

Gross Expenditure on Research and Development Scotland 2017



A National Statistics publication for Scotland

BUSINESS AND ENERGY



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This annual publication presents information on research and development (R&D) undertaken by businesses, higher education, government and private non-profit sectors in Scotland in 2017, as well as revisions to published data for earlier years. The majority of data in this publication are sourced from surveys conducted by the Office of National Statistics (ONS). Further information about Scottish R&D activity and the full set of tables can be found at:

<https://www2.gov.scot/Topics/Statistics/Browse/Business/RD>

The Gross Expenditure on R&D (GERD) publication is used by the Scottish Government to monitor performance and inform policies. External users of R&D statistics, published by the Scottish Government, include the Enterprise Networks and Local Authorities.

This publication provides information on the National Performance Framework (NPF) Indicator: Spend on Research and Development¹, which measures Scotland's GERD as a percentage of GDP.

¹ Information on the range of targets and indicators which comprise the National Performance Framework can be found on the website: <https://nationalperformance.gov.scot/>

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1. Gross Expenditure on Research and Development

Gross Expenditure on R&D (GERD) comprises R&D undertaken by the Business Enterprise (BERD), Higher Education (HERD), Government (GovERD) and Private Non-Profit (PNP) sectors.

1.1 Key points

- Scotland's GERD was £2,529 million in 2017, 7.3% of the UK total. For Scotland this represents an increase of 8.3% in real terms on 2016 (+£193 million) - UK GERD increased by 2.8%. In Scotland, GERD is at its highest level in the series (which goes back to 2001).
- Scotland's GERD in 2017 represented 1.63% of Gross Domestic Product (GDP), below that for the UK (1.69%), the EU (1.96%) and the OECD (2.37%). However, spending on R&D in Scotland increased between 2016 and 2017, from 1.53% of GDP in 2016 to 1.63% of GDP in 2017, an increase of 0.10 percentage points.
- Scotland's BERD spend is still relatively low compared with other countries: in 2017, Scotland's BERD spend as a share of GDP ranked eighth of the twelve countries/regions of the UK, and ranked in the third quartile of the OECD. However, Scotland has experienced relatively strong growth in BERD over recent years: Scotland's BERD spend was £1,247 million in 2017 - up 13.9% in real terms between 2016 and 2017, compared to a 2.9% real terms increase for the UK over the same period.
- Scotland's HERD spend was £1,072 million in 2017 – up 2.9% in real terms between 2016 and 2017, compared to a 3.7% increase for the UK. Scotland's HERD expenditure as a share of GDP ranked top of the twelve countries/regions of the UK, and ranked seventh highest (top quartile) in the OECD in 2017.

2. Scottish Economy – Gross Domestic Product (GDP) trends

Scottish GDP in constant basic prices grew each year from 1998 to 2008. From Q2 2008, Scotland entered recession with output falling for four consecutive quarters and whilst there was a modest recovery in Q3 2009, output fell again in the last quarter of that year. Further short periods of economic contraction occurred in 2010, 2011 and 2012. However, since 2013 there has been year-on-year growth. The most recent data for 2016 and 2017, show that between the four quarters ending in Q4 2016 and the four quarters ending in Q4 2017, Scottish GDP grew by 1.5%².

² More information on Scottish Quarterly GDP can be found at: <http://www.gov.scot/Topics/Statistics/Browse/Economy/PubGDP>

3. Scottish Government’s National Indicator on R&D

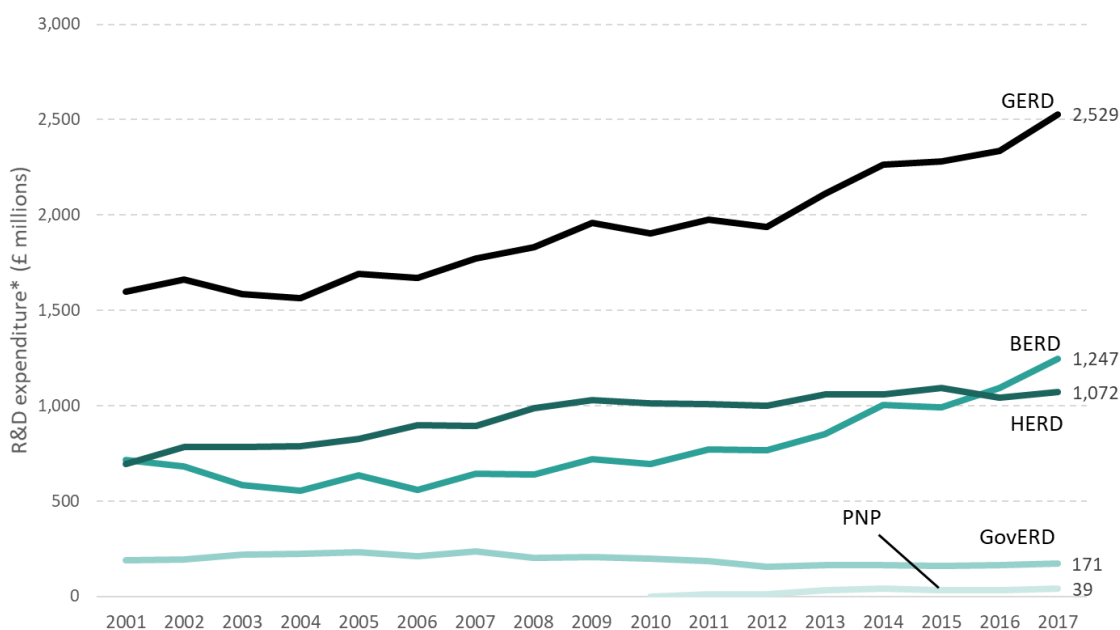
The Scottish Government’s National Performance Framework assesses Scotland’s progress against 11 National Outcomes. To do this, 81 ‘national indicators’ are used to track progress.

‘Spend on Research and Development’ is one of the ‘national indicators’ under the ‘Economy’ National Outcome. This indicator measures Gross Expenditure on Research and Development (GERD) as a percentage of GDP. In 2017, total research and development spending (GERD) as a share of GDP was 1.63% for Scotland. Spending on R&D in Scotland increased between 2016 and 2017, from 1.53% of GDP in 2016 to 1.63% of GDP in 2017, an increase of 0.10 percentage points³.

4. Expenditure and components of GERD

In 2017, Scotland’s GERD was £2,529 million, 7.3% of the total UK GERD (Table 3A). Between 2016 and 2017, Scotland’s GERD increased by 8.3% in real terms, up £193 million, from £2,336 million in 2016 (Figure 1). In comparison, UK GERD increased by 2.8% in real terms over the same period. Over the longer term, GERD increased by 42.7% between 2007 and 2017 (Table 1), whereas across the UK, GERD increased by 19.9%.

Figure 1. All the components of Scotland’s R&D expenditure increased between 2016 and 2017, with both GERD and BERD reaching their highest level in the time series.



*2017 prices

Source: ONS and the Scottish Government

³ Please note that these figures are back revised every year, as GDP series are back revised, and these figures are therefore not comparable with those previously published.

4.1 Business Enterprise Research and Development (BERD)

In 2017, Business Enterprise Research and Development expenditure was £1,247 million in Scotland, 5.3% of the total UK BERD spend (Table 3B). Between 2016 and 2017, Scotland's BERD spend increased by 13.9% (£152 million) in real terms, from £1,095 million in 2016 (Table 1). Over the same time period, UK BERD expenditure increased by 2.8% in real terms. In 2016, BERD spend exceeded Higher Education Research and Development (HERD) spend in Scotland for the first time since 2001; in 2017, BERD continued to be the largest component of GERD (Figure 1).

Over the longer term, Scotland's BERD spend increased 93.3% between 2007 and 2017, whereas UK BERD spend increased by 27.2% in real terms. At 0.80%, Scotland's BERD spend as a percentage of GDP was below that of the UK (1.15%) in 2017, but higher than it was in 2016 (0.72%).

4.2 Higher Education Research and Development (HERD)

In Scotland, HERD spend was £1,072 million in 2017, 2.9% higher (£31 million) in real terms than it was in 2016 (Table 1). HERD spend therefore returned to growth in 2017 after experiencing a slight drop between 2015 and 2016 (Figure 1). Scottish HERD spend represented 13.1% of the total UK HERD expenditure (Table 3C), which increased by 3.7% between 2016 and 2017.

Over the longer term, HERD spend in Scotland increased by 20.2% between 2007 and 2017, compared to a 17.4% real terms increase during this period in the UK. As a share of GDP, Scotland's HERD spend (0.69%) was higher than that of the UK (0.40%) in 2017.

4.3 Government Expenditure on Research and Development (GovERD)

In 2017, GovERD in Scotland was £171 million, 3.6% (£6 million) higher in real terms than in 2016 (Table 1). It represented 7.8% of the total GovERD in the UK, which decreased by 0.8% in real terms between 2016 and 2017 (Table 3D). GovERD as a percentage of GDP was 0.11% for both Scotland and the UK in 2017. This was the only component of GERD that decreased over the longer term, falling by 27.3% in Scotland and 21.5% in the UK, between 2007 and 2017.⁴

4.4 Private Non-Profit (PNP) Research and Development

In Scotland, PNP R&D spend was £39 million in 2017, 5.2% of the UK total and 0.03% of GDP (Table 3E). Between 2016 and 2017, Scotland's PNP R&D spend increased by 16.0% (£5 million; Table 1), compared to 2.4% in the UK.

⁴ Further details on Government expenditure on Research and Development can be found in the [ONS publication SET Statistics – Science, engineering and technology indicators](#). This publication contains historic expenditure on research and development by the Scottish Government from the annual ONS Government Research and Development Survey.

5. Comparisons with UK countries/regions

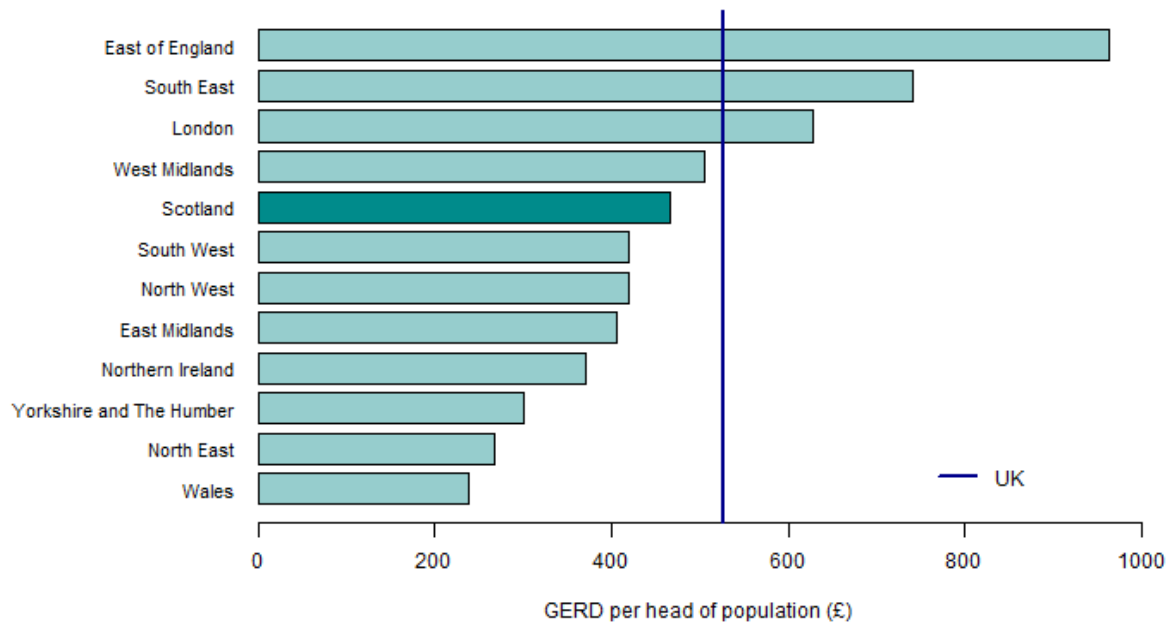
GERD represented 1.63% of GDP in Scotland, whereas it was over twice as high in the East of England (3.39%). Scotland came fourth among the 12 regions/countries of the UK for GERD as a percentage of GDP, behind the East of England, South East and West Midlands; this was an improvement on 2016, when Scotland ranked sixth. London had the second lowest GERD as a percentage of GDP (1.12%).

