International trade, foreign direct investment and global value chains

2017

DENMARK

TRADE AND INVESTMENT STATISTICAL NOTE

International trade and foreign direct investment (FDI) are the main defining features and key drivers of global value chains (GVCs). However, despite their strong complementarities, the two flows are typically presented and treated separately in the statistical information system. Drawing on new and improved measures of trade and investment, this country note provides relevant statistical information from OECD databases on trade, investment, the activities of multinational enterprises (MNEs) and global value chains (TiVA). It sheds new light on the trade-investment nexus by highlighting the interrelationships between trade and FDI, their economic impact in the context of GVCs, and the role of MNEs as the main directors of these flows. The data are as of 1 May 2017. More information and country notes are available at www.oecd.org/investment/trade-investment-gvc.htm.

Almost one-third (31% in 2014) of economic activity (GDP) in Denmark depends on foreign markets, similar to levels in Sweden and Austria. MNEs play a significant role in exports, with Danish MNEs accounting for 40% of Denmark's gross exports and foreign-owned firms accounting for one-third. Denmark's outward investment (equivalent to 57% of GDP in 2015) was substantially higher than its inward investment (33%). Under a broader notion of international orientation, which captures the impact on national income of exports and sales through foreign affiliates, Denmark's international orientation was equivalent to 34% of GDP in 2014.

Considering both trade and investment through this broader perspective can also shed new light on Denmark's most important partner countries. For example, France moves past China when sales through affiliates are considered because of its more extensive investment links with Denmark.

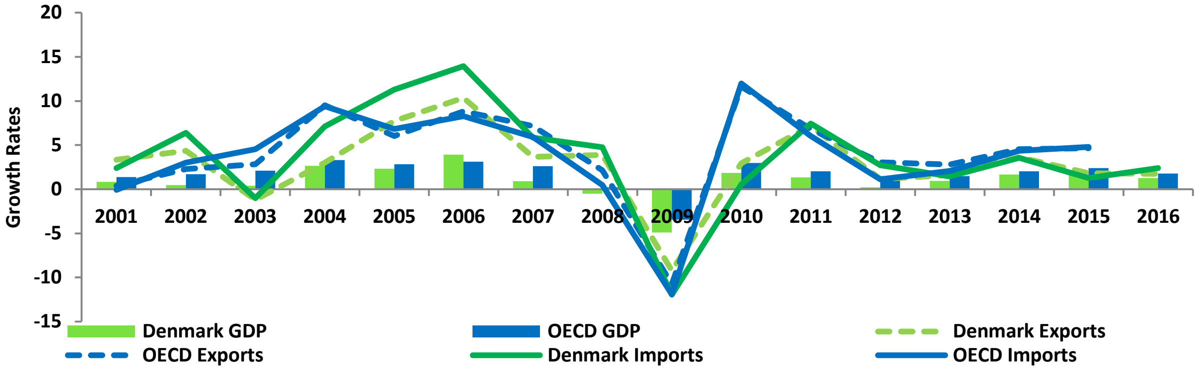
The top manufacturing exporting industries in Denmark are chemicals and chemical products (CHM), food products (FOD) and machinery and equipment (MEQ). In the chemicals industry, over three-quarters of value added is exported, and, while foreign-owned firms plays a minor role (accounting for 10% of exports), domestic MNEs account for almost two-thirds of exports, reflecting their strength and positions at the start of GVCs. In contrast, in the machinery and equipment industry, foreign-owned firms account for one-third of value added and half of goods exports, illustrating how foreign investment can help GVC integration. Denmark has one of the highest services content in exports in the OECD at 67%, and this is correlated with a relatively high share of inward investment going to the services sector.

Trade and investment in Denmark

Growth in trade is recovering slowly since the global and euro crises

Like many European economies, Danish trade contracted significantly at the height of the global crisis and again during the euro crisis. Danish trade growth fluctuated around the OECD average in the pre-crisis years but has been just below the OECD values since the euro crisis. In 2016, export growth was similar to 2015, at 1.8% and import picked up to 2.4%.

