.65%	0.47%	0.18%	0.66%	0.47%	0.19%
ES53 - Illes Balears	0.19%	0.11%	0.08%	0.26%	0.16%	0.10%
Sweden						
SE31 - Norra Mellansverige	1.22%	0.95%	0.27%	1.14%	0.89%	0.26%
SE11 - Stockholm	0.44%	0.31%	0.13%	0.40%	0.27%	0.13%

Source: LE Europe calculations

As already noted, all the regions benefitted from an increase in exports. Of particular note is the fact that regions with both a GDP per capita above and below the EU-27 average benefitted from the growth in exports over the past decade. In fact, as shown in Figure 23 and Figure 24, there exists no systematic correlation between a region's GDP per capita and the estimated regional output and employment impacts of a growth in exports.

There is no evidence that comparatively wealthier regions **benefit more from exports.**

Figure 23 Correlation between regional GDP per capita and estimated regional output impact of a one percent increase in exports
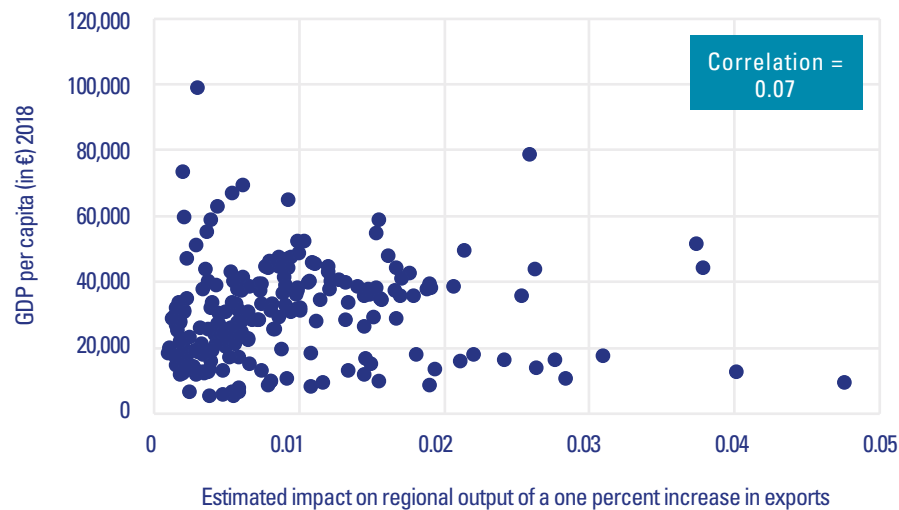
Correlation = 0.07

Source: LE Europe calculations

Figure 24 Correlation between regional GDP per capita and estimated regional employment impact of a one percent increase in exports

Correlation = -0.09
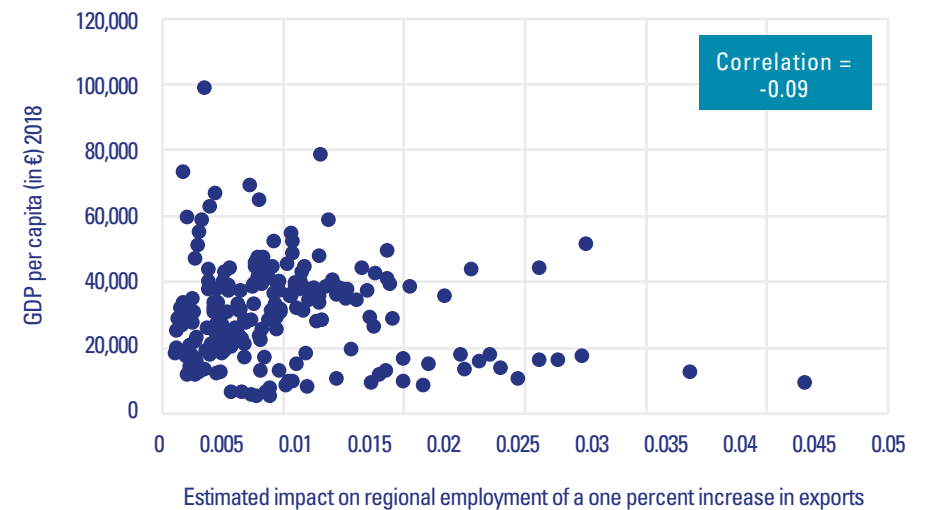
Source: LE Europe calculations

4.4 Drivers of difference in regional employment impact of exports

The first subsection of the chapter reviews the geographical distribution of the regional employment impact of exports and a second sub-section focuses on the link between the economic tissue a region and the size of the employment impact. Finally, a third sub-section considers a number of other factors which could explain differences in regional impacts and highlights the most important. As the factors explaining differences in regional output impacts are largely the same as the those resulting in different regional output impacts, only the results of the analysis of the regional employment impacts are presented in the report.

4.4.1 Geographical distribution of the employment impact of exports

The analysis below of the geographical distribution of the employment impact of regions distinguishes three types of employment impacts, namely a high employment impact, a medium employment impact and a modest employment impact.

The modest employment impact regions are expected to see increased in employment of 0.41% or less for a one percentage increase in national exports. The high impact regions are expected to experience increases of 0.93% or more and for medium impact regions, the impact is between 0.41% and 0.93%.

How exports drive employment and output (average across EU regions)

+1%
growth in national exports

+0.9%
growth in regional output and employment
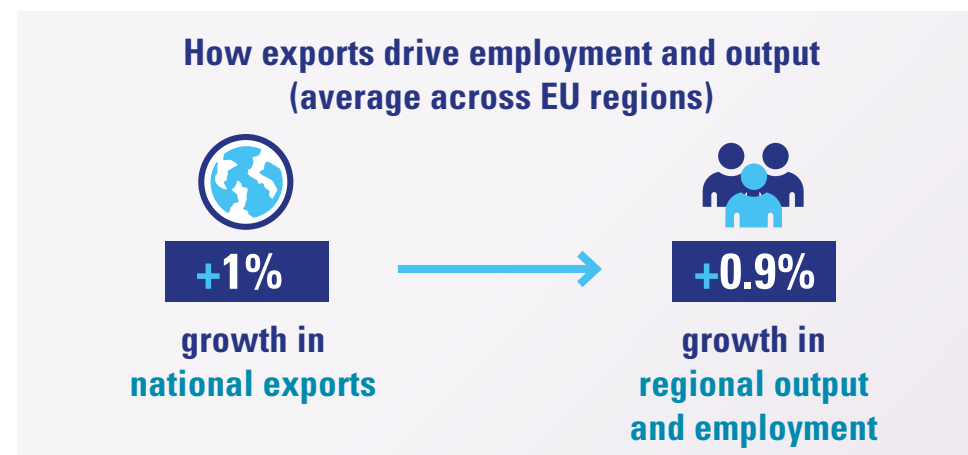
Case study 4

Stuttgart, Germany: strong value chains, more jobs

See case study supplement for full story.

High employment impact regions

Somewhat more than half (58%) of the high impact regions tend to have income per capita higher than the EU average. However, within the high impact group, exports do not tend to have a higher impact on employment in the regions with higher incomes per capita. This can be seen from a simple scatter plot below (Figure 25).

Figure 25 **Income per capita and estimated impact of exports on employment, among high impact employment regions**
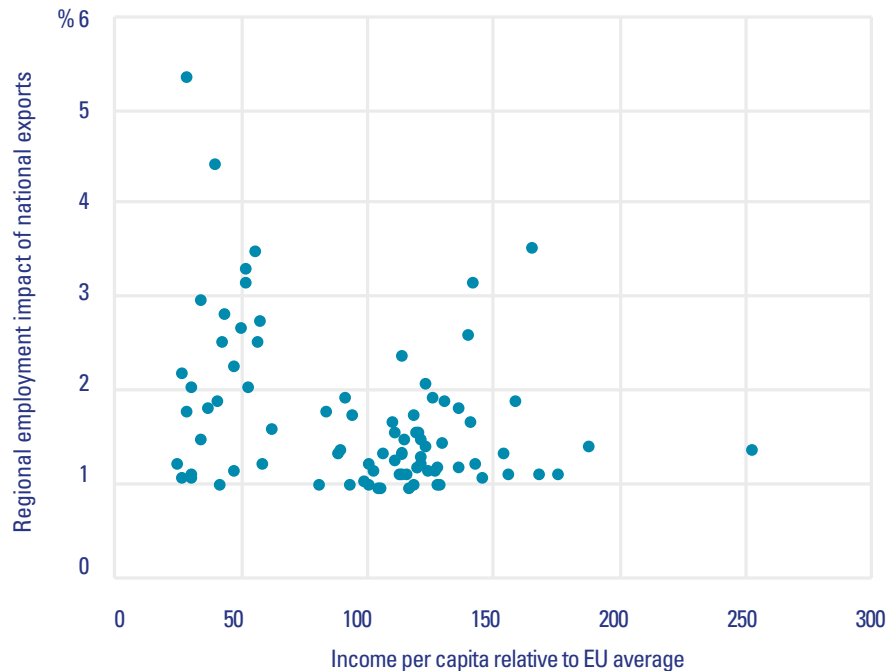
Source: LE Europe calculations based on Eurostat

Case study 6

West-Vlaanderen, Belgium: where traditional industry meets the new

See case study supplement for full story.

Medium employment impact regions

Levels of income per capita are generally lower in this group than in the high impact employment group. Just over 40% of the regions (32 out of 73) have incomes higher than the EU average in per capita terms. Overall, the employment impact varies greatly among regions with similar incomes (Figure 26). Regions with higher incomes in this group do not show higher employment impacts.

Modest employment impact regions

There are fewer high-income regions in the modest impact group than in the medium impact group. Over 30% of the modest impact regions have incomes per capita higher than the EU average. In contrast, over 40% of regions in the medium impact group had a per capita income higher than the EU average.

There is no clear association between income level and the estimated output impact in the modest impact group (Figure 27).

Figure 26 **Income per capita and estimated impact of exports on employment, among medium employment impact regions**
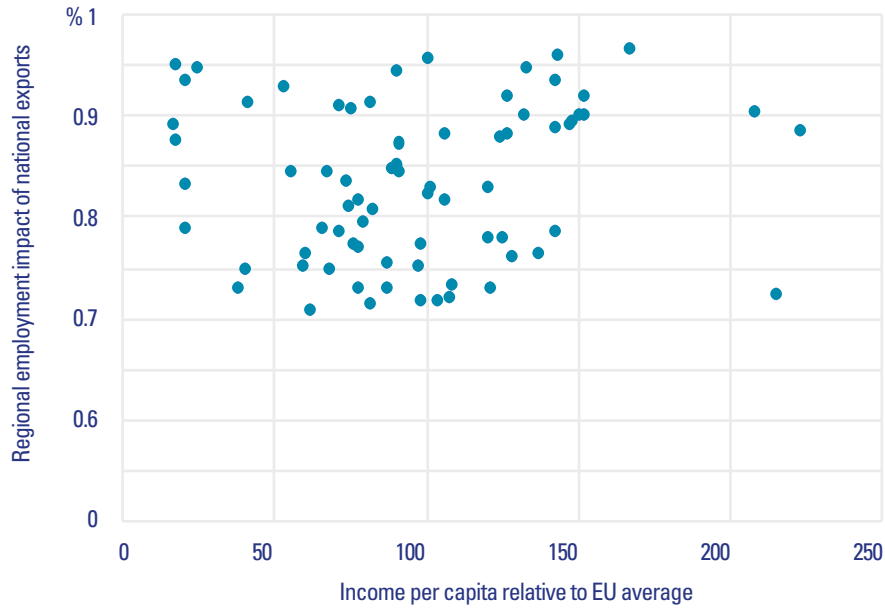
Source: LE Europe calculations based on Eurostat

Figure 27 **Income per capita and estimated impact of exports on output, among modest employment impact regions**

Note: Employment impact estimated by Input output analysis
Source: LE Europe calculations based on Eurostat

Case study 11

Normandie, France: tapping international markets

See case study supplement for full story.