Figure 2. In 2017, GERD as a percentage of GDP was highest in the East of England followed by the South East.



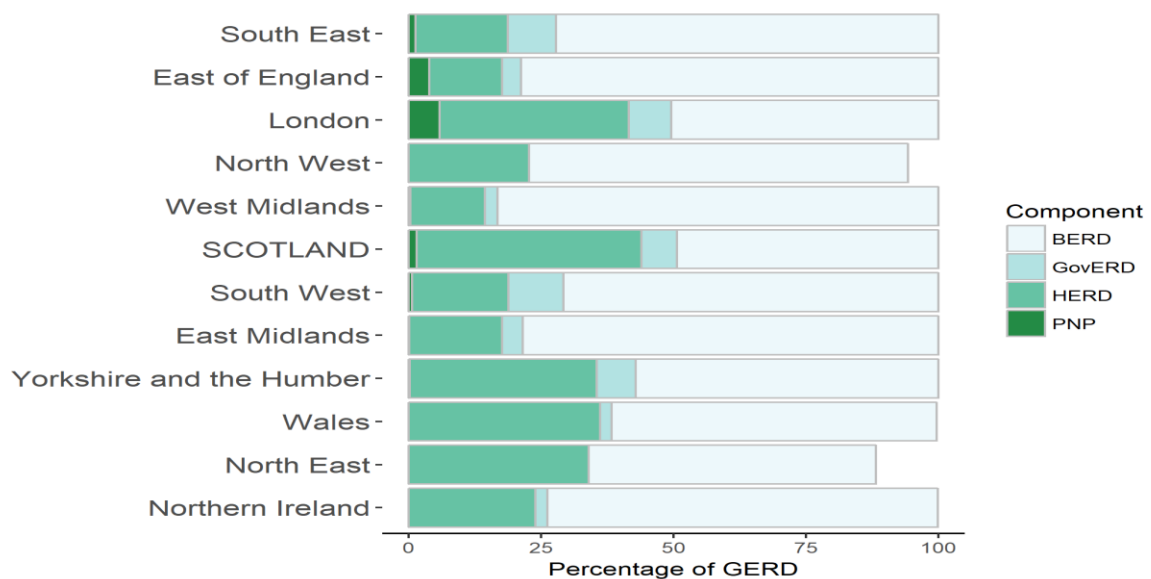
In 2017, GERD per head of population in Scotland was £466, lower than the average across the UK, which was £527 (Table 2). The East of England had the highest GERD per head, £963, which was more than double that for Scotland, and Wales had the lowest, £238. In terms of spend per head, Scotland climbed from seventh place among the UK regions in 2016 to fifth place in 2017.

Figure 3. In 2017, GERD per head of population was highest in the East of England and lowest in Wales. Scotland had the fifth highest GERD per head.



The composition of GERD varies considerably between the UK regions (Figure 4). In Scotland BERD spend made up 49.3% of total GERD, which was low compared to some of the other regions, like the West Midlands, where BERD spend made up 83.2% of GERD. On the other hand, HERD spend made up a larger proportion of total GERD (42.4%) in Scotland than in most other regions, such as in the East of England, where HERD spend only comprised 13.8% of GERD.

Figure 4. In Scotland and London, BERD spend made up a relatively small proportion of GERD compared to other regions, and HERD spend made up a larger proportion.



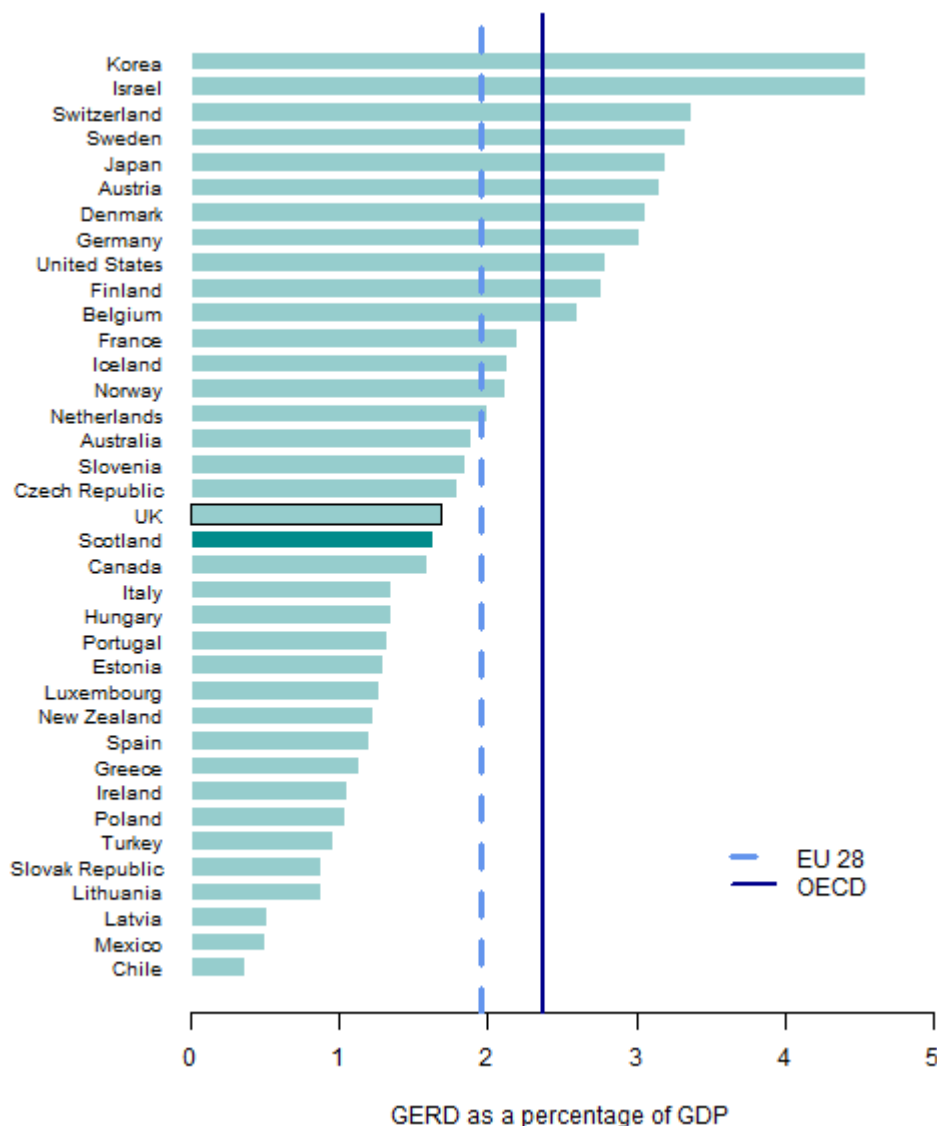
Note: Figures for PNP and GovERD have not been revealed for North East and North West due to confidentiality issues, therefore in these regions the figures do not add up to 100%.

In terms of BERD spend as a percentage of GDP, Scotland ranked eighth amongst the 12 countries/regions of the UK (Table 3B), whereas Scotland ranked top for HERD spend as a percentage of GDP (Table 3C).

6. EU and OECD comparisons

At 1.63%, Scotland’s GERD as a percentage of GDP was below that of the EU (1.96%) and the OECD (2.37%) in 2017. As a result Scotland’s GERD as a percentage of GDP ranked in the third quartile of the OECD countries in 2017, as it did in 2016 (Table 4A & Figure 5). Despite no change in the quartile position, the gap between GERD as a percentage of GDP in Scotland and the OECD average decreased by 0.07 percentage points, from 0.81 percentage points in 2016 to 0.74 in 2017.

Figure 5. Scotland’s GERD as a percentage of GDP was below that of the UK, EU and OECD averages in 2017.

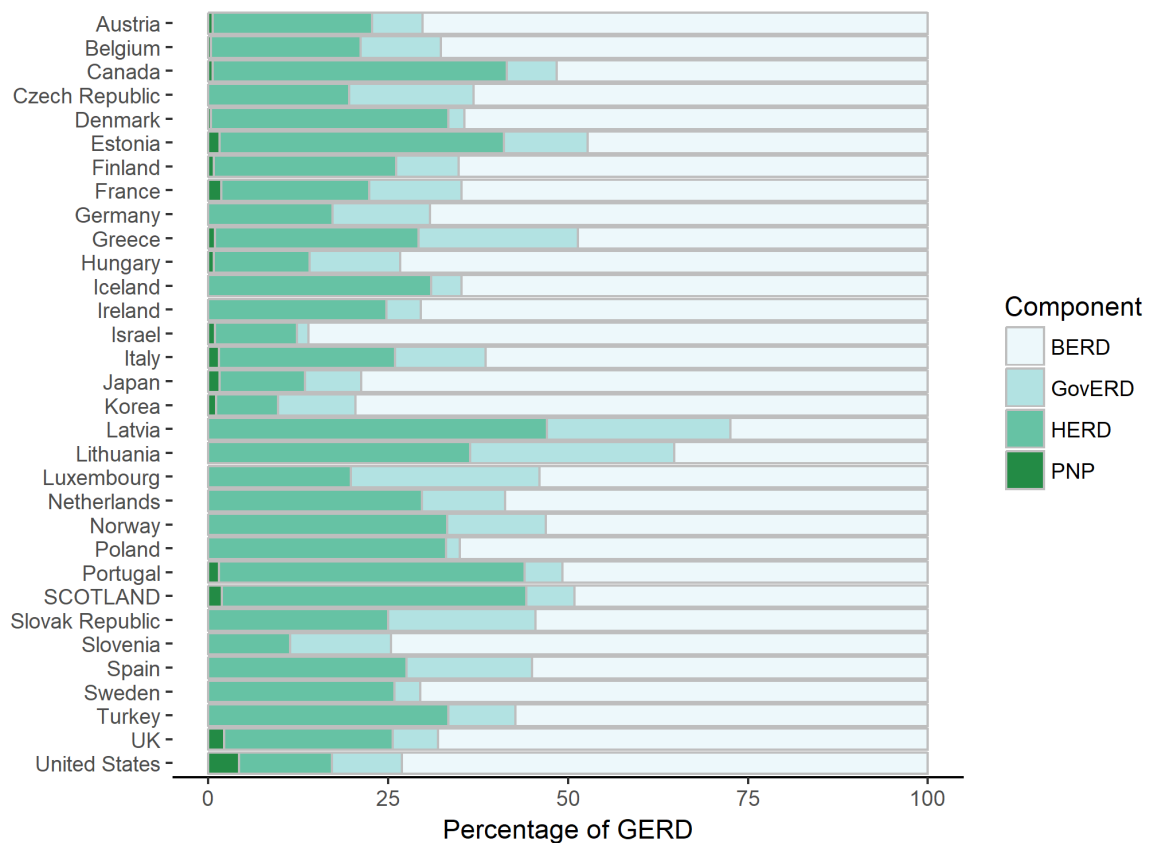


Source: MSTI, ONS and the Scottish Government

Note: Australia, New Zealand and Switzerland did not report in 2016 and 2017 so 2015 data is used. Chile and Mexico did not report in 2017, so 2016 data is used.