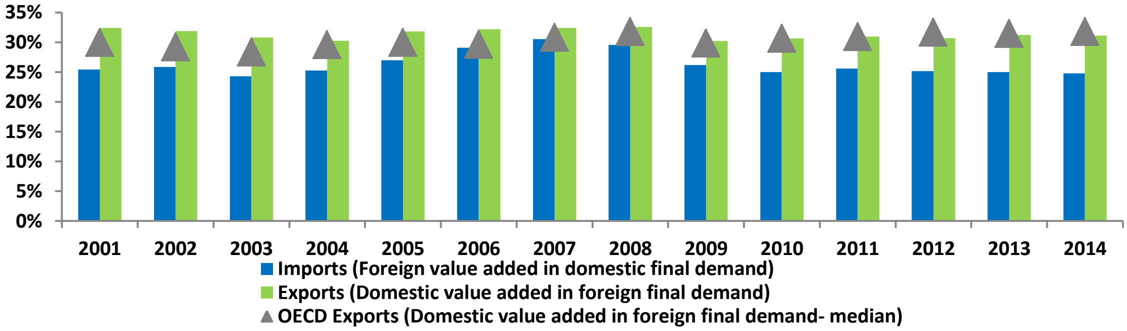
Figure 1. Growth rates of trade and GDP for the OECD and Denmark, 2001-2016



Source: OECD SNA

Gross exports amounted to USD 163 billion in 2016 (61% of GDP), and gross imports to USD 142 billion (52% of GDP). Gross trade figures however overstate the 'real' contribution of trade to the economy. In value-added terms, exports contributed 31% per cent of total GDP in 2014, slightly below the pre-crisis high of 32% in 2008, and close to the OECD median (grey diamond). The contribution of direct and indirect imports to domestic final demand accounted for 25% of GDP in 2014.

Figure 2. Trade in value added terms, imports and exports, 2001-2014

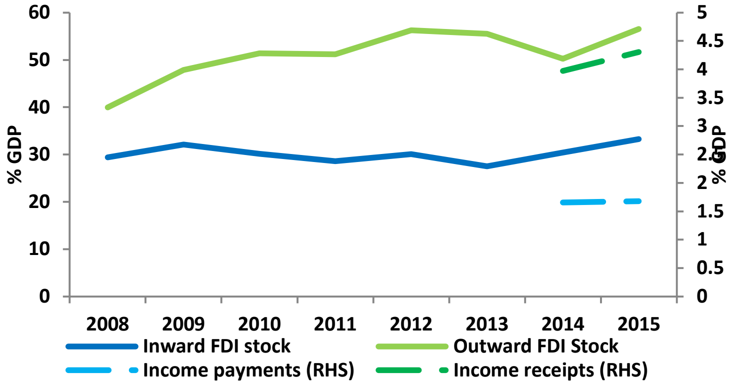


Source: OECD-WTO Trade in Value Added Data

Investment is more outward than inward

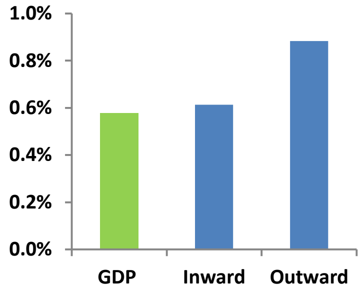
Although both outward and inward FDI stocks have been growing relative to GDP since 2008, outward FDI (stock equivalent to 57% of GDP in 2015) has grown more strongly, resulting in divergence in the series (Figure 3). In 2015, Denmark's share of the OECD total inward FDI stock (0.61%) was slightly above its share of GDP (0.58%), but its share in outward stock was 0.88% of the OECD total, higher than its share of GDP (Figure 4).

Figure 3. FDI stocks and income as a share of GDP total



Source: OECD FDI Statistics (BMD4)

Figure 4. FDI stocks and GDP as a share of OECD total, 2015



Source: OECD FDI Statistics (BMD4)

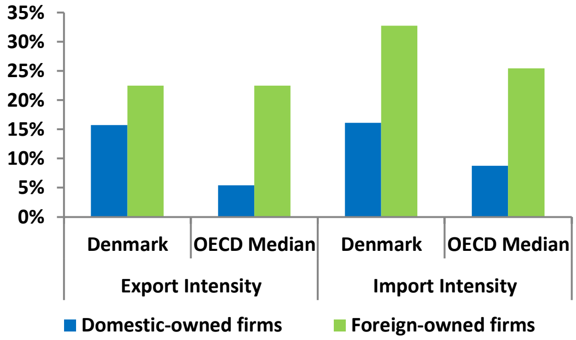
Foreign owned firms directly sustained 20% of jobs in the private sector in 2013….

Consistent with the size of inward investment compared to other OECD economies, foreign-owned enterprises accounted for 20% of jobs in the private sector in 2013 and 23% of private sector value added produced in Denmark, excluding the agriculture and finance sector.

…and are more export intensive than domestically owned firms

On average, foreign-owned firms in Denmark are more export intensive (share of exports in turnover) than domestically owned firms, and their export intensity is at the OECD median, while the export intensity of Danish domestic firms is substantially higher that the OECD median. The import intensity of foreign-owned firms (share of imports in purchases) is significantly higher for foreign-owned than domestic firms.

