



UK jobs supported by exports to the EU

Cebr analysis of UK jobs associated with demand from the European Union

March 2014

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Authorship and acknowledgements

This report has been produced by Cebr, an independent economics consultancy established in 1992. The report was authored by Alasdair Cavalla, Economist; overseen by Scott Corfe, Managing Economist, and led by Charles Davis, Director. The views expressed herein are those of the authors only and are based upon independent research by them.

London, March 2014

Executive Summary

- This analysis, carried out by the Centre for Economics and Business Research (Cebr) on behalf of British Influence, updates the 2000 report entitled 'UK jobs dependent on the EU' by Brian Ardy, Iain Begg and Dermot Hodson of South Bank University's European Institute.
- Ardy, Begg and Hodson found that in 1997, 3,445,000 jobs in the United Kingdom were associated with demand from exports to the European Union, which included 2,500,000 jobs directly supported and 900,000 indirectly created from demand from those jobs.
- The updated analysis performed by Cebr shows that in 2011, 4.2 million jobs, or 13.3% of the UK workforce, were associated with demand from exports to the EU.
- Within this 4.2 million, an estimated 3.1 million UK jobs were directly supported by exports to the European Union in 2011 and 1.1 million jobs were indirectly supported – i.e. through spending income earned from exporting.
- Total income associated with demand from EU exports was £211 billion or £3,500 per head of the population in 2011.
- Based on the latest available data,¹ the analysis examines change over time, finding that the number of jobs associated with demand from the EU has increased from 3.7 million to 4.2 million over the period 1997–2011.
- The number of jobs associated with EU demand in professional, technical, scientific services and in business and administration support services have risen particularly rapidly between 1997 and 2011 over the period, with the numbers of jobs in both of those industrial sectors almost doubling.
- Manufacturing has fared less well in this respect, losing jobs, but this is against the backdrop of structural decline in UK manufacturing employment over the period and the 2011 figures were compiled during the post-crisis sustained weakness in economic growth; the part that exports to the EU has fared better than manufacturing as a whole over the period.
- The region that gained the most jobs was London, which now has 27% more EU-supported jobs than it did in 1997. On average, the UK gained 12% more jobs than it had in 1997, and the only region to have fewer EU-associated jobs now than it did then was the West Midlands. Nevertheless, the West Midlands still has 385,000 jobs linked to EU demand.

Important notes

- This piece of research does not imply that the estimated jobs would be lost if the UK were to leave the EU; it is an analysis of demand arising from UK exports to the EU.

¹ The classification of the data has changed and the data itself has been revised since 2000, slightly elevating the previous analysis's figures; see section 1.3.

- This piece of research does not take a position on United Kingdom EU withdrawal but rather seeks to inform the debate with robust, quantitative evidence based on publicly available data.
- All of the data sources referenced here can be found online; full references and links are available in the references section.
- This research does not quantify the effect of imports and an analysis of net trade; this is an analysis purely of the demand associated with exports to the EU.

1 Britain and the Single Market

1.1 Background

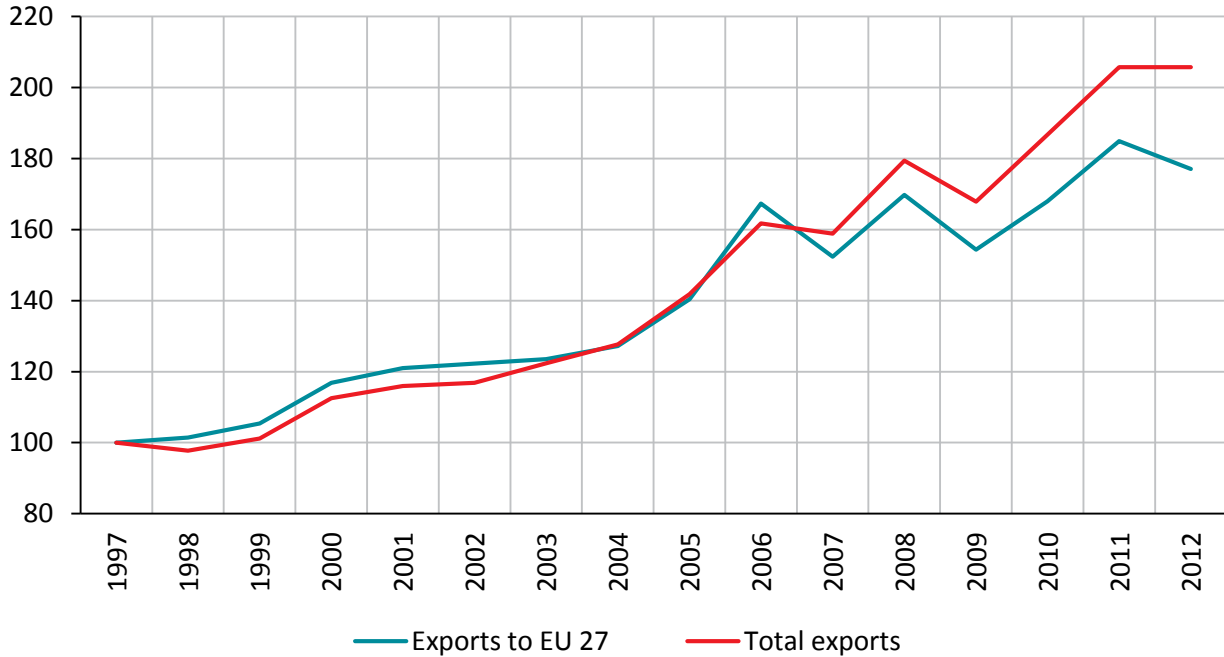
Britain joined the six-member European Community in 1973 along with Denmark and Ireland. Since then, the European Community has added 19 new members to become the 28-strong European Union, an entity of 500 million people which is now the biggest trading bloc in the world. One of the EU's most important achievements is the Single Market: this means that firms can trade with any other EU country without paying import or export tariffs or having to obtain regulatory approval. The Single Market applies not only to goods and services – it also means that workers can find a job in any EU country and firms can invest wherever they wish within its borders.