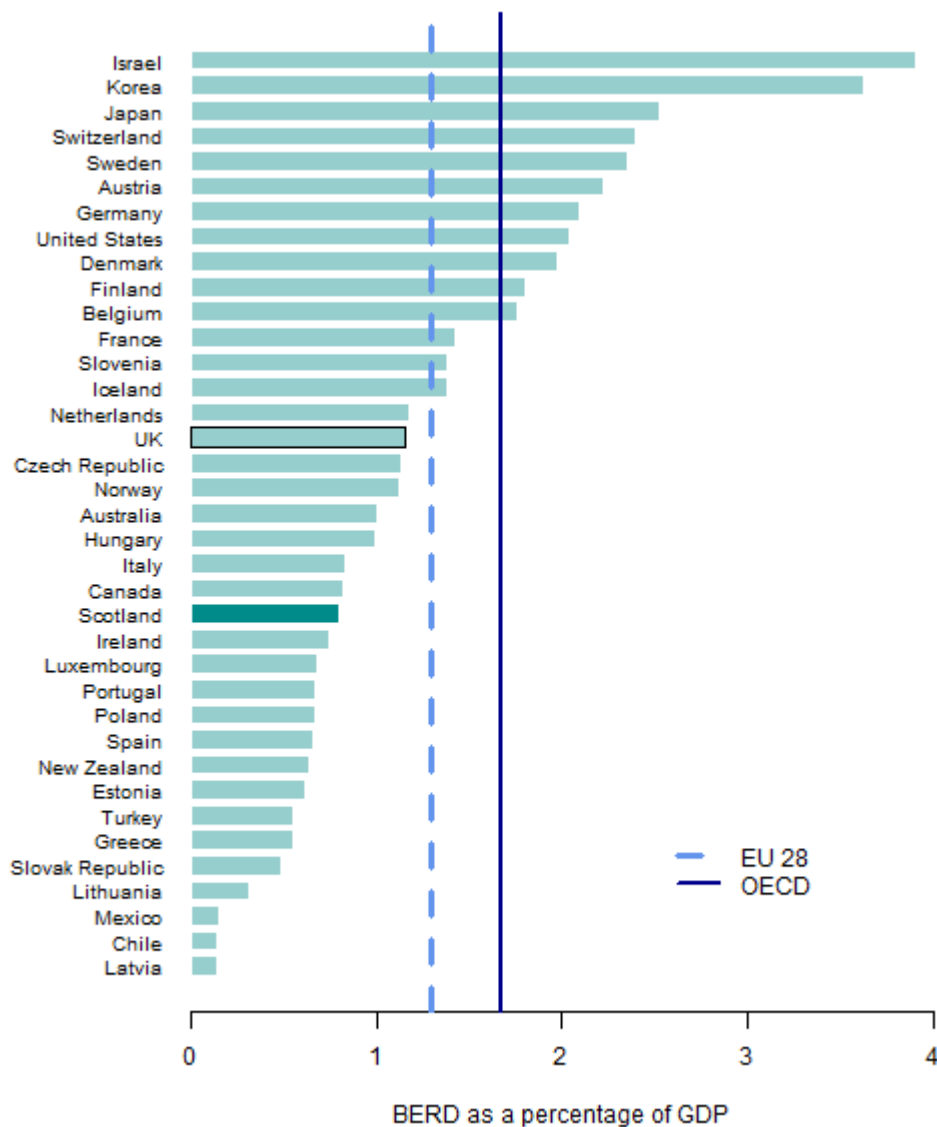
Among the OECD countries the composition of GERD varies considerably: in Scotland HERD spend comprised a larger proportion of GERD than in most other OECD countries. Both BERD spend and GovERD made up a smaller proportion of GERD in Scotland than in many other OECD countries (Figure 6).

Figure 6. Compared to most other OECD countries, Scotland’s HERD spend made up a relatively large proportion of total GERD, and Scotland’s BERD spend and GovERD made up a relatively small proportion.



At 0.80%, Scotland's BERD spend as a percentage of GDP ranked in the third quartile of the OECD countries in 2017, well below the EU (1.29%) and OECD (1.67%) averages, whereas the UK ranked in the second quartile (Table 4B & Figure 7). Although there was no change in the quartile positions between 2016 and 2017, the gap between BERD as a percentage of GDP in Scotland and the OECD decreased by 0.05 percentage points, from 0.92 percentage points in 2016 to 0.87 percentage points in 2017.

Figure 7. Scotland's BERD spend as a percentage of GDP was well below that of the UK, EU and OECD averages in 2017.

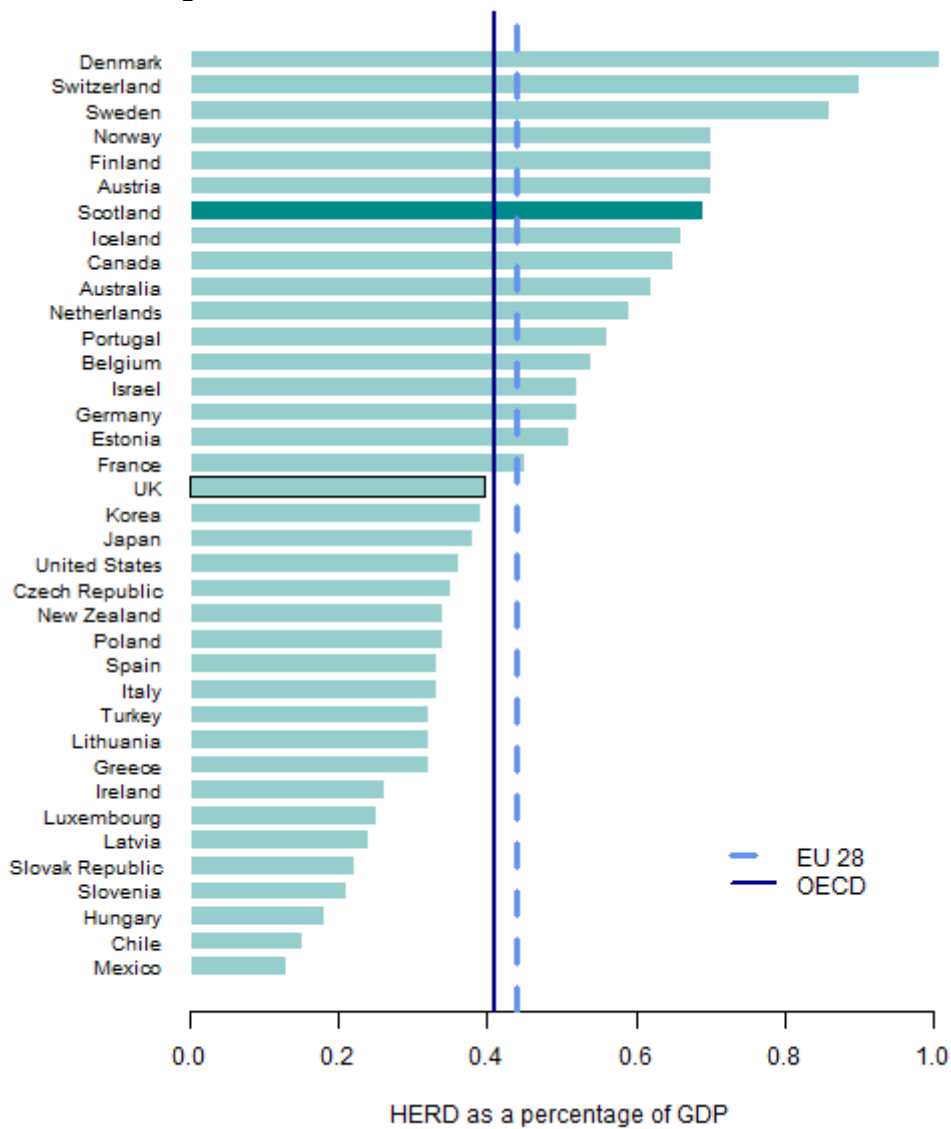


Source: MSTI, ONS and the Scottish Government

Note: Australia, New Zealand and Switzerland did not report in 2016 and 2017 so 2015 data is used. Chile and Mexico did not report in 2017, so 2016 data is used.

In 2017, Scotland ranked seventh among the OECD countries for HERD spend as a percentage of GDP, putting it in the first quartile, whereas the UK ranked in the second quartile. In 2017, HERD spend as a percentage of GDP in Scotland was 0.69% compared to 0.41% in the OECD (Table 4C & Figure 8). Between 2016 and 2017, the gap between the OECD and Scotland increased: with Scotland exceeding the OECD average by 0.28 percentage points in 2017, compared to 0.27 percentage points in 2016.

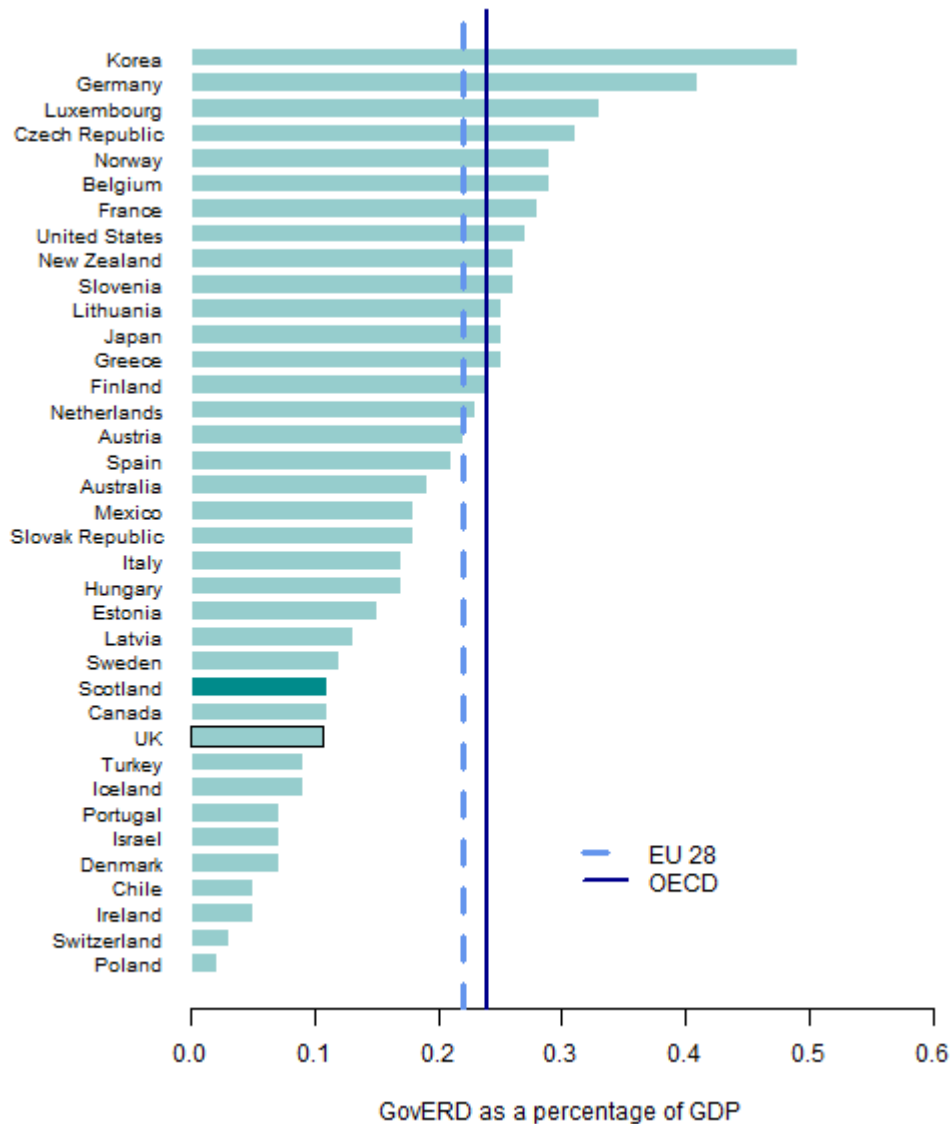
Figure 8. Scotland ranked seventh among the OECD countries for HERD spend as a percentage of GDP in 2017, well above the UK, EU and OECD averages.



Source: MSTI, ONS and the Scottish Government
 Note: New Zealand and Switzerland did not report in 2016 and 2017 so 2015 data is used. Australia, Chile and Mexico did not report in 2017, so 2016 data is used.

In 2017, Scotland ranked in the third quartile for GovERD as percentage of GDP (0.11%), at half the level of the EU (0.22%) and OECD (0.24%). GovERD as a percentage of GDP remained constant in Scotland between 2016 and 2017, but decreased by 0.05 percentage points over the longer term from 2001 to 2017.

Figure 9. Scotland and the UK in the third quartile for GovERD as a percentage of GDP in 2017, well below the EU and OECD averages.



