

Foreign direct investment, UK inward network methodology

Experimental statistics exploring how foreign direct investment into UK companies moves through different regions to reach its final recipient.

Contact:
Andrew Jowett
fdi@ons.gov.uk
+44 1633 455357

Release date:
30 October 2023

Next release:
To be announced

Table of contents

1. [Overview](#)
2. [Methodological approach](#)
3. [Data Sources](#)
4. [Glossary](#)
5. [Related links](#)
6. [Cite this methodology](#)

1 . Overview

This methodology accompanies our [Foreign direct investment, UK inward network: 2021 article](#), which investigates the business links for inward foreign direct investment (FDI) within the UK.

Analysis in our [Foreign direct investment, experimental UK subnational estimates: 2021 article](#) breaks down FDI by UK country and region. Those subnational statistics are based on the locations of "local units" controlled by UK businesses engaged in FDI. However, the investment has often travelled through intermediaries before reaching the local unit. The methods presented here allow exploration of the links between head office locations and the locations of their local units, which provides a better understanding of the movement of foreign investment around the UK.

These are experimental statistics. The methods are currently under development, which means these statistics could be subject to change as we develop our methods and explore additional sources of information. We therefore advise caution when using the statistics in the main article.

2 . Methodological approach

The fundamental approach in this work is to link total foreign direct investment (FDI) positions, flows and earnings from the FDI Survey with the parent-affiliate relationships from a commercial data source. Our resulting dataset, [Foreign Direct Investment UK inward network 2021](#) is grouped by the locations of the immediate foreign parents, the locations of the immediate parents and the locations of the affiliates for all parent-affiliate relationships in the dataset.

The positions, flows and earnings for each group are summed to give, for example, an estimate of the total inward investment that is controlled from Luxembourg, routed through London on the way to Scotland.

The results include links between the 12 [International Territorial Level 1 \(ITL1\)](#) UK countries and regions and the 11 foreign economies that have the highest inward or onward positions in the UK. Other foreign economies are grouped into the "Rest of World" category.

This method differs from the method used in our [Foreign direct investment, experimental UK subnational estimates: 2021 article](#), as that analysis breaks down foreign investment based on the ultimate host location in the UK, rather than including the routes that the investment takes on the way. By including intermediary shareholders and subsidiaries we get a better picture of the investment relationships between subnational UK regions.

In this analysis, a proportion of the total UK inward FDI position is not represented. Around 5% of the UK's inward FDI position includes data from the Bank of England and other sources that are not available at an individual business level. A further 16% of the inward FDI positions in 2021 could not be linked to the commercial data source. In total this means that this analysis covers around 79% of the total UK inward position.

Business structures

The method starts by constructing business structures. Businesses from the annual FDI Survey are linked with business structure data from a commercial data source. For each surveyed business that can be linked to the commercial data source, we are able to construct a business structure.

The business structures start with a surveyed business from the FDI Survey, including the foreign economy from which the investment originates. A business structure is then defined by direct shareholding relationships in which the shareholding business (starting from the surveyed business) owns at least 10% of the ordinary shares of an affiliate.

The end point of a business structure is reached when a business has no direct subsidiary. The location of both the shareholder and subsidiary business for each shareholding relationship are available through the businesses' postcodes.

Apportionment

Each business structure belongs to a single surveyed FDI business. Therefore, each business structure can be linked with specific FDI values that must be apportioned somehow across the business structure.

We take a simple approach to apportion FDI values within a business structure. This is an area that could be developed in the future. For this piece of analysis, we assume that all FDI values for a business originate from its subsidiaries and that each subsidiary contributes equally to the FDI values of its direct shareholder.

As an example, consider a surveyed FDI business that has an International Investment Position (IIP) of £150. If the business has two direct subsidiaries (immediate affiliates), each of the subsidiaries is assigned half of the business's total IIP, for example, half of £150 is £75.

If one of those subsidiaries in turn had three local units, each of the local units would be assigned one-third of the subsidiary's own total positions, for example, one-third of £75 is £25.

When this method is used, the sum of the total positions of all end businesses (businesses without any subsidiaries), equals the total positions of the surveyed FDI business.

This example, and our [Foreign direct investment, UK inward network: 2021 article](#), used total FDI positions in 2021 as a measure of investment. However, our accompanying dataset [Foreign Direct Investment UK inward network 2021](#) also includes total flows and total earnings, and these are apportioned in the same way. Results for 2020 are also available in the dataset.

Limitations

Our apportionment method assumes that investment is split evenly among a business's subsidiaries. It is unlikely that all subsidiaries of a business will be equal in size. This method could be altered by apportioning investment based on employment or a financial variable such as business turnover.

However, because of data gaps in the financial and employment variables of businesses in our business structures, we were not able to use a different apportionment method. For example, when we attempted to apportion based on employment figures obtained from a combination of the Inter-Departmental Business Register (IDBR) and a commercial data source, we had values for only around 60% of businesses. Any business without an employment value and all its subsidiaries effectively contributed nothing to the FDI values of the surveyed business.

