CHANGES IN THE UNITED KINGDOM HARDWOOD IMPORTING SOURCES FROM 1853 TO 2015

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This paper identifies changes in the United Kingdom (UK) hardwood importing sources between 1853 and 1992 and changes in UK sawn hardwood sources between 1999 and 2015. A comparison was made of the changes of UK importing sources between the two sets of data. The comparisons are useful to determine alternative sawn hardwood sources for the UK after the UK leaves the European Union (EU), i.e. the BREXIT negotiations. This paper shows the massive reduction in UK importing sources that has taken place both in Africa and in Asia. The UK will need to expand the number of sources in Africa, Asia and in Latin America and the Caribbean. The UK imports significant proportions from EU member states. Following BREXIT, there may be severe restriction on UK/EU trade. These changes of sources may mean a change in cost and in imported species.

Keywords: Sawn hardwood importing, changes to importing sources, BREXIT

INTRODUCTION

In two previous papers, Bull considered the United Kingdom (UK) hardwood importing statistics from 1852 to 1984 and from 1853 to 1992 (Bull 1985, Bull 1997). The intension of the author was to review the UK hardwood importing statistics some 20 years later to identify how the UK importing sources had changed—a further imperative related to the UK leaving the EU (BREXIT). The papers by Bull analysed the volumes of hardwood imported by the UK and the sources of those hardwood (Bull 1985, Bull 1997). For each decade, beginning with the decade 1853 to 1862, the paper identified the 10 major sources based on the volume of hardwood those sources exported to the UK. Between 1853 and 1992, 164 sources had appeared in the UK statistics, but only 41 had been in the top 10 major source positions, as shown in Table 1. The 10 major sources for each decade had been responsible for 71 to 92% of the UK hardwood imports. The statistics also showed that the higher the position a source attained in the top 10 source list, the longer that source remained an important hardwood source for the UK. Further, that a steep increase in hardwood export volume from a source or a continent was often followed by a steep reduction in export volume (Bull 1997).

In the mid to late 1940s the main hardwood sources for the UK were in Africa, but by the mid-1950s, sources in Asia had become dominant. In Africa, log exports from Ghana and Nigeria had peaked around 1960 and then declined, whilst those from the Côte d'Ivoire (Ivory Coast), Gabon and Cameroon had increased. There were similar trends in Asia, with the emphasis moving first from the Philippines to Indonesia and then Malaysia, particularly Sabah and Sarawak. Thailand, once a major exporter of hardwood became a net importer. However, in 2014 Thailand exported 1,936,000 m^3 of sawn hardwood and is one of the major 15 world exporters (FAO 2016). Some of the hardwood from the following countries were virtually untouched: Columbia, Congo, Guyana, Liberia, Mozambique, Tanzania, Venezuela, Zaire and Zambia (Boustead 1991). Yet all these countries had exported hardwood to the UK (Bull 1997). In 2014, the Congo (Republic), Guyana, Mozambique, Tanzania, Zaire (Democratic Republic of the Congo) all exported hardwood to the UK (FAO 2016).

Previously, the author had discussed alterations in UK hardwood importing from 1852 to 1984 for certain specific hardwood (Bull 1985). The paper suggested a further survey on the ratio of logs to lumber, but gaining the relevant statistics and

Table 1 UK hardwood importing sources related to their position in each decade (Bull 1997)