Figure 5. Export and import intensity of domestic and foreign-owned enterprises

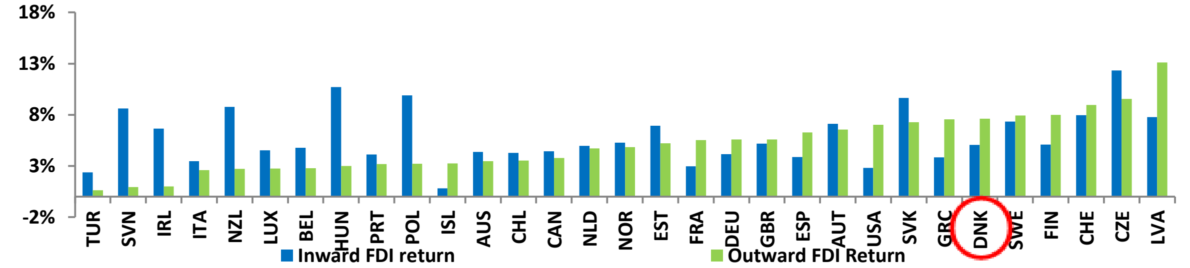


Source: OECD AMNE and Trade by Enterprise Characteristics (TEC) statistics (2011)

Domestic MNEs provide important channels to penetrate foreign markets via affiliates…

In 2015, Denmark received USD 12.9 billion in income from its outward investment, equivalent to approximately 4% of GDP. Denmark's rate of return at 7.6% (green bar) on its outward FDI is at the higher end of OECD countries. On the other hand, the return to foreign investors in Denmark was 5.1% in 2015, close to the median of OECD countries.

Figure 6. Return on investment, income receipts and payments as a share of inward and outward stocks, 2015

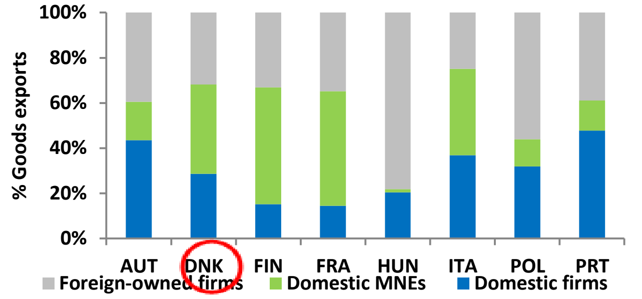


Source: OECD FDI Statistics (BMD4)

… or via exports

Relative to other European economies Danish parent MNEs play a substantial role in GVC integration. 40% of Danish goods exports are by parent MNEs, at the upper end of European countries. Foreign-owned firms also play an important role in exports, so too domestic firms, each accounting for about 30% of exports.

Figure 7. Goods Exports by firm type, the role of Danish MNEs

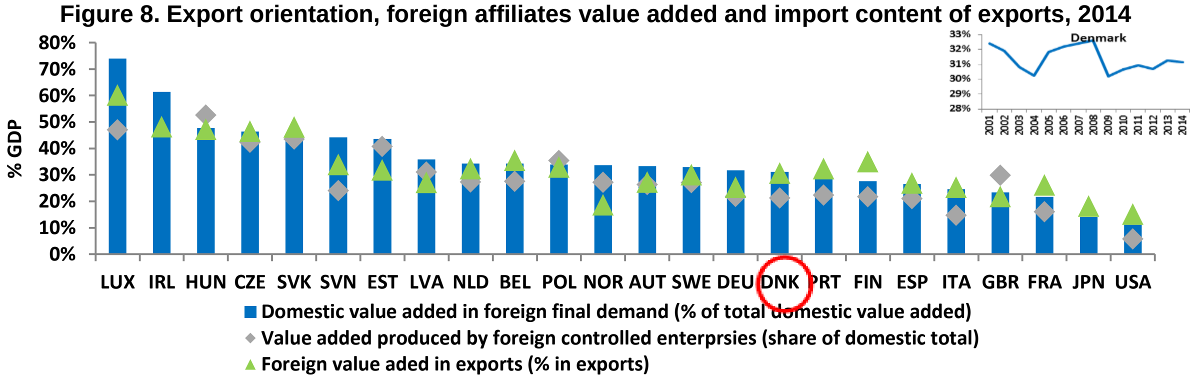


Source: OECD TEC statistics (2011)

But Denmark's export orientation is below the OECD median

Exports (in value added terms) contribute around 31% of Danish GDP, this is below the OECD median, but comparable with Sweden and Finland, the export intensity of foreign owned firms is at the OECD median (compared to foreign affiliates operating in other countries), contributing to Denmark's participation in GVCs as measured by the import content of exports which is also close to the OECD median. However, export orientation has failed to recover to its pre-crisis high.

