



Box A:

QB 1 – February 2020

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Sectoral Concentration in Irish Exports

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This box outlines the extent to which Irish export growth has become concentrated in the pharmaceutical and ICT sectors and in so doing draws together a variety of publically available data to give new insights to these sectors.

Irish export growth has remained remarkably resilient over the past two years despite a pronounced downturn in the external environment (Figure 1). Irish exports expanded by 12.1 per cent year-on-year in the first three quarters of 2019, despite trade-weighted world demand for Irish exports growing by just 1.7 per cent over the same period. This is significantly above existing estimates of the short run elasticity of Irish exports to world demand.²

Figure 1: Irish exports have grown consistently despite a weakening in trade weighted external demand



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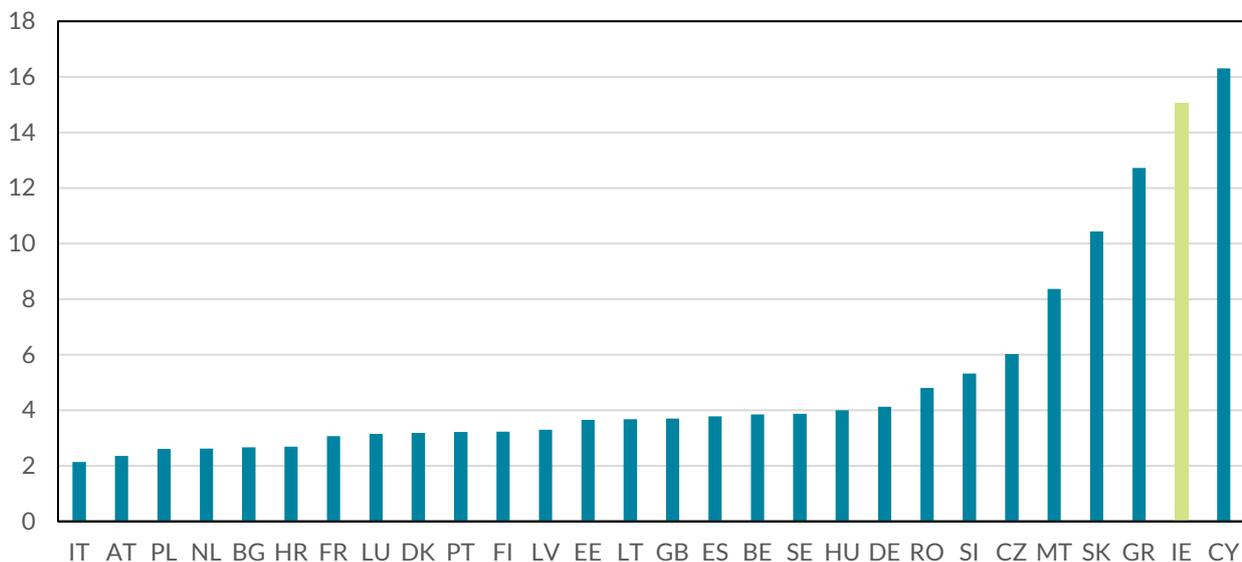
² [Byrne, S. and Lenihan, S. \(2018\) The response of Irish Exports to World Demand, Central Bank of Ireland, Quarterly Bulletin 2018, No. 3, Box D.](#)



This divergence of export performance from external conditions can be explained by the composition of Irish exports.³ In particular, merchandise exports have become increasingly concentrated in the pharmaceuticals, with much of the remaining growth attributable to the computer hardware sector. At the same time, computer services now dominate services exports and continue to expand rapidly. The analysis presented below suggests that these categories are likely to continue grow rapidly, at least over the forecast horizon. This supports the buoyant export growth forecast contained in this Bulletin.

