Office for National Statistics

Article

Blue Book 2025: Globalisation

Outline of the impact of the globalisation pharmaceutical industry review on the 2025 UK annual National Accounts.

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1 . Main points

- We are continuing to implement improvements to our measurement of globalisation and multi-national enterprises (MNEs) in the National Accounts; this article focuses on the globalisation review of the pharmaceutical industry.
- While the impact on aggregate gross domestic production (GDP) is small, there are primarily impacts on exports of goods, imports of services, and reclassifications from services to manufacturing.
- Improvements in the measurement of globalisation led to an average annual net adjustment to trade in goods exports of £4.5 billion in the period 2005 to 2022, the largest being £13.4 billion in 2021.
- Similarly, import of services average annual net adjustment was £3.4 billion in the period 2015 to 2022, the largest being £5.6 billion in 2022.
- Average gross value added (GVA) annual growth of the pharmaceutical manufacturing industry rose from 2.9% to 5.0% between 2005 and 2022 (current price (CP)).

2 . Globalisation

Globalisation is an important but complex challenge for national statistical institutes which allows us the opportunity to improve the measurement of supply chains and their impact on the global economy.

Contract manufacturing, factoryless goods production and toll manufacturing are some of the relatively new concepts and terms, described in Section 6: Glossary, that are fundamental to understanding this topic. A more detailed description of some of the conceptual and measurement challenges around globalisation can be found in our Globalisation in the context of the UK National Accounts: Blue Book 2023 article. These issues were an important focus of an Organisation for Economic Co-operation and Development (OECD) conference in 2018 for addressing the globalisation challenges in national accounts (PDF, 987 KB).

To meet this challenge we have established a programme of industry reviews following the framework outlined in our Measuring globalisation in the UK national accounts: Blue Book 2023 article. We were also successful in meeting a European Commission requirement by providing a proof of concept to demonstrate the feasibility of measuring globalisation in a limited number of cases in 2022. These advances followed the establishment of our Large Cases Unit (LCU) in 2019 to better understand the behaviour of multi-national enterprises (MNEs) in developing our knowledge base and methods. For further information, see our Understanding multinational enterprises: insights from the International Business Unit and foreign direct investment statistics article.

The reviews will consider:

- global production arrangements
- economic ownership
- the use of intellectual property
- industrial classifications

When these production arrangements are outsourced and offshored, it can result in the physical movement of goods across borders not accurately reflecting a change in economic ownership. To do so effectively, our programme of industry reviews targets industries where globalised business models and supply chains are most prevalent.

Many large businesses, including MNEs, operate within the pharmaceutical industry. We selected the pharmaceutical industry following analysis of microdata and research from the Economic Statistics Centre of Excellence's (ESCoE's) No Plant, no problem? Factoryless manufacturing and economic measurement discussion paper, which indicated that global production models are particularly prevalent in the pharmaceutical industry (Standard Industry Classification, SIC 21).

We were also able to take advantage of existing business links which had been developed by our LCU. We are grateful for the co-operation and sharing of data provided by MNEs during this review.

3 . Pharmaceutical and connected industries

A review of the pharmaceutical industry involves multiple overlapping industries, that make up the life sciences sector. The product pipeline starts with:

- research and development of new or existing pharmaceutical products
- the consolidation of research into intellectual property (IP)
- the generation of royalty payments for the use of IP
- the manufacture of the product
- the wholesale of the product to customers

From a national accounts perspective these overlapping industries and products are:

- research and development (Standard Industry Classification (SIC), Classification of Production by Activity (CPA) 72)
- hiring and leasing, royalties (SIC/CPA 77)
- pharmaceutical manufacturing (SIC/CPA 21)
- wholesale (SIC/CPA 46)

Our approach to the review has been a detailed analysis of the business models of several of the largest multi-national enterprises (MNEs) within the industry to better understand and capture them more accurately in the National Accounts.