Figure 8. Export orientation, foreign affiliates value added and import content of exports, 2014

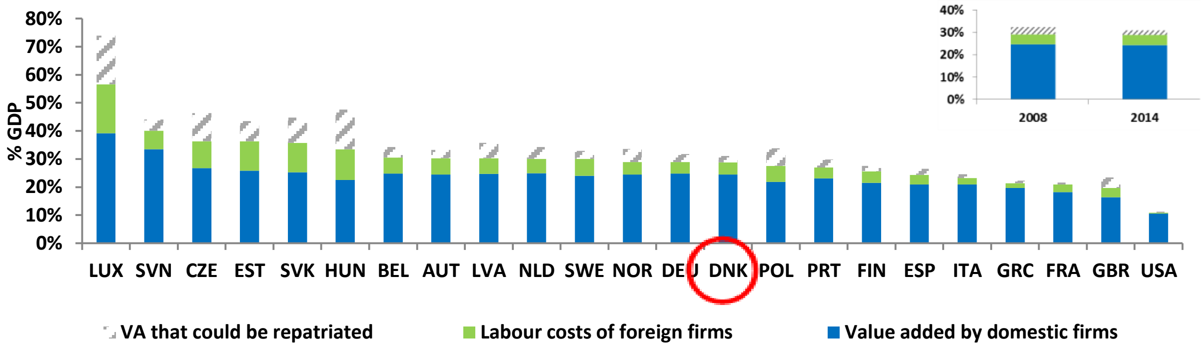


Source: OECD-WTO Trade in Value Added Data and OECD AMNE statistics

Not all of the domestic value added content of exports sticks in the economy…

Gross export figures overstate the real economic impacts of trade to the exporting economy, but TiVA estimates can also overstate these impacts as the profits earned by foreign-owned firms through exports are repatriated if they are not reinvested. Figure 9 illustrates the importance of these flows across countries by showing the value added in exports of domestically-owned firms (blue bar), wages paid by foreign-owned firms (green bar), and profits of foreign-owned firms (grey bar), which in practice can be repatriated. Excluding these profits Danish exports contain 29% of value-added that remains in the economy. So, only 7% of Denmark's exported domestic value added represents profits of foreign-owned firms reflecting the levels of inward investment. The share of value added that remains in the economy decreased since 2008, (see chart insert).

Figure 9. Exports by ownership and their contribution to income, as a share of GDP, 2014

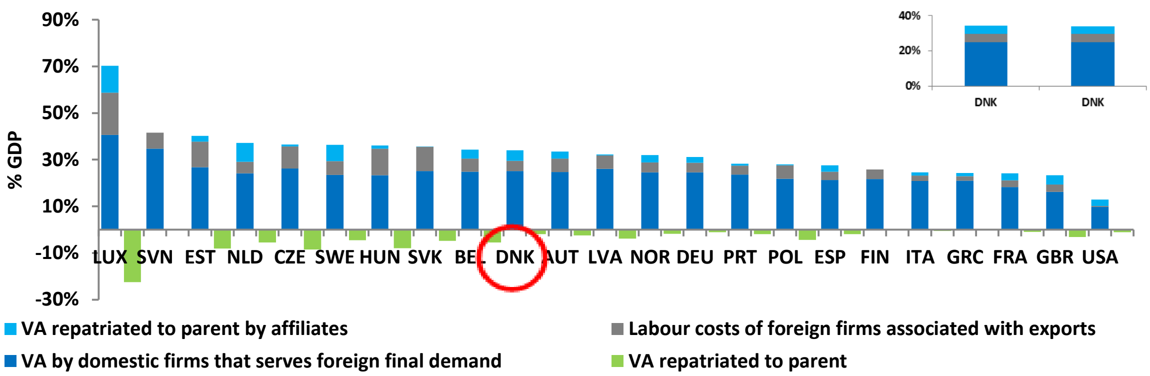


Source: OECD-WTO Trade in Value Added Data and OECD AMNE statistics

Taking a broader view by including the income of foreign affiliates can provide a more complete picture of the international orientation of the Danish economy.

