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Economic aspects – Summary

The economic contribution that forests make to our quality of life can be looked at from the point of view of the forest owner, the forest sector (forestry and wood processing), or the whole economy and society. This set of economic indicators measures economic aspects of forestry at a national (UK) level.

Much more extensive data collection would be required for a comprehensive set of local and regional indicators. Such indicators could demonstrate the contribution of forestry to rural development, including local and regional economic impacts, as well as the development of social capital arising from the sharing of information, skills and resources through community and business networks.

The most tightly focused measure is woodland owners' financial returns from commercial forestry (F1). This can be broadened to the forestry sector in the National Accounts (F2), where wages and salaries in forestry are part of Gross Value Added; similar information is available for wood processing (F3). In addition to financial measures, economic assessments normally look at employment numbers (F4).

Most social and environmental benefits of forestry are not marketed, so are excluded from the financial measures in F1 - F3. There has been progress in measuring and valuing some of these benefits (F5) but it is still difficult to assign accurate values to them that would inform us about trends in the economic contribution of forestry over time.

F1. Financial return from forestry

Relevance To attract long-term investment in forestry, it is necessary for forest owners to receive returns competitive with other investments, or to receive non-financial returns (e.g. enjoyment from living, recreation or countryside pursuits in woodland).

Key Points For comparison with other asset classes, the financial returns from forestry are expressed as an annual equivalent rate over a 3-year period. For forest owners of commercial Sitka spruce plantations, the nominal three-year annualised return has declined from a positive return of almost +10% in 1993-1996 to a negative return below -5% in 1998-2001, mainly because nominal timber prices have fallen by more than 50% since the mid-1990s.

3-year rolling annualised returns from forestry in GB

(Nominal three year annualised return for private sector Sitka spruce plantations)

3-year period	Total return (% pa)
1992 to 1995	4.4%
1993 to 1996	9.9%
1994 to 1997	7.9%
1995 to 1998	4.5%
1996 to 1999	-3.0%
1997 to 2000	-5.2%
1998 to 2001	-5.4%

Source: IPD, 2002

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Background Returns to the forest owner are made up of sales of timber (standing or felled), sales of other goods and services, increases in the value of the woodland (from annual increment or market factors), and the net income from subsidies (e.g. planting grants) less taxes. The owner's costs are made up of employment costs and other purchases. Official survey information is not yet available to monitor this for a representative sample of all woodlands.

Estimates of the overall return from commercial Sitka spruce plantations are produced annually in the Investment Property Databank (IPD) UK Forestry Index, which is calculated from a sample of private sector plantations in mainland Britain (see IPD website). Sitka spruce makes up about half of the total area of conifers, and is chosen because it can be planted on a wide range of soils and produce a large yield of timber suitable for UK wood processing industries.

This indicator may not provide a good guide to the financial return from other forests and species. Returns over a relatively short period like 3 years may attract new investors to forestry, but existing private owners are likely to look at a much longer cycle and be aware of the value of woodland for personal wealth retention and its taxation benefits. The indicator only gives the financial returns for Sitka spruce plantations; similar estimates are not compiled for other species.

Future To measure the financial return from forestry, the pan-European indicators propose to include a measure of the net revenue of all forestry enterprises in SIC 02 (see indicator F2), which would be calculated from income and expenditure in a year (including subsidies less taxes), rather than the return on an asset. The pan-European indicators also propose indicators of the marketed values of roundwood, non-wood goods and services. Reliable UK data are not currently available for these proposed pan-European indicators.

In addition to measuring financial return, it is possible to assess the financial health of forestry businesses by a questionnaire survey. An initial survey was carried out in 1999, but suffered from poor response rates. Plans are now being drawn up for a further survey in 2003.

F2. Value added in forestry

Relevance From the national viewpoint, an increasing value added from forestry contributes to economic growth (Gross Domestic Product or now Gross Value Added). In the National Accounts, forestry is covered by Division 02 of the Standard Industrial Classification (SIC92).