4.4.2 Economic tissue of a region and the size of the employment impact

The present section examines in greater detail how the industrial fabric of a region explains the magnitude of the regional impact of national exports on employment. The findings of this analysis are very similar to those which would result from an analysis of the impact of the industry structure on the estimated regional output impact.

To that end, Figure 28 shows the industries' shares of output at the regional level. Each dot in the figure represents a region. The regions are grouped by employment impact, where 1 on the horizontal axis refers to the modest employment impact group, 2 refers to the medium employment impact group, and 3 refers to the high employment impact group.

Where an industry is a significant factor in a region's benefit from national exports growth, the industry should show larger output shares in the high impact regions – 3 on the axis. In other words, the dots at the 3 value on the axis should be mostly higher than the dots points at the 2 value. The dots at the 2 value should also be mostly higher than the ones at the 1 value.

None of the industries, except manufacturing, display this pattern. Manufacturing, which includes all the industries producing goods[17] tends to account for a larger share of output in regions where exports have larger employment impacts. This is not true for other industries. Output shares of other industries could be higher or about the same in the modest and medium impact group than the high impact group.

Manufacturing

is a driver of the regional impact of exports

Case study 8

Etelä-Suomi, Finland: moving with the times?

See case study supplement for full story.

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17   Agriculture and mining are excluded. Manufacturing production may also include some services production if these are not a major activity of enterprises and are not separated out when enterprises file their statistical reports.

Figure 28 **Industry share of output at regional level, regions grouped by employment impact (1 = regions with impact classified as modest, 2 = medium, 3 = high)**
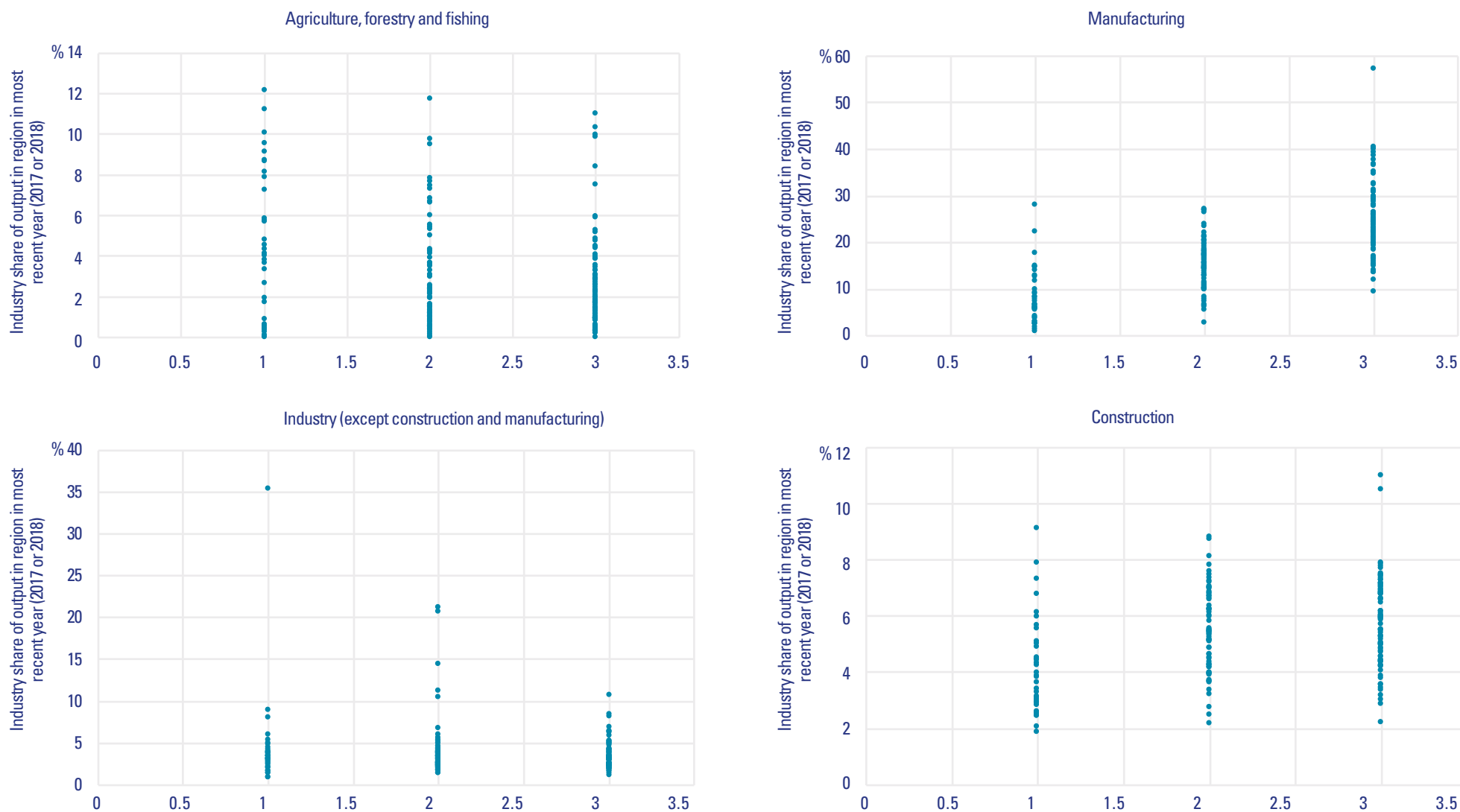
Source: LE Europe calculations based on Eurostat

Figure 28 - Industry share of output at regional level, regions grouped by employment impact (1 = regions with impact classified as modest, 2 = medium, 3 = high) (Continue)

Wholesale and retail trade, transport, accommodation and food service activities

Information and communication

Financial and insurance activities

Real estate activities

Figure 28 - Industry share of output at regional level, regions grouped by employment impact (1 = regions with impact classified as modest, 2 = medium, 3 = high) (Continue)

Professional, scientific and technical activities; administrative and support service activities

Public administration, defence, education, human health and social work activities

Arts, entertainment and recreation; other service activities; activities of household and extra-territorial organizations and bodies
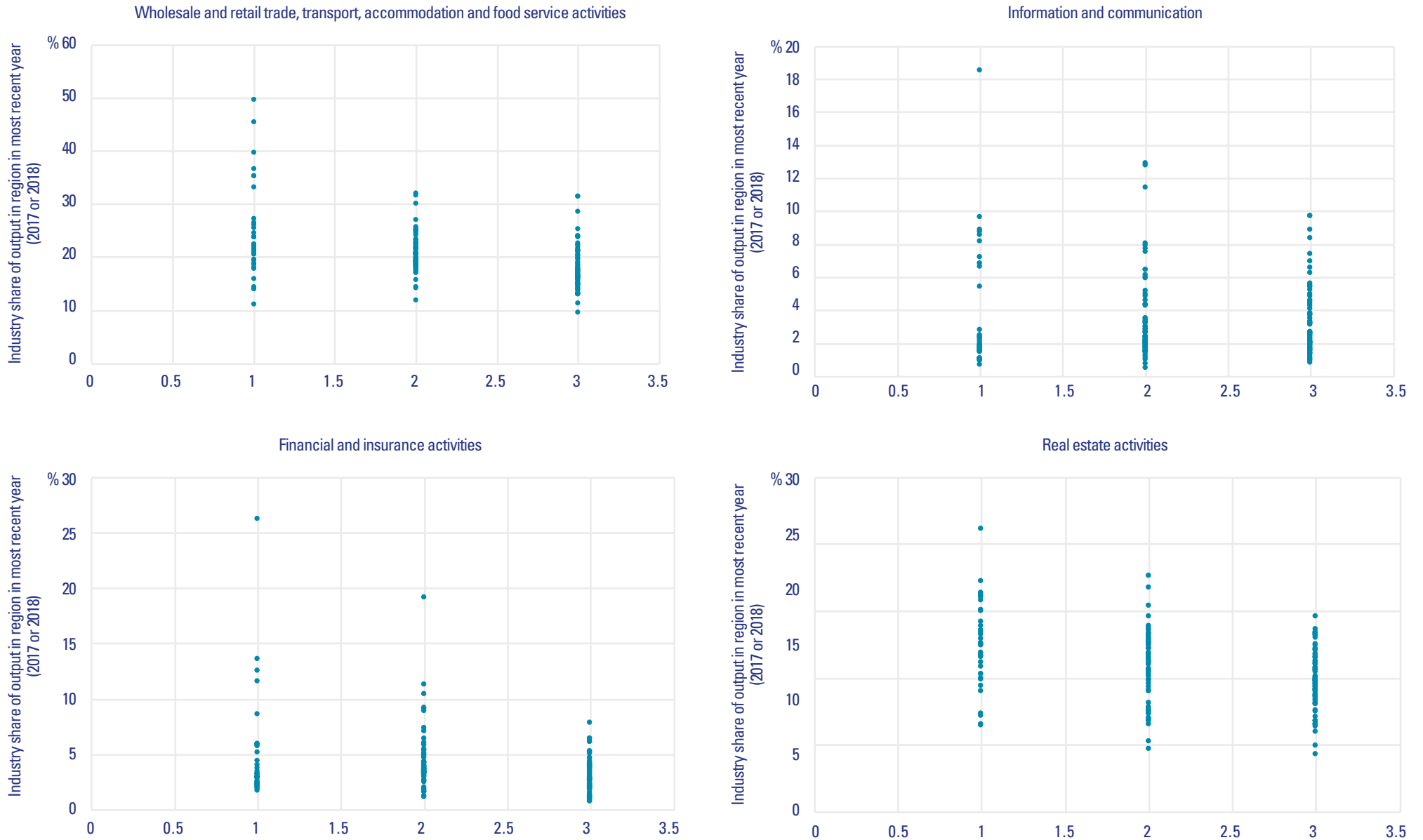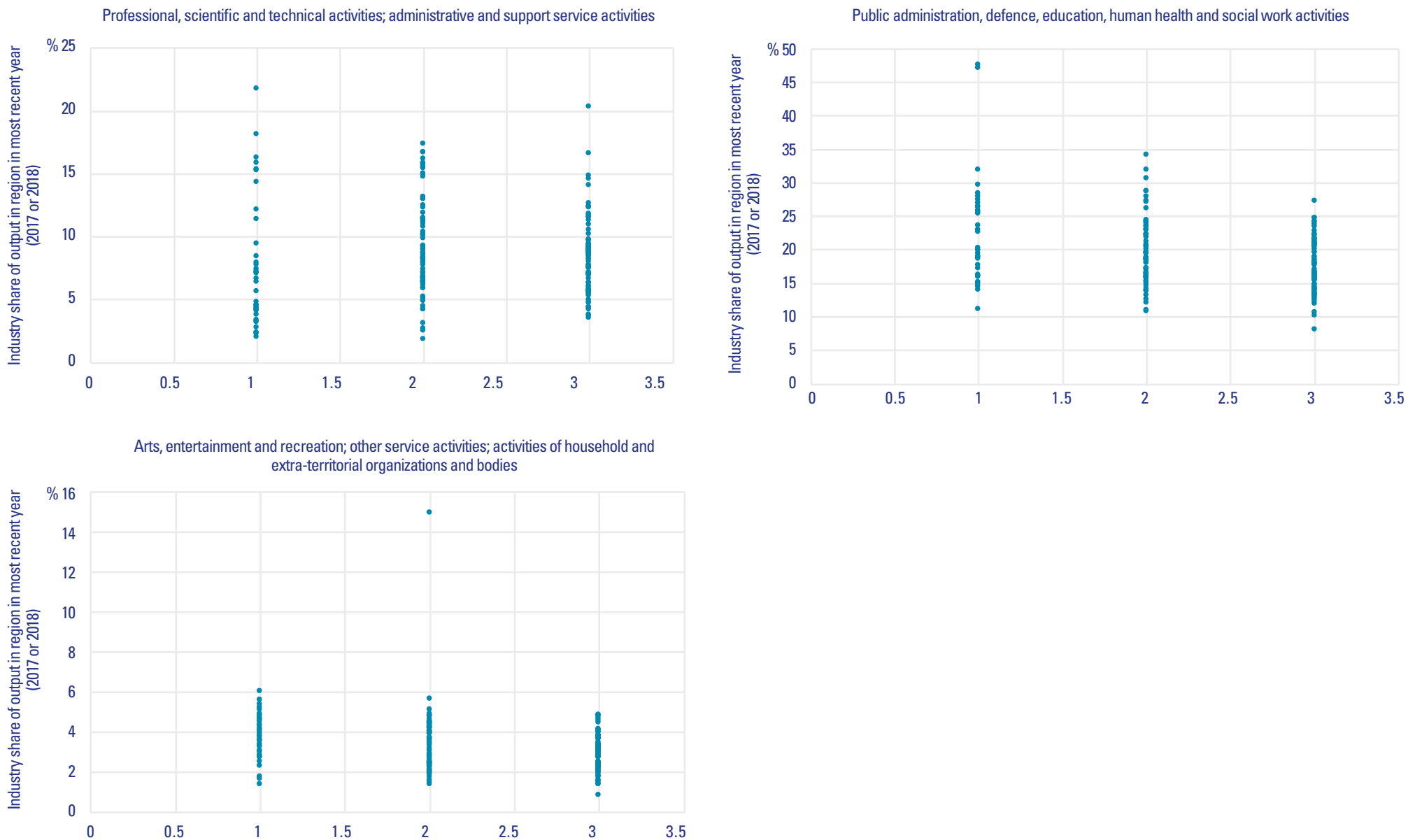
The finding that manufacturing accounts for larger output shares in regions that benefit most from national exports growth in employment terms can be explained by the results of the input-output analysis. In the analysis, when national exports increase, manufacturing is the industry which is predicted to increase most in output. Other industries benefit as well but to a lesser extent. Some of these other industries may export directly or supply services to the manufacturing sector and thus indirectly export through being part of a global value chain. In this context, it is important to note that, while some services are actively traded internationally, many services such as public services or retail services are not. Thus, the larger the share of services which are not or not often traded internationally, the less of an impact an increase in exports will have on regional output and employment. In other words, regions which have more businesses engaging in tradable activities will benefit from an increase in exports to a greater extent than other regions.

