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ESRI RESEARCH NOTE

The Irish pharmaceutical sector

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1. Introduction

Foreign multinational enterprises (MNEs) have played an important role in the development of the Irish economy in recent decades. Since the economic recovery began in 2014 after the financial crash, approximately half of the growth in the economy has come from the expansion in output of these MNEs (FitzGerald, 2023).

Among the key sectors, that are dominated by foreign MNEs, is the pharmaceutical sector.[1] It has grown in importance over the last 20 years and is now a substantial employer and a major generator of Irish corporation tax revenue. Its continuing success is of considerable importance to the Irish economy.

A number of US multinationals, such as Pfizer, Eli Lilly, MSD, Abbvie and Johnson & Johnson are key players in the pharmaceutical sector in Ireland, and quite a high proportion of the sector's output by value goes to the US. There are a number of multinationals from other countries, such as France and Switzerland, that are also significant players in the sector, with substantial sales in the US.

This paper analyses how recent policy changes in the US, in particular an imposition of a 15% tariff on exports to the US, will affect the Irish pharmaceutical sector and, through it, the wider economy. It also considers how further US policy changes might add to the costs for the pharmaceutical sector in Ireland, and the wider economy.

Section 2 outlines the pharmaceutical sector's significance in the Irish economy. Section 3 then looks at the trade in pharmaceuticals, considering the destination of exports separately by value and volume. Section 4 considers the implications of evolving US policy for the sector in Ireland. Section 5 analyses the recent surge in pharmaceutical exports to the US, driven by US policy changes, and how the effects are reflected in the Irish national accounts for the first quarter of 2025. Section 6 concludes.

[1] Throughout this paper, for simplicity, the sector is referred to as "pharmaceuticals" though it produces what are classified as organic chemicals as well as pharmaceutical products. The primary organic chemicals produced and exported from Ireland are treatments for diabetes and obesity.

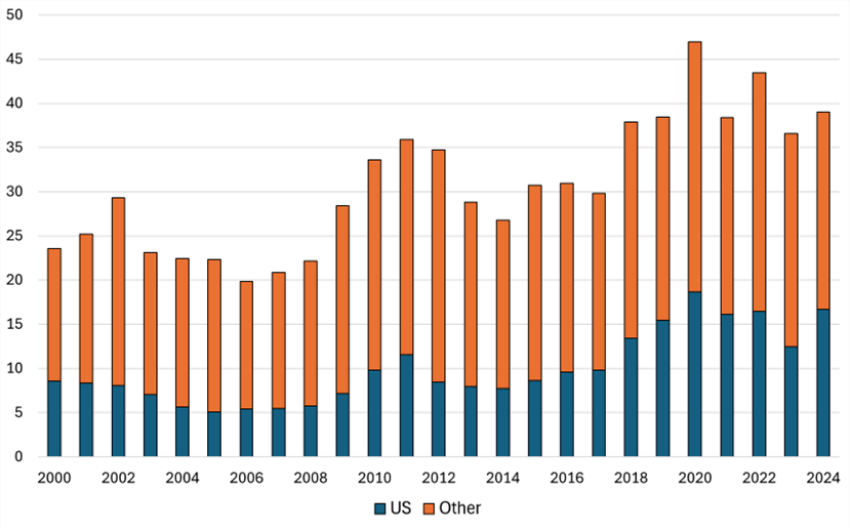
2. The pharmaceutical sector in the Irish economy

The significance of the sector for the Irish economy can be assessed firstly in terms of the exports of pharmaceuticals, secondly in terms of employment in the sector and, thirdly, by estimating the contribution of the sector to national income (GNI*).

Exports

In 2000, Irish exports of pharmaceuticals accounted for around one-quarter of all Irish goods exports. Their share increased substantially over the 2000s and, since 2010, they have accounted for around half of all goods exported. The significance of these exports for the economy is illustrated in Figure 1, which shows exports of pharmaceuticals to the US and to all other destinations as a share of GNI*.