Sources	1853 to 1862	1863 to 1872	1873 to 1882	1883 to 1892	1893 to 1902	1903 to 1912	1913 to 1922	1923 to 1932	1933 to 1942	1943 to 1952	1953 to 1963	1963 to 1972	1973 to 1982	1983 to 1992
British East Indies	1													
Honduras (British Settlements)	2	9	6	7	6		10							
Mexico	3	3	3	5	9									
USA	4	7	7	1	1	1	1	1	1	3	10			3
British West Indies	5	5	5	6										
Haiti and St Domingo	6		8											
Cuba	7													
Prussia/Germany	8	2	2	2	4	4				8			7	5
Canada	9	1	1	4	5	8	3	2	2	2	5	7		9
British Guiana	10													
Singapore and Eastern Straits		4												
Honduras		6												
British India and Burma		8												
Jamaica		10												
Bengal and Burma (Burma form 1883)			4	3	3	10			6					
Central America			9											
Russia/USSR			10	8	7	3	8							
Siam/Thailand				9						10				
Austrian Territories				10										
Australia					2	2	5	6	8					
Gold Coast/Ghana					8	9	9			4	2	1	4	
French West Africa					10	7	4	7		6				
British India						5	2	4	9					
Niger Protectorate/ Nigeria						6	6	8	7	1	1	4		
Japan							7	9	5		7			
Poland								3	3					
Finland								5	10	9		10		
Irish Free State/ Irish Republic								10						8
Yugoslavia									4	7	4			
France										5	8	6	9	10
Sarawak											3			
Federation of Malaya											6			
Rumania											9	5		
Malaysia												2	1	2
Ivory Coast												3	2	7
Denmark												8		
Singapore												9	3	
Philippine Islands													5	1
Brazil													6	4
Indonesia													8	6
Liberia													10	

assessing their accuracy was difficult—the export volume of logs and in some cases lumber was recorded in consistent relatable units, whereas statistics for processed hardwood was recorded in a variety of non-relatable ways (Bull 1985). There was a similar situation acknowledged in Bull's (1997) paper that noted there was no consistent way in which the UK government recorded its hardwood importing statistics (Bull 1997), nor did the UK record all of its hardwood sources.

Another consideration was the difficulties in understanding the definitions of the various headings included in the hardwood importing statistics (Bull 1997). This situation was also noted in the FAO statistics where there were different definitions of forest products used in the production and trade statistics (FAO 2016). In addition, almost all wood imports to the UK have undergone some processing. It is more cost-effective to transport value-added products rather than bulky raw materials (Thompson 2004). Consequently, this current paper considers only sawn hardwood as they are recorded in consistent units.

MATERIALS AND METHODS

For the top 10 exporting countries to the UK shown in Table 1, they are defined as shown in the FAO publications (FAO 2016). The British West Indian/American sources could be allocated to two geographical areas, North America and Latin America and the Caribbean. Considering the export sources shown in Table 1, Canada had exported hardwood to the UK for 13 of the 14 decades, while the USA, 12. After Canada and the USA, the next highest were Ghana and Nigeria, both appeared 7 times each. There were 13 sources, which appeared only once. Table 2 shows the number of sources in each decade in each continent. Asia and Europe appeared in all 14 decades, North America in 13, Africa in 10, Latin America and the Caribbean in 8 and Oceania in 5 (Table 2). For the decades beginning 1853, 1863 and 1873, Latin America and the Caribbean had the highest number of sources (Bull 1997).

For the decades beginning 1853, 1863, 1943, 1953, 1973 and 1983 the 10 major sources accounted for between 71 and 80% of the UK total hardwood imports per decade (Bull 1997). However, in the decades beginning 1883, 1893, 1903, 1823, 1933 and 1963 the 10 major sources accounted for between 80 and 90% of the UK hardwood imports. The percentages rose to over 90% in the decades beginning 1873 and 1913. For decades beginning 1963, 1973 and 1983, there was a reduction from 81 to 76 to 71% for the 10 major hardwood sources showing a reduction in dependency on individual major sources (Bull 1997). For example in the decade 1953 to 1962 the total hardwood volume imported was 10,797,000 m^3 of which 572,000 m^3 was not specified by exporting source. Of the remaining 10,225,000 m^3 the top 10 major exporting sources accounted for 78% (8,427,000 m^3) of the total hardwood imports, with the remaining 22% (1,797,780 m^3) coming from 57 sources. For the decade beginning 1963, there was an increase in the number of not specified sources in the recorded volumes (Bull 1997).