4.4.3 Why do the employment impacts vary across regions?

The size of the manufacturing sector is highlighted in the previous sub-section as a factor explaining differences in employment impacts and the present sub-section assesses through correlation analysis the importance of this and other factors. The additional factors considered in the correlation analysis include a wide range of economic characteristics of the regions, namely:

- the share of persons employed in high-technology manufacturing and knowledge-intensive industries
- the share in the labour force of persons with a tertiary education
- the overall score of the Regional Competitiveness Index and its components[18] of institutions, macroeconomic stability, infrastructure, health, basic education, higher education, labour market efficiency, market size, technological readiness, business sophistication, innovation.

Of these 13 indicators and the share of manufacturing indicator, only the latter shows a significant correlation of 0.74 with the size of the regional employment impact of exports.

As the lack of significant correlation of the size of the regional employment impact with the other indicators may reflect a wide dispersion of regional employment outcomes, a comparison of the median level of each indicator across the three regional employment impact categories was undertaken to examine whether notable differences could be observed.

Such an analysis confirms the strong impact of the importance of manufacturing in the regions' economies with the manufacturing share in the economy in the median high employment region being 9 percentage points higher than in the median medium employment impact region and 16 percentage points higher than in the median modest impact region.

Case study 10

Comunidad de Madrid, Spain: low exports, no problem

See case study supplement for full story.

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18   See Annoni, P. and Dijkstra, L. (2019), The EU Regional Competitiveness Index 2019, EC DG Regio for a detailed presentation of the regional competitiveness and its components.

The comparison of the impact of various factors across the three regional employment impact groups also reveals a strong effect of the level of employment in the technology and knowledge-intensive sectors with the median high employment impact region having 8% more persons employed in the technology and knowledge-intensive sectors than the median medium employment impact region and 22% more than in the median moderate employment impact region.

Moreover, the scores of the median high employment impact region are markedly higher than those of the median medium employment impact region for all but one component of the Regional Competitiveness Index, and the scores of the medium impact region are higher than those of the median modest employment impact region for all but three components of the Regional Competitiveness Indicator (Table 5).

Overall, the results of this high-level assessment of the drivers of the differences in regional employment impacts of exports show that, besides the importance of manufacturing in a regional economy, additional factors such as employment in high-tech and knowledge intensive industries and the various regional aspects taken into account by the Regional Competitiveness Indicator also matter.

Case study 9

Nord-Vest, Romania: growing an economy independent of exports

See case study supplement for full story.

Table 5 **Difference in the scores of median high employment impact, medium employment impact and modest impact regions for different components of the Regional Competitiveness Index and the index itself**

	Institutions	Macroeconomic Stability	Infrastructure	Health	Basic Education	Higher Education
Modest employment impact group	-0.21	-0.57	-0.71	0.02	0.21	-0.21
Medium employment impact group	-0.10	0.35	-0.22	0.33	0.01	-0.24
High employment impact group	0.65	0.77	-0.33	0.13	0.39	0.13

	Labour Market Efficiency	Market Size	Technological Readiness	Business Sophistication	Innovation Pillar	Overall RCI 2019
Modest employment impact group	-0.32	-0.93	-0.12	-0.12	-0.43	-0.40
Medium employment impact group	-0.19	-0.26	-0.08	-0.32	-0.21	-0.18
High employment impact group	0.54	0.02	0.62	-0.06	-0.13	0.31

Note: the figures in the table are the scores of the individual indicators used in the Regional Competitiveness Indicator. A higher value reflects a better performance
Source: Regional Competitiveness Index

UPS

Building local partnerships to

maintain networks

Since its foundation in 1971, Zülow AG – a family-owned company – has evolved from a one-man company to a highly specialised, 350-strong provider of complex electrical, data and communication technology and security solutions. The company has 24 apprentices. From its headquarters in Neuss, Zülow offers its services to its customers from a wide range of industries nationwide, usually using off the shelf products but also offering complex components. Zülow AG also patents individual solutions.

For almost 20 years, Zülow has been working in Germany as a trusted partner with UPS, a world-leading logistics company that offers comprehensive solutions for parcel and freight transport including international trade service offerings. In addition to supplying UPS with light switches, Zülow also maintains highly complex system controls. Miles of cables and fibre optic networks are installed and maintained by Zülow at UPS, including at the UPS European Air Hub in Cologne, North Rhine Westphalia. As the need for digital capabilities continues to grow for UPS customers and as UPS continues to facilitate increased international trade flows at its Cologne hub, UPS continues to rely on Zülow for its services. The products offered by Zülow indirectly support the international trade service offerings that UPS carries out for its Germany customers.

The long-standing cooperation with UPS has enabled Zülow to continue to grow its business and has opened doors for its industry. Zülow takes pride in providing continuity and high performance and seeks to deliver innovation and support for local and international supply chains. The family holds these attributes as the company's fundamental values. The trusting relationship that Zülow holds with its employees as well as the entrepreneurial family spirit of the organisation are critical to ensure its long-term success. By working with UPS, German-based company Zülow indirectly contributes to the success of Germany's international trade activities by providing solutions to UPS's complex technology needs.

Acknowledgement: *Jutta Zülow, CEO, Zülow AG*

5.

ESTIMATION OF THE REGIONAL OUTPUT AND EMPLOYMENT IMPACT IN THE EU-27

This chapter displays the results of the input-output analysis per Member State, broken down into their respective NUTS 2 regions. The table gives an overview of the total percentage increase in both output and employment that each region accrues per 1% increase in national exports. It also provides a breakdown of the impact on output and employment into direct and indirect impacts. Furthermore, the table displays estimates of the real regional employment impact of national exports in 2019, based on calculations undertaken in the input-output analysis. As the table shows, there was growth in regional employment across the board in Member States where national exports grew.

Table 6 This annex provides information on the regional output and employment impacts of exports.