However, the concentration of export growth in a small number of products represents a risk to the outlook as a shock to one or two firms or products could result in a significant downturn in Irish exports.⁴ Figure 2 makes use of disaggregated trade data to calculate a Herfindahl-Hirschman index (HHI) of concentration in merchandise exports. The level concentration in the Irish merchandise export basket is higher than in most other European countries, with Ireland second only to Cyprus.⁵ The remainder of the box provides a more detailed examination of the specific categories that dominate Irish exports and Irish export growth.

Figure 2: Herfindahl-Hirschman Index of Merchandise Export Concentration across Countries (2018)



Source: Eurostat, Central Bank of Ireland staff calculations

³ [Byrne, S. \(2019\) Strong Pharmaceutical Exports Boost Overall Export Growth, Central Bank of Ireland, Quarterly Bulletin 2019, No. 1, Box C.](#)

⁴ [Wosser, M., O'Brien, M. and Mehigan, C. \(2019\) Financial stability considerations of being a small, highly globalised economy, Central Bank of Ireland Financial Stability Review 2019, No. 1, Box 2.](#)

[Lane, P.R. \(2019\) Tail Risks and the Irish Economy, Lecture delivered to UCD School of Economics, 16 April 2019.](#)

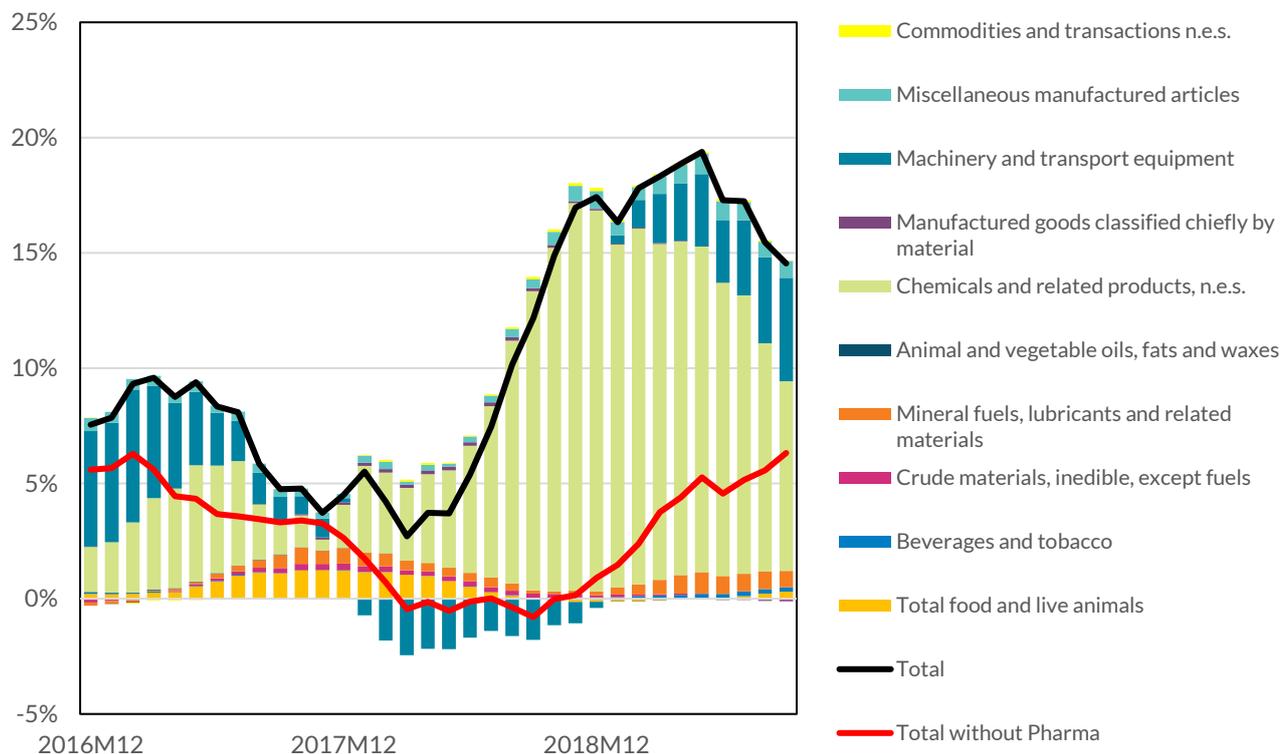
⁵ Cyprus' merchandise exports in 2018 were highly concentrated in Boats and Ships (24 per cent) Petrol (15.1 per cent).