Industrial classification is by convention based on employment. Ideally, it would be based on gross value added (GVA) by activity, but data on employment are more readily available and generally a good proxy. Several MNEs involved in the production of pharmaceutical products are currently classified to the research and development (R&D) industry because of the high number of R&D employees compared with those in manufacturing.

Guidance specific to globalisation, as described in our Globalisation in the context of the UK National Accounts: Blue Book 2023 article, states that those involved in a toll manufacturing arrangement should be classified to manufacturing and factoryless goods producers (FGPs) to wholesale. See Section 6: Glossary for definitions of these global production arrangements.

It is only possible to identify and reclassify businesses using such models with detailed micro-level research, as implemented within this industry review. In doing so, we have identified businesses mis-classified to the R&D industry and have reclassified them accordingly. R&D activity will continue to be captured by the Business Enterprise Research and Development (BERD) survey.

The reclassification of pharmaceutical manufacturers follows current international guidance. Upcoming changes to international guidance as part of the System of National Accounts 2025 (SNA25) (PDF, 15.6 MB) will see FGPs also considered to be manufacturers, rather than wholesalers as they are currently. We will update our treatment of FGPs as part of our adoption of SNA25.

4 . Impacts of pharmaceutical industry review

The resulting impacts of this pharmaceutical industry review should not be indicative of potential impacts in other industries. This could mean that other industry reviews produce different impacts on gross domestic product (GDP) and the balance of payments.

The impacts on estimates for the pharmaceutical industry, from the globalisation methodology improvements, are shown up to 2022. Data are not shown for 2023 because some survey data were corrected at survey level in that year with the cooperation of businesses. This obscured impacts from the globalisation methodology alone. The combined impact to trade estimates in 2023 is shown in our Blue Book 2025: Trade impact estimates article.

All impacts will be described in nominal, or current price (CP), terms. Total chained-volume measure impacts, and high-level 2023 data, are included in our Blue Book 2025: Trade impact estimates article and our Blue Book 2025: advanced aggregate estimates article.

When GDP consistent with the annual UK National Accounts 2025 is published for the first time on 30 September 2025, the Index of Production and Index of Services will reflect the impact of these classifications including the source Monthly Business Survey (MBS) data. This will ensure consistency for users of the data. These changes will be first seen in the monthly releases published on 16 October 2025.

As a result, revisions will be seen in the raw MBS turnover data for both production and services datasets outside of the normal latest 13-month revision window.