NUTS2 Region	Total regional output impact of trade	Direct regional output impact of trade	Indirect regional output impact of trade	Total regional employment impact of trade	Direct regional employment impact of trade	Indirect regional employment impact of trade	Employment impact of 1% exports increase in real terms	% change in national exports in 2019	Real impact of national exports on jobs (2019)
Austria									
Burgenland	0.21%	0.13%	0.08%	0.26%	0.16%	0.11%	81	2.94%	239
Niederösterreich	0.89%	0.69%	0.20%	0.93%	0.70%	0.23%	1835	2.94%	5393
Wien	0.29%	0.19%	0.10%	0.30%	0.20%	0.11%	785	2.94%	2308
Kärnten	0.99%	0.78%	0.21%	0.97%	0.74%	0.23%	621	2.94%	1825
Steiermark	1.22%	0.98%	0.24%	1.14%	0.90%	0.24%	1810	2.94%	5322
Oberösterreich	1.20%	0.96%	0.24%	1.18%	0.92%	0.26%	2260	2.94%	6643
Salzburg	1.04%	0.83%	0.22%	1.09%	0.85%	0.23%	898	2.94%	2640
Tirol	0.80%	0.63%	0.17%	0.79%	0.62%	0.17%	961	2.94%	3797
Vorarlberg	1.00%	0.79%	0.21%	1.08%	0.85%	0.23%	682	2.94%	2693
Belgium									
Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest	0.62%	0.55%	0.07%	0.73%	0.65%	0.08%	4563	1.02%	4654
Prov. Ant-werpen	0.86%	0.69%	0.17%	0.80%	0.62%	0.17%	4684	1.02%	4778
Prov. Limburg	0.91%	0.75%	0.16%	0.93%	0.76%	0.18%	2718	1.02%	2773
Prov. Oost-Vlaanderen	0.61%	0.48%	0.12%	0.65%	0.51%	0.14%	3250	1.02%	3315
Prov. Vlaams-Brabant	0.36%	0.27%	0.09%	0.39%	0.29%	0.10%	1470	1.02%	1499
Prov. West-Vlaanderen	0.73%	0.59%	0.13%	0.83%	0.68%	0.16%	3781	1.02%	3857
Prov. Brabant wallon	1.62%	1.32%	0.30%	1.30%	1.02%	0.28%	899	1.02%	917
Prov. Hainaut	0.83%	0.68%	0.15%	0.82%	0.67%	0.15%	3357	1.02%	3424
Prov. Liège	0.69%	0.56%	0.13%	0.69%	0.55%	0.14%	2036	1.02%	2077
Prov. Luxem-bourg	0.61%	0.50%	0.11%	0.59%	0.47%	0.11%	490	1.02%	500
Prov. Namur	0.45%	0.36%	0.09%	0.50%	0.39%	0.11%	699	1.02%	713

NUTS2 Region	Total regional output impact of trade	Direct regional output impact of trade	Indirect regional output impact of trade	Total regional employment impact of trade	Direct regional employment impact of trade	Indirect regional employment impact of trade	Employment impact of 1% exports increase in real terms	% change in national exports in 2019	Real impact of national exports on jobs (2019)
Bulgaria									
Severozapaden	0.38%	0.28%	0.11%	0.78%	0.58%	0.20%	1494	3.87%	5784
Severen tsen-tralen	0.55%	0.40%	0.15%	0.90%	0.66%	0.24%	1753	3.87%	6785
Severoiztochen	0.54%	0.38%	0.16%	0.87%	0.62%	0.24%	773	3.87%	2990
Yugoiztochen	0.25%	0.18%	0.07%	0.57%	0.41%	0.16%	4187	3.87%	16202
Yugozapaden	0.48%	0.30%	0.18%	0.82%	0.55%	0.27%	555	3.87%	2147
Yuzhen tsentralen	0.48%	0.34%	0.15%	0.74%	0.54%	0.20%	831	3.87%	3217
Croatia									
Jadranska Hrvatska	0.35%	0.24%	0.11%	0.45%	0.33%	0.13%	610	4.6%	2806
Kontinentalna Hrvatska	0.38%	0.27%	0.11%	0.49%	0.35%	0.14%	511	4.6%	2350
Czechia									
Praha	0.61%	0.38%	0.23%	0.80%	0.49%	0.31%	265	1.31%	348
Střední Cechy	3.10%	2.34%	0.76%	3.47%	2.60%	0.87%	1378	1.31%	1806
Jihozápad	1.47%	1.09%	0.38%	2.00%	1.48%	0.52%	17	1.31%	22
Severozápad	1.94%	1.45%	0.49%	2.50%	1.87%	0.63%	13	1.31%	17
Severovýchod	2.42%	1.83%	0.59%	3.28%	2.48%	0.80%	482	1.31%	631
Jihovýchod	1.81%	1.35%	0.47%	2.48%	1.84%	0.63%	296	1.31%	388
Střední Morava	2.11%	1.59%	0.52%	2.62%	1.97%	0.66%	17	1.31%	22
Moravskoslezsko	2.76%	2.09%	0.68%	3.12%	2.34%	0.78%	17	1.31%	22
Cyprus									
Kypros[19]	0.45%	0.30%	0.15%	0.54%	0.37%	0.17%	--	--	--
Denmark									
Hovedstaden	0.54%	0.35%	0.19%	0.44%	0.28%	0.16%	1222	5.04%	6160
Sjælland	1.45%	1.10%	0.35%	1.06%	0.80%	0.25%	829	5.04%	4178
Syddanmark	0.93%	0.69%	0.23%	0.80%	0.59%	0.21%	1843	5.04%	9287
Midtjylland	0.95%	0.70%	0.25%	0.83%	0.62%	0.22%	2227	5.04%	11225
Nordjylland	0.93%	0.69%	0.24%	0.86%	0.64%	0.22%	978	5.04%	4931

19 No employment impacts are reported when country-wide employment declined or the level of exports fell.

NUTS2 Region	Total regional output impact of trade	Direct regional output impact of trade	Indirect regional output impact of trade	Total regional employment impact of trade	Direct regional employment impact of trade	Indirect regional employment impact of trade	Employment impact of 1% exports increase in real terms	% change in national exports in 2019	Real impact of national exports on jobs (2019)
Estonia									
Eesti	0.88%	0.64%	0.25%	1.57%	1.17%	0.40%	209	6.23%	1303
Finland									
Länsi-Suomi	1.89%	1.39%	0.50%	1.53%	1.12%	0.42%	1142	6.73%	7683
Helsinki-Uusimaa	1.53%	1.11%	0.42%	1.07%	0.76%	0.31%	1330	6.73%	8949
Etelä-Suomi	1.91%	1.41%	0.50%	1.47%	1.08%	0.39%	857	6.73%	5769
Pohjois- ja Itä-Suomi	1.70%	1.25%	0.45%	1.31%	0.95%	0.35%	961	6.73%	6470
Åland	..	..	..	..	..	..	..	..	..
France									
Auvergne - Rhône-Alpes	0.18%	0.11%	0.07%	0.18%	0.11%	0.07%	405	1.9%	769
Bourgogne - Franche-Comté	0.16%	0.09%	0.07%	0.16%	0.09%	0.07%	434	1.9%	824
Bretagne	0.16%	0.10%	0.07%	0.17%	0.10%	0.07%	906	1.9%	1721
Centre - Val de Loire	0.16%	0.09%	0.06%	0.16%	0.09%	0.06%	674	1.9%	1280
Corse	0.17%	0.10%	0.07%	0.15%	0.09%	0.06%	90	1.9%	170
Alsace - Cham-pagne-Ardenne - Lorraine	0.18%	0.11%	0.07%	0.18%	0.11%	0.07%	662	1.9%	1257
Nord-Pas-de-Calais - Picardie	0.17%	0.10%	0.07%	0.17%	0.10%	0.07%	1161	1.9%	2206
Île de France	0.21%	0.12%	0.09%	0.21%	0.12%	0.09%	4885	1.9%	9282
Normandie	0.18%	0.11%	0.07%	0.18%	0.11%	0.07%	963	1.9%	1829
Aquitaine - Limou-sin - Poitou-Charentes	0.15%	0.09%	0.06%	0.15%	0.09%	0.06%	887	1.9%	1684
Languedoc-Roussillon - Midi-Pyrénées	0.13%	0.07%	0.06%	0.14%	0.08%	0.06%	560	1.9%	1064
Pays-de-la-Loire	0.21%	0.13%	0.08%	0.21%	0.13%	0.08%	1425	1.9%	2707
Provence-Alpes-Côte d'Azur	0.16%	0.10%	0.06%	0.15%	0.09%	0.06%	1311	1.9%	2491
Germany									
Stuttgart	3.74%	3.08%	0.67%	3.50%	2.85%	0.65%	15674	0.96%	15047
Karlsruhe	1.68%	1.35%	0.33%	1.65%	1.31%	0.34%	10620	0.96%	10195
Freiburg	2.07%	1.67%	0.40%	2.05%	1.64%	0.41%	8746	0.96%	8396
Tübingen	2.63%	2.15%	0.48%	2.56%	2.07%	0.49%	7369	0.96%	7074
Oberbayern	1.55%	1.23%	0.32%	1.38%	1.07%	0.31%	17739	0.96%	17029
Niederbayern	1.90%	1.54%	0.36%	1.89%	1.51%	0.38%	4658	0.96%	4472
Oberpfalz	1.77%	1.42%	0.35%	1.77%	1.40%	0.37%	4604	0.96%	4419

NUTS2 Region	Total regional output impact of trade	Direct regional output impact of trade	Indirect regional output impact of trade	Total regional employment impact of trade	Direct regional employment impact of trade	Indirect regional employment impact of trade	Employment impact of 1% exports increase in real terms	% change in national exports in 2019	Real impact of national exports on jobs (2019)
Germany (suite)									
Oberfranken	1.00%	0.79%	0.21%	1.18%	0.92%	0.26%	4713	0.96%	4524
Mittelfranken	0.87%	0.67%	0.20%	0.91%	0.69%	0.22%	6378	0.96%	6122
Unterfranken	1.71%	1.38%	0.33%	1.86%	1.49%	0.37%	5302	0.96%	5089
Schwaben	1.07%	0.84%	0.23%	1.10%	0.85%	0.25%	7479	0.96%	7180
Berlin	0.38%	0.24%	0.14%	0.39%	0.23%	0.16%	4476	0.96%	4297
Brandenburg	0.86%	0.66%	0.21%	0.95%	0.70%	0.25%	5973	0.96%	5734
Bremen	2.14%	1.73%	0.42%	1.86%	1.47%	0.39%	2538	0.96%	2437
Hamburg	0.93%	0.72%	0.21%	0.80%	0.61%	0.20%	6996	0.96%	6716
Darmstadt	0.99%	0.76%	0.23%	0.93%	0.70%	0.23%	15227	0.96%	14618
Gießen	1.57%	1.25%	0.33%	1.62%	1.26%	0.35%	3750	0.96%	3600
Kassel	1.67%	1.34%	0.33%	1.70%	1.35%	0.35%	4793	0.96%	4601
Mecklenburg-Vorpommern	0.58%	0.44%	0.14%	0.69%	0.52%	0.17%	3187	0.96%	3059
Braunschweig	3.79%	3.12%	0.66%	3.12%	2.53%	0.59%	4469	0.96%	4290
Hannover	1.41%	1.12%	0.29%	1.36%	1.07%	0.29%	6987	0.96%	6708
Lüneburg	0.73%	0.55%	0.18%	0.74%	0.54%	0.20%	3380	0.96%	3245
Weser-Ems	1.49%	1.19%	0.30%	1.45%	1.14%	0.31%	8758	0.96%	8407
Düsseldorf	0.91%	0.67%	0.23%	0.89%	0.64%	0.25%	15727	0.96%	15098
Köln	1.20%	0.93%	0.28%	1.16%	0.87%	0.28%	15536	0.96%	14915
Münster	1.34%	1.06%	0.28%	1.30%	1.00%	0.29%	8767	0.96%	8417
Detmold	1.48%	1.17%	0.31%	1.50%	1.17%	0.33%	8102	0.96%	7778
Arnsberg	1.57%	1.26%	0.31%	1.53%	1.20%	0.32%	12372	0.96%	11877
Koblenz	1.15%	0.91%	0.23%	1.22%	0.96%	0.26%	5317	0.96%	5104
Trier	0.99%	0.78%	0.21%	0.98%	0.76%	0.22%	1658	0.96%	1591
Rheinhessen-Pfalz	1.54%	1.24%	0.30%	1.26%	0.98%	0.28%	5603	0.96%	5379
Saarland	2.54%	2.07%	0.46%	2.34%	1.89%	0.45%	3452	0.96%	3313
Dresden	0.95%	0.74%	0.21%	0.98%	0.75%	0.23%	5270	0.96%	5059
Chemnitz	1.67%	1.35%	0.32%	1.91%	1.53%	0.37%	5451	0.96%	5233
Leipzig	1.01%	0.78%	0.23%	1.12%	0.84%	0.27%	3328	0.96%	3194
Sachsen-Anhalt	1.32%	1.06%	0.26%	1.32%	1.04%	0.28%	8676	0.96%	8329
Schleswig-Holstein	0.75%	0.57%	0.18%	0.76%	0.56%	0.20%	6485	0.96%	6226
Thüringen	1.51%	1.22%	0.29%	1.72%	1.38%	0.35%	7805	0.96%	7493