Due to the changes since 1853 in definitions used in the hardwood statistics, it is necessary to give definitions for sawn hardwood. In the FAO yearbook, definitions are given for sawnwood and non-coniferous wood (trees classified botanically as Angiospermae) which are generally referred to broadleaves or hardwood (FAO 2016). Sawnwood is defined as wood that has been produced from both domestic and imported roundwood, either by sawing lengthwise or by a profile-chipping process (FAO 2016). In the UK sawn hardwood statistics, hardwood is defined as the wood of broad-leaved trees and sawnwood as sawn timber, cut into planks or boards from logs (Forestry Commission 2016). The lists of countries, zones and continents used are as those in the FAO publications (FAO 2016).

For the yearly statistics, 1999 to 2015 inclusive the author has concentrated on sawn hardwood statistics as all the exporting sources are listed (HMRC 2000–2016). For the UK, the total number of UK importing sawn hardwood sources varied between a low 58 in 2013 to a high 82 in 2005. The smallest volume of sawn hardwood recorded was 1 m^3 for Jamaica in 2015, Taiwan in 2010 and 2014, Portugal and Luxembourg in 2009, Luxembourg in 2004 and Vietnam in 1999. The largest volume was from Latvia in 2004 (236,029 m^3). For the years 1999 to 2015 inclusive only two countries were the number one major exporters of sawn hardwood to the UK, namely the USA for 10 years, 1999 and 2007 to 2015 and Latvia for 7 years, 2000 to 2006. Over 30% of the UK imported sawn hardwood came from Latvia from 2000 to 2004 and from the USA between 2008 and 2011 (HMRC 2000–2106).

Table 2 Continent in the 10 ten positions in decades starting 1853 to 1983 and for years 1999 to 2015 (Bull 1997, HMRC 2000–2016)

Source	Decade beginning													
	1853	1863	1873	1883	1893	1903	1913	1923	1933	1943	1953	1963	1973	1983
Africa	0	0	0	0	2	3	3	2	1	3	2	3	3	1
Asia	1	2	1	2	1	2	2	2	3	1	3	2	4	3
Europe	1	1	2	3	2	2	1	3	3	4	3	4	2	3
Latin America and Caribbean	6	5	5	3	2	0	1	0	0	0	0	0	1	1
North America	3	3	3	3	2	2	2	2	2	2	2	1	0	2
Oceania	0	0	0	0	1	1	1	1	1	0	0	0	0	0
Total	11	11	11	11	10	10	10	10	10	10	10	10	10	10

Source	Year beginning																
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Africa	1	2	2	2	1	2	2	2	2	2	2	1	1	1	1	1	1
Asia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Europe	6	5	5	5	5	5	5	5	4	5	5	6	6	6	6	7	6
Latin America and Caribbean	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0
North America	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2
Oceania	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	10	10	10	10	10	11	10	10	10	10	10	10	10	10	10	10	10

The lowest total UK imported sawn hardwood was 318,847 m^3 in 2009 with the highest being 781,971 m^3 in 2004. Among the top 10 exporting sources between 1999 and 2015, the lowest percentage was 75% in 2008 and 2009, and the highest was 88% in 2000 with a yearly average of 80%. Between 1999 and 2015, excluding the top 10 sources, the average number of other sources per year was 61 (HMRC 2000–2016).

Table 3 shows sawn hardwood importing sources related to their positions each year between 1999 and 2015. There were 5 countries that had exported to the UK in each of the 17 years between 1999 and 2015. The priority of importance to the UK being: USA, Cameroon, Germany, France and Malaysia, i.e. 2 from Europe, 1 each from Africa, Asia and the USA. For the top 10 positions for the years 1999 to 2015, there were 11 sources from Europe, 2 each from Africa, North America, and 1 each from Asia and Latin America and the Caribbean (Table 3). This contrasts with the countries shown in Table 1 that have been in the top 10 positions in the decades starting from 1853 through to the decade starting in 1983, where 13 sources were from Asia, 10 each from Europe and Latin America and the Caribbean, 5 from Africa, 3 from North America and 1 from Oceania.