Key Points Forestry's contribution to the national economy (gross value added at basic prices) in 2000 was just under £300 million, equivalent to 0.04% of the UK economy. Forestry's contribution to gross value added at current prices did not increase during the 1990s, as increases in wood harvesting were offset by falling timber prices, so forestry took a falling share of the UK economy.

Gross value added (GVA) at basic prices for SIC 02 (forestry, logging and related services)

Year	SIC 02 GVA (£ million)	% of UK total GVA
1992	289	0.05%
1993	308	0.05%
1994	346	0.06%
1995	344	0.05%
1996	333	0.05%
1997	307	0.04%
1998	283	0.04%
1999	276	0.03%
2000	298	0.04%

Source : Office for National Statistics (ONS), UK input-output analyses for National Accounts data (see National Statistics website)

Note: Initial results for 2000 from the Annual Business Inquiry indicate a slightly lower level of £270 million GVA for SIC 02 (source ONS).

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Background In the UK National Accounts, the forestry sector is called ‘forestry, logging and related services’ and classified as Division 02 in the Standard Industrial Classification (SIC92). Earnings from employment are counted as part of the value added by forestry, rather than a cost to owners (which they were in F1). In measuring the net economic contribution of forestry to the economy, it is desirable to subtract subsidies (grants) and add taxes, to get the value added at ‘basic prices’. Values are in current prices (i.e. actual prices for each year), because figures at constant prices are not calculated by the Office for National Statistics for individual sectors.

At present, UK National Accounts data for forestry are based on estimates. The Annual Business Inquiry, which is used by the Office for National Statistics to collect data for most sectors, was extended in 2001 to collect data from the forestry sector, with the first data being for 2000. Initial results for 2000 are reasonably close to the previous estimates (slightly lower), and the Annual Business Inquiry should provide a better basis for future monitoring.

Future Scottish figures for 1998 are in the Scottish Forestry Strategy indicators, but similar figures are not yet available for England, Wales or Northern Ireland.

The statistics in this indicator only measure part of forestry’s contribution to the economy. Forestry may also lead to value being added in wood processing industries that are established because of the available timber (see indicator F3), value added in suppliers to forestry or through spending forestry income (multiplier effects), and value added through spending by tourists and other forest visitors. Multiplier effects and tourism impacts have been the subject of recent and ongoing research (see FC website). Forestry also produces social and environmental benefits that are not marketed (see indicator F5).

F3. Value added in wood processing

Relevance This measures the contribution of forest products to economic growth. It is not wholly related to the outputs of UK forests, because the processing includes use of imported and recycled material, but the increasing availability of UK timber has resulted in substantial new investments in this sector. The importance of wood processing to local economies is beyond the scope of this national set of indicators.

Key Points In 2000, primary wood processing (of wood products and pulp & paper) generated £1.7 billion gross value added (GVA), representing 0.2% of the UK economy. The manufacture of other products made from wood (e.g. joinery) and from paper and paperboard generated a further £4.7 billion GVA, bringing the total to 0.6% of the UK economy. This covers all wood and paper processing in the UK, not just the processing of UK timber. In recent years growth in wood and paper processing has not been as rapid as in the total UK economy.

Gross value added (GVA) at basic prices**Manufacture of wood and wood products (SIC 20)**

Year	GVA £ million (current prices)				As % of UK total GVA	
	Primary SIC 20.1	Primary SIC 20.2	Other SIC 20	Total SIC 20	Primary 20.1 + 20.2	Total SIC 20
1995	310	317	1,351	1,978	0.10%	0.31%
1996	277	274	1,379	1,930	0.08%	0.28%
1997	318	350	1,550	2,218	0.09%	0.31%
1998	341	311	1,618	2,270	0.09%	0.30%
1999	399	291	1,411	2,101	0.09%	0.26%
2000	398	246	1,660	2,304	0.08%	0.27%

SIC 20.1 = Sawmilling and planing of wood, impregnation of wood

SIC 20.2 = Manufacture of veneer sheets, manufacture of plywood, laminboard, particle board, fibre board and other panels and boards