NUTS2 Region	Total regional output impact of trade	Direct regional output impact of trade	Indirect regional output impact of trade	Total regional employment impact of trade	Direct regional employment impact of trade	Indirect regional employment impact of trade	Employment impact of 1% exports increase in real terms	% change in national exports in 2019	Real impact of national exports on jobs (2019)
Greece									
Anatoliki Make-donia, Thraki	0.30%	0.21%	0.09%	0.28%	0.20%	0.08%	2083	4.84%	10083
Kentriki Makedonia	0.29%	0.20%	0.08%	0.29%	0.22%	0.08%	101	4.84%	491
Dytiki Makedonia	0.15%	0.09%	0.06%	0.24%	0.17%	0.07%	98	4.84%	472
Ipeiros	0.21%	0.14%	0.06%	0.23%	0.16%	0.06%	250	4.84%	1212
Thessalia	0.39%	0.28%	0.10%	0.35%	0.26%	0.09%	400	4.84%	1935
Ionia Nisia	0.23%	0.16%	0.07%	0.26%	0.18%	0.08%	719	4.84%	3478
Dytiki Ellada	0.34%	0.25%	0.10%	0.31%	0.23%	0.08%	160	4.84%	775
Sterea Ellada	0.40%	0.29%	0.10%	0.29%	0.21%	0.08%	217	4.84%	1051
Peloponnisos	0.28%	0.19%	0.08%	0.23%	0.16%	0.07%	327	4.84%	1583
Attiki	0.25%	0.17%	0.09%	0.29%	0.21%	0.08%	91	4.84%	441
Voreio Aigaio	0.18%	0.12%	0.06%	0.21%	0.15%	0.06%	192	4.84%	929
Notio Aigaio	0.23%	0.16%	0.07%	0.23%	0.17%	0.06%	218	4.84%	1053
Kriti	0.22%	0.15%	0.07%	0.24%	0.17%	0.07%	220	4.84%	1064
Hungary									
Budapest	1.12%	0.79%	0.33%	1.28%	0.91%	0.37%	191	5.81%	1110
Pest	2.84%	2.10%	0.74%	2.95%	2.17%	0.77%	386	5.81%	2241
Közép-Dunántúl	4.01%	3.00%	1.01%	4.37%	3.27%	1.11%	210	5.81%	1221
Nyugat-Dunántúl	2.63%	1.96%	0.67%	2.80%	2.08%	0.72%	364	5.81%	2116
Dél-Dunántúl	1.17%	0.84%	0.33%	1.73%	1.27%	0.47%	270	5.81%	1566
Észak-Magyarország	4.76%	3.56%	1.19%	5.31%	3.97%	1.34%	360	5.81%	2091
Észak-Alföld	1.90%	1.40%	0.50%	2.16%	1.60%	0.57%	457	5.81%	2653
Dél-Alföld	1.55%	1.14%	0.42%	1.99%	1.47%	0.53%	405	5.81%	2350
Ireland									
Northern and Western	0.17%	0.08%	0.09%	0.12%	0.05%	0.07%	182	10.55%	1925
Southern	2.59%	1.69%	0.89%	1.32%	0.83%	0.49%	1760	10.55%	18564
Eastern and Mid-land	0.21%	0.09%	0.12%	0.18%	0.07%	0.11%	716	10.55%	7549

NUTS2 Region	Total regional output impact of trade	Direct regional output impact of trade	Indirect regional output impact of trade	Total regional employment impact of trade	Direct regional employment impact of trade	Indirect regional employment impact of trade	Employment impact of 1% exports increase in real terms	% change in national exports in 2019	Real impact of national exports on jobs (2019)
Italy									
Piemonte	1.01%	0.72%	0.29%	1.17%	0.84%	0.34%	8082	1.62%	13092
Valle d'Aosta/Vallée d'Aoste	0.44%	0.29%	0.14%	0.55%	0.38%	0.17%	0	1.62%	0
Liguria	0.39%	0.24%	0.16%	0.43%	0.26%	0.17%	21	1.62%	33
Lombardia	0.66%	0.45%	0.21%	0.75%	0.52%	0.24%	10763	1.62%	17436
Provincia Autonoma di Bolzano/Bozen	0.23%	0.15%	0.08%	0.28%	0.18%	0.10%	133	1.62%	216
Provincia Autonoma di Trento	0.34%	0.22%	0.11%	0.39%	0.26%	0.13%	283	1.62%	459
Veneto	0.82%	0.58%	0.24%	0.94%	0.67%	0.27%	7996	1.62%	12954
Friuli-Venezia Giulia	0.81%	0.58%	0.23%	0.91%	0.65%	0.26%	347	1.62%	562
Emilia-Romagna	0.98%	0.70%	0.28%	1.07%	0.76%	0.30%	7166	1.62%	11609
Toscana	0.58%	0.41%	0.17%	0.65%	0.46%	0.19%	945	1.62%	1531
Umbria	0.83%	0.58%	0.25%	0.95%	0.67%	0.28%	1786	1.62%	2893
Marche	0.72%	0.51%	0.21%	0.88%	0.64%	0.25%	2345	1.62%	3799
Lazio	0.41%	0.23%	0.18%	0.44%	0.25%	0.19%	4009	1.62%	6495
Abruzzo	0.53%	0.37%	0.16%	0.61%	0.42%	0.19%	1258	1.62%	2038
Molise	0.56%	0.39%	0.17%	0.68%	0.48%	0.20%	192	1.62%	311
Campania	0.38%	0.26%	0.12%	0.49%	0.34%	0.15%	3529	1.62%	5717
Puglia	0.41%	0.28%	0.13%	0.52%	0.36%	0.16%	1439	1.62%	2330
Basilicata	0.65%	0.47%	0.18%	0.81%	0.58%	0.23%	397	1.62%	643
Calabria	0.17%	0.09%	0.08%	0.27%	0.15%	0.12%	467	1.62%	756
Sicilia	0.34%	0.22%	0.12%	0.40%	0.26%	0.14%	318	1.62%	515
Sardegna	0.33%	0.23%	0.11%	0.41%	0.28%	0.12%	474	1.62%	768
Latvia									
Latvija	0.67%	0.50%	0.17%	1.11%	0.85%	0.26%	171	2.11%	362
Lithuania									
Sostines regionas	0.60%	0.45%	0.15%	0.81%	0.61%	0.20%	1642	9.48%	15569
Vidurio ir vakaru Lietuvos regionas	0.74%	0.58%	0.17%	0.98%	0.74%	0.23%	2828	9.48%	26808
Luxembourg									
Luxembourg	0.31%	0.19%	0.11%	0.36%	0.25%	0.11%	934	0.84%	785

NUTS2 Region	Total regional output impact of trade	Direct regional output impact of trade	Indirect regional output impact of trade	Total regional employment impact of trade	Direct regional employment impact of trade	Indirect regional employment impact of trade	Employment impact of 1% exports increase in real terms	% change in national exports in 2019	Real impact of national exports on jobs (2019)
Malta									
Malta	0.37%	0.26%	0.12%	0.42%	0.30%	0.12%	692	6.41%	4437
The Netherlands									
Groningen	0.53%	0.42%	0.11%	0.52%	0.41%	0.12%	456	2.71%	1236
Friesland	0.50%	0.38%	0.12%	0.43%	0.32%	0.11%	849	2.71%	2301
Drenthe	0.65%	0.52%	0.13%	0.54%	0.41%	0.13%	723	2.71%	1960
Overijssel	0.73%	0.59%	0.15%	0.55%	0.43%	0.13%	2642	2.71%	7160
Gelderland	0.58%	0.45%	0.13%	0.45%	0.34%	0.11%	3387	2.71%	9179
Flevoland	0.54%	0.40%	0.14%	0.46%	0.34%	0.12%	605	2.71%	1640
Utrecht	0.37%	0.26%	0.11%	0.31%	0.22%	0.10%	1988	2.71%	5388
Noord-Holland	0.39%	0.28%	0.11%	0.34%	0.24%	0.10%	4500	2.71%	12195
Zuid-Holland	0.79%	0.64%	0.16%	0.57%	0.44%	0.12%	8049	2.71%	21814
Zeeland	1.79%	1.50%	0.29%	1.07%	0.88%	0.19%	917	2.71%	2484
Noord-Brabant	1.09%	0.90%	0.20%	0.78%	0.62%	0.15%	7925	2.71%	21477
Limburg	1.32%	1.10%	0.23%	0.95%	0.77%	0.18%	2897	2.71%	7851
Portugal									
Norte	0.59%	0.45%	0.13%	0.85%	0.65%	0.20%	1149	3.95%	4540
Algarve	0.19%	0.11%	0.08%	0.28%	0.17%	0.11%	13	3.95%	49
Centro	0.52%	0.39%	0.13%	0.69%	0.50%	0.19%	241	3.95%	953
Área Metropolitana de Lisboa	0.32%	0.22%	0.10%	0.37%	0.25%	0.12%	677	3.95%	2672
Alentejo	1.08%	0.84%	0.24%	1.20%	0.91%	0.28%	362	3.95%	1431
Região Autónoma dos Açores	0.15%	0.10%	0.05%	0.20%	0.14%	0.06%	40	3.95%	157
Região Autónoma da Madeira	0.28%	0.18%	0.11%	0.37%	0.24%	0.13%	283	3.95%	1119
Romania									
Nord-Vest	0.81%	0.63%	0.18%	1.04%	0.82%	0.23%	205	4.59%	939
Centru	0.81%	0.64%	0.18%	1.08%	0.86%	0.23%	177	4.59%	812
Nord-Est	0.59%	0.45%	0.14%	0.66%	0.48%	0.18%	188	4.59%	862
Sud-Est	0.79%	0.61%	0.18%	1.03%	0.77%	0.25%	98	4.59%	449
Sud - Muntenia	1.09%	0.85%	0.23%	1.20%	0.90%	0.30%	67	4.59%	306
Bucuresti - Ilfov	0.48%	0.34%	0.14%	0.63%	0.46%	0.17%	124	4.59%	567
Sud-Vest Oltenia	0.59%	0.45%	0.14%	0.89%	0.63%	0.27%	93	4.59%	425
Vest	0.92%	0.72%	0.20%	1.45%	1.15%	0.30%	49	4.59%	225

