

Methodology Note:

UK Wood Imports and Exports

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Forest Research is the Research Agency of the Forestry Commission and is the leading UK organisation engaged in forestry and tree related research.

The Agency aims to support and enhance forestry and its role in sustainable development by providing innovative, high quality scientific research, technical support and consultancy services.

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Introduction

Forest Research releases statistics on UK imports and exports of wood and wood products (based on overseas trade statistics published by HM Revenue & Customs).

Data are released twice a year. UK Wood Production and Trade: provisional figures is released in May alongside the Joint Forest Sector Questionnaire: provisional figures, submitted to the United Nations Economic Commission for Europe (UNECE). Final figures are released in Forestry Statistics in September and in the Joint Forest Sector Questionnaire: final data. Estimates for the current year and forecasts for the coming year are submitted around the same time to the UNECE as part of the Timber Forecast Questionnaire.

This paper sets out the data analysis methods used to produce annual estimates of UK wood imports and exports.

Sources

The data sources used to estimate UK wood production are described in the Sources section of each edition of Forestry Statistics, available at www.forestresearch.gov.uk/tools-and-resources/statistics/forestry-statistics/. They comprise:

- Published overseas trade statistics for intra-EU trade and extra-EU trade produced by HM Revenue & Customs (HMRC) and available at www.uktradeinfo.com.
- Data from the Confederation of Paper Industries.
- Data from the Timber Trade Federation.
- Other data requests to relevant businesses concerning roundwood and chip exports.

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- Estimates from the Expert Group on Timber and Trade Statistics (www.forestresearch.gov.uk/tools-and-resources/statistics/about-our-statistics/expert-group-on-timber-and-trade-statistics/).

Methodology

A two stage process is applied to the estimation of statistics on imports and exports of wood and wood products.

Stage 1: Initial estimates from HMRC data

The data obtained from HMRC cover quantities (weights and volumes) and values of wood and wood products imported to and exported from the UK.

Bulk datasets are downloaded from the HMRC website, providing detailed data for trade with all countries by detailed product code on a monthly basis. The data is then read into SAS, a statistical software package (www.sas.com).

Data processing and analysis takes place in SAS and Excel. The processing steps are documented as comments within the SAS code and in the Excel spreadsheets. The data are combined within SAS, aggregates are calculated and exported to Excel.

The initial estimates produced cover the following product categories (corresponding to the categories requested by international organisations in the Joint Forest Sector Questionnaire):

- Roundwood - woodfuel, industrial roundwood;
- Wood charcoal;
- Wood chips, particles and residues;
- Wood pellets;
- Recovered wood;
- Sawnwood;

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- Veneer sheets
 - Wood-based panels - plywood, particleboard, fibreboard;
 - Pulp - wood pulp, other pulp;
 - Recovered paper;
 - Paper & paperboard - graphic papers (including newsprint), sanitary & household papers, packaging materials, other paper & paperboard.

For industrial roundwood, sawnwood, veneer sheets and plywood, a softwood/hardwood breakdown is also estimated.

The HMRC trade data is initially assigned to JFSQ product codes on the basis of the latest cross-reference supplied by international organisations. The cross-reference provides guidance to countries on the allocation of detailed product codes to the categories covered in the JFSQ. In producing these initial estimates, a factor of 0.5 is applied for products where only part of a code is assigned (generally for identifying tropical species).

Stage 2: Amendments to data

Historically, the initial estimates based on HMRC data have often necessitated adjustments, following liaison with practitioners in the trade. This is partly because detailed intra-EU wood trade data is obtained through a survey of businesses which trade above a particular value threshold. Businesses which trade below this threshold are only required to report the total value of their imports and exports. Therefore the trade data reported for individual products is based on a potentially biased survey. More information on HMRC statistics is available at www.uktradeinfo.com.

In order to improve the initial aggregate estimates, amendments are then applied to specific product categories, making use of alternative data sources and expert advice. In particular:

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- Revised import data for sawnwood and panel products are provided at an aggregate level by the Timber Trade Federation (TTF), following detailed analysis of the raw HMRC data to correct apparent errors. These errors are usually minor, but occasionally are significant.
 - Expert advice on wood pulp and paper imports and exports is sought from the Confederation of Paper Industries.
 - Forest Research collects data on roundwood and chip exports directly from UK timber businesses that export these products.

The amendments made consist of routine changes, that are made regularly, and ad hoc changes (resulting from specific issues with that year's data). Further details are provided in the Annex to this note.