7. Technical Notes

7.1 Sampling and regional Estimates

1. This release presents estimates of Gross Expenditure on Research and Development (GERD) in Scotland in 2017. The majority of the data presented in this release come from Research and Development (R&D) surveys conducted by the Office for National Statistics (ONS). This latest release includes the estimates for R&D expenditure in 2017 carried out by the following sectors of the economy in Scotland:

- Business Enterprise
- Higher Education
- Government, which includes Research Councils
- Private Non-Profit

More detailed information on Scottish Business Enterprise R&D (BERD) specifically is available at:

<https://www2.gov.scot/Topics/Statistics/Browse/Business/RD/BERDreport17>

The ONS GERD Statistical Bulletin is available at:

<https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/researchanddevelopmentexpenditure/bulletins/ukgrossdomesticexpenditureonresearchanddevelopment/2017>

2. GERD is the measure most commonly used for international comparisons. It covers all R&D performed in the country concerned, irrespective of who pays for it, including funding from abroad. However, it excludes R&D performed abroad even if it is funded from the UK. The components of GERD relate to R&D performed in four sectors of the economy:
3. **Business (BERD)** – The UK BERD survey sample size is approximately 5,500 businesses (4,000 in GB and 1,500 in NI) - the response rate is normally around 92%. For Great Britain, a stratified random sample is used where the strata are defined as: businesses that have previously reported R&D expenditure above a threshold (greater than £5.7 million for the 2017 survey (referred to as “large R&D performers”). The remaining businesses identified as (or potential) R&D performers (referred to as “smaller R&D performers”) are allocated into strata using their employment and industry product group.
4. In 2017, the large R&D performers accounted for approximately 78% of total expenditure. Each of these large R&D performers is asked to name all the sites at which the business performed R&D and to estimate the R&D spend at that site, this expenditure is then allocated to the appropriate region. Regional data for the smaller R&D performers are estimated from sample returns.

5. **Government (GovERD)** – an annual census of the government sector collects R&D expenditure by region. The methodology for producing regional estimates of expenditure on R&D for the government (including research councils) sector was reviewed by the ONS (2015 figures onwards). Estimates previously used departments' full-time equivalent (FTE) R&D employees by region as a proxy to calculate regional expenditure. Departments now provide actual breakdowns of their R&D expenditure by region.
6. **Higher Education Research and Development (HERD)** – estimated by the Higher Education Funding Councils (HEFC) for England, Scotland, Wales and the Department for Education in Northern Ireland.
7. **Private Non-Profit (PNP)** – data are collected in a biennial survey which was introduced in 2011 with approximately 200 organisations being selected. The estimates from this survey were used in the compilation of the 2011 UK GERD publication, the first time since 2003 reference year. Previously, UK estimates had been based on a number of different sources. Each organisation is asked to provide the workplace postcodes for all the sites at which the organisation performed R&D, and to allocate the total expenditure figures of the organisation performed R&D, and to allocate the total expenditure figures of the organisation to the sites on a percentage basis. As this survey is a census, any non-responder's expenditure estimates are allocated regionally using the county region codes from the business register.
8. The PNP survey is run biennially, so this survey was last run in 2018 to collect 2017 data. The next survey will run in 2020 to collect 2019 data from an updated list of R&D performers in this sector. Results for the PNP sector as a performer in 2012, 2014 and 2016 have therefore been estimated. Estimates of the PNP sector for Scotland are available from 2011 onwards.
9. ONS have produced, as part of the UK GERD release, a summary quality report for the GERD output. This is available at:
<https://www.ons.gov.uk/businessindustryandtrade/business/businessinnovation/qmis/ukgrossdomesticexpenditureonresearchanddevelopmentqmi>
10. The quality report describes, in detail, the intended uses of the statistics presented in this publication, their quality and the methods used to produce them.
11. As part of the BERD 2011 ONS release, there were two information notes available, aimed at assisting users with their understanding of R&D and related concepts. The first, Coverage of the Business Enterprise Research and Development Survey, reports on the completeness of these estimates. The second, Coherence of UK Research &

Development Statistics, draws attention to the coherence of BERD R&D estimates with other UK and international measures of R&D. These notes are available at:

<http://www.ons.gov.uk/ons/guide-method/method-quality/specific/business-and-energy/research---development-surveys/information-note--coverage-of-the-business-enterprise-r-d-survey.pdf>

<http://www.ons.gov.uk/ons/guide-method/method-quality/specific/business-and-energy/research---development-surveys/information-note--coherence-of-uk-r-d-statistics.pdf>

12. A summary quality report for the ONS BERD survey is available at: <https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/researchanddevelopmentexpenditure/methodologies/ukbusinessenterpriseresearchanddevelopmentsurveyqmi>

7.2 Discontinuities in the data

13. Between the release of the 2007 and 2008 GovERD figures, a large R&D employer in Scotland was reclassified from the government sector to the higher education sector. This reclassification resulted in a considerable decrease in GovERD expenditure between 2007 and 2008.
14. The BERD, GovERD and PNP questionnaires were redesigned by ONS after the 2010 survey to better reflect user needs, including new National Accounts and European Union requirements. These followed large revisions to both the BERD and GovERD surveys for the 2007 data collections. The 2007 changes were made to address concerns about data quality and difficulty in completion. A new methodology was introduced by ONS for compiling the R&D expenditure for the PNP sector as a performer in 2011 (see background note 2). While all of these changes are viewed as being an improvement, they may have an impact on the comparability of the data over time. It is not possible to measure this impact.

7.3 Definition of R&D

15. The ONS R&D surveys follow the definition of research and development proposed by the Organisation for Economic Cooperation and Development (OECD) and published in the 'Frascati' Manual. According to the manual, R&D is defined as:
16. "creative and systematic work undertaken in order to increase the stock of knowledge - including knowledge of humankind, culture and society -

and to devise new applications of available knowledge”. R&D must contain an appreciable amount of novelty.

17. The Frascati Manual was originally written by, and for, the experts in OECD member countries that collect and issue national data on R&D. The definitions provided in this manual are internationally accepted and now serve as a common language for designing, collecting and using R&D data.
18. Please note an updated Frascati Manual (2016) (<http://www.oecd.org/publications/frascati-manual-2016-9789264239012-en.htm>) was introduced in October 2016 which improved the definitions and explanations of R&D.

7.4 Real Terms

19. The cash values are converted to real terms using Treasury GDP deflators at market prices; 2017=100. The deflators are available at: <https://www.gov.uk/government/statistics/gdp-deflators-at-market-prices-and-money-gdp-october-2018-budget-2018>

7.5 Time period which the results relate to

20. Respondents to the ONS BERD and PNP surveys were asked to make a return for the calendar year or the nearest 12 month period for which figures were available. The GovERD figures relate to the financial year and the HERD figures relate to the academic year.

7.6 Revisions

21. The methodology for producing regional estimates of expenditure on R&D for the government sector was reviewed by the Office for National Statistics (ONS) (2015 figures onwards). Estimates previously used government departments' full-time equivalent (FTE) R&D employees by region as a proxy to calculate regional expenditure. Departments now provide actual breakdowns of their R&D expenditure by region. To allow comparison of the government data, values using both methods were published by the ONS for the 2015 year only. For this Scottish Government publication we back-revised the government sector data for Scotland to bring the series into line with the revised methodology. Note that although this methodological change is significant for the regional government sector figures in themselves, the overall impact on regional Gross Expenditure on R&D (GERD) is relatively small given the relatively

small size of government sector R&D spend compared to that of the higher education and business sectors.

Year	Scotland GovERD (£ - current prices)		
	Old Method	New Method	New Estimates - using 2015 new method figure revised back according to old method trend
2001	226		136
2002	237		143
2003	277		167
2004	286		172
2005	307		185
2006	288		174
2007	329		198
2008	291		176
2009	302		182
2010	292		176
2011	280		169
2012	237		143
2013	258		156
2014	255		154
2015	257	155	155

22. Following further quality assurance of the flow of funding within the higher education sector ONS decided to remove the element relating to funding between higher education establishments; the earliest point of revision is 1992 for the UK series and 2001 for the UK region/country (including Scotland) series.

23. Business and higher education estimates of R&D for 2015 and 2016 have been revised to take account of late returns and misreporting.

24. Note that all series expressed as real terms and expressed as a proportion of GDP are revised back to 2001 due to underlying revisions to deflators and GDP respectively.

7.7 Code of Practice for Official Statistics

25. This is a National Statistics publication. It has been produced to the high professional standards set out in the Code of Practice for Official Statistics.

26. In 2012, the Research and Development statistical publications were assessed by the United Kingdom Statistics Authority (UKSA) for compliance against the Code of Practice for Official Statistics. Details of

the assessment are available at: [Statistics on Scottish Businesses and Research and Development \(Scottish Government\)](#).

27. The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Designation can be broadly interpreted to mean that the statistics:

- Meet identified user needs;
- Are well explained and readily accessible;
- Are produced according to sound methods, and
- Are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

28. In 2012 a UKSA assessment was also carried out for the ONS Research and Development statistical publications. Details of the assessment are available at: [Statistics on Research and Development \(Office for National Statistics\)](#).

7.8 Uses

29. Information from the Scottish GERD publication is used by the Scottish Government to monitor performance and inform economic policy. Some of the external users of R&D statistics published by the Scottish Government include the Enterprise Networks and Local Authorities. More information on uses can be found in the on-line [Research and Development Data Sources, Suitability and Uses Note](#).

7.9 User Engagement

30. If you would like to be kept informed about on-going developments with regards to the Scottish R&D publications and future releases of R&D data, please register to receive updates via ScotStat (under Economy topic pick R&D and Innovation).

31. There is also the ScotStat Scottish Economic Statistics Consultation Group (SESCG) – more information on the group is available at:

<http://www.gov.scot/Topics/Statistics/Browse/Economy/ScotStat/comms>

If you would like to provide feedback on the Scottish GERD publication please contact us at:

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32. There is also an ONS-led user community that may be of interest to R&D users. Details of this are available at the Business and Trade Statistics community on <http://www.statsusernet.org.uk>.

8. Tables

8.1 Table 1

Expenditure on R&D performed within Scotland:
Current prices, real terms & as a percentage of GDP, 2001 to 2017

£ millions																	
Current Prices	2001 ^r	2002 ^r	2003 ^r	2004 ^r	2005 ^r	2006 ^r	2007 ^r	2008 ^r	2009 ^r	2010 ^r	2011 ^r	2012 ^r	2013 ^r	2014 ^r	2015 ^r	2016 ^r	2017
BERD	517	507	441	430	506	460	543	554	631	619	697	709	801	957	953	1,075	1,247
HERD	503	582	592	614	659	739	751	854	904	905	912	925	996	1,008	1,050	1,022	1,072
GovERD ¹	136	143	167	172	185	174	198	176	182	176	169	143	156	154	155	162	171
PNP ⁴	-	-	-	-	-	-	-	-	-	-	11	11	32	37	32	33	39
GERD ⁵	1,156	1,232	1,200	1,216	1,350	1,373	1,492	1,584	1,717	1,700	1,789	1,788	1,985	2,156	2,190	2,292	2,529
£ millions																	
Real Terms (2017 prices ²)	2001 ^r	2002 ^r	2003 ^r	2004 ^r	2005 ^r	2006 ^r	2007 ^r	2008 ^r	2009 ^r	2010 ^r	2011 ^r	2012 ^r	2013 ^r	2014 ^r	2015 ^r	2016 ^r	2017
BERD	714	683	582	553	634	560	645	641	719	693	770	768	852	1,005	993	1,095	1,247
HERD	695	785	782	790	826	899	892	987	1,031	1,013	1,007	1,002	1,059	1,058	1,094	1,041	1,072
GovERD ¹	188	193	221	221	232	212	235	203	207	197	187	155	166	162	161	165	171
PNP ⁴	-	-	-	-	-	-	-	-	-	-	12	12	34	39	33	34	39
GERD ⁵	1,597	1,661	1,585	1,564	1,692	1,671	1,772	1,831	1,957	1,903	1,976	1,936	2,111	2,264	2,281	2,336	2,529
Percentage of GDP ³																	
As a percentage of GDP	2001 ^r	2002 ^r	2003 ^r	2004 ^r	2005 ^r	2006 ^r	2007 ^r	2008 ^r	2009 ^r	2010 ^r	2011 ^r	2012 ^r	2013 ^r	2014 ^r	2015 ^r	2016 ^r	2017
BERD	0.60	0.56	0.46	0.43	0.47	0.40	0.46	0.45	0.51	0.50	0.54	0.54	0.58	0.66	0.65	0.72	0.80
HERD	0.58	0.65	0.62	0.61	0.61	0.65	0.63	0.69	0.73	0.73	0.71	0.70	0.72	0.69	0.71	0.68	0.69
GovERD ¹	0.16	0.16	0.18	0.17	0.17	0.15	0.17	0.14	0.15	0.14	0.13	0.11	0.11	0.11	0.11	0.11	0.11
PNP ⁴	-	-	-	-	-	-	-	-	-	-	0.01	0.01	0.02	0.03	0.02	0.02	0.03
GERD ⁵	1.34	1.37	1.26	1.20	1.25	1.20	1.25	1.28	1.39	1.37	1.39	1.35	1.43	1.48	1.49	1.53	1.63

Source: ONS and Scottish Government

Notes:

- See note 21 of the publication for details on the estimation process for the government sector.
- HM Treasury GDP deflators are used to convert the data to 2017 prices.
- Market price GDP for Scotland sourced from Quarterly National Accounts Scotland.
- The PNP sector is currently only available from 2011 onwards.
- The 2011 onwards GERD as a percentage of GDP includes the PNP sector.
- Following quality assurance of the flow of funding within the higher education sector element relating to funding between higher education establishments has been removed. Figures have been revised back to 2001.
- Totals may not sum due to rounding.
- r denotes revised figures

8.2 Table 2

Gross Expenditure on R&D by Government Office Region:
Per head of population, 2017

	GERD (£millions)	GERD per head of population £	GERD as a percentage of GDP ¹	Percentage of UK GERD
East of England	5,938	963	3.39	17.1%
South East	6,730	741	2.20	19.3%
London	5,548	629	1.12	15.9%
West Midlands	2,965	506	1.95	8.5%
Scotland	2,529	466	1.63	7.3%
South West	2,334	420	1.56	6.7%
North West	3,040	419	1.53	8.7%
East Midlands	1,938	406	1.62	5.6%
Northern Ireland	695	371	1.53	2.0%
Yorkshire and The Humber	1,641	301	1.23	4.7%
North East	707	267	1.16	2.0%
Wales	744	238	1.05	2.1%
United Kingdom	34,808	527	1.69	100.0%

Source: ONS and Scottish Government

Notes:

1. Market price GDP for Scotland sourced from Quarterly National Accounts Scotland. Market price GDP for other UK regions estimated based on the UK GVA (Balanced) to GDP ratio.
2. Ranked by GERD per head of population.