NUTS2 Region	Total regional output impact of trade	Direct regional output impact of trade	Indirect regional output impact of trade	Total regional employment impact of trade	Direct regional employment impact of trade	Indirect regional employment impact of trade	Employment impact of 1% exports increase in real terms	% change in national exports in 2019	Real impact of national exports on jobs (2019)
Slovakia									
Bratislavský kraj	0.91%	0.66%	0.25%	1.10%	0.76%	0.34%	422	0.79%	334
Západné Slovensko	1.50%	1.19%	0.31%	2.21%	1.75%	0.46%	789	0.79%	623
Stredné Slovensko	1.34%	1.06%	0.29%	1.85%	1.47%	0.39%	640	0.79%	506
Východné Slov-ensko	1.45%	1.15%	0.30%	1.80%	1.42%	0.37%	573	0.79%	453
Slovenia									
Vzhodna Slovenija	2.21%	1.78%	0.42%	2.71%	2.18%	0.53%	235	4.08%	957
Zahodna Slovenija	1.45%	1.14%	0.32%	1.76%	1.37%	0.38%	633	4.08%	2582
Spain									
Galicia	0.52%	0.37%	0.15%	0.61%	0.43%	0.18%	3596	2.28%	8198
Principado de Astu-rias	0.65%	0.47%	0.18%	0.66%	0.47%	0.19%	1611	2.28%	3674
Cantabria	0.52%	0.37%	0.15%	0.54%	0.38%	0.16%	798	2.28%	1820
País Vasco	0.57%	0.41%	0.16%	0.63%	0.45%	0.18%	3369	2.28%	7681
Comunidad Foral de Navarra	0.59%	0.43%	0.16%	0.64%	0.46%	0.18%	1064	2.28%	2426
La Rioja	0.44%	0.31%	0.13%	0.46%	0.32%	0.14%	390	2.28%	889
Aragón	0.61%	0.43%	0.17%	0.69%	0.49%	0.20%	2255	2.28%	5141
Comunidad de Madrid	0.23%	0.13%	0.10%	0.26%	0.14%	0.11%	4414	2.28%	10064
Castilla y León	0.42%	0.30%	0.13%	0.45%	0.31%	0.14%	2663	2.28%	6072
Castilla-la Mancha	0.50%	0.35%	0.15%	0.57%	0.39%	0.18%	2622	2.28%	5978
Extremadura	0.30%	0.20%	0.10%	0.40%	0.26%	0.13%	751	2.28%	1712
Cataluña	0.46%	0.32%	0.14%	0.49%	0.34%	0.16%	9919	2.28%	22615
Comunidad Valen-ciana	0.49%	0.34%	0.15%	0.57%	0.39%	0.17%	6436	2.28%	14674
Illes Balears	0.19%	0.11%	0.08%	0.26%	0.16%	0.10%	672	2.28%	1531
Andalucía	0.37%	0.25%	0.12%	0.41%	0.28%	0.14%	7302	2.28%	16648
Región de Murcia	0.43%	0.29%	0.14%	0.49%	0.33%	0.16%	1676	2.28%	3821
Ciudad Autónoma de Ceuta	0.12%	0.06%	0.05%	0.13%	0.07%	0.06%	21	2.28%	47
Ciudad Autónoma de Melilla	0.10%	0.05%	0.05%	0.11%	0.06%	0.05%	18	2.28%	40
Canarias	0.21%	0.12%	0.08%	0.23%	0.14%	0.09%	118	2.28%	2697

NUTS2 Region	Total regional output impact of trade	Direct regional output impact of trade	Indirect regional output impact of trade	Total regional employment impact of trade	Direct regional employment impact of trade	Indirect regional employment impact of trade	Employment impact of 1% exports increase in real terms	% change in national exports in 2019	Real impact of national exports on jobs (2019)
Sweden									
Stockholm	0.44%	0.31%	0.13%	0.40%	0.27%	0.13%	1362	4.83%	6578
Östra Mellansverige	1.08%	0.83%	0.24%	0.97%	0.74%	0.23%	1231	4.83%	5947
Småland med öarna	1.28%	1.00%	0.28%	1.41%	1.10%	0.31%	622	4.83%	3006
Sydsverige	0.75%	0.55%	0.20%	0.76%	0.54%	0.21%	818	4.83%	3949
Västsverige	1.11%	0.86%	0.25%	1.04%	0.80%	0.25%	828	4.83%	4000
Norra Mellansverige	1.22%	0.95%	0.27%	1.14%	0.89%	0.26%	580	4.83%	2799
Mellersta Norrland	0.55%	0.41%	0.14%	0.51%	0.37%	0.14%	150	4.83%	724
Övre Norrland	0.77%	0.58%	0.19%	0.77%	0.58%	0.19%	323	4.83%	1561

CONCLUSION

Exports: the driver of growth

The EU economy is an open economy whose prosperity depends to a significant degree on its export performance. It is for this reason that exports are a key driver of economic growth in the EU. Exports of goods and services to countries beyond EU borders support 36 million EU jobs. EU-27 exports of goods and services grew much faster than EU-27 GDP from 2000 to 2019. After the great financial crisis (i.e. from 2009 to 2019), EU-27 exports of goods increased by 58.1% and EU-27 exports of services by 50.7%, while EU-27 GDP grew by only 16.5%. The strong growth in exports of goods and services was a major, sometimes even the only, engine of growth since 2009, stimulating production and employment in the EU-27. Overall, such exports accounted for 57% of the total increase in final demand addressed to enterprises in the EU-27 over the post-2009 period. The Single Market is by far the most important market for all EU-27 Member States. In 2019, 50% or more of Member States' goods exports went to other Member States except in the case of Cypriot and Irish exports.

Benefits to regions of exporting to the world

The present study assessed the extent to which the regions of the European economy have shared in the growth stimulus resulting from the significant expansion of EU exports. This was driven by a marked increase in foreign demand for goods and services produced in the Member States. Regions can benefit from international exports in three main ways:

1. Direct exports: some businesses in a region may export directly to clients outside their national market. Such clients, i.e. consumers, businesses and governments, may be end-users of the products or services exported by the region's businesses or businesses in international global value chains.

2. Indirect exports: some businesses in a region may export indirectly by selling their products and services to other domestic businesses which export themselves to end-users outside their national markets or businesses which are part of global value chains. In fact, global value chains are nowadays the most common form of international trade with such global value chains accounting for about 70% of international trade.

3. Increased demand as a result of exports: some businesses in a region may not export directly or indirectly but may nevertheless benefit from the domestic demand resulting from the direct or indirect export activity of businesses located in the same region or other regions of their home country. This effect arises from the fact that the salaries and benefits and dividends paid by businesses exporting directly and indirectly will be spent on a wide range of goods and services produced by a variety of businesses, including domestic non-exporting businesses.

Key findings: selling abroad is good business

Overall, the study finds that, across all regions in the period covered by the data:

1 Exports add regional jobs: every percentage point of growth in national exports led to an average increase of 0.9% in both regional output and regional employment.

2 Every single region benefits from an increase in exports: the regional impact of an increase in national exports varied markedly across and within Member States. However, all regions benefitted from the growth in exports over the past decade, regardless of whether their GDP per capita was above or below the EU-27 average.

③ The positive impact of exports is not driven by the relative wealth of regions: there exists no systematic correlation between a region's GDP per capita and the estimated regional output and employment impacts of exporting to the world.

Although some regions benefit to a greater extent than others from exports in terms of output and employment (highly, medium and modestly impacted regions), the present study identifies that there is an across-the-board positive effect on jobs and prosperity of exporting more to the world.

Regional economic performance: the recipe for success

The analysis and case studies undertaken for the study show that the industrial fabric of a regional economy is a key factor explaining differences in regional employment impacts. A strong manufacturing industry invariably leads to stronger regional economic performance. It is, however, not the only cause. A number of additional factors which are conducive to high quality employment and output growth include:

- The importance of labour force skills. The share of employment in high-tech and knowledge-intensive industries and the education level of the labour force are found by the study to be important determinants of the extent to which regions can benefit from strong foreign demand. No public policy can directly increase the share of employment in high-tech and knowledge-intensive industries. However, policymakers can contribute to the growth of the share of such employment in a region by:
  - ensuring through the provision of relevant education and training that businesses in these industries have access to the required skills which, according to various surveys, is a major challenge in many regions; and
  - stimulating through public policies the growth of such high-tech or knowledge-intensive businesses in a region and/or attracting such businesses to a region. Such policy actions will contribute to

improve the competitiveness and standards of living of a region and strengthen the impact of exports on regional employment and output.
- Innovation capacity and technological readiness. Strong regional innovation systems, a capacity to bring innovations to market by economic actors (private and public) and business flexibility to adopt new technologies are important contributors to a region's competitiveness. Numerous EU, national and regional policies are being implemented or planned to strengthen the regions' innovation capacity and technological readiness. Such policies, through their impacts on innovation and technological change, will contribute to raise regional employment and output through various mechanisms, including strong exports.
- Good transport and communications infrastructures and economic stability. These are necessary but not sufficient conditions for ensuring that businesses in a region can make the most of the opportunities offered by the global economy.

Recommendations for policymakers

A strong export ecosystem in a region is both a cause and an indirect benefit of strong exports. Such an ecosystem comprises public government departments and agencies, organisations and businesses supporting enterprises engaged in exports or considering exporting and promoting the country's or region's 'brand'. Such services and a well-functioning and efficient transport infrastructure are key foundations of a country's or region's export performance. The support services provided by the ecosystem include, for example, assisting business in identifying, understanding and accessing new export markets and opportunities, dealing with export/import and customs formalities, providing export finance and export credit risk insurance and offering exporting or potentially exporting business mentoring and networking opportunities.

In light of the findings that this study has unearthed, there are a number of ways that policymakers – both at a European and a local level – can support regional economic prosperity.

At EU level

- Exports benefit all regions and the EU should ensure continued and open access on a level playing field to all markets in the world through the signing of further free trade agreements, addressing non-tariff barriers in various export destinations and working at the World Trade Organization (WTO) to uphold and strengthen the international trading system.
- Skills and innovation are key factors explaining why the impact of exports varies across regions. The implementation and broadening of the EU's skills and innovation agendas would be important EU-wide contributors to strengthening the impact of exports on regional output and employment. As part of the European Semester, Member States should also be regularly encouraged to take steps to enhance the skills of their labour force and strengthen their economy's innovation capacity and performance.
- As part of the European Semester, Member States should also be encouraged to improve the quality of their infrastructure, especially in transport and communications.
- As EU businesses often start by exporting to neighbouring countries before exporting to markets outside the EU and services and digital trade are growing in importance in international trade, it is essential for the EU to strengthen the Single Market, especially the Single Market in services and the Digital Single Market.