Considering further the export destinations in 2014, of the total volume of 16,152,000 m^3 from 15 major sawn hardwood-exporting sources, 49% (7,835,000 m$^{3)}$ was exported to China. The figure for the UK was 2% (309,000 m^3). The 15 major exporters accounted for 72% of the world sawn hardwood exports of 22,528,000 m^3 (FAO 2016).There were 116 exporting sawn hardwood sources between 2010 and 2014 (FAO 2016). In 2014, there were 109 exporting sawn hardwood sources, 10% from Africa, 20% from North America, 6% from Latin America and the Caribbean, 33% from Asia, 31% from Europe and 0.6% from Oceania (FAO 2016). For the UK in 2014, there were 64 sawn hardwood-importing sources (HMRC 2014). For the top 10 exporters to the UK in 2014, 11% were from Africa, 27% from North America, 5% from Asia, 58% from Europe and none from Latin America and the Caribbean and Oceania. Clearly, the importing sources for the UK did not reflect the world exporting sources, in that imports from Europe predominate.

An area to be considered is the number of sources from each continent that had exported hardwood and/or sawn hardwood to the UK. Although Table 1 considers decades and hardwood while Table 3 considers years and sawn hardwood, it can be seen that there has been considerable realignment in the sources from each continent. For example, from Table 1, in Asia, there were 13 sources, but in Table 3, this 13 had reduced to 1 source. A similar reduction had occurred in the Latin America and the Caribbean where the sources have reduced from 10 to 1. The North American sources have reduced from 3 to 2 and Oceania sources from 1 to 0. The sources in Europe have increased from 10 to 11. However, of the 11, 10 are members of the EU.

Of the 2014 world production of non-coniferous sawnwood of 126,598,000 m^3, 6% was from Africa, 55% from Asia, 12% from Europe, 10% from Latin America and the Caribbean, 18% from North America and 0.7% from Oceania (FAO 2016). For the top 10 importing sources of sawn hardwood to the UK in 2014, 11% was from Africa, 5% from Asia, 58% from Europe, 0% from Latin America and the Caribbean, 27% from North America and 0% from Oceania (HMRC 2014). Clearly, the UK was heavily reliant on Europe and North America for sources. The UK needs to consider using additional sources in Asia, Africa and the Latin America and the Caribbean. As this paper does not consider individual species imported to the UK, this will become a factor that will need further consideration together with the possible use of alternative species.

The next stage considered further each of the top 10 hardwood exporting sources to the UK in 2014 and compared the UK importing quantities with the exports from each source as shown in Table 4. The percentages of imported sawn hardwood into the UK related to the export of sources were as follows; USA 3%, Estonia 48%, Cameroon 9%, France 11%, Italy 21%, Latvia 6%, Germany 5%, Malaysia 1% and Poland 22%, while for Ireland, there was insufficient data to determine a value (FAO 2016). Considering further the world exporting of non-coniferous sawnwood of 22,530,000 m^3, 10% was from Africa, 33% from Asia, 31% from Europe, 6% from Latin America and the Caribbean, 20% from North America and 0.6% from Oceania. The unit value per m^3 was as follows: world USD486, Africa USD530, Asia USD487, Europe USD427,

Table 3 UK sawn hardwood importing sources related to their positions each year between 1999 and 2015 (HMRC 2000–2016)

Source	Year																
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Times listed
USA	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	17
Latvia	2	1	1	1	1	1	1	1	6			3	5	9	7	7	6	15
Malaysia	3	4	4	4	5	7	7	5	5	4	4	8	8	8	8	8	8	17
Germany	4	6	5	5	3	4	6	7	4	2	3	6	6	6	6	6	7	17
Canada	5	7	7	8	9	9	8	8	8	7	8	9	10	10	9		9	16
Estonia	6	3	3	3	4	3	3	6	7		10	2	7	7	5	2	3	16
Cameroon	7	5	6	6	6	5	4	3	2	3	2	4	2	2	4	3	5	17
France	8	8	8	7	7	6	5	4	3	6	5	5	3	3	3	4	4	17
Brazil					8				10									2
Netherlands	9	10	9	10			10	9		10	6							8
Sweden	10									5								2
Ivory Coast		9	10	9		10	9	10	9	8	9							9
Russia					10	8												2
Irish Republic												10	9			10		3
Italy										9	7	7	4	4	2	5	2	8
Poland															10	9	10	3
Belgium														5				1