Trade in goods

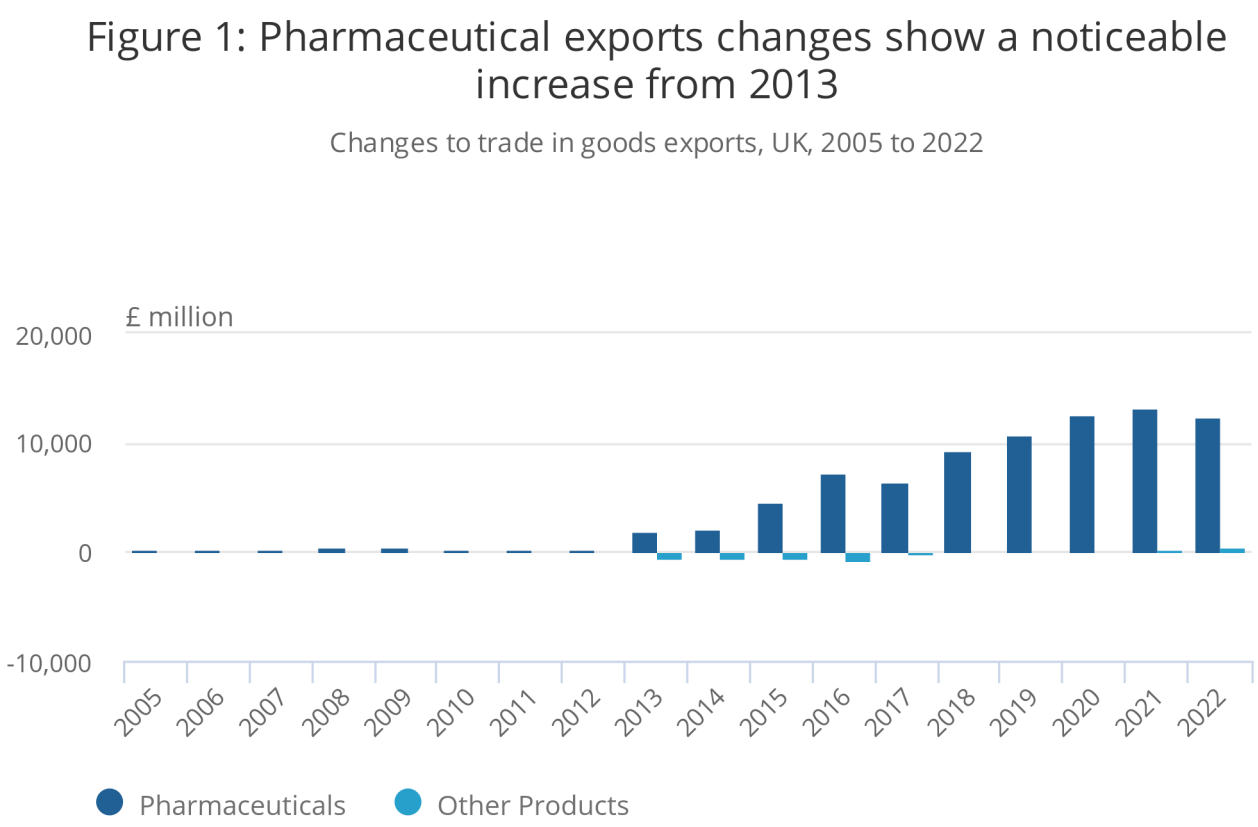
The primary data source for UK trade in goods estimates are HM Revenue and Customs (HMRC) Overseas Trade in Goods Statistics (OTS), compiled from customs declaration data. Customs declaration data measure physical movements across the UK border effectively, and in most cases, this correlates well with a change of economic ownership. We already apply adjustments to trade data to better reflect economic ownership, but those adjustments are at a high level. The improvements to globalisation for pharmaceuticals that we have made complement and enhance earlier estimates of the impact of the change from physical ownership to economic ownership.

The largest MNEs use a mixed manufacturing model, with in-house manufacturing operations and outsourcing to third party contractors. These arrangements can take place both in the UK or offshored overseas. Therefore, there are large quantities of uncaptured raw materials and finished goods that do not cross the UK border but may involve a change in economic ownership and goods that cross the border without a change in economic ownership.