At regional and national levels

Both national and regional governments and businesses have an important role to play in ensuring that the various factors described above are conducive to a strong regional export performance.

- Export promotion and support programmes funded and/or run by public institutions and agencies are a tried and tested way of enhancing a region's output and employment.

- National and regional governments should also encourage and support upskilling, technological development and innovation, in order to boost a region's productivity and competitiveness.
- National and regional governments have a key role in ensuring that the regional infrastructures, especially the regional transport and communication infrastructures, are efficient and support the exporting businesses' activities.

For the private sector

The private sector also has its part to play in developing the export performance, and thus the economic prosperity, of the regions in which businesses are invested.

- Businesses should work together with local learning and research institutions, especially with regard to upskilling, technological development and innovation if they want to be competitive in the global economy. Governments alone cannot foster their region's international competitiveness.

ANNEXES

Annex 1 Input-output analysis

A1.1 Introduction to input-output analysis

A1.1.1 Brief overview of input-output table

A country input-output table details the flows of goods and services between sectors and industries in the economy. For example, it can show that if the agricultural industry increases in output due to higher exports demand, the goods and services that the agriculture industry requires from the rest of the other industries, such as machinery from the manufacturing sector and delivery services from the transport sectors. Furthermore, the goods and services that the manufacturing and transport sector require from the other sectors in order to produce more are also recorded.

The estimation of the impacts of international exports using input-output analysis therefore captures all the direct and indirect impacts of increases in exports that businesses in a region can benefit from, namely through:

1. direct effects – these businesses can produce and sell more by exporting directly to clients outside their national market. The clients can be end-users or parts of global value chains; and/or,
2. indirect effects – they can sell more of their products and services to domestic clients who are exporting more;

3. indirect effects – those that neither exports directly nor sell to clients who do, can still benefit from growth in exports. As higher exports will stimulate overall domestic demand, all products and services will be in more demand.

A1.1.1 Data and methodology

Estimating the impact of exports on industries at the national level

The analysis primarily uses 2015 input-output data[1], as this is the year where data are most complete – available for 16 Member States[2]. Regional output data for France are not available on Eurostat and thus are taken from the French National Statistical Office. France is the only country in this analysis where the country is not divided at the NUTS 2 level.[3] 2010 input-output data are used for Bulgaria and Estonia because this is the most recent year that these two countries have available data. As industrial composition of a country is unlikely to change drastically over years, it is not expected to be an issue to use 2010 data for these two countries.

The input output data for Denmark, Ireland, Luxembourg, Malta, the Netherlands, Romania and Finland do not exist on Eurostat. To carry out the analysis for these Member States, the use tables for all 27 Member States were constructed to look for the Member States which are most similar to them in terms of industrial composition. The use tables detail the goods and services that each industry needs from the country's economy in order to produce output. For example, if the goods and

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1   'Symmetric input-output table at basic prices (product by product)' on Eurostat
2   These Member States are: AT, BE, CY, DE, EL, ES, FR, HR, IT, LV, HU, AT, PT, SI, SK and SE.
3   Only the mainland regions are included, namely, Auvergne-Rhône-Alpes, Bourgogne-Franche-Comté, Bretagne, Centre-Val de Loire, Corse, Grand Est, Hauts-de-France, Île-de-France, Normandie, Nouvelle-Aquitaine, Occitanie, Pays de la Loire, Provence-Alpes-Côte d'Azur.

services that the agriculture industry requires from the mining industry are very different in Belgium than Italy, then the use tables imply that these two countries' agriculture industries are different. The difference between the industry's use of goods and services from another industry in two countries is thus an indicator of the degree of similarity between countries' industries. The difference was calculated for all industries between any two Member States, then these differences were summed in absolute terms. Where the total difference in absolute terms is smallest, it is implied that two countries are most similar in terms of industrial composition. The analysis uses the country's input output data to impute for the other country which do not have the data.

Based on the use table calculations, the impact of exports on industries in Denmark is imputed by Estonia, Ireland imputed by Italy, Luxembourg and Malta imputed by France, the Netherlands by Belgium, Romania by Lithuania, and Finland by Hungary.

Overall, the input output analysis is carried out for 27 Member States except Poland. This is because regional output data for Poland are not available.

To estimate at a national level the effects on domestic industries of a general increase in national exports, it is necessary to make an assumption about how the increase in foreign demand is distributed across industries. Following Howse (2017)[4], it is assumed that the increase in total exports is allocated pro-rata across the various industries so that their respective share of total exports in 2015 remains unchanged. In other words, it is possible to quantify at the national level the direct increase in foreign demand addressed to each industry.[5]

Next, a Leontief matrix[6] was used to estimate at the national level the increases in indirect demand flowing to other industries as a result of the increase in the demand directly addressed to various industries.

The industry breakdown in the input-output data is more granular than the regional industry output data. It is, however, straightforward to aggregate the input-output data to the industry level in the regional data (see Annex 2 for details). This aggregation yields information for 11 industries (see Table 9 which lists these industries).

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4   J Howse, 'Input-output analytical tables: methods and application to UK National Accounts', in UK Office for National Statistics, 2017, accessible from https://www.ons.gov.uk/economy/nationalaccounts/supplyandusetables/articles/inputoutputanalyticaltables/methodsandapplicationtouknationalaccounts
5   The product by product input-output table was used so strictly speaking this should be product rather than industry.
6   The Leontief matrix shows, among other, how a change in the gross output of an industry is distributed across changes in supplies from all industries, employment and economic profits.

Table 7 **Industries covered by the input-output analysis**

Industry	Industry NACE 1 code
Agriculture, forestry, and fishing	A
Industry (except construction and manufacturing)	B, D, E
Manufacturing	C
Construction	F
Wholesale and retail trade, transport, accommodation, and food service activities	G-I
Information and communication	J
Financial and insurance activities	K
Real estate activities	L
Professional, scientific, and technical activities; administrative and support service activities	M, N
Public administration, defence, education, human health, and social work activities	O-Q
Arts, entertainment, and recreation; other service activities; activities of household and extra-territorial organizations and bodies	R-U

Note :NACE (Nomenclature of Economic Activities) is the European statistical classification of economic activities
Source: LE Europe analysis of Eurostat data

The estimated trade impacts at the national industry level are presented in Annex 3. These estimates show the percentage increase in output in the industry at the national level for every one per cent increase in national exports. As these results were mainly obtained to estimate in the next step the impacts on an increase in national exports at the regional level, they are not discussed in detail.

The input-output analysis shows that manufacturing benefits the most from exports. In all Member States and across all industries, only manufacturing's output increases by more than 1% if national exports increase by 1%. For every per cent increase in national exports, the manufacturing sector is estimated to increase its output by 8.7% in Hungary, the most among Member States, and 1.3% in Greece, the least among Member States.

Estimating the relationship between national output and regional output for various industries

The next step of the analysis allocates for each industry covered by the analysis the national output impact of national exports growth on the same industry in the various regions.

A basic method for estimating the relationship between an industry's national output and regional output would be to assume that when the industry's output increases at the national level, the industry's output in the different regions will increase pro rata so that the regional shares of an industry remain unchanged. For example, if industry X in region Y accounts for z% of the total value added of that industry at the national level, then industry X in region Y is allocated z% of the increase in economy-wide value added shown by the input-output table.

The total impact of increases in exports on a region could then be derived by aggregating all the industry value added impacts at the regional level. This method is very simple to implement but does not consider the fact that the parts of an industry located in different regions of a country may not benefit equally from the increase in foreign demand if they are not equally efficient, etc.

In order to allow for the export impact on an industry to vary across regions, a simple model is estimated relating the regional growth of output of an industry to the industry's national output growth GXc, to the industry's national output growth GXc,t

$$EQ1 \; GX_{y,t} = a + b \; GX_{c,t}$$

Where GX is output growth, y refers to a region, c to a country and t a calendar year. The period over which the equation EQ1 is estimated is the longest possible given data availability. This period ranges from 2000 to 2017 or 2018 (as some countries' 2018 data are not yet available). In the case of the Portuguese regions, the estimation period ranges from 1996 to 2017.

The value of the estimated coefficient b measures the percentage point(s) increase in output growth of an industry in a region for every one-percentage-point increase in national exports growth in the same industry. The regressions results are not presented in the report, as there are over 2000 equations and these are intermediate results.

A1.2 The regional impact of exports

The output impact of national exports on a region's industry is equal to the *product* of the following two estimates:

- the percentage increase in the industry's output for every one per cent increase in national exports, estimated from input-output analysis
- the percentage increase in the industry output in the region for every one per cent increase in the industry's output at the national level, estimated from the regressions

The total regional impact of trade is equal to the sum of all the output increases (in value terms) from all industries in the region. The total regional impacts reported below are expressed in percentage terms. These were derived expressing the estimated aggregate impact in value terms in the region as a percentage of the region's total output in the most recent year for which data are available (either 2017 or 2018).

Annex 2 Product to industry aggregation

CPA	Product group	NACE 1	Assigned industry
A01	Products of agriculture, hunting and related services	A	Crop and animal production, hunting and related service activities
A02	Products of forestry, logging and related services	A	Forestry and logging
A03	Fish and other fishing products; aquaculture products; support services to fishing	A	Fishing and aquaculture
B	Mining and quarrying	B	Mining and quarrying
C10-C12	Food, beverages and tobacco products	C	Manufacture of food products, beverages and tobacco products
C13-C15	Textiles, wearing apparel, leather and related products	C	Manufacture of textiles, wearing apparel, leather and related products
C16	Wood and of products of wood and cork	C	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
C17	Paper and paper products	C	Manufacture of paper and paper products
C18	Printing and recording services	C	Printing and reproduction of recorded media
C19	Coke and refined petroleum products	C	Manufacture of coke and refined petroleum products
C20	Chemicals and chemical products	C	Manufacture of chemicals and chemical products
C21	Basic pharmaceutical products and pharmaceutical preparations	C	Manufacture of basic pharmaceutical products and pharmaceutical preparations
C22	Rubber and plastic products	C	Manufacture of rubber and plastic products
C23	Other non-metallic mineral products	C	Manufacture of other non-metallic mineral products
C24	Basic metals	C	Manufacture of basic metals
C25	Fabricated metal products, except machinery and equipment	C	Manufacture of fabricated metal products, except machinery and equipment
C26	Computer, electronic and optical products	C	Manufacture of computer, electronic and optical products
C27	Electrical equipment	C	Manufacture of electrical equipment
C28	Machinery and equipment n.e.c.	C	Manufacture of machinery and equipment n.e.c.
C29	Motor vehicles, trailers and semi-trailers	C	Manufacture of motor vehicles, trailers and semi-trailers
C30	Other transport equipment	C	Manufacture of other transport equipment
C31-C32	Furniture and other manufactured goods	C	Manufacture of furniture and other manufacturing
C33	Repair and installation services of machinery and equipment	C	Repair and installation of machinery and equipment
D	Electricity, gas, steam and air conditioning	D	Electricity, gas, steam and air conditioning supply
E36	Natural water; water treatment and supply services	E	Water collection, treatment and supply