FIGURE 1: IRISH EXPORTS OF PHARMACEUTICALS BY DESTINATION, % OF GNI*



Source: Central Statistics Office and Eurostat trade statistics

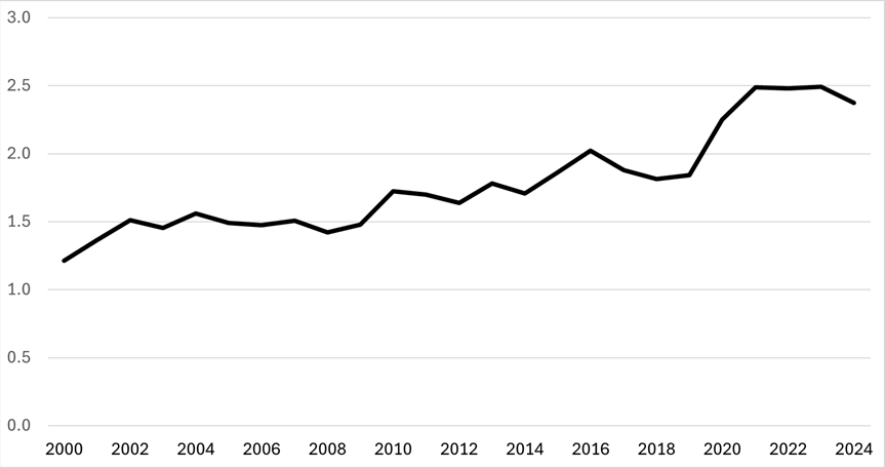
As can be seen from the figure, in 2000 exports of pharmaceuticals amounted to around one-quarter of GNI*. Today they amount to around 35% of GNI*. For most of the period since 2000, exports to the US accounted for around 30% of all pharmaceutical exports, but the US share has increased in recent years. In 2024, exports to the US amounted to 43% of all such exports, or over

15% of GNI*. This highlights the exposure of the sector, and of the economy as a whole, to US policy changes, including the imposition of tariffs.

Employment

The pharmaceutical sector's significance for the economy has grown over time, as reflected in the numbers employed (Figure 2). In 2000 it accounted for about 1.25% of employment in the economy. Over the period to 2017, employment grew fairly steadily, taking numbers employed to 2% of all employment in the economy. Since 2020 there has been a further significant increase, so that today it accounts for around 2.5% of employment.

FIGURE 2: EMPLOYMENT IN PHARMACEUTICALS AS A SHARE OF TOTAL EMPLOYMENT, %



Source: Central Statistics Office Quarterly Labour Force Survey

TABLE 1: EMPLOYMENT IN IRELAND BY FOREIGN PHARMACEUTICAL COMPANIES

	Employment	HQ country
Eli Lilly	3,500	US
Novartis	900	Switzerland
Johnson & Johnson	6,000	US
Pfizer	4,500	US
MSD	3,000	US
Abbvie	2,900	US
Sanofi	1,000	France
AstraZeneca	100	UK
Amgen	1,250	US
Total	23,150	

Source: Information from each company's website

Substantial numbers are employed by the US-owned multinationals operating in the sector. Table 1 shows employment for nine of the top pharmaceutical multinationals operating in Ireland today. Between them, Johnson & Johnson and Pfizer employ over 10,000 people across the country. Sanofi, a major French company, is also a significant employer.

The 2022 Census shows that those working in the sector are highly qualified, with almost three-quarters of the workforce having third-level qualifications. For the labour force as a whole, in 2022 the figure was just under 50%. Many of those working in the sector have developed specific skills that are vital for their work and the sector's success. Thus, the potential earnings of those working in the sector is probably above the average for the economy.

Value added

Unfortunately, for confidentiality reasons, data on the value added and the wage bill of the pharmaceutical sector are not available for Ireland after 2014, though they are available for other EU countries from Eurostat. Nonetheless, by drawing on a range of different sources it is possible to provide an estimate of the contribution of the sector to GNI* for 2014 and 2024. The methodology used in arriving at these estimates is set out in Appendix 1.

The Eurostat data for 2014 show that domestic gross value added (GVA) in the sector constituted almost one-third of gross output (Table 2). The average for

the period 2008–2013 was significantly higher at 40%. Also, for the sector as a whole in the EU, GVA was just under half of gross output.

As described in Appendix 1, the corporation tax paid by the sector in 2014 is an estimated figure. Because of the dominance of foreign MNEs in the sector, the contribution of the sector to GNI* consists of the wage bill plus the corporation tax paid. Most of the rest of the profits flowed back out of the economy to the largely foreign-owned companies that accounted for the bulk of the sector's production in Ireland. In 2014, the estimated contribution of the sector to GNI* was 1.3%.

TABLE 2: ESTIMATE OF PHARMACEUTICAL SECTOR CONTRIBUTION TO GNI*

	2014		2024	
	€M	% of total	€M	% of total
Gross output	44,863	100.0	125,227	100.0
GVA	14,337	32.0	53,208	42.5
Wages	1,159	2.6	4,197.6	3.4
Depreciation	2,215	4.9	6,184	4.9
Profits	10,900	24.3	30,427	24.3
Corporation tax	872		4,100	
Contribution to GNI* €M	2,031		8,298	
Contribution to GNI* %	1.3		2.6	

Source: The sources for the data and the way the numbers for 2024 are estimated are given in Appendix 1

For 2024, the output of the sector is taken to be total exports, as sales to the domestic market were quite limited. The derivation of the figures for 2024 for wages, depreciation and profits is described in Appendix 1. The data on corporation tax come from the Revenue Commissioners. However, this could be an underestimate of the tax generated by the sector, as some of the tax payments by the sector may be classified by the Revenue Commissioners as coming from the financial sector.