Other SIC 20 = manufacture of builders' carpentry and joinery, wooden containers, and other products of wood, straw and plaiting materials

Manufacture of pulp, paper and paper products (SIC 21)

Year	GVA £ million (current prices)			As % of UK total GVA	
	Primary SIC 21.1	SIC 21.2	Total SIC 21	Primary 21.1	Total SIC 21
1995	1,420	3,222	4,642	0.22%	0.50%
1996	1,215	3,189	4,384	0.18%	0.47%
1997	1,201	3,038	4,239	0.17%	0.42%
1998	1,177	2,837	4,014	0.15%	0.37%
1999	1,257	2,730	3,987	0.16%	0.34%
2000	1,014	3,061	4,075	0.12%	0.37%

SIC 21.1 = Manufacture of pulp, paper and paperboard

SIC 21.2 = Manufacture of articles of paper and paperboard

Source (both tables): Office for National Statistics (ONS) Annual Business Inquiry (see National Statistics website).

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Background These statistics for gross value added in wood processing are taken from the Annual Business Inquiry; similar statistics are available from the input-output tables that are the basis for UK National Accounts. Values are in current prices (i.e. actual prices for each year), because figures at constant prices are not calculated by the Office for National Statistics for individual sectors. At present these data are not available broken down by country or region, although a separate set of input-output tables and accounts exists for Scotland.

The pan-European indicators intend to use a wide definition of the wood processing sector that includes all wood and wood products (SIC 20), pulp, paper and paperboard (SIC 21.1) and the manufacture of products of paper and paperboard (SIC 21.2). However estimates for the processing sector in the UK (e.g. employment in indicator F4) are often limited to primary wood processing, which only consists of SIC 20.1, 20.2 and 21.1. This indicator presents figures for primary processing and also for the wider definition.

Future Scottish figures for 1998 are in the Scottish Forestry Strategy indicators, but similar figures are not yet available for England, Wales or Northern Ireland.

Estimates of the value added through primary processing of UK timber (in England, Scotland and Wales) should be available from the UK forestry multiplier study, due to be published in 2002-03, and these will supplement this indicator.

F4. Employment

Relevance Employment provided by forestry contributes to sustaining rural economies. Although the total employment provided directly by forestry and wood processing is relatively small, it can be of great importance in some localities.

Key Points Total employment in forestry and the primary wood processing industries in 1998-9 was around 30,000 full-time equivalents. Employment in forestry decreased during the 1990s, mainly because of productivity improvements in harvesting. In forestry, almost all direct employees and more than half of contract workers live within 20 miles of their place of work.

Employment in forestry and primary wood processing in GB, by activity 1998/9 full-time equivalents

	England	Scotland	Wales	Great Britain
Forest nurseries	421	201	2	624
Establishment	1,088	1,189	252	2,529
Maintenance	1,680	1,304	380	3,364
Harvesting	2,330	1,947	493	4,770
Road construction	181	179	47	407
Other forest	466	372	144	982
Total forest	6,166	5,192	1,318	12,676
Haulage	326	593	142	1,061
Processing	5,952	3,083	2,192	11,227
Other non-forest	2,295	1,826	447	4,568
Total non-forest	8,573	5,502	2,781	16,856
Total	14,739	10,694	4,099	29,532

Source: Forest Employment Survey 1998/9 (Heggie, 2001a)

Percentage of forestry workers travelling less than 20 miles to their place of employment in GB

	England	Scotland	Wales	Great Britain
Direct workers	97	98	80	96
Contract workers	56	54	55	55
Total	72	68	68	71

Source: Forest Employment Survey 1998/9

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Background The scope of the 1998/9 Forest Employment Survey was wider than previous years, to encompass local authorities, research organisations, woodland associations and other woodland initiatives, mostly shown in the other non-forest category. The 1998/9 survey aimed to include small scale activity, such as coppice working, but the lack of a complete sampling frame made it difficult to achieve complete coverage.