The Single Market is by a long distance the UK's largest trading partner, accounting for 45% of UK exports in 2012. The US, by contrast, has an economy of almost the same size but only received 17% of UK exports. Seven of the UK's top ten export destinations are EU Member States. Within the Single Market, Germany, France, the Netherlands and Ireland are the UK's first- to fourth-largest export destinations, in that order. The UK exported £43 billion to Germany, £35 billion to the Netherlands, and £30 billion to France.

An instructive comparison is Romania, which joined the EU in 2007, versus Ukraine, which lies just outside its borders. They lie a similar distance from the UK and have very similar levels of GDP. In 2012, the UK exported £1.35 billion worth of goods and services to Romania, but only £750 million to Ukraine. It is likely that the far greater ease of exporting within the Single Market explains a significant part (though not all) of this difference.

The share of total UK exports that goes to the EU has been decreasing gradually, caused by recent weakness in economic growth across the EU and rapid growth in emerging markets. Figure 1 shows that both EU exports and total exports have grown significantly since 1997, but total export growth has outpaced the expansion in EU exports, implying a falling share for the EU. There has been fluctuation over the last five years in both trends due to financial and sovereign debt crises, but the value of EU exports stands 77% higher and total exports 105% higher than their respective levels in 1997.

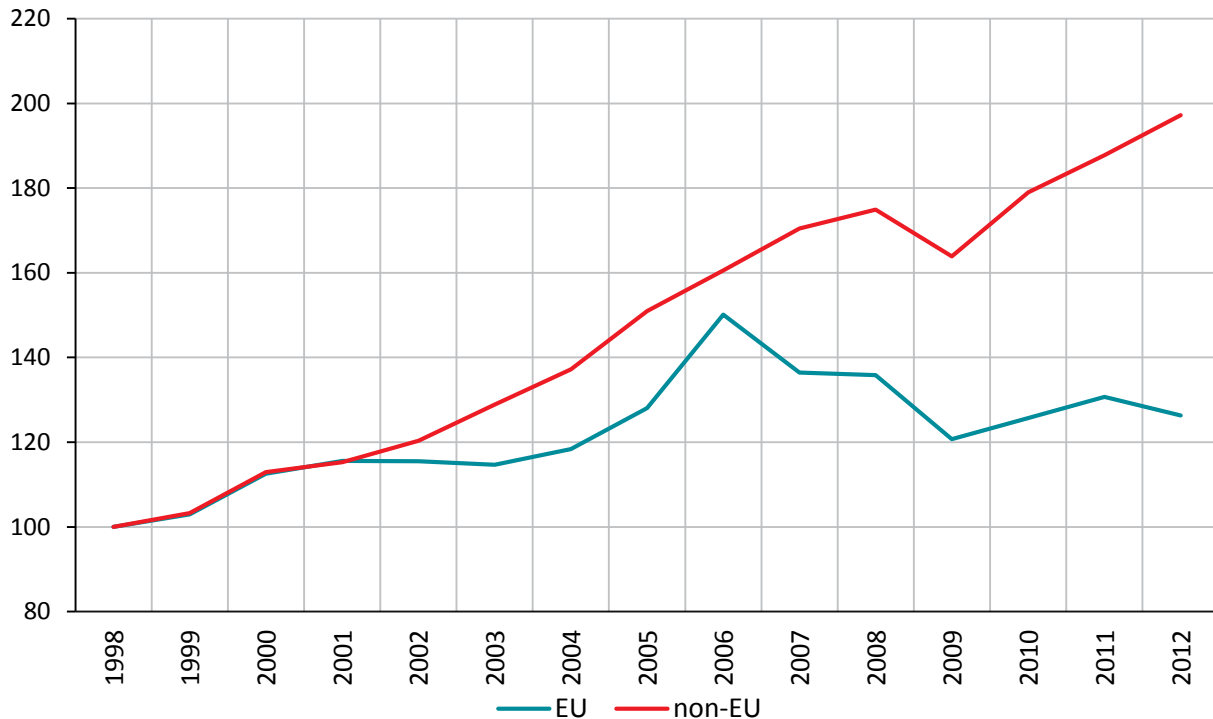
Figure 1: Total and EU exports by value, 1997–2012. Indexed such that 1997=100.