On this basis it is estimated that the sector contributed around 2.6 percentage points to GNI*, double the figure for 2014. Between 2014 and 2024, growth in the economy (GNI*) averaged 3.8% a year. The estimates in Table 1 would suggest that around 0.2 percentage points a year of this growth came from the pharmaceutical sector. Much of the contribution to

growth from the sector came from an increase in corporation tax payments, which benefitted, in particular, the government sector.

Because wage rates were probably above the economy average in the sector, and also because there may have been some corporation tax payable by the sector that was attributed by the Revenue Commissioners to the financial sector, the estimated contribution of the sector to GNI* in 2024 could be an underestimate. Thus a possible range for the sectoral contribution to GNI* would lie between 2.5% and 3.0% for 2024.

In addition to the direct impact on national income, there are also indirect benefits for the Irish economy from the multinationals operating in the sector in Ireland. For example, Di Ubaldo et al. (2018) show that supplying inputs to multinationals is an important channel for knowledge and technology transfers to domestic firms.

3. Irish exports of pharmaceuticals

To understand the likely impact on the pharmaceutical sector in Ireland of changes in US policy, including tariffs, it is important to distinguish between the value and the volume of sales by destination.

The volume of drugs produced in factories is closely related to employment. The value, reflecting the price charged for the drugs, is vital in determining the profitability of the sector. Pharmaceutical products sell for a much higher price in the US than that commanded (by the same products) in other markets. Thus, the value of US sales are particularly profitable and important for corporation tax receipts.

The data on exports (sales) by different broad categories of pharmaceuticals are readily available, and the value and destination of exports are considered first in this section. The data on prices, needed to determine the volume of sales on different markets, are more difficult to establish. The second part of this section discusses the evidence on prices and the volume of sales on different markets of pharmaceuticals.

Value of sales

Data are available on Irish exports of pharmaceuticals and related products broken down by the destination of the exports. The data are published at a detailed product level – using a six-digit code. They are available for each product in value and weight terms, where the weight is in kilograms.

As illustrated in Figure 1, the share of pharmaceutical exports, by value, going to the US has increased in recent years. Table 3 shows that by 2024 the US market accounted for 43% of the value of pharmaceutical exports, with 45% going to the EU and 12% going to other countries. In the first four months of 2025, the US accounted for 68% of the value of Irish exports of pharmaceuticals.

TABLE 3: SHARE OF ORGANIC CHEMICALS AND PHARMACEUTICAL EXPORTS BY DESTINATION, 2024

	€ million	% of Total	% of GNI*
EU	56,203	45	18
US	53,647	43	17
UK	3,079	2	1
Other	12,544	10	4
Total	125,474	100	40

Source: Eurostat trade statistics

Table 4 shows the value of the top 13 categories of exports of pharmaceutical products, ranked in terms of their importance. This list also includes the top ten exports to the US. The slight difference in rankings between the products exported worldwide and to the US is primarily due to the fact that more of the pharmaceuticals destined for the rest of the world are prepackaged in 'measured doses' than for the US. Nonetheless, at this level of disaggregation, there is a broad overlap between the products going to the US and to other markets.

TABLE 4: TOP 13 CATEGORIES OF IRISH EXPORTS OF PHARMACEUTICALS, 2024, € MILLION

Rank	Code	Product	World	US
1	300490	Medicaments in measured doses	22,078	8,661
2	300215	Immunological products, in measured doses	18,361	5,986
3	300214	Immunological products, not in measured doses	17,718	11,148
4	293719	Hormones	16,683	13,807
5	300241	Vaccines	7,646	195
6	293359	Heterocyclic compounds	7,417	5,886
7	293499	Nucleic acids and their salts	6,418	1,302
8	293379	Lactams	5,510	392
9	300249	Toxins, cultures of micro-organisms and similar	4,739	3,392
10	300339	Medicaments containing hormones or steroids	4,282	0
11	300212	Antisera	3,723	248
12	293590	Sulphonamides	2,207	1,144
13	300432	Medicaments containing corticosteroid hormones	1,037	465

Source: Eurostat trade statistics

Price and volume of sales

A detailed study for the Rand Corporation by Mulcahy et al. (2024) estimated that prescription drugs in the US are around 2.8 times the price of similar drugs in other countries. However, depending on the product, there was quite a wide dispersion in price differences. For brand-name drugs, the US price was 4.2 times that of other countries, whereas for generics, prices in the US were generally lower than elsewhere, at under 70% of the price in other countries.

For US firms producing pharmaceuticals in Ireland for the US market, the biggest advantage to the firm from an Irish production location will accrue from brand-name drugs, as they will have the highest profits, profits which benefit from the low Irish corporation tax rate. Generic drugs, with low profit margins, are less likely to be produced in Ireland because of relatively high production costs. Thus the price differential (US price relative to rest of world price) for drugs produced in Ireland is likely to be closer to the higher differential that the Rand Corporation study found for brand-name drugs.

In principle, by dividing the value by the weight of each detailed category of pharmaceuticals, one can derive unit values (prices) for each category of export. However, even at the level of detail used here, there is major

diversity in the products covered within each category. In addition, exports to the US of many products have different brand names from those used in the EU for identical formulations. This means that the unit values for exports to the US and the rest of the world are only a crude measure of the actual differences in price for identical products.