Export of goods

Figure 1: Pharmaceutical exports changes show a noticeable increase from 2013

Changes to trade in goods exports, UK, 2005 to 2022



Source: UK national accounts from the Office for National Statistics

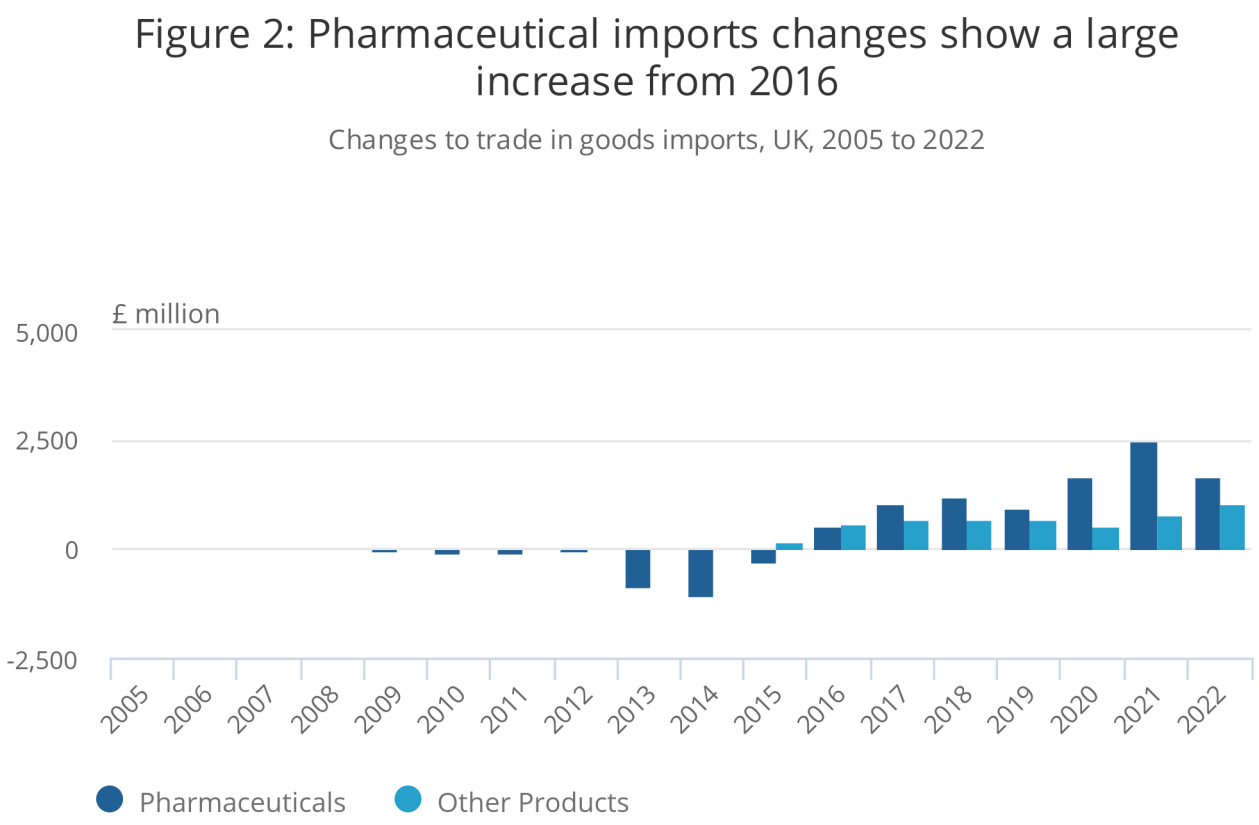
Changes in exports are because of the:

- addition of pharmaceutical product finished goods manufactured and subsequently sold overseas without entering the UK

- removal of raw materials and semi-finished goods that constitutes "other products" exported from the UK to supply overseas manufacturing arrangements where economic ownership does not change

Figure 2: Pharmaceutical imports changes show a large increase from 2016

Changes to trade in goods imports, UK, 2005 to 2022



Source: UK national accounts from the Office for National Statistics

Changes in imports of goods are because of the:

- removal of pharmaceutical product finished goods that enter the UK without changing economic ownership, for example from UK owned overseas manufacturing arrangements, to supply the UK market

- addition of pharmaceutical product, and connected product in the form of raw materials and semi-finished goods purchased to supply overseas manufacturing arrangements resulting in a change in economic ownership without entering the UK