Source: ONS Pink Book 2013; Cebr analysis

However, prices have also increased during this time, so it can also be instructive to look at changes in volume of goods and services exported rather than export values, which will naturally be inflated by rising prices. Stripping out price rises lets us see trade in *real* terms, which compares changes in the number of goods and services sold to foreign consumers while controlling for inflation.

Figure 2 Total and EU exports by volume, 1998–2012. Indexed such that 1997=100.



Source: ONS Pink Book 2013; Cebr analysis

Figure 2 shows that the rise in trade, although not as large as in value terms, is real and significant. It is not just that prices of exports have gone up; the UK is actually shipping 26% more goods and services to the EU in volume terms than at the beginning of the time period.

Importantly, this suggests that the exports to the EU will support more jobs than they did in 1997. However, the rise in jobs will be less than the rise in exports; this is because in general, over time, each worker produces a larger amount of output (i.e. productivity rises). However, the recent drop in output per worker that the UK economy has experienced means that the productivity rise over the whole period is relatively modest. Therefore rising productivity is unlikely to account for all of the extra exports: there has been some rise in productivity, but because this has been modest, the extra exports have also resulted in a rise in the number of jobs associated with EU demand.

1.2 Past research

In 2000, Brian Ardy, Iain Begg and Dermot Hodson at the European Institute of South Bank University in London wrote a paper quantifying the impact of UK exports to the EU on (UK) employment. The paper referred to 1997 data, the latest available at the time at the required level of detail.

Broadly, they found the value of exports going to the EU and took out the fraction of these exports produced abroad: for example, a bicycle produced in Britain using German steel would only count the value of the work done on the steel, not the metal itself. They converted the value into a figure for jobs, based on average numbers of jobs supported by each pound of output in each industry. Finally, the money earned from exporting supports further rounds of job creation within the domestic British economy from the expenditure of workers in exporting industries.

The South Bank Institute calculated a total income of £81.7 billion from exporting to other EU countries, which supported 2,500,000 jobs. A further £24.5 billion of income was created by those people's spending,

which would in turn create 920,000 jobs. In total, 3,400,000 jobs were dependent upon UK exports to the rest of the EU.²

1.3 Updating the past research - methodology

The ONS publishes figures for the number of goods exported by product, where each export is classified into one of 65 groups.³ However, it is only at a broader level⁴ that a breakdown of exports by destination is available, so the EU/non-EU shares are calculated at this level.⁵ We then return to the 65 groups and multiply each group's total figure by the EU's share for exports from the broader category of which it forms part.

The next stage is stripping out imported content, using the ONS's input–output tables. These show all the inputs for each sector, in terms of goods and services that go into their production, and all their outputs. For example, £2.9 billion worth of output from agriculture, hunting and related services was used in 2005 as an input for the food products and beverages sector. Some of this input is imported, which is also listed in the same tables. Hence, figures for each sector can be scaled down to estimate at the amount of production that is done in this country, avoiding counting inputs that are produced elsewhere.

The next stage is converting an amount of output, which has now been converted into an EU figure (by scaling it by the EU/rest of world split) and scaled down to exclude imported content, into a number of jobs.⁶ We can work out the average number of jobs in each sector to produce a million pounds of output. For instance, sector H (which broadly corresponds to transport and postal services) accounted for around 1,500,000 jobs and produced about £54 billion of output in 2005. Therefore the figure to use for conversion is 27 jobs per £1 million of output.⁷ Transport is a relatively typical sector – the overall figure for the whole economy is 28 jobs per £1 million of output.

The indirect effect of this economic activity directly supported is then analysed. People working in each sector spend a certain proportion of the money they earn from exports on domestically produced goods and services, and thereby support other sectors, a process termed the multiplier effect. A Keynesian multiplier scales up the injection of spending that exports generate: typically, this will be a figure under one. The larger the figure is, the larger the effect of additional rounds of spending on supporting jobs. The multiplier is generally larger in times of recession and low demand than in times of rapid economic growth, since extra output depends on there being spare supply capacity to meet it, and when the economy is running at full speed there is little spare capacity. Therefore in periods of rapid growth, much of the high demand is met by imports so that the spending “leaks” abroad rather than supporting UK jobs, reflected in the low multiplier.

² Our figures do not correspond exactly to those of the South Bank's European Institute's analysis. The reasons are that the ONS has made revisions to the GDP figures for the relevant years in the intervening period; it also uses a different classification for exports now, as noted in footnote 4.

³ These can be found in Table 16 of the National Accounts.

⁴ This is at the level of one-digit SITC codes. The figures can be found in the ONS's Pink Book.

⁵ Here our methodology necessarily departs from that of the South Bank's European Institute. Figures used to be available by product for EU/non-EU exports, but they stop at 2003. For internal consistency, we therefore use the broader SITC codes the entire way through, which sacrifices granularity at the earlier part.

⁶ This paper considers all jobs, rather than converting them to full-time equivalents, in keeping with the original analysis.

⁷ This implies productivity per employee of £36,000 on a value-added basis.

We use ONS figures to calculate multipliers for different years, as the economy has changed considerably in terms of growth rate over the period of interest. Applying the multiplier gives final estimates for total output and total jobs created by exporting to the EU.