8.3 Table 3A

Gross expenditure on R&D by Government Office Region:
Current prices & as a percentage of GDP, 2001 to 2017

	Gross Expenditure on R&D (£ million)															% of total 2017		
	2001 ^r	2002 ^r	2003 ^r	2004 ^r	2005 ^r	2006 ^r	2007 ^r	2008 ^r	2009 ^r	2010 ^r	2011 ^r	2012 ^r	2013 ^r	2014 ^r	2015 ^r		2016 ^r	2017
South East															6,536	6,648	6,730	19.3%
East of England															5,402	5,721	5,938	17.1%
London															4,510	4,955	5,548	15.9%
North West															2,881	3,171	3,040	8.7%
West Midlands															2,625	2,809	2,965	8.5%
Scotland	1,156	1,232	1,200	1,216	1,350	1,373	1,492	1,584	1,717	1,700	1,789	1,788	1,985	2,156	2,190	2,292	2,529	7.3%
South West															2,087	2,158	2,334	6.7%
East Midlands															1,932	2,082	1,938	5.6%
Yorkshire and the Humber															1,406	1,401	1,641	4.7%
Wales															656	711	744	2.1%
North East															624	623	707	2.0%
Northern Ireland															654	641	695	2.0%
UK	18,375	19,049	19,526	20,030	21,865	22,734	24,438	25,072	25,341	25,885	27,163	26,978	28,768	30,328	31,506	33,216	34,808	100.0%
	% of GDP																	
	2001 ^r	2002 ^r	2003 ^r	2004 ^r	2005 ^r	2006 ^r	2007 ^r	2008 ^r	2009 ^r	2010 ^r	2011 ^r	2012 ^r	2013 ^r	2014 ^r	2015 ^r	2016 ^r	2017	
South East															2.26	2.24	2.20	
East of England															3.33	3.41	3.39	
London															1.01	1.05	1.12	
North West															1.56	1.66	1.53	
West Midlands															1.87	1.91	1.95	
Scotland	1.34	1.37	1.26	1.20	1.25	1.20	1.25	1.28	1.39	1.37	1.39	1.35	1.43	1.48	1.49	1.53	1.63	
South West															1.48	1.48	1.56	
East Midlands															1.74	1.81	1.62	
Yorkshire and the Humber															1.11	1.07	1.23	
Wales															0.99	1.03	1.05	
North East															1.08	1.06	1.16	
Northern Ireland															1.58	1.47	1.53	
UK	1.61	1.59	1.54	1.51	1.55	1.53	1.57	1.60	1.64	1.61	1.65	1.58	1.61	1.63	1.65	1.67	1.69	

Source: ONS and Scottish Government

Notes:

1. Market price GDP for Scotland sourced from Quarterly National Accounts Scotland. Market price GDP for other UK regions estimated based on the UK GVA (Balanced) to GDP ratio.
2. r denotes revised figures
3. Ranked by GERD spend 2017.
4. Totals may not sum due to rounding.
5. Due to the change in methodology for the government sector, GERD figures for the regions for 2015 onwards are not comparable with earlier series. The revised methodology has been estimated back for Scotland only. See note 21 for more details.
6. GERD here includes the FNP sector - from 2001 for the UK and from 2011 for Scotland.
7. Following quality assurance of the flow of funding within the higher education sector element relating to funding between higher education establishments has been removed. Figures have been revised back to 2001.

8.4 Table 3B

Expenditure on R&D performed in Businesses by Government Office Region:
Current prices & as a percentage of GDP, 2001 to 2017

	Business R&D Expenditure (£ million)																	% of total 2017
	2001 ^r	2002 ^r	2003 ^r	2004 ^r	2005 ^r	2006 ^r	2007 ^r	2008 ^r	2009 ^r	2010 ^r	2011 ^r	2012 ^r	2013 ^r	2014 ^r	2015 ^r	2016 ^r	2017	
South East	3,212	3,156	3,266	3,125	3,125	3,347	3,515	3,466	3,758	3,798	4,579	4,133	4,288	4,609	4,765	4,730	4,860	20.5%
East of England	2,798	2,650	2,915	2,672	3,718	3,650	3,992	4,182	3,812	3,846	3,639	3,606	4,137	4,094	4,200	4,519	4,677	19.7%
London	700	865	669	759	552	882	1,067	1,109	907	877	1,118	1,570	1,291	1,724	1,878	2,348	2,796	11.8%
West Midlands	760	774	794	758	721	915	995	886	848	886	1,281	1,460	1,684	1,924	2,159	2,345	2,467	10.4%
North West	1,582	1,604	1,538	1,739	1,892	1,623	2,021	2,130	1,926	2,074	2,220	1,781	1,835	1,913	2,115	2,377	2,174	9.2%
South West	1,006	1,158	1,221	1,296	1,201	1,232	1,229	1,345	1,349	1,454	1,359	1,367	1,450	1,561	1,475	1,516	1,652	7.0%
East Midlands	909	974	862	936	1,006	985	1,062	976	992	1,137	1,146	1,218	1,340	1,473	1,528	1,676	1,521	6.4%
Scotland	517	507	441	430	506	460	543	554	631	619	697	709	801	957	953	1,075	1,247	5.3%
Yorkshire and the Humber	319	337	335	343	344	384	436	433	454	488	550	600	660	700	768	771	938	4.0%
Northern Ireland	150	149	116	120	148	157	177	171	297	324	352	415	441	359	501	481	512	2.2%
Wales	161	187	200	226	232	216	308	243	243	234	252	268	367	386	368	440	457	1.9%
North East	125	124	149	257	289	292	331	318	315	308	259	282	323	282	306	308	384	1.6%
UK	12,239	12,484	12,505	12,662	13,734	14,144	15,676	15,814	15,532	16,045	17,452	17,409	18,617	19,982	21,018	22,587	23,685	100.0%
	% of GDP																	
	2001 ^r	2002 ^r	2003 ^r	2004 ^r	2005 ^r	2006 ^r	2007 ^r	2008 ^r	2009 ^r	2010 ^r	2011 ^r	2012 ^r	2013 ^r	2014 ^r	2015 ^r	2016 ^r	2017	
South East	1.83	1.70	1.68	1.56	1.48	1.51	1.52	1.47	1.62	1.56	1.84	1.60	1.59	1.66	1.65	1.59	1.59	
East of England	2.74	2.48	2.58	2.29	3.00	2.81	2.97	3.09	2.87	2.81	2.62	2.51	2.76	2.62	2.59	2.69	2.67	
London	0.30	0.35	0.26	0.28	0.18	0.28	0.31	0.32	0.27	0.25	0.30	0.40	0.32	0.40	0.42	0.50	0.57	
West Midlands	0.86	0.84	0.82	0.75	0.68	0.83	0.88	0.79	0.77	0.77	1.07	1.18	1.30	1.42	1.54	1.60	1.62	
North West	1.39	1.33	1.20	1.30	1.34	1.08	1.30	1.39	1.24	1.29	1.38	1.07	1.06	1.08	1.15	1.24	1.09	
South West	1.15	1.26	1.26	1.28	1.12	1.10	1.06	1.14	1.15	1.19	1.10	1.07	1.10	1.13	1.05	1.04	1.10	
East Midlands	1.33	1.36	1.15	1.19	1.21	1.12	1.16	1.07	1.11	1.20	1.18	1.22	1.28	1.36	1.38	1.45	1.27	
Scotland	0.60	0.56	0.46	0.43	0.47	0.40	0.46	0.45	0.51	0.50	0.54	0.54	0.58	0.66	0.65	0.72	0.80	
Yorkshire and the Humber	0.40	0.39	0.37	0.36	0.34	0.36	0.39	0.40	0.42	0.44	0.49	0.52	0.56	0.58	0.61	0.59	0.70	
Northern Ireland	0.56	0.54	0.39	0.38	0.44	0.44	0.48	0.48	0.84	0.90	0.96	1.08	1.12	0.89	1.21	1.10	1.13	
Wales	0.39	0.43	0.44	0.47	0.45	0.40	0.55	0.45	0.45	0.42	0.43	0.44	0.58	0.60	0.56	0.64	0.64	
North East	0.35	0.32	0.36	0.59	0.62	0.60	0.66	0.64	0.64	0.60	0.50	0.53	0.59	0.50	0.53	0.52	0.63	
UK	1.07	1.04	0.99	0.95	0.97	0.95	1.01	1.01	1.00	1.00	1.06	1.02	1.05	1.08	1.10	1.14	1.15	

Source: ONS and Scottish Government

Notes:

1. Market price GDP for Scotland sourced from Quarterly National Accounts Scotland. Market price GDP for other UK regions estimated based on the UK GVA (Balanced) to GDP ratio.
2. r denotes revised figures
3. Ranked by BERD expenditure 2017.
4. Totals may not sum due to rounding.

8.5 Table 3C

Expenditure on R&D performed by Higher Education by Government Office Region:
Current prices & as a percentage of GDP, 2001 to 2017

	Higher Education R&D Expenditure (£ million)																	% of total 2017
	2001 ^r	2002 ^r	2003 ^r	2004 ^r	2005 ^r	2006 ^r	2007 ^r	2008 ^r	2009 ^r	2010 ^r	2011 ^r	2012 ^r	2013 ^r	2014 ^r	2015 ^r	2016 ^r	2017	
London	965	1,061	1,100	1,138	1,297	1,395	1,419	1,504	1,591	1,606	1,671	1,679	1,792	1,842	1,930	1,871	1,982	24.3%
South East	554	609	631	649	739	800	813	882	933	940	978	982	1,057	1,130	1,094	1,222	1,174	14.4%
Scotland	503	582	592	614	659	739	751	854	904	905	912	925	996	1,008	1,050	1,022	1,072	13.1%
East of England	360	403	423	444	484	498	507	536	567	585	606	618	669	702	736	730	819	10.0%
North West	317	354	374	398	454	508	516	530	561	554	552	552	574	603	615	630	691	8.5%
Yorkshire and the Humber	312	341	357	372	401	437	444	457	484	476	475	478	508	523	524	511	579	7.1%
South West	175	192	197	209	244	266	270	304	322	328	342	345	368	377	379	394	424	5.2%
West Midlands	204	221	235	258	280	290	295	313	331	336	346	335	356	359	393	392	416	5.1%
East Midlands	220	236	229	234	259	277	282	314	332	326	327	331	324	324	327	331	341	4.2%
Wales	152	180	180	190	211	225	228	228	241	245	256	251	271	272	275	256	269	3.3%
North East	140	159	163	169	181	197	200	210	222	224	223	225	239	248	236	232	240	2.9%
Northern Ireland	72	84	103	119	128	133	135	141	149	150	141	134	143	142	141	146	166	2.0%
UK	3,977	4,424	4,584	4,792	5,339	5,763	5,861	6,272	6,640	6,675	6,828	6,854	7,295	7,531	7,699	7,736	8,173	100.0%