Firms serve foreign markets by exporting or by selling through their foreign affiliates. Figure 10 takes a broader view of an economy's international orientation by taking account of both trade and investment. The chart begins with the domestic value added in exports that remains in the economy – exports of value added by domestic firms (blue bar) and wages paid by foreign-owned firms associated with exporting (grey bar) – and adds to it the profits that domestic MNEs receive from the activities of their foreign affiliates as measured by FDI income receipts (light blue bar). The income payments made to foreign parents are presented for information purposes (green bar). For Denmark this broader measure is higher (34.5%) than the export orientation measure from TiVA (32%) because Denmark is a net outward direct investor. Denmark moves above the OECD median using this measure. However, this has fallen slightly since 2008, due to decreases in exports of value added (see chart insert).

Figure 10. Supplying markets through trade and investment: a broader perspective, 2014

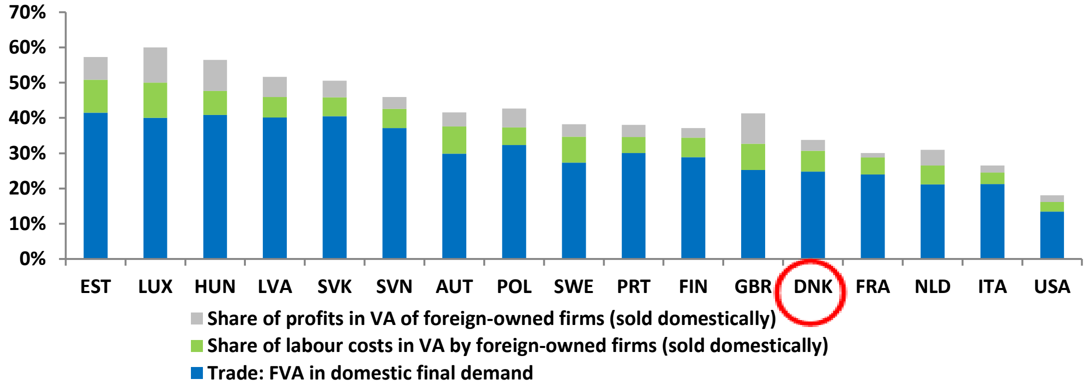


Source: OECD-WTO Trade in Value Added Data, OECD AMNE and OECD FDI (BMD4) statistics

This broader perspective can also shed light on how foreign firms serve the Danish market

Foreign producers supplied products and services for Danish final consumption equivalent to 34% of GDP in 2014, the majority is through trade (foreign value added in Danish final demand equals approximately 25% of GDP), but value added generated by foreign affiliates in Denmark for domestic (non-export) sales (Figure 11) accounts for a not insignificant 9% of GDP. Although some of this value added can be repatriated to parents, that share is lower in Denmark than in many other OECD economies (grey bar).

Figure 11. How foreign firms serve your market: a value added perspective, 2014



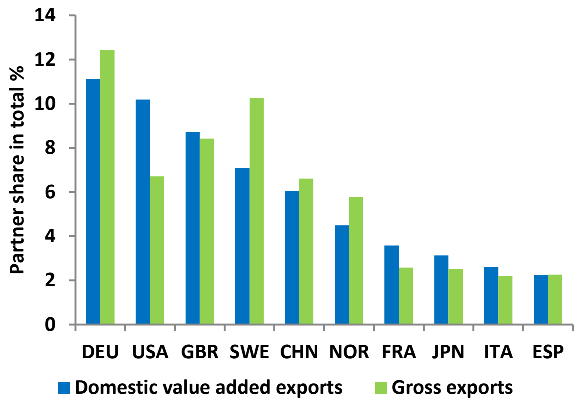
Source: OECD-WTO Trade in Value Added Data, OECD AMNE and OECD TEC statistics

Trade and investment by partner country

Trade measured from a value added perspective better reflects the bilateral relationships

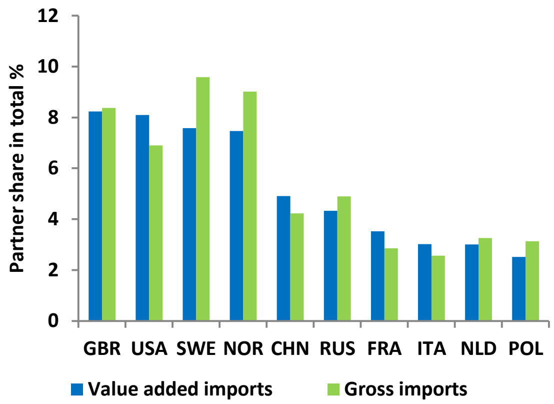
Gross bilateral trade figures can disguise the true nature of trade interdependencies, particularly between final consumers in one country and producers at upstream parts of the value chain. For exports, gross figures overstate the importance of Germany, Sweden and Norway while understating the demand of French and American markets for Danish value added. A similar pattern is observed on the import side.