Merchandise Exports

Chemicals and related products have dominated export growth over the past 18 months (Figure 3). In late 2018 and early 2019, growth in the other export sectors was weak enough that without the contribution of this sector overall merchandise export growth would have been flat.

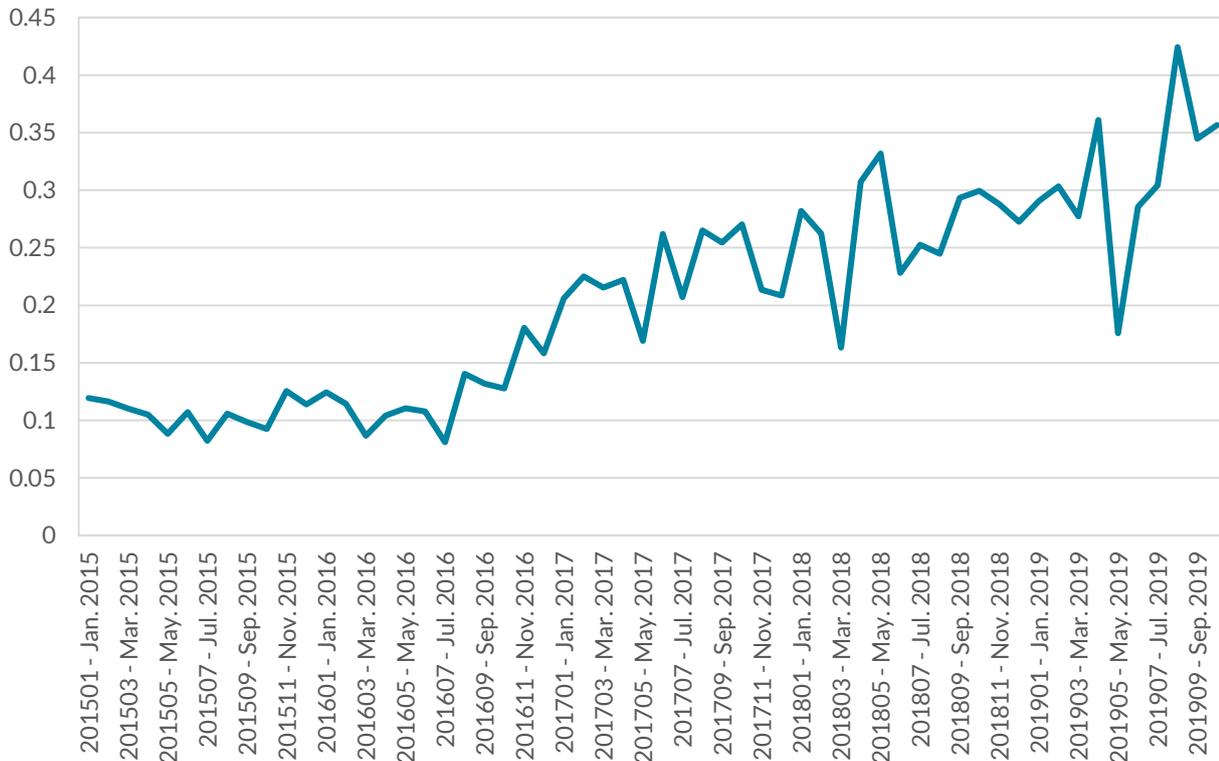
Figure 3: Export Growth and Contributions from 1-digit SITC Categories