	% of GDP																
	2001 ^r	2002 ^r	2003 ^r	2004 ^r	2005 ^r	2006 ^r	2007 ^r	2008 ^r	2009 ^r	2010 ^r	2011 ^r	2012 ^r	2013 ^r	2014 ^r	2015 ^r	2016 ^r	2017
London	0.41	0.43	0.42	0.41	0.43	0.44	0.41	0.44	0.47	0.45	0.45	0.43	0.44	0.42	0.43	0.40	0.40
South East	0.32	0.33	0.33	0.32	0.35	0.36	0.35	0.37	0.40	0.39	0.39	0.38	0.39	0.41	0.38	0.41	0.38
Scotland	0.58	0.65	0.62	0.61	0.61	0.65	0.63	0.69	0.73	0.73	0.71	0.70	0.72	0.69	0.71	0.68	0.69
East of England	0.35	0.38	0.37	0.38	0.39	0.38	0.38	0.40	0.43	0.43	0.44	0.43	0.45	0.45	0.45	0.43	0.47
North West	0.28	0.29	0.29	0.30	0.32	0.34	0.33	0.34	0.36	0.35	0.34	0.33	0.33	0.34	0.33	0.33	0.35
Yorkshire and the Humber	0.39	0.40	0.39	0.39	0.40	0.41	0.40	0.42	0.45	0.43	0.42	0.41	0.43	0.43	0.41	0.39	0.43
South West	0.20	0.21	0.20	0.21	0.23	0.24	0.23	0.26	0.28	0.27	0.28	0.27	0.28	0.27	0.27	0.27	0.28
West Midlands	0.23	0.24	0.24	0.26	0.26	0.26	0.26	0.28	0.30	0.29	0.29	0.27	0.27	0.27	0.28	0.27	0.27
East Midlands	0.32	0.33	0.30	0.30	0.31	0.31	0.31	0.34	0.37	0.35	0.34	0.33	0.31	0.30	0.29	0.29	0.29
Wales	0.37	0.42	0.39	0.39	0.41	0.42	0.41	0.42	0.45	0.44	0.44	0.41	0.43	0.42	0.42	0.37	0.38
North East	0.39	0.41	0.40	0.39	0.39	0.40	0.40	0.42	0.45	0.44	0.43	0.42	0.44	0.44	0.41	0.39	0.39
Northern Ireland	0.27	0.30	0.34	0.38	0.38	0.38	0.37	0.39	0.42	0.42	0.38	0.35	0.36	0.35	0.34	0.33	0.37
UK	0.35	0.37	0.36	0.36	0.38	0.39	0.38	0.40	0.43	0.42	0.41	0.40	0.41	0.41	0.40	0.39	0.40

Source: ONS and Scottish Government

Notes:

1. Market price GDP for Scotland sourced from Quarterly National Accounts Scotland. Market price GDP for other UK regions estimated based on the UK GVA (Balanced) to GDP ratio.
2. r denotes revised figures
3. Ranked by HERD expenditure 2017.
4. Totals may not sum due to rounding.
5. Following quality assurance of the flow of funding within the higher education sector element relating to funding between higher education establishments has been removed. Figures have been revised back to 2001.

8.6 Table 3D

Government expenditure on R&D by Government Office Region:
Current prices & as a percentage of GDP, 2001 to 2017

	Government Expenditure on R&D (£ million)																	% of total 2017
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 ^r	2015 ^r	2016 ^r	2017	
South East															589	605	611	27.8%
London															429	453	447	20.4%
South West															214	228	242	11.0%
East of England															226	223	212	9.7%
Scotland	136	143	167	172	185	174	198	176	182	176	169	143	156	154	155	162	171	7.8%
Yorkshire and the Humber															110	115	121	5.5%
East Midlands															..	..	74	3.4%
West Midlands															..	..	71	3.2%
Wales															13	15	16	0.7%
Northern Ireland															12	14	16	0.7%
North West															150	163	..	..
North East															47	47	..	..
North East and North West																	216	9.8%
East Midlands and West Midlands															147	144		
UK	1,834	1,767	2,068	2,170	2,289	2,313	2,354	2,390	2,504	2,513	2,356	2,195	2,316	2,210	2,091	2,171	2,196	100.0%

	% of GDP																
	2001 ^r	2002 ^r	2003 ^r	2004 ^r	2005 ^r	2006 ^r	2007 ^r	2008 ^r	2009 ^r	2010 ^r	2011 ^r	2012 ^r	2013 ^r	2014 ^r	2015 ^r	2016 ^r	2017
South East															0.20	0.20	0.20
London															0.10	0.10	0.09
South West															0.15	0.16	0.16
East of England															0.14	0.13	0.12
Scotland	0.16	0.16	0.18	0.17	0.17	0.15	0.17	0.14	0.15	0.14	0.13	0.11	0.11	0.11	0.11	0.11	0.11
Yorkshire and the Humber															0.09	0.09	0.09
East Midlands															..	..	0.06
West Midlands															..	..	0.05
Wales															0.02	0.02	0.02
Northern Ireland															0.03	0.03	0.04
North West															0.08	0.09	..
North East															0.08	0.08	..
North East and North West																	0.08
East Midlands and West Midlands															0.06	0.05	
UK	0.16	0.15	0.16	0.16	0.16	0.16	0.15	0.15	0.16	0.16	0.14	0.13	0.13	0.12	0.11	0.11	0.11

Notes:

1. Market price GDP for Scotland sourced from Quarterly National Accounts Scotland. Market price GDP for other UK regions estimated based on the UK GVA (Balanced) to GDP ratio.
2. r denotes revised figures
3. Ranked by GoverD 2017.
4. Totals may not sum due to rounding.
5. Due to the change in methodology for the government sector, GERD figures for the regions for 2015 onwards are not comparable with earlier series. The revised methodology has been estimated back for Scotland only. See note 21 for more details.
6. Includes R&D performed in Research Councils.
7. .. Denotes disclosive figures
8. East Midlands and West Midlands have been combined in 2015 and 2016 due to confidentiality, as have North East and North West in 2017.

Source: ONS and Scottish Government

8.7 Table 3E

Expenditure on R&D performed in Private Non-Profit sector by Government Office Region
Current prices & as a percentage of GDP, 2001 to 2017

	PNP Expenditure on R&D (£ million)																% of total 2017	
	2001 ^r	2002 ^r	2003 ^r	2004 ^r	2005 ^r	2006 ^r	2007 ^r	2008 ^r	2009 ^r	2010 ^r	2011 ^r	2012 ^r	2013 ^r	2014 ^r	2015 ^r	2016 ^r		2017
London											145	143	148	114	273	283	323	42.8%
East of England											254	251	260	301	240	249	230	30.5%
South East											29	29	20	62	88	91	85	11.3%
Scotland											11	11	32	37	32	33	39	5.2%
South West											11	11	15	18	19	20	16	2.1%
West Midlands											5	5	-	-	..	..	11	1.5%
Yorkshire and the Humber											3	3	3	3	4	4	3	0.4%
East Midlands											5	5	2	2	..	..	2	0.3%
North West											39	39	..	..	1	1	..	..
North East											22	22	..	..	35	36	..	..
Wales											2	2	1	1	2	-	-	-
Northern Ireland											-	-	-	-	-	-	-	-
North East and North West													57	66			42	5.6%
East Midlands and West Midlands															3	3		
UK	325	374	369	406	502	513	546	595	666	652	526	520	539	605	697	722	754	100.0%
	% of GDP																	
	2001 ^r	2002 ^r	2003 ^r	2004 ^r	2005 ^r	2006 ^r	2007 ^r	2008 ^r	2009 ^r	2010 ^r	2011 ^r	2012 ^r	2013 ^r	2014 ^r	2015 ^r	2016 ^r	2017	
London											0.04	0.04	0.04	0.03	0.06	0.06	0.07	
East of England											0.18	0.17	0.17	0.19	0.15	0.15	0.13	
South East											0.01	0.01	0.01	0.02	0.03	0.03	0.03	
Scotland											0.01	0.01	0.02	0.03	0.02	0.02	0.03	
South West											0.01	0.01	0.01	0.01	0.01	0.01	0.01	
West Midlands											0.00	0.00	-	-	..	..	0.01	
Yorkshire and the Humber											0.00	0.00	0.00	0.00	0.00	0.00	0.00	
East Midlands											0.01	0.00	0.00	0.00	..	..	0.00	
North West											0.02	0.02	..	..	0.00	0.00	..	
North East											0.04	0.04	..	..	0.06	0.06	..	
Wales											0.00	0.00	0.00	0.00	0.00	-	-	
Northern Ireland											-	-	-	-	-	-	-	
North East and North West													0.03	0.03			0.02	
East Midlands and West Midlands															0.00	0.00		
UK	0.03	0.03	0.03	0.03	0.04	0.03	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04

Source: ONS and Scottish Government

Notes:

1. FNP data is currently not available prior to 2011 for these countries/regions (except UK). 2011 is the first year estimates for the FNP sector have been published for these countries/regions (except UK)
2. Market price GDP for Scotland sourced from Quarterly National Accounts Scotland. Market price GDP for other UK regions estimated based on the UK GVA (Balanced) to GDP ratio.
3. r denotes revised figures
4. Ranked by PNP expenditure 2017.
5. - denotes nil or figure too small to display.
6. .. Denotes disclosive figures
7. Totals may not sum due to rounding.
8. North East and North West have been combined in 2013, 2014 and 2017 due to confidentiality.
9. East Midlands and West Midlands have been combined in 2015 and 2016 due to confidentiality.

8.8 Table 4A

Gross Expenditure on R&D performed in OECD countries:
As a percentage of GDP, 2001 to 2017