There have been three Forest Employment surveys that give the breakdown of employment by activity (1998/9, 1993/4 and 1988/9). Each survey used a different sampling frame and the results are not fully comparable.

Forestry can also generate employment outside the sector, through purchases of supplies (indirect multiplier), spending of forestry incomes (induced multiplier) and encouraging recreation and tourism (positive externalities), but these are outside the scope of this indicator.

Future At present comprehensive information is not compiled on the demographic attributes of the forest workforce, how long staff have been in the industry, the level of education, training and skills of the workforce, or other aspects of the quality of employment associated with forestry.

It would be desirable to identify how much of the forestry employment is in rural areas, and to break down between commercial conifer plantations and other woodlands, but these breakdowns are not currently available from the Forest Employment Survey.

At present, little regional information is available, although some regional estimates from the 1998/9 survey are available on the FC website.

F5. Social and environmental benefits

Relevance Social and environmental benefits of forestry include recreation, biodiversity, landscape, carbon sequestration and pollution absorption. These non-market benefits are important outputs from forestry activity, and this importance is recognised in the objectives of sustainable forest management. These benefits can be available from all types of forests, to varying extents. They are mostly not captured in market processes but their values can be estimated using economic methods. These estimated values indicate people's preferences, and can be used to inform policies for both public and private forests and woodlands. Adding the value of these benefits to revenues from timber and other forest-related products and services demonstrates the total economic value of forestry.

Key Points The values of social and environmental benefits are not estimated on a regular basis so there is no firm information available on trends over time. Previous studies have estimated the values of various benefits but, since a range of methodologies have been used and are undergoing further development and improvement, any comparisons have to be treated with caution. A recreation value of over £1 per visit has been accepted as a basis for supporting forestry by public expenditure.

Measures The Forestry Commission has commissioned a study to estimate the values of social and environmental benefits of forestry across Britain, but final results from this source will not be available until 2003. The study is examining the following forestry-related benefits:

- Biodiversity – forests support a wide variety of habitats and species;
- Landscape – forests contribute to landscape quality in rural and urban areas;
- Recreation – forests provide sites for a range of recreational activities;
- Carbon sequestration – photosynthesis associated with tree growth absorbs carbon dioxide (one of six key greenhouse gases) from the atmosphere.

The study also examines benefits (and costs) relating to water quantity and quality (see also indicators C3 and C5), air pollution absorption and archaeology, although further investigation may be needed to develop a fuller understanding of these issues.

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Background Social and environmental benefits can be categorised into different types of value. They may be valued for their actual use by consumers, for example recreational visits. They may also be valued for their mere existence and/or option to be used in future, for example biodiversity and landscapes which many people may value even though they do not currently experience them first-hand. Thus, these forest-related benefits are said to comprise both use and non-use values. A variety of economic methods have been used to estimate these values and are the subject of ongoing critical debate.

These economic values do not present a complete picture, as they do not take account of the distribution of benefits – there may be a higher social value in providing benefits in areas of high deprivation.

The provision of social and environmental benefits from forestry is dependent on the nature of forest management regimes. Inappropriate forest design and management can generate costs rather than benefits.

Future Given the current status of scientific knowledge and economic methodologies to assign values to social and environmental benefits, it may be preferable to use a mixture of quantitative and qualitative evaluations of these benefits.

It would be desirable to extend future investigation to include forestry's contribution to benefit people's physical and mental health. Information relevant to forestry can also be obtained from wider studies valuing biodiversity or the environment.

In addition to the benefits and costs described above, forestry may generate externalities affecting other activities. These may be positive (e.g. supporting tourism) or in some cases negative (e.g. timber traffic affecting roads and other road users). There is limited information on the extent of such externalities, although current research commissioned by the Forestry Commission is examining the role of forestry in supporting tourism across GB.

A full cost-benefit analysis of forestry (including social and environmental benefits) or an assessment of the exchequer costs compared with the benefits would be beyond the scope of this set of indicators (and beyond what can be achieved with current information).