Figure 12. Exports: gross and value added terms, by partner country, 2014



Source: OECD-WTO TiVA Data

Figure 13. Imports: gross and value added terms, by partner country, 2014

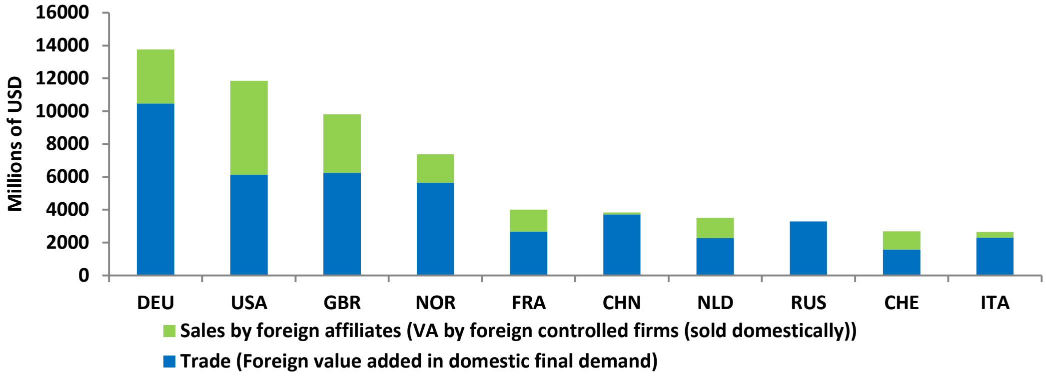


Source: OECD-WTO TiVA Data

…and interdependencies are further revealed when looking at the broader notion of 'trade'

Foreign firms can serve an economy though trade or sales by foreign affiliates; bringing the trade and investment perspectives together can shed a different light on who a country's most important partners are (Figure 14). Substantial variation exists across countries in how they supply the Danish market. For example, while most partner countries supply Danish consumers through both trade and sales by foreign affiliates, China, Russia and Italy do so mainly through trade. Furthermore, considering both trade and investment the United States is a more important supplier than the United Kingdom and Norway and France is more important than China; this is not evident when looking at trade alone.

Figure 14. Supplying the Danish market via trade and investment: Top 10 partner countries, 2014



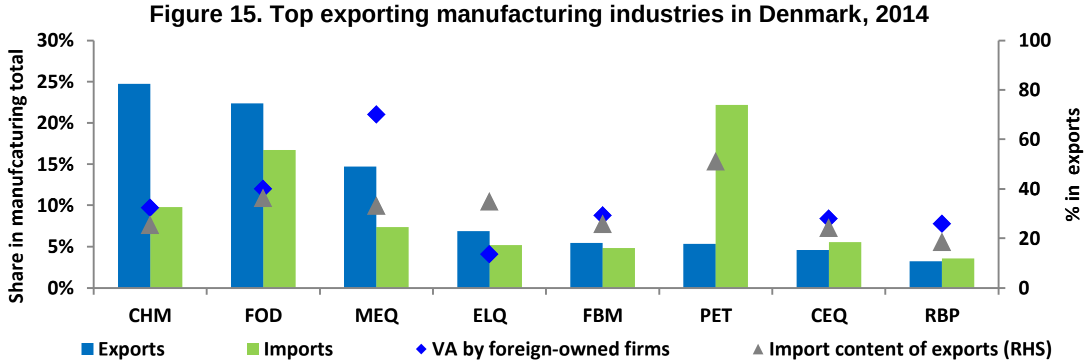
Source: OECD-WTO TiVA Data and OECD AMNE statistics

Trade and investment by industry

Outward investment helps shape Denmark's GVC integration

The top manufacturing exporting industries in Denmark are chemicals and chemical products (CHM), food products (FOD) and machinery and equipment (MEQ). The import content of exports is relatively high across these industries--illustrating the role that importing plays in supporting exports and indicating the degree of GVC integration in these industries. The role of foreign-owned firms varies across Danish industry, in part reflecting Denmark's own comparative advantages and specialisation of its MNEs.