	No of sources in 2014	Number of sources 1999 to 2015
Africa	1	2
Asia	1	1
Europe	7	11
Latin America and Caribbean	0	1
North America	1	2

Table 4 Production, importing exporting amounts in 2014 (related to the top 10 countries listed in Table 2)

Country	Production (1000 m^3)	Import (1000 m^3)	Production + import (1000 m^3)	Export (1000 m^3)	Export as % of production plus import	UK import from named country (1000 m^3)	UK import as % of named country's export
USA	21000	1041	22041	3901	18	110	3
Latvia	890	18	908	513	56	31	6
Malaysia	4443	195	4638	1950	42	22	1
Germany	1026	423	1449	690	48	32	5
Canada	1460	700	2160	562	26	16	3
Estonia	115	85	200	102	51	49	48
Cameroon	993	1	994	510	51	45	9
France	1439	284	1723	396	23	43	11
Brazil	5997	26	6023	376	6	1	0.3
Netherlands	65	331	396	106	27	16	15
Sweden	260	28	288	9	3	4	44
Ivory Coast	871	No information	Insufficient information	219	25 (of production only)	8	4
Russia	240	15	2415	911	38	2	0.2
Irish Republic	3	30	33	No information	Insufficient information	19	5
Italy	520	728	1248	164	13	35	21
Poland	465	237	702	91	13	20	22
Belgium	195	418	613	307	50	12	4

Africa	2 sources
Asia	1 source
Europe	11 sources (10 are members of the EU)
Latin America and Caribbean	1 source
North America	2 sources
Oceania	No sources

Latin America and the Caribbean USD371, North America USD588 and Oceania USD555 (FAO 2016).

RESULTS

The 10 most important sawn hardwood sources for the UK for each of the years from 1999 to 2015 are tabulated in Table 3. Five of the 17 sources appeared 17 times in Table 3; 3 sources twice; 2 sources each 3, 8 and 16 times; and 1 source each 1, 9 and 15 times. There were 8 sources that have been UK's importing sources for more than an average of 10 years (Table 3), namely the USA, Cameroon, Germany, France, Malaysia, Canada, Estonia and Latvia, i.e. 2 sources from North America, 4 from Europe (all in the EU) and 1 source each from Africa and Asia.

Considering now the UK/EU BREXIT position and assuming that the UK decides to discontinue sawn hardwood imports from the EU, the UK would not import from Germany, France, Estonia and Latvia. There is also the consideration, as shown in Table 4, that the high percentages of exports from these countries, compared with their production and importing statistics, are substantial, whereby Germany had 48%, Estonia 51%, Latvia 56% and France 23%. The first 3 countries accounted for 28% of the UK's 2014 top 10 imports. An interesting point from Table 4 is that the EU imports of UK represented 48 and 44% of exports by Estonia and Sweden respectively. For Estonia, UK importing represented 12% of UK imports, while for Sweden, UK imports represented 1% of UK imports.

Table 4 shows that the sawn hardwood production for the Netherlands in 2014 was 65,000 m^3, imports were 331,000 m^3 and exports were 106,000 m^3, suggesting that this country was using imports to sustain their exports. The UK imports of 15,990 m^3 from the Netherlands represented 15% of the latter's exports. If the UK did not import sawn hardwood from the EU, the UK would lose 58% of its sawn hardwood imports—12% from Estonia, 11% from France, 9% from Italy, 8% from Germany, 8% from Latvia, 5% from Poland and 5% from Ireland.