Trade in services

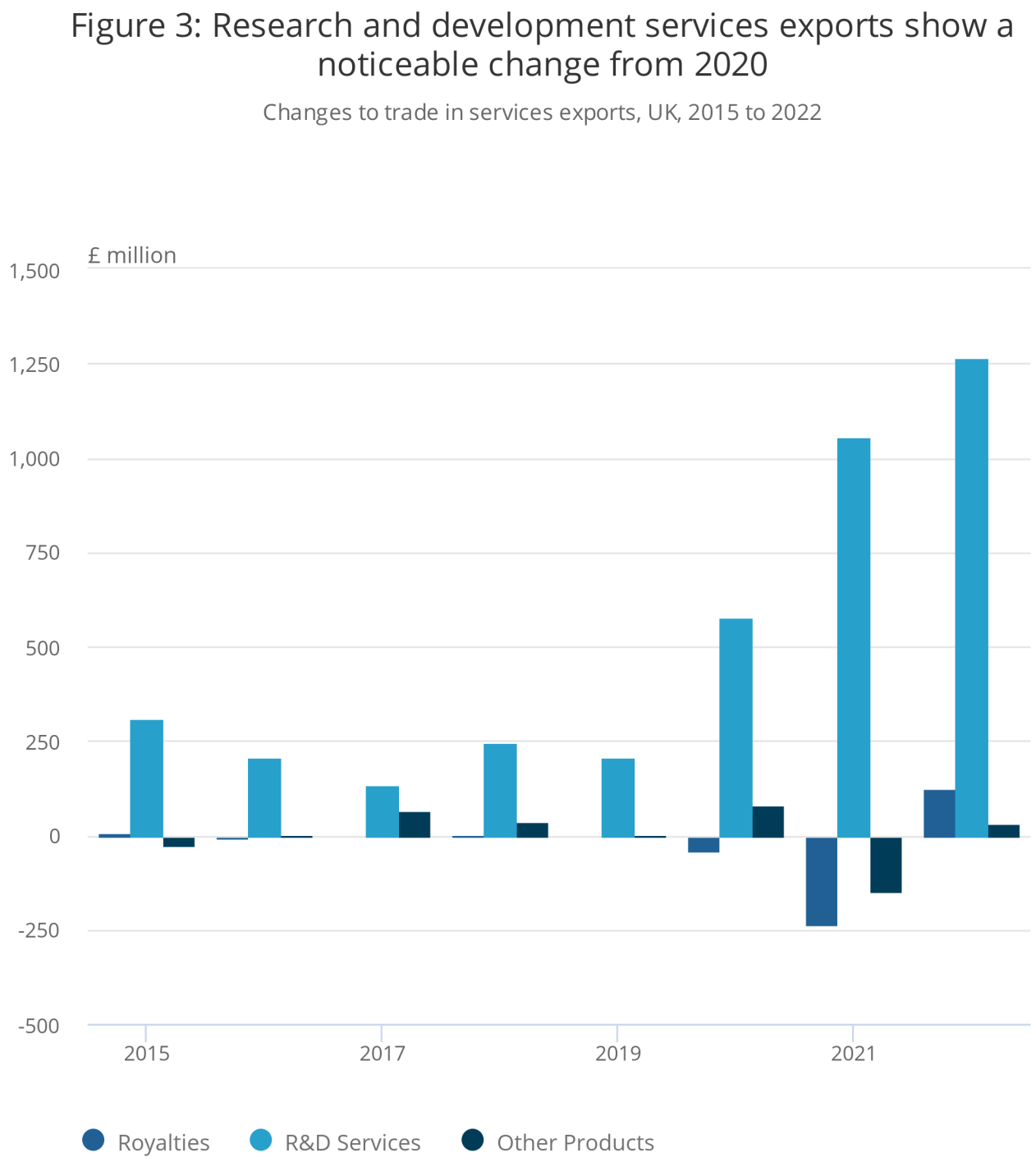
While the HMRC trade in goods dataset is based upon customs declarations to monitor the physical movement of goods across the border, the majority of our services data comes from the International Trade in Services Survey (ITIS). Data quality relies on the businesses understanding and interpreting what is required in survey responses. The complexity of the arrangements used by multi-national enterprises (MNEs) can mean the risk of incorrect reporting by businesses is higher, which can be mitigated by account management from the Large Cases Unit (LCU).

Our detailed analysis of services activity, including data and national accounts coherence, identified data quality improvements, such as the treatment in royalty and research and development (R&D) payments.