Despite these drawbacks, here we use the unit price data to compare the prices for the different categories of goods at the six-digit level in the trade statistics. On average, the unit price of goods exported to the US in 2024 was 3.4 times that of similar categories of goods exported to the rest of the world. This is broadly consistent with the results from the Rand Corporation study.

Using the unit value data estimated here for each category of Irish pharmaceutical products, the exports to the rest of the world (excluding the US) were revalued at the US price. This allows a comparison of the relative volumes of pharmaceutical products exported to the US and other destinations. The analysis shows that, while 43% of Irish exports by value of pharmaceuticals in 2024 went to the US, the US share of the physical volume of exports was closer to 10%.

4. Implications of US policy changes for the pharmaceutical sector

The US imposition of tariffs on imports of goods from the EU has serious implications for the Irish economy. Egan and Roche (2025) and Central Bank of Ireland (2025) both provide quantification of the possible significant negative impacts on the economy. However, as Egan and Roche note, 'the nature of Ireland's corporation tax means that idiosyncratic developments within a small number of firms often dominate economic fundamentals in explaining yearly fluctuations in corporation tax receipts'. The pharmaceutical sector is, as they note, rather different from the rest of the economy in that it has some crucial 'idiosyncratic' elements.

While tariffs of up to 15% are expected to apply to pharmaceutical exports to the US, there remains the threat of further US policy action to either cut US pharmaceutical prices or to force firms to source a greater share of their sales in the US from production located in the US.

As discussed earlier, the pharmaceutical sector accounts for a major share of Irish goods exports to the US, and it is also a major source of corporation tax revenue for the government. The difference between the value and the volume shares of goods going to the US and other markets has significant implications for the impact of US policy changes on the sector. The potential employment effects are first considered, and then the potential impact on corporation tax revenue is analysed.

Employment effects

As shown in the previous section, because the bulk of the Irish industry's output by quantity goes to countries other than the US, the impact on employment and the wage bill of US policy changes will depend on Ireland continuing to produce for the rest of the world, even if some of the production for the US market is eventually moved to new plants in the US.

In the short term, because many of the products produced in Ireland are essential to treat specific diseases, the higher price due to tariffs will not prevent sales in the US. Given that the producers are, in many cases, the monopoly provider of particular drugs, much of the cost of the tariffs is initially likely to be paid by US households, either directly or by their healthcare providers. The rest of the cost of the tariffs will be absorbed by the pharmaceutical firms, resulting in a small reduction in profits.

Unless there is major spare capacity in the US pharmaceutical sector, which seems unlikely, relocating production from Ireland to the US would also take time, requiring substantial new investment by pharmaceutical firms.

Because of the importance of regulation in protecting consumers of pharmaceuticals, any new plant in the US would need to get Federal Drugs Administration (FDA) authorisation before going into production. Currently, getting FDA approval is a lengthy process, something that producers in Ireland are very experienced in dealing with. However, the current US administration may simplify the process of obtaining FDA approval in the future, speeding the process of building new plants. Nonetheless, the companies themselves would be concerned, for reputational reasons, to ensure continuing high production standards.

A further obstacle to relocating production from Ireland to the US concerns the consequent need to recruit substantial numbers of people with the necessary very specific skills. The sector in Ireland has built up a skilled workforce from all over the world over the last 25 years; while the US is a huge labour market, it may find difficulty in the future recruiting people with the necessary specific skills for the pharmaceutical sector, especially if they have to come from outside the US. Currently, the US labour market is quite tight.

If the US takes further action to force production of pharmaceuticals to move to the US, it would be important for the EU to take retaliatory action to ensure that production for the EU, and the rest of the world, remains in the EU.

Even the possibility of retaliatory tariffs by countries other than the US would make it commercially very unwise to make major investment in moving production to the US of goods ultimately destined for EU or other world markets. Countervailing tariffs could even result in some production for the EU market moving from the US to Ireland and the rest of the EU.

Thus, any immediate impact of US tariffs on production volumes in Ireland, and hence on employment, is initially likely to be small. The possibility of retaliatory action by the EU should ensure that, even in the longer term, employment losses are minimised.

Implications for Corporation tax revenue

There are two additional ways in which the US government could take action that would have a big impact on the Irish economy through reducing corporation tax receipts. The Trump administration could introduce measures to reduce the price of the drugs sold in the US, narrowing the gap between the US and the EU price.[2] or they could force production for the US market to take place in the US. In both cases there could be a serious impact on corporation tax receipts in Ireland.

In the immediate future, if the US government forced a major reduction in the price of brand-name drugs sold in the US, even without a relocation of

[2] The argument that US prices are too high, given that prices are much lower in the rest of the world, is hard to resist.

production to the US, the profitability of the many US firms operating in the sector in Ireland would be greatly reduced. In turn, a big fall in the sector's profits would impact heavily on their corporation tax payments in Ireland.