DISCUSSION

To compensate for the lack of UK sawn hardwood imports from the EU, the UK may need to access sources in Africa, Asia, North America and Latin America and the Caribbean. For the African source, Cameroon, the UK imports 9% of Cameroon's exports, although Africa produces 6% of the world's sawn hardwood, 10% of the world's exports, with the UK imports from Africa representing 11% of the UK's imports. In Asia, the UK imports 1% of Malaysia's sawn hardwood exports. Asia produces 55% of the world's sawn hardwood, 33% of the world's exports and 5% of the UK's imports came from Asia. Asia could be considered as a reasonably available source. For North America, the UK imports 3% of the USA's sawn hardwood exports. North America produces 18% of the world's sawn hardwood and 20% of the world's exports. Of the UK's imports, 27% are from North America. In total, the number of sources between 2010 and 2014 that exported from each continent were 29 from Africa, with the 3 largest exporters in 2014 being Gabon with 610,000 m^3, Cameroon with 510,000 m^3 and Mozambique, with 237,000 m^3. In Asia, between 2010 and 2014, there were 22 sources, the 3 largest exporters in 2014 being Malaysia (1,950,000 m^3), Thailand (1,936,000 m^3) and Laos (1,128,000 m^3) (FAO 2016). In Europe, between 2010 and 2014 there were 35 sources excluding the UK of which 10 were non-EU sources. The 3 largest, non-EU sources in 2014 were the Russian Federation with 911,000 m^3, Ukraine with 353,000 m^3 and Bosnia Herzegovina with 259,000 m^3. In Latin America and the Caribbean, there were 20 sources between 2010 and 2014, the 3 largest sources in 2014 being Brazil (376,000 m^3), Peru (329,000 m^3) and Bolivia (157,000 m^3). In North America between 2010 and 2014, there were 2 sources—the USA and Canada (3,901,000 and 562,000 m^3 respectively). In Oceania between 2010 and 2014, there were 6 sources, the largest exporting source being Papua New Guinea (39,000 m^3) but this appeared not to be a viable UK importing source (FAO 2016).

Considering the value of exports of sawn hardwood in 2014, the average world value was USD486 per m^3. The exporting average values per m^3 for each continent were USD371 for Latin America and the Caribbean, USD427 for Europe, USD487 for Asia, USD530 for Africa, USD555 for Oceania and, the highest exporting value, USD588 for North America. The FAO records (FAO 2016) did not discriminate between the species being exported; consequently, a direct comparison for value per species from each continent cannot be assessed.

The average exporting values per m^3 for the countries in the top 10 exporters to the UK were Latvia (USD226), Malaysia (USD416), Estonia (USD450), Canada (USD508), France (USD520), Germany (USD571), USA (USD599), Cameroon (USD753), Poland (USD766) and Italy (USD983) (FAO 2016). The currency unit used in the HMRC tables is the UK GBP. The average exchange rate in 2014 was GBP1 = USD1.647701 (Forex 2016). Taking into consideration the value (neglecting inflation) of imports to the UK related to the volume of sawn hardwood for each individual year from 1999 to 2015, per m^3, the lowest value was GBP277 in 2004, with the highest being GBP660 in 2009. The value for 2014 and 2015 were GBP550 and GBP584 respectively (FAO 2016). The values per m^3 for the top 10 countries that exported to the UK are, from Europe—Latvia at GBP180, Estonia at GBP228, France at GBP436, Germany at GBP487, Ireland at GBP615, Italy at GBP752 and Poland at GBP782; and 3 non-European sources—Cameroon at GBP555, Malaysia at GBP632 and the USA at GBP649 (HMRC 2014).

Pricing and trade barriers

For the UK market, price is influenced by supply and demand on international markets. For example, reduction in price is often associated with oversupply on a global basis. Also, global demand effects the volume available and prices for the UK. Sometimes significant price differences can be related to misclassifications in trade statistics, or incorrect reporting of volumes.

The price at which producers can afford to sell is related to the costs of production and distribution plus the availability of timber resources—input costs, levels of taxation, storage, handling and fluctuations in exchange rate. There is also the consideration of trade barriers, which would alter trade flows with exporters switching supplies to alternative markets, and importers such as the UK switching to alternative sources of supply (Thompson 2004).