Merchandise exports data are published according to the Standard for International Trade Classification (SITC) codes. Figure 2 displays a breakdown of merchandise exports at the one-digit SITC, which divides products into 10 categories. *Chemicals and related products* accounted for almost 62 per cent of merchandise exports in the first three quarters of 2019. Given its importance, it is useful to look in more detail at what is driving this surge. Using more detailed data published by Eurostat, we can examine SITC data disaggregated into 2,970 categories. One product category, *Antisera and Other Blood Fractions*, is responsible for approximately 40 per cent of the growth in *Chemicals and related products* (Figure 3). Exports of this product averaged EUR 2.5bn per month during 2019. Approximately half of the exports of this product in 2019 were to the US. Belgium also accounted for a sizable share of the exports, possibly reflecting its position as a distribution hub for pharmaceuticals in Europe.



Figure 4: Irish Exports of Antisera and Other Blood Fractions



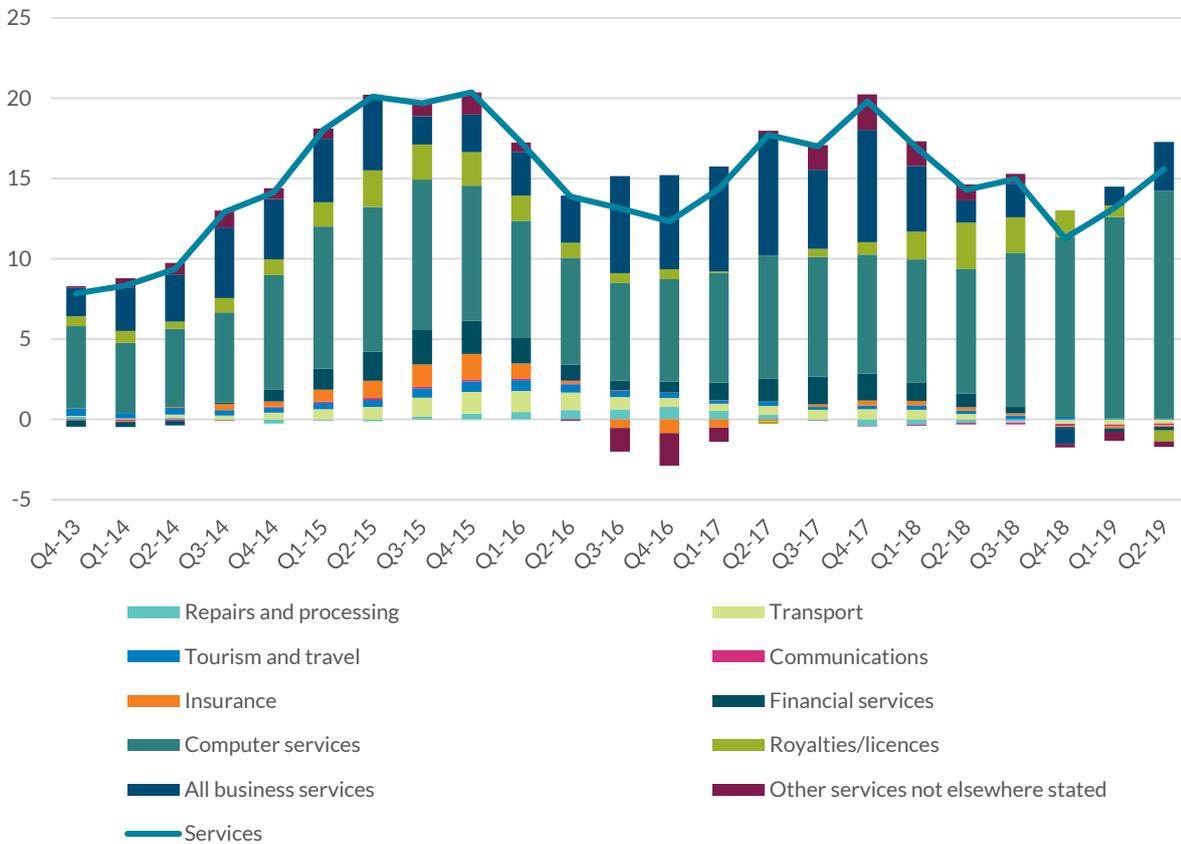
In recent months, there has also been a strong surge in exports of Machinery and Equipment (dark green bars in Figure 2). Looking into the detail again shows that one five-digit product code, “processors and controllers, whether or not combined with memories, converters, logic circuits, amplifiers, clock and timing circuits, or other circuits”, has been responsible a significant proportion of this growth. In short, this product classification refers to exports of computer processors. These goods are predominantly exported to the US and China, reflecting Ireland’s position in the global value chain for the production of computer hardware – with these processors being exported for assembly into computers and other devices elsewhere. Combined, these two product categories accounted for more than 20 per cent of total exports of merchandise goods in the third quarter of 2019 (Figure 6).