Alternatively, if the US government forced relocation of production for the US market to the US, the profits of the US firms concerned would also be largely relocated to the US, where they would be subject to the higher US tax regime, with a resulting big loss of tax revenue for the Irish government. The US could well also require the intellectual property associated with the production of the drugs in the US to also be returned to the US from Ireland, further affecting tax receipts in Ireland.[3] Remaining production in Ireland for the rest of the world would have much lower profitability, and the corporation tax paid in Ireland by the sector would fall dramatically.

Action on drug prices in the near future could rapidly affect the profitability of the US firms operating in the sector in Ireland. As corporation tax is paid a year in arrears, this could affect corporation revenue from 2027 onwards.

The most likely outcome of current US pressure is that some production for the US will eventually be reshored to the US, along with some of the profits. However, relocation of production will not happen overnight for the reasons adduced above. It could be a number of years before the full impact of such changes would be felt on corporation tax receipts.

Summary

Further substantive action by the US, affecting the profitability of the US-owned pharmaceutical sector in Ireland, could have a major impact on corporation tax revenue. The full effects of this would take a number of years to play out.

Because such a high proportion of the volume of production of pharmaceuticals produced in Ireland is sold outside the US, the short-term impact of tariffs on employment in the sector is likely to be limited. In the longer term, if production for the non-US market was relocated from Ireland to the US, this could eventually seriously impact on employment. However,

[3] Some of the intellectual property could be held by separate subsidiaries that are classified by the Revenue Commissioners as being in the financial sector.

the EU could prevent such a wholesale relocation of activity by taking retaliatory action.

TABLE 5: EXPORTS OF PHARMACEUTICALS, € MILLION

	2024 Q1	2024 Q2	2024 Q3	2024 Q4	2025 Q1	Change 2025Q1 on 2024Q4
World						
Polypeptide etc.	1,953	1,748	5,930	7,053	32,559	25,507
Organic chemicals – Other	8,210	6,773	7,387	3,544	8,051	4,507
Pharmaceuticals	20,019	21,492	19,953	21,413	23,308	1,894
Total	30,182	30,013	33,269	32,010	63,918	31,908
US						
Polypeptide etc.	1,248	893	5,098	6,568	31,358	24,790
Organic chemicals – Other	3,032	3,486	1,821	948	5,717	4,769
Pharmaceuticals	6,782	8,789	7,160	7,824	7,787	-37
Total	11,062	13,168	14,078	15,339	44,862	29,523
Rest of world						
Polypeptide etc.	705	855	832	485	1201	716
Organic chemicals – Other	5,178	3,287	5,566	2,596	2,334	-262
Pharmaceuticals	13,238	12,703	12,793	13,590	15,521	1,931
Total	19,120	16,845	19,191	16,671	19,056	2,385

Source: Eurostat trade statistics

Note: Poypeptide etc. refers to the category 'Polypeptide, protein and glycoprotein proteins'

5. First quarter figures for 2025

The prospect of the US imposition of tariffs had a big impact on the headline numbers for the Irish economy (and the US economy) in the first quarter of 2025. It is clear from the data that the Irish pharmaceutical sector sought to avoid the initial impact of tariffs by building up stocks of product in the US. Many other exporters to the US did so too. De Soyres et al. (2025) note that in Germany and Taiwan strong export gains were also partly offset by steep inventory drawdowns in the first quarter.

The actual introduction of tariffs is likely to lead to further effects in the future. The cheaper tariff-free stocks within the US will likely be run down after the introduction of tariffs, leading to a temporary reduction in exports to the US.

This section explains some of the changes in trade, sales and the national accounts figures for gross value added (GVA) and gross domestic product

(GDP), which took place in the first quarter of 2025. On the basis of this analysis, it seems likely that some of the increase in exports was offset by a run down in stocks, as firms sought to move the stocks to the US to avoid tariffs. However, there was also likely to have been a temporary surge in output.

Trade and sales data

There was a €30 billion increase in all goods exports from Ireland to the US in the first quarter of 2025 compared to the last quarter of 2024. The increase in exports to the rest of the world in the same period was only €2.4 billion. As shown in Table 5, the increase in exports of organic chemicals and pharmaceuticals to the US over the same period was also around €30 billion, accounting for all of the increased exports to the US. Most of this was concentrated in the pharmaceutical category 'polypeptide hormones, protein hormones and glycoprotein hormones', which includes drugs for treatment of diabetes and obesity.

In 2024, Ireland accounted for 85% of the EU's total exports of this category of pharmaceuticals, and for the first four months of 2025 the figure was 98%. The other significant producer of this category of pharmaceuticals in the EU is Denmark.