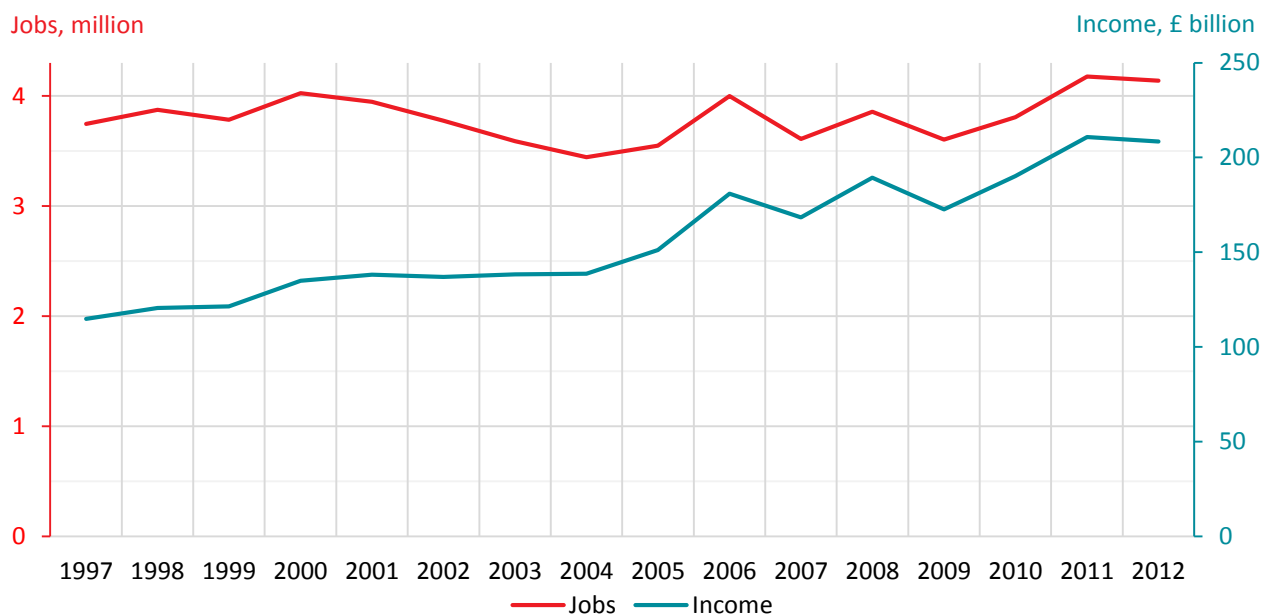
The ONS publishes input–output tables in July, two years after the year they refer to. The latest available tables refer to 2011, where our calculations necessarily stop.

2 Results

The latest year for which detailed enough trade statistics to support the full analysis are available is 2011. Our central finding is that 4,175,000 jobs were associated with exports to the EU. It is important to note that the workforce was bigger than it was in 1997, though that does not account for the whole increase. The UK was also trading with a larger EU – a club of 27 nations when this data was collected – compared to 15 nations in 1997 (and now 28 although detailed data is not available for after this increase took place). Nevertheless, the UK still does 93% of its EU trade with the “old” EU15.

Figure 3 presents the total income linked to demand from the EU for UK exports and the total number of jobs that this income supports. It includes both first-round effects, meaning the income/jobs that are in the exporting sectors themselves, and second-round effects – the income/jobs that arise within the domestic economy due to spending earned by production in the exporting sectors.

Figure 3 Jobs associated with EU exports since 1997



Source: ONS National Accounts, Cebr analysis

Figure 3 shows steady growth in income linked to demand from EU exports. It also shows fluctuations driven by changes in demand for exports. The dips in recent years are due to the recession and the European sovereign debt crisis. A puzzle in the time series is the decline in jobs/plateau in income over the period 2001–2004, a period of relatively strong economic growth where one might not otherwise expect to see these graphs flattening or in decline.