As missing values were not evenly distributed across business structures or business locations, the missing values led to a bias in results that requires further investigations to understand fully.

Another limitation of the apportionment method we use is the assumption that all investment of a shareholder is generated by its subsidiaries. Unless the shareholder business is a holding business, its total flows, positions and earnings will probably be a combination of the flows, positions and earnings of its subsidiaries and the flows, positions and earnings made through its own activity. However, there is no way to accurately determine the flows, positions and earnings of businesses not on the annual FDI Survey. Allowing for this, we assume that 100% of the flows, positions and earnings of a shareholder business was generated by its subsidiaries.

The methods used for these results could be developed further. Possible options include:

- expanding the linking to cover more of the inward FDI population
- developing our apportionment approach by using financial variables for the businesses in each business structure
- testing different financial variables or approaches for different types of business

We welcome any feedback or suggestions for improvements of the methods used in this work. Please direct all enquiries to FDI@ons.gov.uk.

3 . Data Sources

The two main data sources for this analysis are the annual Foreign Direct Investment (FDI) Survey and a commercial data source.

More information on the annual FDI Survey can be found in our [Foreign Direct Investment QMI](#). We use the inward FDI population to identify companies in the commercial data source and to provide the flows, positions and earnings from a business's overseas investors. The main benefit of using the annual FDI Survey is that, when combined with non-survey sources of FDI data, it provides us with a complete list of inward foreign direct investment companies, including detailed financial information for each business.

The commercial data source is used to provide information on links between shareholders and subsidiaries and their locations overseas or in the UK. This allows us to follow the path of these investments from surveyed FDI businesses to an end point and provides us with location information for each of the businesses in the chain. The commercial data source is preferred to the Inter-Departmental Business Register (IDBR) for this purpose as it includes information on overseas shareholders and subsidiaries of UK businesses.

Limitations

Business locations in the commercial data source can often be head offices or correspondence addresses. This means that the locations of businesses higher up in the business structures may not represent the location in which most activity is taking place. A component of each inter-regional relationship therefore includes the relationships between a correspondence address or head office, and the local units of that business somewhere else in the UK. This should be considered when interpreting the results.

4 . Glossary

Immediate foreign parent location

The foreign economy from where investment originally entered the UK taken from the Foreign Direct Investment (FDI) Survey.

Immediate parent location

The location of a shareholder business given by the country or region of the business.

Affiliate location

The location of an affiliate (subsidiary) business of the parent (shareholder) business given by the country or region of the affiliate business.

Foreign direct investment (FDI)

Foreign direct investment (FDI) is cross-border investment made with the objective of establishing a lasting interest in the host economy. FDI is also defined by control relationships, where the direct investor (parent business) controls at least 10% of the voting power (ordinary shares) of the direct investment enterprise. These relationships can be measured in two directions:

- outward: the direct investments of UK-resident companies in other countries
- inward: the direct investments in the UK from non-resident companies

Position

The FDI position is the value of the stock of investment held at a point in time. These statistics are presented as the stock of FDI outside the UK that is controlled by UK-resident companies (outward) or the stock of FDI in the UK controlled by foreign companies (inward). FDI positions are net values for the investments held by the direct investor (parent business) minus reverse investment by direct investment enterprises.

Earnings

Earnings can be thought of as the profits generated from the stock of FDI over a period of time. FDI earnings are net values measuring the profits and interest generated by the direct investor (parent business) from their affiliates minus interest generated by affiliates from their parent companies.

Flows

Flows measure the cross-border movement of funds within multi-national enterprises. FDI flows include changes in shareholdings (equity), debt and reinvested earnings associated with the stock of FDI. These are net values showing investments minus disinvestments.

International Territorial Level

[International Territorial Levels \(ITLs\)](#) are the new UK geographies classification system. This has superseded the Nomenclature of Units for Territorial Statistics (NUTS) classification system.

5 . Related links

[Foreign direct investment involving UK companies: 2021](#)

Bulletin | Released 23 January 2023

Investment of UK companies abroad (outward) and foreign companies into the UK (inward), including investment flows, positions and earnings, by country, component and industry.

[Foreign direct investment statistics, overview of methods changes: 2020](#)

Article | Released 3 February 2022

A summary of how we have used commercial information to enhance the UK's foreign direct investment (FDI) populations and stratification methods, with further information on the composition of microdata behind these estimates.

[Foreign Direct Investment QMI](#)

QMI | Released 3 February 2022

Quality and methodology information (QMI) for foreign direct investment (FDI) statistics, detailing the strengths and limitations of the data, methods used, and data uses and users.

6 . Cite this methodology

Office for National Statistics (ONS), released 30 October 2023, ONS website, methodology article, [Foreign direct investment, UK inward network methodology](#)