TABLE 6: SALES IN THE US OF DRUGS FOR TREATING OBESITY, € BILLION

	2024Q1	2024Q2	2024Q3	2024Q4	2025Q1
Eli Lilly:					
Mounjaro	1.405	2.230	2.203	2.431	2.528
Zepbound	0.478	1.149	1.162	1.762	2.195
Novo Nordisk:					
Wegovy	1.104	1.328	1.674	2.030	1.589
Saxenda	0.000	0.053	0.012	0.040	0.011
Total	2.986	4.759	5.051	6.263	6.323

Source: Company financial reports

The Central Bank, in their summer Quarterly Bulletin, suggested that part of the reason for the surge in exports was the increased production of new weight-loss drugs, which fall into the 'polypeptide etc.' category. These new weight-loss drugs are being produced in the EU by Eli Lilly, at a plant in

Ireland (Cork), and by the Danish company Novo Nordisk in Denmark. Table 6 shows the sales of these new drugs in the US over the course of 2024 and the first quarter of 2025.

As can be seen from the table, there was a significant ramp up of sales of these drugs in the US over the course of 2024. However, sales in the first quarter of 2025 were very similar to the last quarter of 2024, so it seems unlikely that an increase in the sales of these particular pharmaceutical products accounted for the increased exports in the first quarter of 2025. Nonetheless, they could account for some of the exports aimed at building up stocks in the US ahead of possible tariffs.

Thus it seems probable that it was not just weight-loss drugs that were involved. The particular code for 'polypeptide etc.' showed the massive increase in exports also includes products for treatment of diabetes. Some other pharmaceutical companies operating in Ireland also produce products that fall into the same category as the weight-loss and diabetes drugs.

Table 7 shows total sales of pharmaceuticals in the US last year and in the first quarter of this year by eight companies that already have a presence in Ireland, along with Novo Nordisk. The figures are for total sales by the firms in the US, not just for sales of products produced in Ireland.[4] What these data demonstrate is that pharmaceutical sales in the US in the first quarter of this year were not exceptional compared to the four quarters of 2024.

[4] Data are not available for each company for production in Ireland.

TABLE 7: PHARMACEUTICAL COMPANY SALES IN THE US, € BILLION

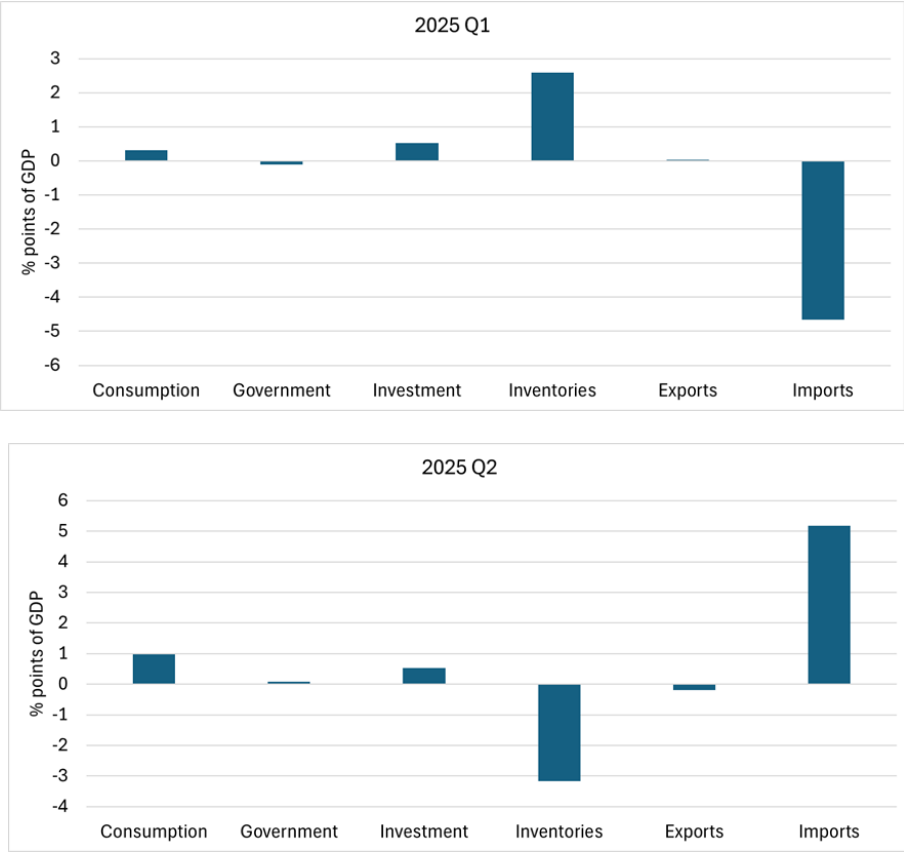
	2024Q1	2024Q2	2024Q3	2024Q4	2025Q1
Eli Lilly	5.7	7.8	7.8	9.0	8.5
Johnson & Johnson	10.7	11.6	11.9	12.2	11.7
Pfizer	8.8	7.3	11.1	8.5	8.0
MSD	6.9	7.3	8.1	7.6	8.1
Abbvie	3.0	10.3	10.3	10.8	9.5
Novartis	4.4	4.8	5.0	5.5	5.4
Sanofi	4.0	4.4	6.4	4.8	4.4
AstraZeneca	4.7	5.1	5.6	6.0	5.4
Total	48.3	58.6	66.2	64.5	60.9
Novo Nordisk	5.3	5.5	5.7	7.4	5.9

Source: Financial results for individual companies

This shows that the unusual increase in Irish exports occurred in anticipation of future tariffs, and that it resulted in a temporary build-up of stocks in the US, rather than immediate sales.