The amendments are received, processed and applied to the initial estimates in SAS. They generally only relate to import and export quantities; values are normally left unchanged, as these are generally believed to be more accurate. However, when the quantity of a particular product category is set to zero, the corresponding value will also be set to zero.

Quality checks and unit conversions

A number of quality assurance checks, corrections and imputations are carried out at several stages of the data processing and analysis. They include testing for completeness (missing, duplicate or incomplete records), consistency between categories, consistency with historical data, sense-check of unit values and general sense-check of the figures by the Expert Group on Timber & Trade Statistics.

Where required, figures are adjusted using standard FAO/ECE conversion factors, listed in Table 1, below:

Table 1 FAO/ECE conversion factors

Product	m ³ / tonne
Fuelwood, including wood for charcoal	1.38
Wood chips, sawdust, etc	1.48
Industrial roundwood (wood in the rough) - softwood	1.43
Industrial roundwood (wood in the rough) - hardwood	1.25
Sawnwood - softwood	1.82
Sawnwood - hardwood	1.43
Veneer sheets	1.33
Plywood, particleboard	1.54
Hardboard	1.053
MDF (medium density fibreboard)	1.667
Insulating board - density 0.35-0.5 g/cm ³	1.667
Insulating board - other	4.00

The factors used to convert to wood raw material equivalent, which indicates the volume of wood (in m³ underbark) needed to produce one unit (tonne or m³) of final product, are provided in Table 2.

Table 2 Conversion factors: wood raw material equivalent

Product	Measurement unit	Factor to wrme underbark
Fuelwood	tonnes	1.20
Wood charcoal	tonnes	6.00
Chips, sawdust, etc	tonnes	1.20

Industrial roundwood (rough, treated)	m3	1.10
Industrial roundwood (in the rough)	m3	1.00
Sleepers	m3	1.58
Softwood sawnwood	m3	2.00
Hardwood sawnwood	tonnes	2.50
Wastepaper	tonnes	2.80
Mechanical pulp	tonnes	2.50
Chemical dissolving pulp	tonnes	2.50
Sulphate pulp, unbleached	tonnes	6.00
Sulphate pulp, bleached	tonnes	4.50
Sulphite pulp	tonnes	5.00
Semi-chemical woodpulp	tonnes	2.75
Veneer (< 6mm)	tonnes	3.45
Other wood-based panels	tonnes	2.50
Woodwool, woodflour	tonnes	1.70
Packing cases, pallets	tonnes	2.00
Other manufactured wood	tonnes	2.50
Newsprint	tonnes	2.80
Writing & printing paper, uncoated	tonnes	3.50
Other paper & paperboard	tonnes	2.50

Disclosure

Statistics on imports and exports are primarily based on published HMRC overseas trade data, so no further disclosure checking is undertaken by Forest Research. Results from survey data are checked for disclosure potential; results to date have not been disclosive.

Revisions

Statistics on imports and exports are subject to revision after publication if revisions are made to the overseas trade statistics produced by HMRC. Figures may also be refined to take account of expert advice from the Expert Group on Timber & Trade Statistics and trade associations on trade in specific products.

Our revisions policy sets out how revisions and errors to statistics are dealt with, is available at www.forestresearch.gov.uk/tools-and-resources/statistics/about-our-statistics/code-of-practice/quality-of-official-statistics/.

More specific information on revisions to UK wood production statistics can be found in the quality reports on UK Wood Production and Trade and on Forestry Statistics and Forestry Facts and Figures, both available at www.forestresearch.gov.uk/tools-and-resources/statistics/about-our-statistics/code-of-practice/quality-of-official-statistics/.

Glossary

Conversion factor

Numerical factor by which a quantity that is expressed in one set of units must be multiplied in order to convert it into another set of units.

Deliveries

The quantities of UK-grown roundwood that is delivered to processors (mills) or for other uses (such as wood fuel and exports). Note that for sawmills and round fencing mills, the deliveries figure reported is actually the quantity of roundwood consumed by the mill, which may differ from the true deliveries figure if the levels of input stocks vary.

Forest Research (FR)

The Forestry Commission agency responsible for forestry and tree related research (including statistics).

Forestry Commission (FC)

The government department responsible for forestry matters in England. The Forestry Commission's functions in Wales transferred to the Welsh Government and to Natural Resources Wales on 1 April 2013. The Forestry Commission's functions in Scotland transferred to Scottish Forestry and to Forestry and Land Scotland on 1 April 2019. The Forestry Commission is supported by two agencies; Forestry England and Forest Research.