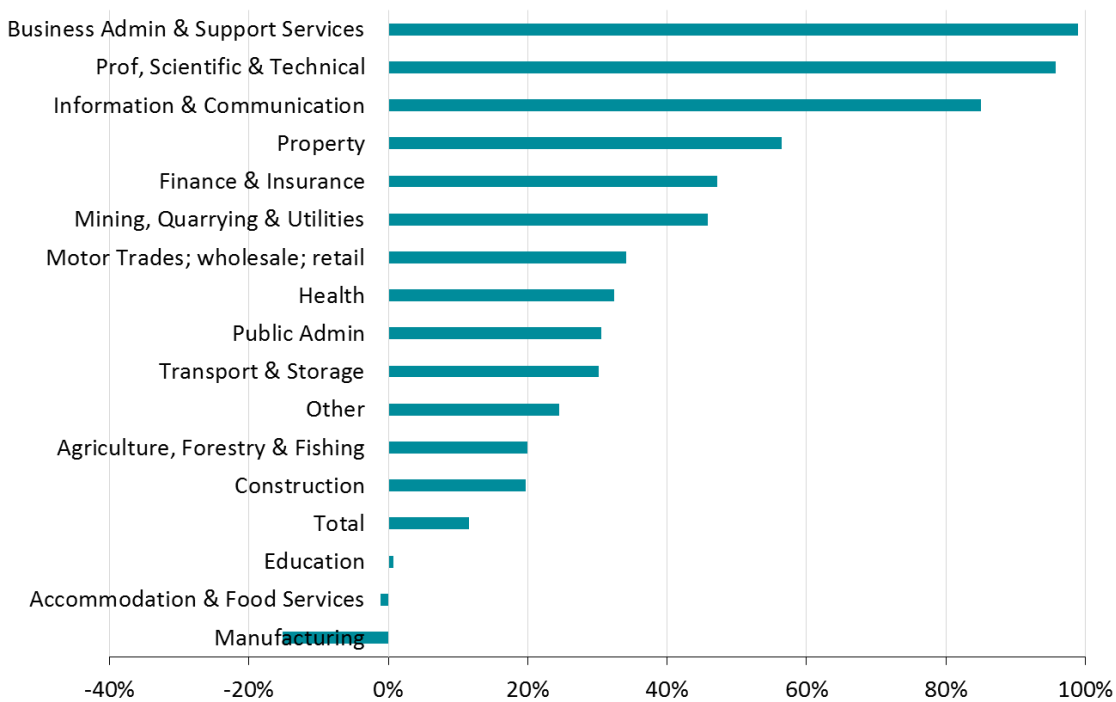
Two factors contributed to this early-2000s decline in jobs/plateau in income: first, France and Germany had a mild recession during 2001–2002, which lowered the EU’s demand for imports from the UK. A low multiplier also contributed, meaning that the second-round effects coming from workers’ domestic spending were lower than usual: where demand in the economy as a whole is running high, we cannot apportion high second-round effects to demand from EU exports, as the demand probably would have been present anyway: spare supply capacity would be the limiting factor.

2.1 EU-associated jobs in each industry, by year

Table 1 shows the total number of EU-associated jobs in each economic sector. The 16 columns headed by letters correspond to the broad industrial group (BIG) sectors of the economy. This table reveals that while total EU-associated jobs rose by 12% between 1997 and 2011, the professional and business services sectors almost doubled in the number of jobs linked to EU exports.

Figure 4 shows the change in each of these sectors. In the manufacturing sector the number of EU-associated jobs has shrunk – however, employment in the sector overall shrank by 40% over the period in question as the UK has imported a progressively greater proportion of its consumption of manufactures. The part of UK manufacturing industry that exports to the EU has therefore done well, by the standards of that sector. The shrinkage happened mainly towards the beginning of the period examined; it is worth noting that over the years 2009–2011, manufacturing jobs linked to EU demand increased by 15%. Between the two extremes, the accommodation and food services sector stood almost still, declining by just 1% over the period of interest.

Figure 3 Total number of UK jobs associated with EU demand by sector, change 1997–2011



Source: ONS National Accounts, Cebr Analysis

Table 1 Jobs dependent on EU demand by industry, 1997–2011

Sec. Code	A	B, D, E	C	F	G	H	I	J	K	L	M	N	O	P	Q	R, S, T	TOT
	Agriculture, Forestry & Fishing	Mining, Quarrying & Utilities	Manufacturing	Construction	Motor Trades; wholesale; retail	Transport & Storage	Accommodation & Food Services	Information & Communication	Finance & Insurance	Property	Prof., Scientific & Technical	Business Admin & Support Services	Education	Health	Public Admin	Other	Total
1997	63538	61808	2011475	68573	179976	163957	237881	67185	177826	10553	143530	206082	63856	92483	105450	89897	3744069
1998	72081	61209	2115470	69023	179276	162240	229596	78597	166569	10079	171861	223416	61437	91273	101580	79570	3873276
1999	59347	65956	1989509	63974	179869	168326	220090	85925	192632	9549	186688	236479	58522	87827	95488	82291	3782471
2000	59075	81906	2117551	63472	177301	182599	227603	93111	217895	10248	193225	248858	60195	92503	99619	97645	4022805
2001	49762	87711	2028101	61283	167706	181110	202185	96442	238822	9927	203086	278020	61007	88198	96063	95855	3945279
2002	47294	77954	1955098	56170	149975	167676	192485	91312	226113	9232	192323	280200	56540	84618	89109	97692	3773792
2003	50954	69296	1802055	52373	136898	171338	185918	94715	238915	8707	199938	264128	54057	84010	84287	90787	3588376
2004	42563	60521	1694869	49625	120167	194585	195821	94907	219270	8342	204526	260764	50703	80730	77689	88320	3443400
2005	57370	57293	1695132	54001	121865	210893	205286	98600	225248	8704	226882	284907	49534	82156	78050	92500	3548421
2006	64755	68107	1969964	66652	134701	190118	227122	110961	246490	11201	239546	321574	56792	95651	94845	100576	3999055
2007	56361	58857	1616393	64914	135881	182241	216142	101506	251755	11343	229227	348179	53175	88937	88702	104003	3607614
2008	58634	70273	1658391	75822	153615	213460	225685	110598	281904	13735	258020	367148	58665	99070	105607	104561	3855189
2009	66063	61910	1486836	74703	143988	190675	219033	113164	236208	13793	268128	368909	58353	103013	107008	92029	3603812
2010	70330	79626	1554485	73689	186588	191598	217222	117193	225616	14530	271654	398686	61647	112396	122245	108720	3806223
2011	76184	90127	1706294	82083	241426	213508	235227	124360	261738	16510	281058	410085	64340	122432	137704	111964	4175042