Figure 15. Top exporting manufacturing industries in Denmark, 2014

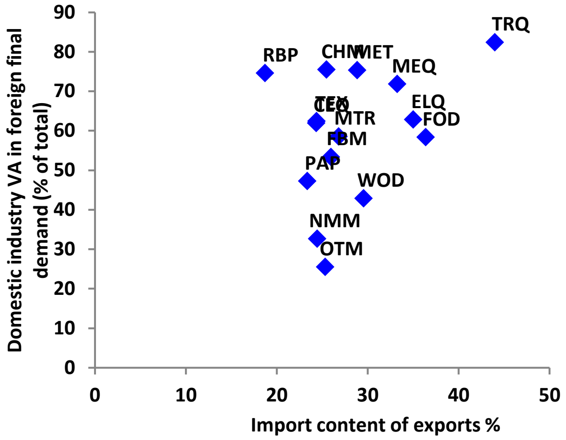


Source: OECD-WTO Trade in Value Added Data and OECD AMNE statistics. See page 10 for a description of industry codes.

Exports and imports go hand in hand…

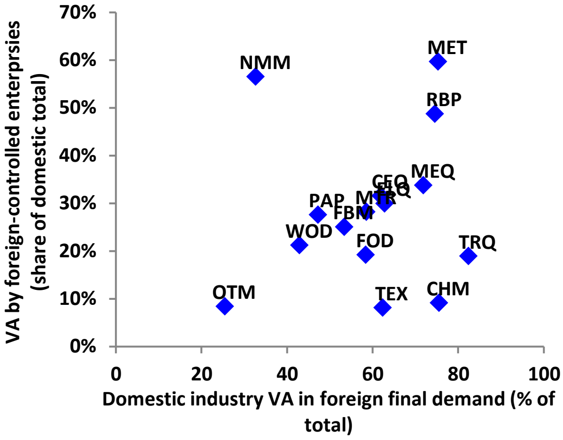
Across most industries there is a positive correlation between higher import content of exports and a higher share of their domestic value-added being exported (export orientation) illustrating the strong complementarity of exports and imports.

Figure 16. Import content of exports and export orientation, 2014



Source: OECD-WTO TiVA Data and OECD AMNE statistics

Figure 17. Foreign-owned firms and export orientation, 2014

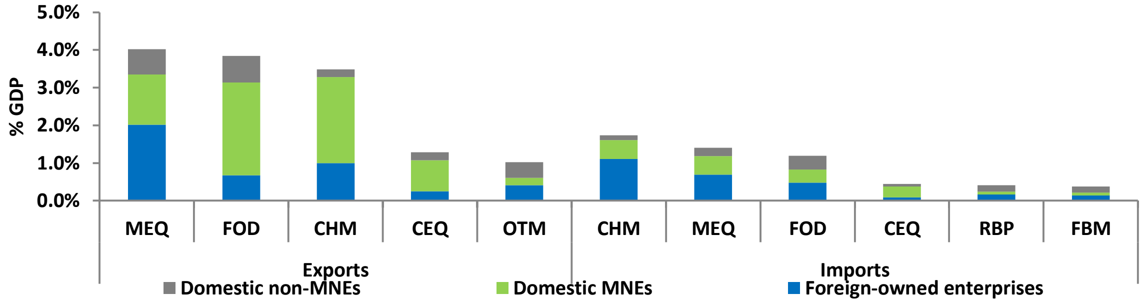


Source: OECD-WTO TiVA Data and OECD AMNE statistics

...and investment and export orientation can also go hand in hand

At the same time, strong complementarities can exist between inward investment and export orientation (Figure 17). For Denmark, the industries where foreign-owned firms produce more of the value added are also those that are more export orientated. Chemicals (CHM) and transport equipment (TRQ) are exceptions reflecting strong domestic industry. Figure 18 illustrates the trade in goods by firm ownership; domestic MNEs are the main traders for Danish goods exports in some industries reflecting that often Denmark is at the start of GVCs. Foreign-owned enterprises also play a significant role, particularly in exports.

Figure 18. Gross trade in goods by enterprise ownership and industry, as a per cent of GDP



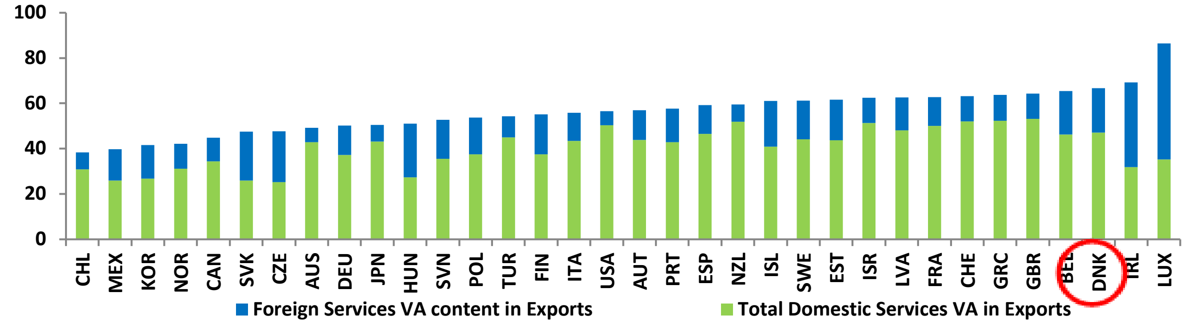
Source: OECD TEC Statistics, 2011 (latest data available)