Export of services

Figure 3: Research and development services exports show a noticeable change from 2020

Changes to trade in services exports, UK, 2015 to 2022



Source: UK national accounts from the Office for National Statistics

Changes in exports of services are because of the:

- addition of previously uncaptured R&D exports
- updated data returns from businesses

Import of services

Figure 4: Royalty imports experience the largest change over time period

Changes to trade in services imports, UK, 2015 to 2022

Source: UK national accounts from the Office for National Statistics

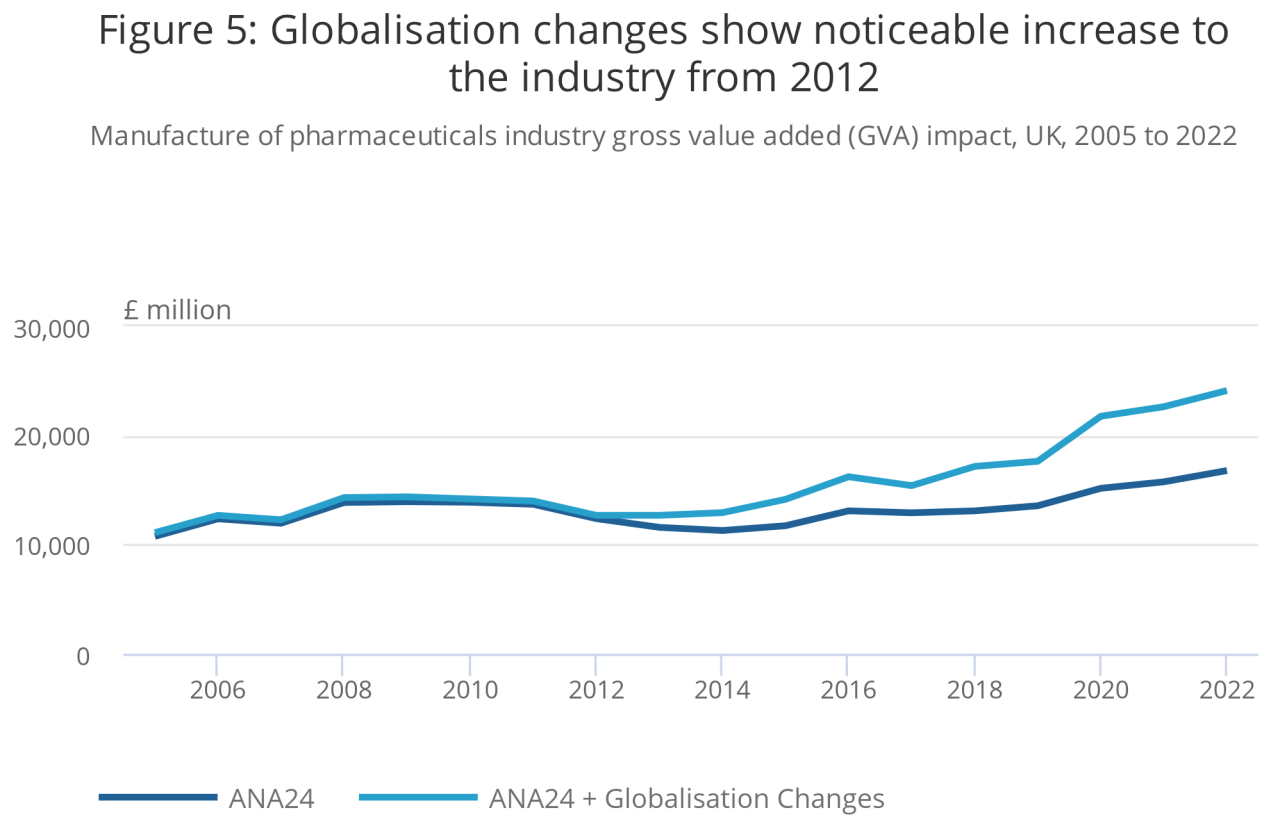
Changes in imports of services are because of the:

- inclusion of previously uncaptured R&D and royalty payments
- updated data returns from businesses