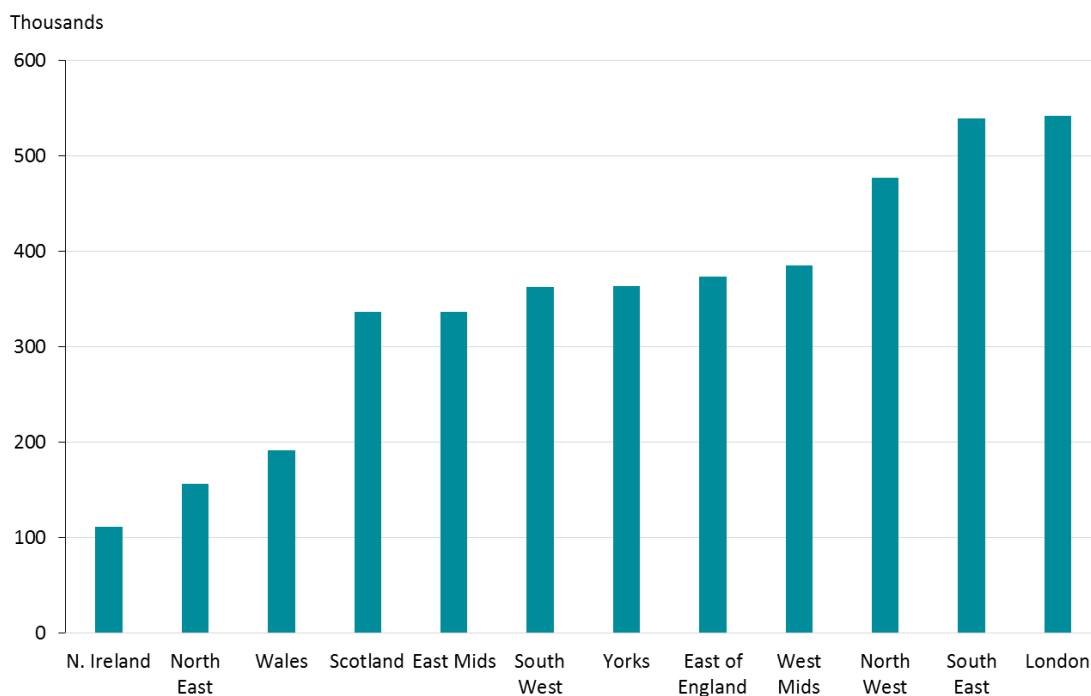
2.2 EU-associated jobs in each industry, by region

The next stage of the European Institute’s work breaks the data down by constituency. This analysis uses a similar approach, but with larger geographical areas. The given is the breakdown by large NUTS1 regions, of which there are twelve in the UK.

Neither we nor the European Institute’s analysis on which our own is based can calculate this number precisely: the ONS does not collect comprehensive export data at the regional level. However, it is possible to estimate it by taking the number of jobs that are in each exporting industry, and apportioning this by region. This method assumes a uniform export share across all the regions for each sector. The ONS’s Nomis database has a sectoral labour-market breakdown by region.

At the end of the 1997–2011 period, the London region had the highest number of jobs reliant on EU exports, with the South-East coming second and North-West third. As a share of each region’s total workforce, the highest reliance on EU exports was found in the East Midlands, followed by the West Midlands. Taking shares also suggests that the high number of jobs in London was largely due to the size of its workforce, because as a share of the workforce London had the lowest of all the regions. Figure 5 presents the numbers by region as numbers of jobs, while Figure 6 converts this to shares of each regional workforce. Figure 7 presents the change over the whole time period while Table 2 presents the full results by region and sector.