Figure 5: Irish exports of computer processors



Figure 6: Irish Services Export Growth





Services exports have grown rapidly in recent years such that they now account for almost half of total exports.⁶ Much of this increase is attributable to computer services exports (Figure 6), exports of which have doubled since 2016 and now account for nearly a quarter of total exports. Highly disaggregated service categories, similar to those described above for goods, are not available for services. However, it is known that a number of the largest ICT firms in the world operate in Ireland, including Google, Microsoft and Facebook.⁷

What is driving these developments?

Trade Name	Manufacturer	2018 Sales (million USD)	Increase (YoY %)
Humira	AbbVie	19936	8.2
Eliquis	Bristol-Myers Squibb	9872	33.5
Revlimid	Celgene (Bristol-Myers Squibb)	9685	18.3
Opdivo	Bristol-Myers Squibb	7570	31.4
Keytruda	Merck	7171	88.3
Enbrel	Pfizer	7126	-9.6
Herceptin	Genentech	6981	-0.5
Avastin	Genentech	6847	2.4
Rituxan/MabThera	Genentech and Roche	6750	-7.5
Xarelto	Bayer and Johnson & Johnson	6589	5.7
Eylea	Bayer and Regeneron	6551	12.4
Remicade	Janssen Biotech (Johnson & Johnson)	5908	-17.4
Pprevnar 13	Pfizer	5802	3.6
Stelara	Janssen Biotech (Johnson & Johnson)	5156	28.5
Lyrica	Pfizer	4970	-1.9

Source: [Genengnews](#)

Note: Trade publications and the annual accounts of the companies listed suggests that the items highlighted in green are produced in Ireland.

Previous episodes of volatile export dynamics show that it is important to understand what sector and firm specific developments are behind the aggregate figures. For example, at the end of 2011 and 2012 a number of major drugs produced in Ireland fell out of patent. In particular, Lipitor – a

⁶ Byrne, Stephen & O'Brien, Martin, 2015. "The Changing Nature of Irish Exports: Context, Causes and Consequences," Quarterly Bulletin Articles, Central Bank of Ireland, pages 58-72, April.

⁷ Emter, L., McQuade, P. and Mehigan, C. (2019) MNEs and Ireland: A Firm Level Analysis, Central Bank of Ireland, Quarterly Bulletin 2019, No. 3, Box E.



cholesterol treatment made by Pfizer, for which the active ingredient was produced in Ireland, came off patent resulting in a significant drop in exports.⁸

The recent strength of pharmaceutical exports appear to be linked to the increasing use of a number of cutting edge immunology drugs (or their components) which are produced in Ireland. Many of these new drugs have recently received regulatory approval. One drug likely to have contributed to the sharp rise in exports of Antisera and Other Blood Fractions is *Keytruda* (Pembrolizumab). *Keytruda* is an immunological treatment produced by MSD Worldwide (also known as Merck). Worldwide sales of *Keytruda* have increased dramatically, standing at over USD 7 bn in 2018, an 88.3 per cent increase from 2017 making it the 6th highest selling pharmaceutical drug in the world in 2018 (Table 1).^{9,10,11,12} According to media reports, MSD supply the US market from Ireland and MSD Ireland has plans to further increase its Irish manufacturing capacity for *Keytruda* by 2021.¹³ Similarly, *Stelara* (Ustekinumab) was initially approved as a treatment for psoriasis and is produced by Janssen Biotech in Ireland, which has recently also expanded its manufacturing capacity in Ireland. Sales for *Stelara* were USD 5.156 bn in 2018, an increase of 28.5 per cent from 2017.¹⁴ As well as expanding Irish production facilities, both drugs have received approval as treatments for an increasing range of illnesses in recent years.^{15,16} Taken together, this suggests that exports of *Antisera and Other Blood Fractions* from Ireland might be expected to continue to grow in the near term.