CPA	Product group	NACE 1	Assigned industry
E37-E39	Sewerage services	E	Sewerage, waste collection, treatment and disposal activities; materials recovery, remediation activities and other waste management services
F	Constructions and construction works	F	Construction
G45	Wholesale and retail trade and repair services of motor vehicles and motorcycles	G	Wholesale and retail trade and repair of motor vehicles and motorcycles
G46	Wholesale trade services, except of motor vehicles and motorcycles	G	Wholesale trade, except of motor vehicles and motorcycles
G47	Retail trade services, except of motor vehicles and motorcycles	G	Retail trade, except of motor vehicles and motorcycles
H49	Land transport services and transport services via pipelines	H	Land transport and transport via pipelines
H50	Water transport services	H	Water transport
H51	Air transport services	H	Air transport
H52	Warehousing and support services for transportation	H	Warehousing and support activities for transportation
H53	Postal and courier services	H	Postal and courier activities
I	Accommodation and food services	I	Accommodation and food service activities
J58	Publishing services	J	Publishing activities
J59-J60	Motion picture, video and television programme production services	J	Motion picture, video and television programme production, sound recording and music publishing activities; Programming and broadcasting activities
J61	Telecommunications services	J	Telecommunications
J62-J63	Computer programming, consultancy and related services; Information services	J	Computer programming, consultancy and related activities and infromation service activities
K64	Financial services, except insurance and pension funding	K	Financial service activities, except insurance and pension funding
K65	Insurance, reinsurance and pension funding services, except compulsory social security	K	Insurance, reinsurance and pension funding, except compulsory social security
K66	Services auxiliary to financial services and insurance services	K	Activities auxiliary to financial services and insurance activities
L68B	Real estate services excluding imputed rents	L	Real estate activities
L68A	Imputed rents of owner-occupied dwellings	L	Real estate activities
M69-M70	Legal and accounting services; services of head offices; management consultancy services	M	Legal and accounting activities; activities of head offices and management consultancy activities
M71	Architectural and engineering services; technical testing and analysis services	M	Architectural and engineering activities; technical testing and analysis
M72	Scientific research and development services	M	Scientific research and development
M73	Advertising and market research services	M	Advertising and market research
M74-M75	Other professional, scientific and technical services and veterinary services	M	Other professional, scientific and technical activities and veterinary services

CPA	Product group	NACE 1	Assigned industry
N77	Rental and leasing services	N	Rental and leasing activities
N78	Employment services	N	Employment activities
N79	Travel agency, tour operator and other reservation services and related services	N	Travel agency, tour operator and other reservation service and related activities
N80-82	Security services	N	Security and investigation services; services to buildings and landscape activities; office administrative, office support and other business support activities
O	Public administration and defence services; compulsory social security services	O	Public administration and defence; compulsory social security
P	Education services	P	Education
Q86	Human health services	Q	Human health activities
Q87-Q88	Residential care services; social work services without accommodation	Q	Residential care activities and social work activities without accomodation
R90-R92	Creative, arts, entertainment, library, archive, museum, other cultural services; gambling and betting services	R	Creative, arts and entertainment activities; libraries, archives, museums and other cultural activities; gambling and betting activities
R93	Sporting services and amusement and recreation services	R	Sports activities and amusement and recreation activities
S94	Services furnished by membership organisations	S	Activities of membership organisations
S95	Repair services of computers and personal and household goods	S	Repair of computers and personal and household goods
S96	Other personal services	S	Other personal service activities
T	Services of households as employers; undifferentiated goods and services produced by households for own use	T	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
U	Services provided by extraterritorial organisations and bodies	U	Activities of extraterritorial organisations and bodies

Note: For more, see https://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF. *NACE (Nomenclature of Economic Activities) is the European statistical classification of economic activities.*
Source: Eurostat, LE Europe

Annex 3 Output impacts of trade at industry level by Member State

Table 8 Percentage increase in output of the industry for every one-percent increase in overall exports of the country

Industry	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
A	0.51%	0.43%	0.41%	0.53%	0.30%	0.53%	0.24%	0.21%	0.38%	0.29%	0.28%	0.24%	0.15%	0.56%	0.51%	0.29%	0.46%	0.29%	0.51%	0.39%	0.34%	0.31%	0.51%	0.35%	0.43%	0.46%	0.41%
B, D, E	0.09%	0.12%	0.05%	0.07%	0.04%	0.07%	0.04%	0.07%	0.06%	0.04%	0.05%	0.04%	0.02%	0.05%	0.03%	0.04%	0.03%	0.04%	0.09%	0.06%	0.04%	0.06%	0.03%	0.05%	0.05%	0.03%	0.051%
C	4.10%	1.62%	6.20%	4.28%	5.89%	4.28%	3.15%	1.32%	2.22%	2.71%	1.55%	3.15%	2.42%	3.53%	2.44%	2.71%	8.74%	2.71%	4.10%	3.57%	3.67%	2.52%	2.44%	6.83%	5.13%	8.74%	4.48%
F	0.10%	0.09%	0.09%	0.11%	0.07%	0.11%	0.03%	0.09%	0.04%	0.01%	0.08%	0.03%	0.15%	0.08%	0.06%	0.01%	0.05%	0.01%	0.10%	0.08%	0.11%	0.08%	0.06%	0.14%	0.09%	0.05%	0.05%
G-I	0.35%	0.35%	0.36%	0.51%	0.33%	0.51%	0.17%	0.29%	0.24%	0.28%	0.26%	0.17%	0.50%	0.52%	0.48%	0.28%	0.40%	0.28%	0.35%	0.31%	0.38%	0.23%	0.48%	0.40%	0.37%	0.40%	0.31%
J	0.34%	0.25%	0.33%	0.40%	0.29%	0.40%	0.19%	0.14%	0.24%	0.18%	0.22%	0.19%	0.66%	0.37%	0.24%	0.18%	0.37%	0.18%	0.34%	0.34%	0.32%	0.22%	0.24%	0.37%	0.26%	0.37%	0.39%
K	0.32%	0.28%	0.25%	0.30%	0.25%	0.30%	0.20%	0.18%	0.18%	0.19%	0.12%	0.20%	0.70%	0.45%	0.18%	0.19%	0.19%	0.19%	0.32%	0.29%	0.14%	0.16%	0.18%	0.23%	0.16%	0.19%	0.23%
L	0.06%	0.06%	0.10%	0.13%	0.09%	0.13%	0.05%	0.08%	0.06%	0.05%	0.04%	0.05%	0.06%	0.07%	0.09%	0.05%	0.08%	0.05%	0.06%	0.07%	0.09%	0.02%	0.09%	0.08%	0.06%	0.08%	0.07%
M_N	0.41%	0.34%	0.36%	0.45%	0.36%	0.45%	0.24%	0.25%	0.28%	0.30%	0.32%	0.24%	0.57%	0.39%	0.31%	0.30%	0.50%	0.30%	0.41%	0.33%	0.32%	0.28%	0.31%	0.39%	0.41%	0.50%	0.37%
O-Q	0.01%	0.04%	0.01%	0.01%	0.03%	0.01%	0.01%	0.00%	0.02%	0.01%	0.01%	0.01%	0.03%	0.01%	0.02%	0.01%	0.02%	0.01%	0.01%	0.01%	0.02%	0.01%	0.02%	0.03%	0.01%	0.02%	0.01%
R-U	0.09%	0.12%	0.10%	0.07%	0.05%	0.07%	0.06%	0.03%	0.04%	0.08%	0.04%	0.06%	0.07%	0.02%	0.05%	0.08%	0.07%	0.08%	0.09%	0.06%	0.08%	0.04%	0.05%	0.04%	0.04%	0.07%	0.04%

Source: Eurostat, LE Europe calculations

Note: A = Agriculture, forestry and fishing; B, D, E = Industry (except construction and manufacturing); C = Manufacturing; F = Construction; G-I = Wholesale and retail trade, transport, accommodation and food service activities; J = Information and communication; K = Financial and insurance activities; L = Real estate activities; M_N = Professional, scientific and technical activities; administrative and support service activities; O-Q = Public administration, defence, education, human health and social work activities; R-U = Arts, entertainment and recreation; other service activities; activities of household and extra-territorial organisations and bodies.

REFERENCES

Cali, M., Francois, J., Hollweg, C. ., Manchin, M., Oberdabernig, D. A., Rojas R., Hugo A., Rubinova, S., and Tomberger, P.(2016). The labor content of exports database (English). Policy Research working paper; no. WPS 7615. Washington, D.C. : World Bank Group.

CPB (2020) World Trade Monitor.

Dauth, W., Findeisen, S. and Suedekum, J., (2013). 'The rise of the East and the Far East: German labor markets and trade integration.' (No. 127). DICE Discussion Paper. 127

Frankel, J.A. and Romer, D.H., (1999). 'Does trade cause growth?' American Economic Review, 89(3), pp.379-399.

Giles, D.E. and Stroomer, C.N., (2003). 'Does Trade Openness Affect the Speed of Output Convergence? Some Empirical Evidence'. Econometrics Working Paper EWP0307

Laurin, F., (2012). 'Trade and regional growth in Spain: panel cointegration in a small sample.' Applied Economics, 44(4), pp.435-447.

Lanz, R. and Maurer, A. (2015), 'Services and global value chains – some evidence on servification of manufacturing and services networks', WTO Working Paper ERSD 2015-03, March

Mikulić, D. and Galić Nagyszombaty, A., (2015). 'Does international trade cause regional growth differentials in Croatia?.' Zbornik radova Ekonomskog fakulteta u Rijeci: časopis za ekonomsku teoriju i praksu, 33(1), pp.81-102.

Rusticelli, E., Haugh, D., Arquie, A. and Demmou, L., (2018). 'Going local: a regional perspective on how trade affects labour markets and inequality.' Available at: http://dx.doi.org/10.1787/2981f94c-en [accessed 11 May 2020].

Soukiazis, E. and Antunes, M., (2011). 'Is foreign trade important for regional growth? Empirical evidence from Portugal.' Economic Modelling, 28(3), pp.1363-1373.

Sachs, J.D. and Warner, A.M., (1995). 'Economic convergence and economic policies. National Bureau of Economic Research Working Paper' No. w5039.

UNCTAD (2020) Key statistics and trends in international trade 2019. International trade slump.

World Bank; World Trade Organization (2019). Global Value Chain Development Report 2019 : Technological Innovation, Supply Chain Trade, and Workers in a Globalized World (English). Washington, D.C. : World

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Exporting to the world: EU regions and trade explores the impact of international exports on regional employment and production of goods and services across the EU. The report outlines worldwide trends in international trade and global value chains as well as briefly discusses the impact of COVID-19. It reviews how exports contribute to the growth of the EU economy, provides detailed analysis reflecting the diversity of EU regions and puts forward a number of recommendations for action at local, national and EU level.

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