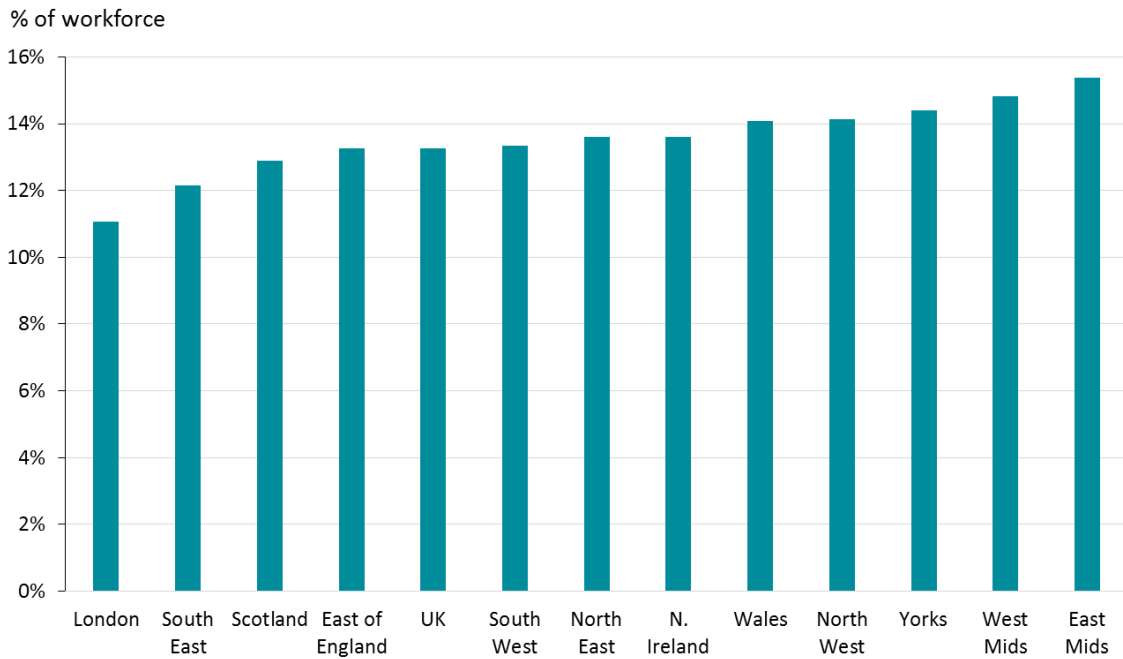
Figure 5 EU-associated jobs by region



Source: ONS National Accounts, Nomis Labour Market Statistics, Cebr analysis

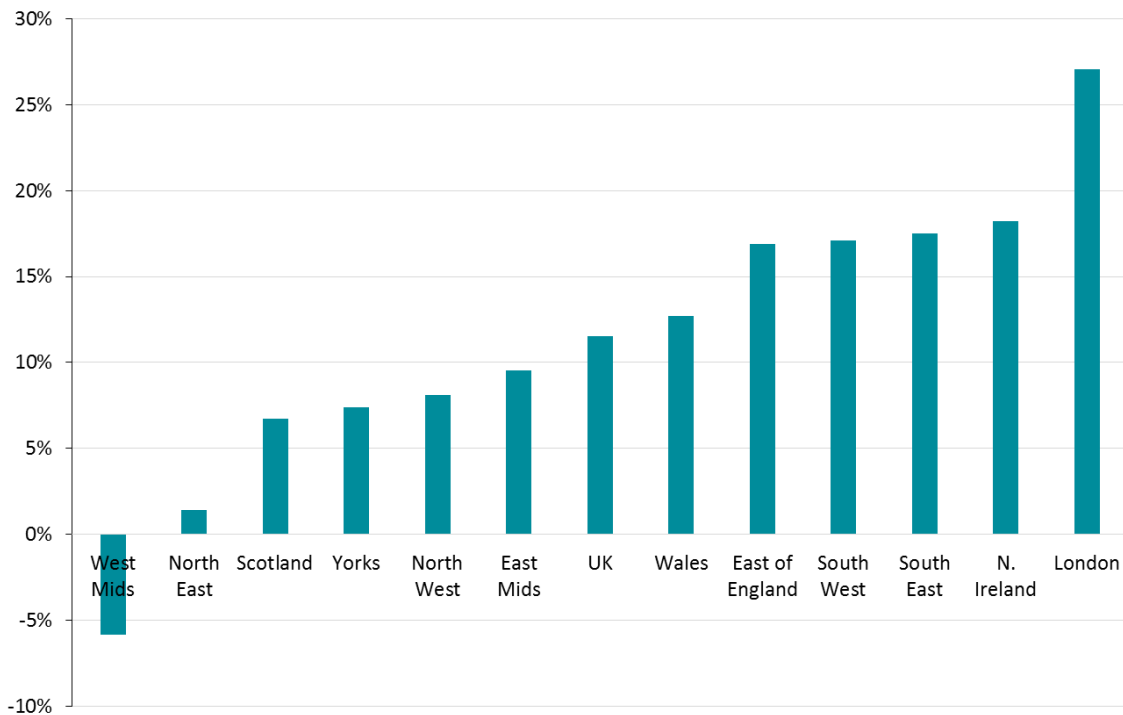
However, it is important to bear the inherent limitation of this exercise in mind – we are only inferring based on the sector mix of the regional economies, rather than exports *per se*.

Figure 6 EU-associated jobs by region, as share of workforce



Source: ONS National Accounts, Nomis Labour Market Statistics, Cebr analysis

Figure 7 EU-associated jobs by region, percentage change over 1997-2011



Source: ONS National Accounts, Nomis Labour Market Statistics, Cebr analysis

Table 2 EU-associated jobs in each industry by region, at beginning and end of time series⁸