⁸ [John FitzGerald \(2015\). Problems Interpreting National Accounts in a Globalised Economy. ESRI Special Article.](#)

⁹ https://s21.q4cdn.com/488056881/files/doc_financials/2018/Q4/Merck-News-Release-02-01-19-Merck-Announces-Fourth-Quarter-and-Full-Year-2018-Financial-Results.pdf

¹⁰ https://s21.q4cdn.com/488056881/files/doc_financials/2019/Merck-News-Release-04-30-19-Merck-Announces-First-Quarter-2019-Financial-Results.pdf

¹¹ https://s21.q4cdn.com/488056881/files/doc_financials/2019/Q2/Merck-News-Release-07-30-19-Merck-Announces-Second-Quarter-2019-Financial-Results.pdf

¹² https://s21.q4cdn.com/488056881/files/doc_financials/2019/q3/Merck-3Q19-Earnings-News-Release.pdf

¹³ <https://www.irishtimes.com/business/health-pharma/cancer-drug-keytruda-drives-profit-at-merck-1.3480278>

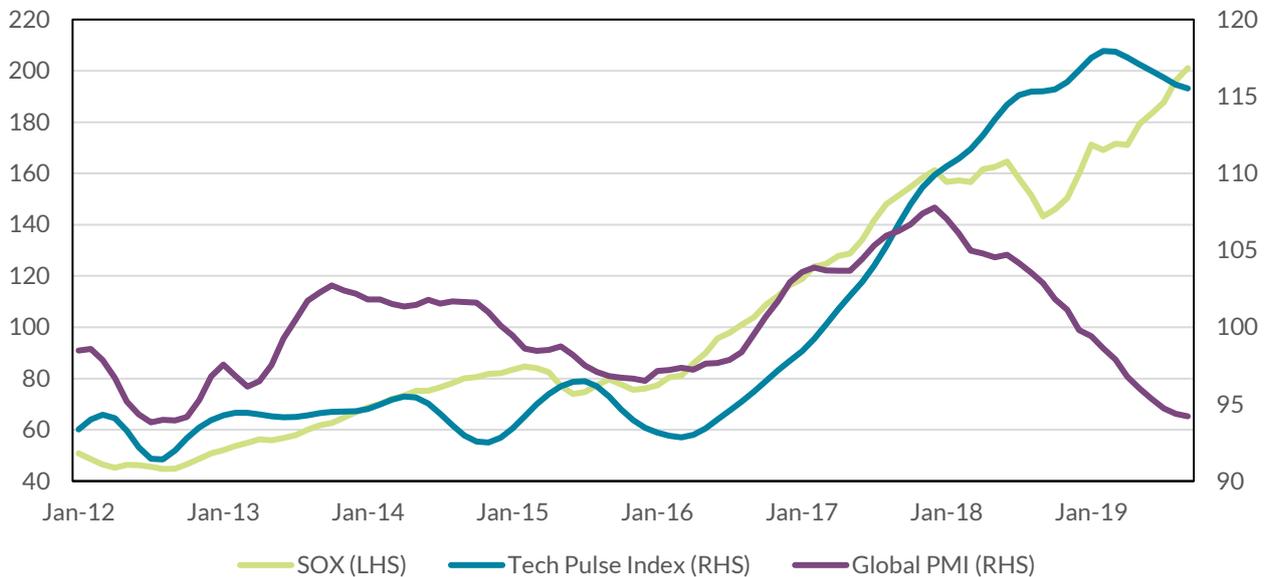
¹⁴ <https://www.pharmaceutical-technology.com/projects/janssen-biologics-manufacturing-facility-expansion-ringaskiddy-ireland/>