CONCLUSIONS

Comparing the top 10 exporting sources, in decades, to the UK as given in Table 1 with the sources, in years, given in Table 3, it can be seen there are a number of sources common to both tables; these were the USA, Canada, Germany, Russia, Ireland, France, Malaysia, Brazil, Ivory Coast and Poland. There are sources in Table 1, which did not export to the UK in 2014—these were Haiti, St Domingo, Jamaica, Thailand, Nigeria, Japan, Sarawak, Cuba and Liberia. If the UK was unable to import sawn hardwood from the EU, the UK would be able to obtain sufficient sawn hardwood, dependent upon species from the many world sources, but the change in cost of these imports is yet unknown.

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REFERENCES

Boustead L. 1991. The challenge of the nineties—the hardwood perspective, *Journal of the Institute of Wood Science* 12: 193–197.

Bull JW. 1985. Hardwood timber importing in the United Kingdom, 1852–1984, *Journal of the Institute of Wood Science* 11: 154–159.

Bull JW. 1997. United Kingdom hardwood importing sources 1853 to 1992. *Journal of Tropical Forest Products* 2: 166–186.

FAO (Food and Agriculture Organization of the United Nations). 2016. *FAO Yearbook of Forest Products, 2014.* FAO Forestry Series No. 49, FAO Statistic Series No. 205. FAO, Rome.

Forestry Commission. 2016. *Statistics, Methodology Note. UK Wood Imports and Exports.* Forestry Commission, Edinburgh.

Forex. 2016. http://www.ukforex.co.uk/forex-tools/historical-rate-tools/yearly-average-rates Accessed 13/10/2016.

HMRC (Her Majesty's Revenue and Customs). 2000. *UK Overseas Trade Statistics, Imports to the UK by Country 1999 Sawn Hardwood,* HMRC, London

HMRC. 2001. *UK Overseas Trade Statistics, Imports to the UK by Country 2000 Sawn Hardwood.* HMRC, London.

HMRC. 2002. *UK Overseas Trade Statistics, Imports to the UK by Country 2001 Sawn Hardwood.* HMRC, London.

HMRC. 2003. *UK Overseas Trade Statistics, Imports to the UK by Country 2002 Sawn Hardwood.* HMRC, London

HMRC. 2004. *UK Overseas Trade Statistics, Imports to the UK by Country 2003 Sawn Hardwood.* HMRC, London

HMRC. 2005. *UK Overseas Trade Statistics, Imports to the UK by Country 2004 Sawn Hardwood.* HMRC, London.

HMRC. 2006. *UK Overseas Trade Statistics, Imports to the UK by Country 2005 Sawn Hardwood.* HMRC, London.

HMRC. 2007. *UK Overseas Trade Statistics, Imports to the UK by Country 2006 Sawn Hardwood.* HMRC, London.

HMRC. 2008. *UK Overseas Trade Statistics, Imports to the UK by Country 2007 Sawn Hardwood.* HMRC, London.

HMRC. 2009. *UK Overseas Trade Statistics, Imports to the UK by Country 2008 Sawn Hardwood.* HMRC, London.

HMRC. 2010. *UK Overseas Trade Statistics, Imports to the UK by Country 2009 Sawn Hardwood.* HMRC, London.

HMRC. 2011. *UK Overseas Trade Statistics, Imports to the UK by Country 2010 Sawn Hardwood.* HMRC, London

HMRC. 2012. *UK Overseas Trade Statistics, Imports to the UK by Country 2011 Sawn Hardwood.* HMRC, London.

HMRC. 2013. *UK Overseas Trade Statistics, Imports to the UK by Country 2012 Sawn Hardwood.* HMRC, London.

HMRC. 2014. *UK Overseas Trade Statistics, Imports to the UK by Country 2013 Sawn Hardwood.* HMRC, London.

HMRC. 2015. *UK Overseas Trade Statistics, Imports to the UK by Country 2014 Sawn Hardwood.* HMRC, London.

HMRC. 2016. *UK Overseas Trade Statistics, Imports to the UK by Country 2015 Sawn Hardwood.* HMRC, London.

THOMPSON M. 2004 *International Markets in Wood Products.* Information Note. Forestry Commission, Edinburgh.