The build-up of stocks in the US in the first quarter of 2025 was not confined to pharmaceuticals from Ireland. As shown in Figure 3, US data show a surge in imports in that quarter, substantially offset by an increase in stocks. The data for the second quarter show a reversal of this process. However, for Irish pharmaceuticals tariffs have yet to impact. Thus, stocks of pharmaceuticals, produced in Ireland and held in the US, probably remained high in the second quarter of the year with continuing substantial exports. However, with the imposition of tariffs these stocks will probably be run down in the third quarter and, as a counterpart to this stock change, exports from Ireland may temporarily fall.

FIGURE 3: CONTRIBUTION TO US GDP GROWTH



Source: US Bureau of Economic Analysis

Effects on Irish growth rate

The increased exports from Ireland in the first quarter came from a combination of increased production in Ireland and the transfer of stocks of finished pharmaceuticals held in Ireland to be held in the US. While it could also have come from production in Ireland being diverted as exports to the US, from non-US markets, there is no evidence of such a change.

Depending on the explanation, it has different implications for the interpretation of the national accounts figures for Ireland in the first quarter of 2025.

Increase in output

The Quarterly National Accounts for Ireland for the first quarter of 2025 show a truly exceptional rise in Irish constant price GDP of 7.4%. It is clear that the very high Irish growth rate in the first quarter was related in some way to the sudden very large increase in pharmaceutical exports in that quarter, discussed above.

Given the weight of Irish GDP in euro area GDP, this contributed 0.21 percentage points to the growth in GDP in the euro area in the same period. The actual outturn for growth in GDP in the euro area in the first quarter was 0.6%. Without the Irish contribution it would have been 0.4%. The International Monetary Fund (IMF), in their recent World Economic Outlook, draws attention to the impact of the Irish figure on the EU aggregate, despite Ireland's very small weight within the EU. The exceptional impact of the Irish first quarter growth on the EU aggregate is also noted by de Soyres et al. (2025), who go on to say that the Irish figure 'should be interpreted with caution' because of the activities of foreign MNEs.

The employment data for Ireland show no real change in numbers employed in the pharmaceutical sector in the first quarter of 2025, while the national accounts show a 15% increase in the volume of output (GVA) in the manufacturing sector and an increase in GVA at current prices of €7.8 billion (18%). The bulk of this was probably attributable to the pharmaceutical sector. With no major increase in labour input, this would suggest an exceptionally profitable quarter.

The estimated inputs used in production are almost 50% greater than GVA (Table 3), which would suggest an increase in gross output that would account for almost two-thirds of the exceptional increase in exports. However, there is limited evidence of a big increase in inputs into the sector necessary to underpin such a surge in production.

Instead, some of the necessary inputs probably came from a run down in stocks of inputs. In the first quarter, the national accounts show an exceptional fall in stocks in the economy of €4.6 billion.

Thus it seems likely that some of the increased exports in the first quarter reflected an exceptional level of output by the sector, aimed at avoiding the possible imposition of tariffs later in the year.

Possible relocation of stocks

As mentioned above, there was an unusual fall in stocks in the economy in the first quarter of €4.6 billion. While this could have represented a fall in the stock of inputs, it could also have been due to a reduction in the stock of finished product held by the sector in Ireland, which was moved to the US.

While this reduction in stocks, reported in the national accounts, is worth much less than the increase in exports, due to national accounting rules the reduction in stocks could be valued at much less than their value when exported, generating an artificial increase in GVA and GDP.

A convention of national accounting is that where an identical physical product is sold under two different brand names (also to different markets) they are considered different products.[5] If a pharmaceutical product had been produced last year and held in stocks, because the final brand name or destination of the product was unknown, the increase in stocks would have been valued at the average expected sale price. But, as explained above, the average sale price is made up of a very high price obtained for a product in the US and a much lower price in the rest of the world.

Thus if stocks that had originally been intended to supply all world markets were all redirected just to the US in the first quarter of 2025, the value of the exports would have been much greater than the run down in stocks valued at the world average price. This would mean that, even though there was no increase in physical output, it would show up as an increase in GVA, GDP and GNI*.