¹⁵ <https://www.drugs.com/history/keytruda.html>

¹⁶ <https://www.drugs.com/history/stelara.html>



Figure 7: Quarterly Indexed (Average Q1 2012 to Q3 2019 = 100)



Developments in computer processor exports are linked to both the global tech cycle and the locational decisions of US MNEs with operations in Ireland. A number of indicators suggest that the sector is proving relatively resilient despite the recent slowdown in trade.¹⁷ As seen in Figure X, both the SOX and Tech Pulse Index have seen large increases since 2016, representing a surge in semiconductor sales and signalling a strong growth phase in the investment cycle. This has occurred despite the marked slowdown in indicators of the broader economy such as the global PMI. Relatedly, in November 2019 Intel received planning permission for a new EUR 3.63 bn semiconductor fabrication facility at its Leixlip plant. This plant is expected to provide 1,600 full time jobs upon completion.¹⁸

In line with the rapid growth in services export, numerous tech firms are undertaking significant expansion in Ireland. In the past 12 months large US computer services companies have announced substantial expansion plans or office purchases that imply a considerable increase in employment and,

¹⁷ The PHLX Semiconductor Sector Index (SOX) is a capitalization-weighted index composed of 30 semiconductor companies. Intel is one of the 30 companies which make up the composition of this index. The Tech Pulse Index is an index of coincident indicators of activity in the US information technology sector. The indicators used to compute the index are investment in IT goods, consumption of personal computers and software, employment in the IT sector, as well as industrial production of and shipments by the technology sector.

See also: [Tirpák, M. \(2019\) What the maturing tech cycle signals for the global economy, ECB Economic Bulletin, Issue 3/2019.](#)

¹⁸ <https://www.irishtimes.com/news/ireland/irish-news/intel-welcomes-planning-approval-for-3-6bn-leixlip-facility-1.4094757>



potentially, exports. These companies include Facebook,¹⁹ Salesforce²⁰, Google,^{21,22} Amazon,²³ and LinkedIn.²⁴

Although expanding rapidly, employment in the pharmaceuticals, and computer hardware and computer services are not proportional to their share of exports. For instance, previous analysis suggested that pharmaceuticals production comprises only 2 per cent of total employment in 2018.²⁵ As a consequence, the ongoing surge in exports is likely to have a positive but less dramatic impact on other macroeconomic aggregates such as employment or consumption. In a similar way, if there were to be a significant decline in these exports, the real macroeconomic effects could be less severe than the falls in headline figures.

¹⁹ <https://www.irishtimes.com/business/commercial-property/facebook-and-google-top-2018-s-big-dublin-property-deals-1.3707158>

²⁰ <https://www.irishtimes.com/business/technology/salesforce-plans-to-add-up-to-1-500-jobs-in-ireland-1.3761871>

²¹ <https://www.irishtimes.com/business/commercial-property/google-strikes-deal-for-new-sandyford-offices-1.4042868>

²² <https://www.irishtimes.com/business/commercial-property/google-in-talks-for-new-dublin-docklands-offices-1.4066063>

²³ <https://www.irishtimes.com/business/commercial-property/amazon-strikes-deal-for-new-dublin-offices-1.4099458>

²⁴ <https://www.irishtimes.com/business/commercial-property/linkedin-confirms-plan-for-massive-campus-in-dublin-city-centre-1.4135137>

²⁵ [Horan, D. and McQuade, P. \(2019\) Sectoral Export and Employment Exposures to External Risks, Central Bank of Ireland, Quarterly Bulletin, 2019, No. 4, Box E.](#)