Great Britain (GB)

England, Wales and Scotland.

Hardwood

The wood of broadleaved trees, such as oak, birch and beech; a term sometimes used for the broadleaved trees themselves.

HM Revenue & Customs (HMRC)

The United Kingdom's tax authority.

Pulp

Fibrous material produced by mechanically or chemically reducing wood into its component parts from which pulp, paper and paperboard sheets are formed after proper slushing and treatment or used for dissolving purposes (dissolving pulp or chemical cellulose) to make rayon, plastics, and other synthetic products.

Sometimes called wood pulp.

Roundwood

Trunk or branch wood, generally with a top diameter of 7 cm or more. Can be in the form of logs (14 cm top diameter or more) or small roundwood (7 to 14 cm).

Sawnwood

Sawn timber - timber that has been cut into planks or boards from logs.

Softwood

The wood of coniferous trees, such as spruce, pine and larch; a term sometimes used for the coniferous trees themselves.

United Kingdom (UK)

Great Britain and Northern Ireland.

United Nations Economic Commission for Europe (UNECE)

One of five regional commissions of the United Nations. Its mission is to promote pan-European economic integration. The UNECE is responsible for compiling international statistics on production and trade of wood products for Europe, the Russian Federation and North America.

Wood pellets

Sawdust or wood shavings compressed into uniform diameter pellets. They are often burned for heat or energy, but may also be used for other purposes (such as horse bedding or cat litter).

Annex: Further information on amendments to trade data

Routine amendments to data

The following routine amendments are made to the initial estimates produced from HMRC data, to take account of alternative data sources and expert advice.

Industrial roundwood, chips & particles

- For exports, HMRC quantity estimates are replaced with data obtained by Forest Research from businesses that export softwood roundwood or chips. This provides consistency with UK timber statistics.

Sawnwood

- Code 44079131 (relating to Oak flooring) is excluded, as this is considered to be secondary processed sawnwood.

Plywood

- Codes relating to products containing both coniferous and non-coniferous material (44129490, 44129985) are allocated to the coniferous/ non-coniferous categories based on the majority of material (derived from average densities).
- Code 44123290 is excluded from the tropical sub-category. Although plywood under this code may have a tropical face, the majority of the wood is believed to be of temperate species.

Wood pulp, other pulp, recovered paper and paper & paperboard

- All HMRC quantity estimates are replaced with estimates produced by the Confederation of Paper Industries (www.paper.org.uk).

Ad hoc amendments to data

Ad hoc amendments may be made to correct apparent errors in the data after any routine amendments have been made. These adjustments are constantly reviewed

and are applied where considered appropriate. Hence, they are not a permanent feature of the regular provision of data, but remain as part of the process of delivery of information where such adjustments are required.

Work is undertaken by Timbertrends, on behalf of the Timber Trade Federation, to check and revise import data for sawnwood and panel products. This involves deriving average prices and average densities from the HMRC data on weights, volumes and values. These derived figures are then compared to identify outliers (records with unusually high or low average prices and/ or densities). Where outliers suggest an error (for example, average densities for non-coniferous sawnwood are unusually low and more appropriate to coniferous sawnwood) amendments may be made to the HMRC data to adjust the relevant estimates to be reported.

Aggregate results from this work are provided to Forest Research by Timbertrends/ the Timber Trade Federation. The figures are provided as annual totals for the sawnwood and panel categories covered by the Joint Forest Sector Questionnaire only.

Two examples, to illustrate the type of ad hoc amendments made, are provided below.

Example 1: Non-coniferous sawnwood from Germany

For instance, in the October 2015 hardwood import data provided, the following entry was observed:

Month	Country	Code	Value (£)	Weight (tonne)	Volume (m ³)
201510	GERMANY	44079200	369,249	722,426	32,920

There is a high probability that the units have been mis-recorded, as these data produced an average price and average weight which would have been clearly incorrect.

The volume for this entry, based on average density, was changed to 1,003 m³.

Example 2: Sawnwood from Latvia and Estonia

Regular checks undertaken on 2013 data identified a number of entries for sawnwood imports from Latvia and Estonia that had been coded as hardwood but that had average densities more closely associated with sawn softwood.

It was concluded that these entries were likely to have been mis-coded and the estimates for coniferous and non-coniferous sawnwood imports were adjusted accordingly. This resulted in an increase of around thirty thousand m³ to the estimate of coniferous sawnwood imports in 2013 (and a corresponding decrease in non-coniferous sawnwood imports).

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