Country																	Percentage	
	2001 ^r	2002 ^r	2003 ^r	2004 ^r	2005 ^r	2006 ^r	2007 ^r	2008 ^r	2009 ^r	2010 ^r	2011 ^r	2012 ^r	2013 ^r	2014 ^r	2015 ^r	2016 ^r	2017	2001-2017 Change
Scotland	1.34	1.37	1.26	1.2	1.25	1.2	1.25	1.28	1.39	1.37	1.39	1.35	1.43	1.48	1.49	1.53	1.63	0.29
UK	1.61	1.59	1.54	1.51	1.55	1.53	1.57	1.60	1.64	1.61	1.65	1.58	1.61	1.63	1.65	1.67	1.69	0.08
Australia	..	1.65	..	1.73	..	2.00	..	2.25	..	2.18	2.11	..	2.09	..	1.88	..	..	..
Austria	1.99	2.07	2.17	2.17	2.37	2.36	2.42	2.57	2.60	2.73	2.67	2.91	2.95	3.08	3.05	3.13	3.16	1.17
Belgium	2.02	1.89	1.83	1.81	1.78	1.81	1.84	1.92	1.99	2.05	2.16	2.27	2.33	2.39	2.46	2.55	2.60	0.58
Canada	2.03	1.98	1.97	2.00	1.98	1.95	1.91	1.86	1.92	1.83	1.79	1.78	1.71	1.72	1.70	1.70	1.59	-0.44
Chile	..	..	..	..	..	..	0.31	0.37	0.35	0.33	0.35	0.36	0.39	0.37	0.38	0.36	..	..
Czech Republic	1.10	1.10	1.15	1.15	1.17	1.23	1.30	1.24	1.29	1.34	1.56	1.78	1.90	1.97	1.93	1.68	1.79	0.69
Denmark	2.32	2.44	2.51	2.42	2.39	2.40	2.52	2.77	3.06	2.92	2.94	2.98	2.97	2.91	3.05	3.12	3.06	0.74
Estonia	0.70	0.72	0.77	0.85	0.92	1.12	1.07	1.26	1.40	1.58	2.31	2.12	1.72	1.43	1.47	1.25	1.29	0.59
Finland	3.20	3.26	3.30	3.31	3.33	3.34	3.35	3.55	3.75	3.73	3.64	3.42	3.29	3.17	2.89	2.74	2.76	-0.44
France	2.14	2.17	2.12	2.09	2.05	2.05	2.02	2.06	2.21	2.18	2.19	2.23	2.24	2.28	2.27	2.25	2.19	0.05
Germany	2.39	2.42	2.46	2.42	2.42	2.46	2.45	2.60	2.73	2.71	2.80	2.87	2.82	2.87	2.91	2.92	3.02	0.63
Greece	0.56	..	0.55	0.53	0.58	0.56	0.58	0.66	0.63	0.60	0.67	0.70	0.81	0.83	0.96	0.99	1.13	0.57
Hungary	0.91	0.98	0.92	0.86	0.92	0.98	0.96	0.98	1.13	1.14	1.19	1.26	1.39	1.35	1.36	1.20	1.35	0.44
Iceland	2.85	2.83	2.71	..	2.69	2.89	2.55	2.49	2.60	..	2.41	..	1.70	1.95	2.12	2.03	2.13	-0.72
Ireland	1.05	1.06	1.12	1.18	1.19	1.20	1.23	1.39	1.61	1.59	1.56	1.56	1.56	1.50	1.19	1.16	1.05	0.00
Israel	4.19	4.13	3.90	3.88	4.05	4.14	4.43	4.35	4.13	3.94	4.01	4.16	4.07	4.18	4.26	4.39	4.54	0.35
Italy	1.04	1.08	1.06	1.05	1.05	1.09	1.13	1.16	1.22	1.22	1.21	1.27	1.31	1.34	1.34	1.37	1.35	0.31
Japan	2.97	3.01	3.04	3.03	3.18	3.28	3.34	3.34	3.23	3.14	3.24	3.21	3.31	3.40	3.28	3.14	3.20	0.23
Korea	2.34	2.27	2.35	2.53	2.63	2.83	3.00	3.12	3.29	3.47	3.74	4.03	4.15	4.29	4.22	4.23	4.55	2.21
Latvia	0.40	0.41	0.36	0.40	0.53	0.65	0.55	0.58	0.45	0.61	0.70	0.66	0.61	0.69	0.63	0.44	0.51	0.11
Lithuania	0.67	0.66	0.66	0.75	0.75	0.79	0.80	0.79	0.83	0.78	0.90	0.89	0.95	1.03	1.04	0.84	0.88	0.21
Luxembourg	..	..	1.63	1.60	1.57	1.67	1.59	1.62	1.68	1.50	1.46	1.27	1.30	1.26	1.28	1.30	1.26	..
Mexico	0.32	0.37	0.38	0.39	0.40	0.37	0.43	0.47	0.52	0.53	0.51	0.49	0.50	0.53	0.52	0.49	..	..
Netherlands	1.80	1.75	1.78	1.79	1.77	1.74	1.67	1.62	1.67	1.70	1.88	1.92	1.93	1.98	1.98	2.00	1.99	0.19
New Zealand	1.10	..	1.15	..	1.12	..	1.16	..	1.25	..	1.23	..	1.15	..	1.23	..	..	..
Norway	1.56	1.63	1.68	1.55	1.48	1.46	1.56	1.55	1.72	1.65	1.63	1.62	1.65	1.71	1.93	2.03	2.11	0.55
Poland	0.62	0.56	0.54	0.55	0.56	0.55	0.56	0.60	0.66	0.72	0.75	0.88	0.87	0.94	1.00	0.96	1.03	0.41
Portugal	0.76	0.72	0.70	0.73	0.76	0.95	1.12	1.45	1.58	1.53	1.46	1.38	1.33	1.29	1.24	1.28	1.32	0.56
Slovak Republic	0.63	0.56	0.56	0.50	0.49	0.48	0.45	0.46	0.47	0.62	0.66	0.80	0.82	0.88	1.17	0.79	0.88	0.25
Slovenia	1.47	1.44	1.25	1.37	1.41	1.53	1.42	1.63	1.82	2.06	2.42	2.57	2.58	2.37	2.20	2.01	1.85	0.38
Spain	0.89	0.96	1.02	1.04	1.10	1.17	1.23	1.32	1.35	1.35	1.33	1.29	1.27	1.24	1.22	1.19	1.20	0.31
Sweden	3.91	..	3.61	3.39	3.38	3.50	3.25	3.49	3.45	3.21	3.25	3.28	3.30	3.14	3.26	3.27	3.33	-0.58
Switzerland	..	..	..	2.67	..	..	..	2.71	..	..	..	3.19	..	..	3.37	..	..	..
Turkey	0.53	0.51	0.47	0.50	0.57	0.56	0.69	0.69	0.81	0.80	0.80	0.83	0.82	0.86	0.88	0.94	0.96	0.43
United States	2.65	2.56	2.56	2.50	2.52	2.56	2.63	2.77	2.81	2.74	2.77	2.68	2.71	2.72	2.72	2.76	2.79	0.14
European Union (28 countries)	1.69	1.69	1.68	1.66	1.66	1.68	1.69	1.76	1.83	1.83	1.87	1.91	1.92	1.94	1.96	1.94	1.96	0.27
OECD - Total	2.16	2.13	2.14	2.11	2.14	2.17	2.2	2.27	2.32	2.28	2.31	2.31	2.33	2.35	2.34	2.34	2.37	0.21

Source: MSTI 2018/2, ONS & Scottish Government

Notes:

1. .. Data not available
2. The EU expanded from 25 to 27 nations in 2007 and from 27 to 28 in 2012. All these figures are for the 28 nations.
3. Totals may not sum due to rounding.
4. r denotes revised figures

8.9 Table 4B

Business Enterprise on R&D Expenditure performed in OECD countries:
As a percentage of GDP, 2001 to 2017

Country																		Percentage
	2001 ^r	2002 ^r	2003 ^r	2004 ^r	2005 ^r	2006 ^r	2007 ^r	2008 ^r	2009 ^r	2010 ^r	2011 ^r	2012 ^r	2013 ^r	2014 ^r	2015 ^r	2016 ^r	2017	2001-2017 Change
Scotland	0.60	0.56	0.46	0.43	0.47	0.40	0.46	0.45	0.51	0.50	0.54	0.54	0.58	0.66	0.65	0.72	0.80	0.20
UK	1.07	1.04	0.99	0.95	0.97	0.95	1.01	1.01	1.00	1.00	1.06	1.02	1.05	1.08	1.10	1.14	1.15	0.08
Australia	0.82	0.87	0.90	0.94	1.05	1.16	1.28	1.37	1.29	1.27	1.22	..	1.18	..	1.00	..	..	..
Austria	..	1.38	..	1.47	1.66	1.66	1.71	1.78	1.77	1.87	1.84	2.05	2.09	2.20	2.18	2.19	2.22	..
Belgium	1.48	1.33	1.28	1.25	1.21	1.26	1.28	1.31	1.31	1.38	1.48	1.59	1.62	1.67	1.72	1.78	1.76	0.28
Canada	1.25	1.14	1.13	1.14	1.10	1.10	1.06	1.01	1.02	0.95	0.95	0.92	0.87	0.91	0.90	0.89	0.82	-0.43
Chile	..	..	..	..	..	..	0.11	0.15	0.10	0.10	0.12	0.12	0.14	0.13	0.13	0.14	..	..
Czech Republic	0.66	0.67	0.70	0.72	0.68	0.72	0.75	0.71	0.72	0.76	0.85	0.94	1.01	1.09	1.05	1.03	1.13	0.47
Denmark	1.59	1.69	1.74	1.65	1.63	1.61	1.76	1.94	2.13	1.96	1.96	1.95	1.88	1.86	1.94	2.02	1.97	0.38
Estonia	0.24	0.22	0.26	0.33	0.42	0.50	0.50	0.54	0.62	0.79	1.46	1.22	0.82	0.62	0.68	0.64	0.61	0.37
Finland	2.27	2.28	2.33	2.32	2.36	2.38	2.42	2.63	2.68	2.59	2.56	2.35	2.26	2.15	1.93	1.81	1.80	-0.47
France	1.35	1.38	1.33	1.32	1.27	1.29	1.28	1.29	1.36	1.38	1.40	1.44	1.44	1.45	1.44	1.43	1.42	0.07
Germany	1.67	1.67	1.71	1.69	1.68	1.72	1.71	1.80	1.84	1.82	1.89	1.95	1.90	1.94	2.00	1.99	2.09	0.42
Greece	0.18	0.18	0.18	0.16	0.18	0.17	0.16	0.21	0.23	0.24	0.23	0.24	0.27	0.28	0.32	0.42	0.55	0.37
Hungary	0.37	0.35	0.34	0.35	0.40	0.47	0.48	0.51	0.65	0.68	0.74	0.83	0.96	0.97	1.00	0.89	0.99	0.62
Iceland	1.68	1.62	1.40	..	1.38	1.54	1.39	1.36	1.31	1.28	1.28	..	0.95	1.19	1.37	1.28	1.38	-0.30
Ireland	0.74	0.73	0.76	0.77	0.78	0.79	0.81	0.90	1.10	1.09	1.09	1.12	1.12	1.08	0.85	0.84	0.74	0.00
Israel	3.38	3.31	3.06	3.11	3.30	3.39	3.72	3.61	3.45	3.27	3.36	3.50	3.43	3.54	3.63	3.76	3.91	0.53
Italy	0.51	0.52	0.50	0.50	0.53	0.53	0.59	0.62	0.65	0.66	0.66	0.69	0.72	0.76	0.78	0.83	0.83	0.32
Japan	2.19	2.24	2.28	2.28	2.43	2.53	2.60	2.62	2.45	2.40	2.50	2.46	2.52	2.64	2.57	2.47	2.52	0.33
Korea	1.78	1.70	1.79	1.94	2.02	2.19	2.29	2.35	2.45	2.59	2.87	3.14	3.26	3.35	3.27	3.29	3.62	1.84
Latvia	0.15	0.17	0.12	0.18	0.22	0.33	0.18	0.15	0.16	0.23	0.19	0.15	0.17	0.24	0.15	0.11	0.14	-0.01
Lithuania	0.19	0.11	0.14	0.16	0.15	0.22	0.23	0.19	0.20	0.23	0.24	0.24	0.24	0.32	0.29	0.29	0.31	0.12
Luxembourg	..	..	1.45	1.41	1.36	1.43	1.33	1.26	1.27	1.00	0.96	0.70	0.68	0.68	0.66	0.70	0.68	..
Mexico	0.10	0.12	0.13	0.17	0.19	0.18	0.18	0.16	0.19	0.19	0.18	0.14	0.16	0.16	0.16	0.15	..	..
Netherlands	0.98	0.91	0.94	0.96	0.94	0.94	0.89	0.81	0.78	0.82	1.06	1.08	1.07	1.11	1.11	1.16	1.17	0.19
New Zealand	0.41	..	0.47	..	0.47	..	0.49	..	0.52	..	0.56	..	0.54	..	0.63	..	..	..
Norway	0.93	0.94	0.96	0.84	0.79	0.78	0.82	0.83	0.89	0.84	0.85	0.85	0.87	0.92	1.04	1.08	1.12	0.19
Poland	0.22	0.11	0.15	0.16	0.18	0.17	0.17	0.19	0.19	0.19	0.22	0.33	0.38	0.44	0.47	0.63	0.67	0.45
Portugal	0.24	0.23	0.23	0.26	0.29	0.44	0.58	0.72	0.75	0.70	0.69	0.68	0.63	0.60	0.58	0.62	0.67	0.43
Slovak Republic	0.42	0.36	0.31	0.25	0.25	0.20	0.18	0.20	0.19	0.26	0.25	0.33	0.38	0.32	0.33	0.40	0.48	0.06
Slovenia	0.85	0.86	0.80	0.92	0.83	0.92	0.85	1.05	1.17	1.40	1.79	1.95	1.97	1.83	1.68	1.52	1.38	0.53
Spain	0.47	0.52	0.55	0.56	0.59	0.65	0.69	0.72	0.70	0.69	0.69	0.68	0.67	0.65	0.64	0.64	0.66	0.19
Sweden	3.03	..	2.68	2.49	2.46	2.61	2.37	2.59	2.44	2.21	2.24	2.22	2.28	2.11	2.27	2.27	2.35	-0.68
Switzerland	..	..	..	1.97	..	..	..	2.00	..	..	..	..	..	..	2.39	..	..	..
Turkey	0.18	0.15	0.11	0.12	0.19	0.21	0.29	0.31	0.32	0.34	0.35	0.38	0.39	0.43	0.44	0.51	0.55	0.37
United States	1.91	1.77	1.75	1.71	1.73	1.79	1.86	1.98	1.95	1.86	1.89	1.87	1.92	1.94	1.95	2.00	2.04	0.13
European Union (28 countries)	1.08	1.06	1.05	1.04	1.03	1.06	1.06	1.10	1.12	1.12	1.17	1.20	1.20	1.23	1.24	1.26	1.29	0.21
OECD - Total	1.49	1.44	1.43	1.42	1.45	1.49	1.52	1.57	1.55	1.51	1.55	1.56	1.59	1.62	1.62	1.64	1.67	0.18