Sector	Year	A	B,D,E	C	F	G	H	I	J	K	L	M	N	O	P	Q	R,S,T	TOT
Region		Agriculture, Forestry & Fishing	Mining, Quarrying & Utilities	Manufacturing	Construction	Motor Trades; wholesale; retail	Transport & Storage	Accommodation & Food Services	Information & Communication	Finance & Insurance	Property	Prof., Scientific & Technical	Business Admin and Support	Education	Health	Public Admin	Other	Total
North East	1997	1362	2662	94848	2923	6407	5649	8784	1511	3603	259	4323	6929	3035	3624	4701	3330	153949
	2011	2425	4105	73991	3191	7990	7628	9203	3547	6315	576	7906	11358	3658	4717	5721	3828	156156
North West	1997	4668	5990	260625	7533	20741	17741	27246	5092	15301	1203	14293	22641	6840	9931	12306	9079	441233
	2011	5079	8512	226314	8611	26381	22848	25240	10336	24737	1788	27818	42413	6986	12738	16420	10783	477005
Yorks	1997	4441	5413	202302	5648	15370	14663	21770	3376	12792	704	8647	15255	4917	7542	9000	6674	338513
	2011	6131	7063	174538	6741	20288	20054	17416	6587	20218	942	17266	30971	5531	10358	11510	7848	363464
East Mids	1997	5154	5147	199828	4790	12665	9521	15018	3040	6841	611	7985	13671	3734	6625	7257	5827	307713
	2011	6223	6821	177711	6021	18479	16402	13789	5548	10080	855	13836	32019	4136	8544	9265	7402	337131
West Mids	1997	4992	5058	270757	5987	16768	12536	18394	4626	12184	916	9970	18317	4371	8402	8517	6998	408796
	2011	7138	7546	193411	6831	20929	18729	17267	6865	17090	1186	18313	33863	4574	10936	11843	8454	384976
East of England	1997	6451	4304	167662	6986	17449	15552	20185	6920	14249	842	12639	17323	4371	8289	8222	8185	319631
	2011	7413	6399	160675	8801	25188	19481	18106	9399	17380	1491	24388	37090	4495	11381	11066	10863	373615
London	1997	519	4836	124303	7552	22168	32531	31483	20424	54121	2453	35998	41335	9268	10848	12905	15599	426345
	2011	137	7606	78500	9722	29497	36814	38100	37772	84929	3942	69908	83107	9129	16042	16753	19748	541707
South East	1997	7748	6922	210314	10371	26346	22185	32379	11639	23761	1518	23778	31881	8702	14042	13933	13179	458698
	2011	7824	11832	189904	11732	35276	27611	34893	24294	29372	2451	45317	56913	7704	18301	18529	17036	538988
South West	1997	9271	6123	163421	5827	15565	11013	23010	4402	13601	1000	10169	15014	6385	8289	9134	7692	309914
	2011	11531	7667	155831	7421	21105	15148	24491	9044	18712	1352	22644	29379	6209	10825	12108	9396	362861
Wales	1997	5608	3195	102035	2979	7442	4602	11023	1511	4574	268	4015	5882	3127	4122	5559	3854	169795
	2011	7046	4709	95703	3701	10414	7807	10282	2635	7010	558	6744	13160	3388	6097	7070	5009	191332
Scotland	1997	7261	10560	161771	6081	14782	14790	23699	3898	14168	667	10191	15363	6476	7780	10349	7368	315203
	2011	9243	15816	126101	6981	18781	16652	21074	6511	21203	1082	22935	32312	6089	9200	13158	9188	336326
Northern Ireland	1997	6062	1597	53609	1895	4271	3174	4891	746	2631	111	1522	2471	2631	2990	3566	2112	94280
	2011	5994	2052	53614	2330	7098	4333	5366	1824	4693	288	3982	7502	2442	3293	4261	2409	111480
UK	1997	63538	61808	2011475	68573	179976	163957	237881	67185	177826	10553	143530	206082	63856	92483	105450	89897	3744069
	2011	76184	90127	1706294	82083	241426	213508	235227	124360	261738	16510	281058	410085	64340	122432	137704	111964	4175042

⁸ Please note that any discrepancies between row sums and "Total" figures are due to rounding of the sector figures.

3 Conclusion

The EU's demand for British goods and services from the UK has steadily increased since 1997. As a *share*, EU demand has decreased as growth in demand from emerging markets has outpaced it. But in terms of the absolute volume of goods, the numbers have steadily increased and the EU remains the UK's single biggest trading partner by a wide margin.

We find that this steady increase in goods and services traded with the EU is associated with an increase in the number of British jobs supported. These have climbed to 4,175,000. We see particularly large increases in certain parts of the economy – sector M (professional, scientific and technical services) and sector N (business administration and support services) have almost doubled the number of jobs supported by EU demand, with the strengthening of the EU Single Market in Services undoubtedly contributing to that, alongside the UK's great strengths in these sectors. Another successful sector, with an 85% increase on 1997 levels, is sector I (information and communication), meaning the UK is growing rapidly in the European digital economy.

Since 1997, the different regions of the UK have fared differently – from London's growth of 27% to West Midlands' fall of 6%. West Midlands was the only sector to see its number of EU-associated jobs fall, with the other eleven sectors gaining in this respect and the UK average standing at 12%. The West and East Midlands are both very dependent on EU exports, with almost one in six jobs in both associated with demand from the EU. However, the regional split is necessarily crude due to data constraints.

Trade with the EU continues to deliver growing benefits to the UK. This paper does not seek to analyse the drivers of the trends we describe. However, two important contributing trends are that the EU has widened over the time period examined through adding new members; it has also deepened by strengthening the integration between the economies of all EU members, old and new. These processes have increased the number of trading partners and the ease with which the UK can trade with them.

4 References

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The Office for National Statistics Combined Use Matrix

<http://www.statistics.gov.uk/hub/economy/national-accounts/supply-and-use-tables>

Nomis datasets

<https://www.nomisweb.co.uk/>