Gross value added (GVA)

Figure 5: Globalisation changes show noticeable increase to the industry from 2012

Manufacture of pharmaceuticals industry gross value added (GVA) impact, UK, 2005 to 2022



Source: UK national accounts from the Office for National Statistics

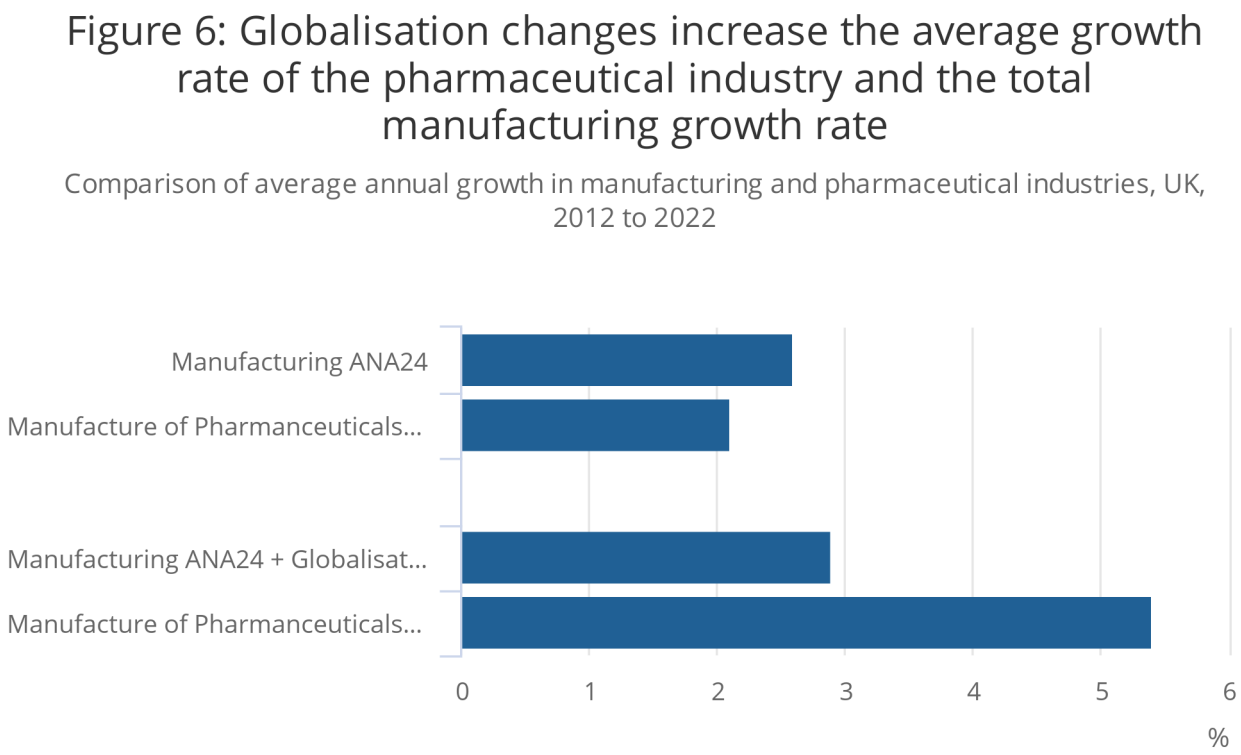
Users should note that the annual UK National Accounts 2025 changes, published in our Blue Book 2025: advanced aggregate estimates article, include other methodological and data updates. These impacts are specific to the Globalisation Pharmaceutical Industry Review, on annual UK National accounts 2024 data.

The changes to GVA reflect the reclassification and improved measurement of MNEs involved in the pharmaceutical industry. Furthermore, the updated GVA impacts reflect the magnitude of improvements made to the export data.

Over the span of 2012 to 2022 the data quality improvements from this review have resulted in an increase to the average GVA growth rate (current price (CP)) from 2.1% (published in the annual UK National Accounts 2024), to 5.4%.