If all of the reduction in stocks was in finished product, then the difference in valuation could have added an artificial increase in output of at least €10

[5] When a pharmaceutical product called Lipitor, produced by Pfizer in Ireland, fell out of patent in the US in 2011, sales revenue from the drug worldwide fell in 2012 by $5.6 billion. The same compound continued to be produced in Ireland as a generic drug, but at a much lower price than the original brand-name product. Because of national accounting conventions, this showed up as a big fall in the volume of production in Ireland rather than a fall in price (FitzGerald, 2013.)

billion, on top of the roughly €5 billion reduction in stocks, accounting for at least half of the surge in exports related to exports of €15 billion. This artificial increase in output would be reflected on the output side of the national accounts as an increase in GVA in the sector.

While this could have distorted the national accounts figure for growth in the first quarter, as production in subsequent quarters replaces the stocks sent to the US, the artificial output effect would be reversed so that, for the year 2025, the growth rate would be left unaffected by these unusual circumstances.

Summary

While the output and exports of the pharmaceutical sector have been on an upward trend over the last 18 months, the surge in exports in the first quarter of 2025 came from a combination of increased output and a run down in stocks in Ireland, as firms sought to beat the imposition of US tariffs. US data show that the Irish pharmaceutical sector was not alone in trying to beat the tariffs.

The impact of the movement of stocks from Ireland to the US probably resulted in some exaggeration of the growth in GVA and GDP in the first quarter of this year.

Profits in the pharmaceutical sector this year, and hence the tax liability, will also be up on 2024. Because a substantial share of the profits on US sales have already been locked in, changes in US rules and regulations will have limited effect on the final tax revenue figures for 2025 and 2026[6]. However, as discussed above, changes in US policies could have a big effect on tax revenue in subsequent years.

6. Conclusions

This article has examined the structure of the pharmaceutical sector in Ireland, and the implications for it of major policy changes in the US. It would appear that, despite the policy changes to date, the substantial well-paid employment in the sector will not be greatly affected in the short run.

[6] Corporation tax is paid the year after profits were earned.

However, depending on the nature of additional US policy changes, yet to be announced, future years could see a big impact on corporation tax paid by the sector. This finding confirms the concerns already expressed by the Department of Finance, the Irish Fiscal Advisory Council, the Central Bank and the ESRI.

The exceptional growth recorded for the first quarter of 2025 reflects the fact that pharmaceutical companies pre-emptively accelerated exports to the US to avoid possible tariffs. Some of the exceptional growth recorded in GDP may be an artifact of national accounting rules. After tariffs have been introduced, exports to the US in 2025 will probably be temporarily reduced, as exceptional stocks of pharmaceuticals in the US are run down. Overall, the increased corporation tax liability of the sector for 2025 (payable in 2026) has been locked in, whatever changes are made in US policy over the rest of the year.

The Irish pharmaceutical sector today probably contributes between 2.5% and 3% of national income (GNI*). Around half of this value added comes in the form of corporation tax revenue. In a worst case scenario, policy changes in the US could put at risk much of the tax revenue accruing to the government from the sector in the years after 2026. Provided that the EU is prepared to retaliate against any attempt by the US to force production of pharmaceuticals for the EU to move to the US, possible long-term employment effects would be more limited.

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Appendix 1: Estimate of value added of phamaceutical sector, 2024

This appendix provides a crude estimate of the contribution of the pharmaceutical sector to national income (GNI*) in 2024 using a range of data, including detailed data from Eurostat for the sector between 1995 and 2014. After 2014 the Eurostat data are not available for confidentiality reasons.

The Eurostat national accounts give figures for the composition of gross output in the pharmaceutical sector for 2014 (and earlier years). These are summarised for 2014 in Table 3. They show the share of value added in gross output in that year as 32%. Between 2008 and 2013, it averaged 40%. The table also gives figures for GVA, labour costs (wage bill), profits and depreciation in the sector in that year.

For 2024 the value of gross output is taken to be equal to exports of pharmaceuticals. This will be a limited underestimate of gross output, as a small share of the output of the sector was sold domestically.

The wage bill for the economy from the national accounts for 2024 is divided by the number of employees in the economy. This gives average labour costs per employee in the economy in 2024 at €63,600. This average is multiplied by the numbers employed in the pharmaceutical sector in 2024 to give labour costs (wages). This is probably an underestimate, given the superior qualifications of those employed in the sector.

Depreciation is assumed to be the same share of gross output as in 2014.

The corporation tax paid by the sector for 2014 is estimated by applying the average rate of tax paid by all MNEs in the economy for 2014 (from the Institutional Sector Accounts) to the net operating surplus of the pharmaceutical sector. The corporation tax paid by the pharmaceutical sector in 2024 is given in the Revenue Commissioners' accounts. The share of profits in gross output (exports) is assumed to be the same as in 2014. The average corporation tax rate (tax / profits) that this implies was very similar to the average for all MNEs shown for 2023 in the Institutional Sector Accounts, suggesting that this estimate of profits is broadly appropriate.

When the wage bill, profits and depreciation are added to give GVA it is 42.5% of gross output compared to 32% in 2014. The average for the sector in Ireland for the period 2008 and 2013 was 40%, and for the EU as a whole (excluding Ireland) it averaged 47% between 2015 and 2023.