Service industries play an important role in the export orientation of an economy…

Typically, services account for a large share of the value added in the economy but conventional gross trade statistics understate this as they cannot reveal the contribution that the upstream services industry plays in the production of goods exports. Accounting for this contribution, the services content of Denmark's total exports of goods and services was 67% in 2014 (Figure 19), substantially above the

OECD average of 57%. Considering the services content of manufactured goods alone, two thirds of the total value of Danish manufacturing exports reflects services value added, one of the highest in the OECD.

Figure 19. Services content of gross exports for OECD countries, 2014

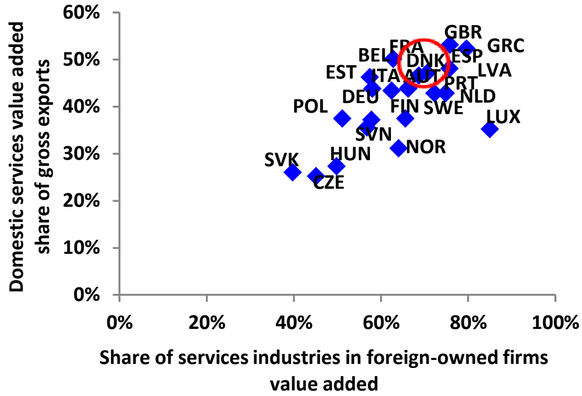


Source: OECD-WTO TiVA Data

…and so inward FDI in the services sector can be an important channel for export success

Greater foreign investment in the services sector is associated with higher services content in exports. For Denmark, the share of investment in services is at the higher end for OECD economies which could contribute to its relatively high services content in exports.

Figure 20. Share of services industries in foreign-owned firms' value added and domestic services value added share of gross exports, OECD countries , 2014



Source: OECD-WTO TiVA Data and OECD AMNE statistics

Links and data sources

Guide to the trade and investment statistical notes
www.oecd.org/investment/Guide-trade-investment-statistical-country-notes.pdf

Activity of Multinational Enterprises - AMNE www.oecd.org/sti/ind/amne.htm

OECD Benchmark Definition of Foreign Direct Investment - 4th Edition (BMD4)
(see Chapter 8 for information on the intersection of AMNE and FDI data)
www.oecd.org/investment/fdibenchmarkdefinition.htm

Foreign Direct Investment (FDI) Statistics www.oecd.org/investment/statistics.htm

Trade by Enterprise Characteristics - TEC
www.oecd.org/std/its/trade-by-enterprise-characteristics.htm

Trade in Value Added - TiVA
www.oecd.org/sti/ind/measuringtradeinvalue-addedanoecd-wtojointinitiative.htm

Table of industry codes

Industry Type	Ind Code	Industry Description
Primary Industries	AGR	Agriculture, hunting, forestry and fishing
	MIN	Mining and quarrying
Manufacturing	FOD	Food products, beverages and tobacco
	TEX	Textiles, textile products, leather and footwear
	WOD	Wood and products of wood and cork
	PAP	Pulp, paper, paper products, printing and publishing
	PET	Coke, refined petroleum products and nuclear fuel
	CHM	Chemicals and chemical products
	RBP	Rubber and plastics products
	NMM	Other non-metallic mineral products
	MET	Basic metals
	FBM	Fabricated metal products except machinery and equipment
	MEQ	Machinery and equipment n.e.c
	CEQ	Computer, electronic and optical products
	ELQ	Electrical machinery and apparatus n.e.c
	MTR	Motor vehicles, trailers and semi-trailers
	TRQ	Other transport equipment
	OTM	Manufacturing n.e.c; recycling
Services	EGW	Electricity, gas and water supply
	CON	Construction
	WRT	Wholesale and retail trade; repairs
	HTR	Hotels and restaurants
	TRN	Transport and storage
	PTL	Post and telecommunications
	FIN	Finance and insurance
	REA	Real estate activities
	RMQ	Renting of machinery and equipment
	ITS	Computer and related activities
	BZS	Research and development & Other Business Activities
	GOV	Public admin. and defence; compulsory social security
	EDU	Education
	HTH	Health and social work
	OTS	Other community, social and personal services
	PVH	Private households with employed persons