Figure 6: Globalisation changes increase the average growth rate of the pharmaceutical industry and the total manufacturing growth rate

Comparison of average annual growth in manufacturing and pharmaceutical industries, UK, 2012 to 2022



Source: UK national accounts from the Office for National Statistics

Over the period 2012 to 2022 the performance of the manufacture of pharmaceuticals industry compared with overall manufacturing has significantly improved, attributed to the changes from this review. The average annual growth of the manufacture of pharmaceuticals industry increases from 2.1% to 5.4%. This contributes to an annual average increase in growth in overall manufacturing from 2.6% to 2.9%.

5 . Strategy and future developments

This review of the pharmaceutical industry is part of the UK's continued work to improve its measurement of globalisation in the National Accounts.

Further to this work, an enhanced programme of industry reviews will provide improvements to the measurement of globalisation for the most impactful areas of the economy.

In addition to industry reviews, our longer-term strategic aim is to develop new data sources that capture the impact of globalisation across our economy, particularly around trade in goods and services. We plan to launch a new survey in 2029.

Our plans are described further in our ONS Survey Improvement and Enhancement Plan for Economic Statistics and The plan for ONS economic statistics articles.

We continue to engage with multi-national enterprises, along with domestic and international experts in the field to exchange knowledge, influence the understanding and application of international guidance, and evolve the programme of work.

6 . Glossary

Globalisation

This refers to the statistical measurement of economic globalisation. It is centred around the operation of multi-national enterprises and can include, for example, global production arrangements (including international supply chains and outsourcing) and flows of intellectual property.

Principal

The lead firm responsible for directing and coordinating activities. Often the owner of the intellectual property.

Toll manufacturer

An entity that provides a manufacturing service to a principal in return for a manufacturing service fee. They provide labour, expertise, and physical capital. The principal provides raw materials and semi-finished goods as well as the intellectual property products. Toll manufacturers are also referred to as toll processors.

Factoryless goods production (FGP)

An arrangement in which a principal provides intellectual property products such as technology and product designs, but outsources the entire manufacturing process, including the purchase of intermediate goods, to contract manufacturers. The principal is referred to as a factoryless goods producer. In other contexts, they may also be referred to as virtual manufacturers or fabless manufacturers.

Contract manufacturer

An entity that manufactures under contract according to agreed specifications with a principal. Typically, the contract manufacturer will procure raw materials and will be responsible for production of the specified product from beginning to end. It may be part of a factoryless goods production arrangement if the entire process is outsourced by a principal to contract manufacturers.

Multi-national enterprise (MNE)

An enterprise producing goods or delivering services in more than one country.

Intellectual Property Products (IPP)

Original intangible creations, for example a story, invention, artistic work, or symbol. Ownership of intellectual property is protected by, for example, patents, copyright, and trademarks. These protections enable people and businesses to exploit their intellectual property for benefit.

Economic ownership

Describes how we think of the ownership of goods and assets in the national accounts. Economic ownership belongs where the associated economic benefits and risks lie. We should record transactions when economic ownership changes. In most cases, a change in economic ownership occurs at the same time as a change in legal ownership. However, some exceptions do apply, for example the economic and legal owner of leased assets may differ.

7 . Related links

Measuring globalisation in the UK national accounts: Blue Book 2023
Article | Released 25 September 2023
Main impacts of globalisation on the UK National Accounts for Blue Book 2023, including conceptual and measurement challenges, and future plans.

Globalisation in the context of the UK National Accounts: Blue Book 2023
Article | Released 3 July 2023
A summary of the guidance used in the measurement of globalisation in the UK National Accounts for Blue Book 2023.

Understanding multinational enterprises: insights from the International Business Unit and foreign direct investment statistics
Article | Released 29 January 2019
The activity of the International Business Unit in the Office for National Statistics and the role of foreign direct investment companies in the UK.

8 . Cite this article

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