Source: MSTI 2018/2, ONS & Scottish Government

Notes:

1. .. Data not available
2. The EU expanded from 25 to 27 nations in 2007 and from 27 to 28 in 2012. All these figures are for the 28 nations.
3. Totals may not sum due to rounding.
4. r denotes revised figures

8.10 Table 4C

Higher Education R&D Expenditure performed in OECD countries:
As a percentage of GDP, 2001 to 2017

Country	Percentage																	
	2001 ^r	2002 ^r	2003 ^r	2004 ^r	2005 ^r	2006 ^r	2007 ^r	2008 ^r	2009 ^r	2010 ^r	2011 ^r	2012 ^r	2013 ^r	2014 ^r	2015 ^r	2016 ^r	2017	2001-2017 Change
Scotland	0.58	0.65	0.62	0.61	0.61	0.65	0.63	0.69	0.73	0.73	0.71	0.70	0.72	0.69	0.71	0.68	0.69	0.11
UK	0.35	0.37	0.36	0.36	0.38	0.39	0.38	0.40	0.43	0.42	0.41	0.40	0.41	0.41	0.40	0.39	0.40	0.05
Australia	..	0.43	..	0.47	..	0.50	..	0.54	..	0.58	0.59	0.63	0.62	0.62	0.57	0.62	..	..
Austria	..	0.56	..	0.58	0.59	0.57	0.58	0.64	0.68	0.70	0.68	0.72	0.72	0.73	0.72	0.69	0.70	..
Belgium	0.40	0.40	0.41	0.39	0.40	0.39	0.39	0.42	0.47	0.48	0.48	0.48	0.51	0.49	0.50	0.52	0.54	0.14
Canada	0.56	0.63	0.65	0.68	0.67	0.65	0.65	0.66	0.69	0.68	0.67	0.70	0.67	0.65	0.67	0.68	0.65	0.09
Chile	..	..	..	..	..	..	0.13	0.15	0.14	0.13	0.11	0.12	0.15	0.15	0.15	0.15	..	..
Czech Republic	0.17	0.17	0.18	0.17	0.22	0.23	0.24	0.23	0.26	0.27	0.38	0.49	0.52	0.50	0.48	0.34	0.35	0.18
Denmark	0.44	0.56	0.58	0.59	0.59	0.62	0.66	0.75	0.85	0.88	0.91	0.94	1.01	0.98	1.04	1.02	1.01	0.57
Estonia	0.35	0.34	0.36	0.39	0.38	0.45	0.45	0.54	0.59	0.60	0.64	0.68	0.73	0.63	0.61	0.44	0.51	0.16
Finland	0.58	0.62	0.63	0.66	0.63	0.63	0.62	0.61	0.71	0.76	0.73	0.74	0.71	0.72	0.71	0.69	0.70	0.12
France	0.40	0.41	0.41	0.39	0.39	0.39	0.39	0.41	0.46	0.47	0.46	0.46	0.47	0.50	0.50	0.49	0.45	0.05
Germany	0.39	0.41	0.41	0.40	0.40	0.40	0.39	0.43	0.48	0.49	0.50	0.51	0.51	0.51	0.50	0.53	0.52	0.13
Greece	0.25	..	0.26	0.25	0.27	0.27	0.28	0.22	0.23	0.21	0.27	0.28	0.30	0.31	0.36	0.32	0.32	0.07
Hungary	0.23	0.25	0.25	0.21	0.23	0.24	0.22	0.22	0.24	0.23	0.24	0.23	0.20	0.18	0.17	0.13	0.18	-0.05
Iceland	0.54	0.45	0.58	..	0.59	0.69	0.64	0.63	0.65	0.65	0.64	..	0.64	0.64	0.65	0.65	0.66	0.12
Ireland	0.23	0.24	0.28	0.32	0.32	0.32	0.33	0.40	0.43	0.42	0.39	0.37	0.37	0.35	0.29	0.27	0.26	0.03
Israel	0.65	0.67	0.68	0.61	0.60	0.61	0.57	0.60	0.55	0.54	0.52	0.53	0.52	0.52	0.52	0.52	0.52	-0.13
Italy	0.34	0.36	0.36	0.35	0.32	0.33	0.34	0.35	0.37	0.35	0.35	0.36	0.37	0.36	0.34	0.33	0.33	-0.01
Japan	0.43	0.42	0.42	0.41	0.43	0.42	0.42	0.39	0.43	0.40	0.43	0.43	0.45	0.43	0.40	0.39	0.38	-0.05
Korea	0.24	0.24	0.24	0.25	0.26	0.28	0.32	0.35	0.37	0.38	0.38	0.38	0.38	0.39	0.38	0.39	0.39	0.15
Latvia	0.17	0.16	0.15	0.14	0.21	0.22	0.24	0.28	0.18	0.24	0.34	0.33	0.26	0.28	0.31	0.19	0.24	0.07
Lithuania	0.21	0.33	0.35	0.40	0.41	0.39	0.41	0.42	0.43	0.42	0.49	0.48	0.52	0.54	0.58	0.33	0.32	0.11
Luxembourg	0.01	..	0.01	0.02	0.02	0.04	0.05	0.10	0.13	0.19	0.16	0.21	0.24	0.21	0.24	0.25	0.25	0.24
Mexico	0.10	0.14	0.14	0.12	0.11	0.10	0.12	0.15	0.16	0.15	0.16	0.13	0.13	0.14	0.14	0.13	..	..
Netherlands	0.57	0.61	0.61	0.59	0.61	0.59	0.58	0.61	0.67	0.69	0.61	0.61	0.62	0.63	0.64	0.61	0.59	0.02
New Zealand	0.34	..	0.36	..	0.36	..	0.35	..	0.41	..	0.39	..	0.35	..	0.34	..	..	..
Norway	0.40	0.44	0.46	0.46	0.46	0.45	0.50	0.50	0.55	0.53	0.51	0.51	0.52	0.53	0.60	0.66	0.70	0.30
Poland	0.20	0.19	0.17	0.18	0.18	0.17	0.19	0.20	0.24	0.27	0.26	0.30	0.25	0.27	0.29	0.30	0.34	0.14
Portugal	0.28	0.27	0.27	0.27	0.27	0.30	0.33	0.50	0.58	0.57	0.53	0.50	0.59	0.59	0.57	0.57	0.56	0.28
Slovak Republic	0.06	0.05	0.07	0.10	0.10	0.11	0.11	0.11	0.12	0.17	0.23	0.27	0.27	0.30	0.51	0.22	0.22	0.16
Slovenia	0.24	0.22	0.17	0.18	0.24	0.23	0.22	0.22	0.26	0.29	0.29	0.29	0.27	0.25	0.22	0.22	0.21	-0.03
Spain	0.28	0.29	0.31	0.31	0.32	0.32	0.33	0.35	0.38	0.38	0.37	0.36	0.36	0.35	0.34	0.33	0.33	0.05
Sweden	0.77	..	0.79	0.78	0.74	0.72	0.71	0.74	0.85	0.85	0.85	0.89	0.90	0.91	0.87	0.88	0.86	0.09
Switzerland	..	0.59	..	0.61	..	0.60	..	0.66	..	0.73	..	0.83	..	0.87	0.90	..	..	..
Turkey	0.31	0.33	0.31	0.34	0.31	0.29	0.33	0.30	0.38	0.37	0.36	0.37	0.34	0.35	0.35	0.34	0.32	0.01
United States	0.32	0.35	0.37	0.37	0.36	0.35	0.35	0.37	0.39	0.40	0.40	0.38	0.37	0.36	0.35	0.36	0.36	0.04
European Union (28 countries)	0.37	0.38	0.38	0.37	0.38	0.38	0.38	0.41	0.44	0.45	0.44	0.45	0.45	0.46	0.45	0.44	0.44	0.07
OECD - Total	0.36	0.37	0.38	0.38	0.38	0.37	0.38	0.39	0.43	0.43	0.43	0.42	0.42	0.42	0.41	0.41	0.41	0.05

Source: MSTI 2018/2, ONS & Scottish Government

Notes:

1. .. Data not available
2. The EU expanded from 25 to 27 nations in 2007 and from 27 to 28 in 2012. All these figures are for the 28 nations.
3. Totals may not sum due to rounding.
4. r denotes revised figures

8.11 Table 4D

Government Expenditure on R&D performed in OECD countries:
As a percentage of GDP, 2001 to 2017

Country	Percentage																		
	2001 ^r	2002 ^r	2003 ^r	2004 ^r	2005 ^r	2006 ^r	2007 ^r	2008 ^r	2009 ^r	2010 ^r	2011 ^r	2012 ^r	2013 ^r	2014 ^r	2015 ^r	2016 ^r	2017	2001-2017 Change	
Scotland	0.16	0.16	0.18	0.17	0.17	0.15	0.17	0.14	0.15	0.14	0.13	0.11	0.11	0.11	0.11	0.11	0.11	0.11	-0.05
UK	0.16	0.15	0.16	0.16	0.16	0.16	0.15	0.15	0.16	0.16	0.14	0.13	0.13	0.12	0.11	0.11	0.11	0.11	-0.05
Australia	..	0.31	..	0.27	..	0.28	..	0.27	..	0.27	0.24	0.24	0.23	0.20	0.24	0.19	..	..	..
Austria	..	0.12	..	0.11	0.12	0.12	0.13	0.14	0.14	0.14	0.14	0.13	0.13	0.14	0.14	0.22	0.22	..	..
Belgium	0.12	0.14	0.13	0.14	0.15	0.15	0.15	0.17	0.18	0.17	0.17	0.19	0.20	0.21	0.23	0.23	0.29	0.17	0.17
Canada	0.21	0.21	0.19	0.18	0.19	0.19	0.19	0.18	0.20	0.19	0.16	0.15	0.15	0.15	0.12	0.11	0.11	-0.10	-0.10
Chile	..	..	..	..	..	..	0.03	0.04	0.01	0.01	0.01	0.01	0.03	0.03	0.03	0.05	..	..	..
Czech Republic	0.26	0.25	0.27	0.26	0.27	0.27	0.30	0.29	0.31	0.30	0.32	0.34	0.36	0.37	0.39	0.31	0.31	0.05	0.05
Denmark	0.27	0.18	0.18	0.17	0.15	0.16	0.08	0.07	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	-0.20
Estonia	0.10	0.12	0.12	0.11	0.10	0.15	0.09	0.15	0.15	0.17	0.19	0.20	0.15	0.16	0.16	0.14	0.15	0.05	0.05
Finland	0.33	0.34	0.32	0.31	0.32	0.31	0.28	0.28	0.34	0.34	0.32	0.31	0.29	0.27	0.24	0.22	0.24	0.09	-0.09
France	0.35	0.36	0.35	0.36	0.36	0.34	0.33	0.33	0.36	0.31	0.30	0.29	0.29	0.29	0.29	0.29	0.28	-0.07	-0.07
Germany	0.33	0.33	0.33	0.33	0.34	0.34	0.34	0.36	0.40	0.40	0.41	0.41	0.42	0.42	0.41	0.40	0.41	0.08	0.08
Greece	0.12	..	0.11	0.10	0.12	0.12	0.12	0.23	0.16	0.14	0.16	0.17	0.23	0.23	0.27	0.25	0.25	0.13	0.13
Hungary	0.24	0.32	0.29	0.25	0.26	0.25	0.23	0.23	0.23	0.21	0.19	0.18	0.21	0.19	0.18	0.16	0.17	-0.07	-0.07
Iceland	0.57	0.69	0.67	..	0.63	0.59	0.45	0.44	0.57	..	0.43	..	0.12	0.12	0.10	0.10	0.09	-0.48	-0.48
Ireland	0.09	0.09	0.09	0.09	0.09	0.08	0.09	0.09	0.08	0.08	0.08	0.08	0.07	0.07	0.05	0.05	0.05	-0.04	-0.04
Israel	0.12	0.12	0.12	0.11	0.11	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	-0.05	-0.05
Italy	0.19	0.19	0.19	0.19	0.18	0.19	0.16	0.15	0.16	0.17	0.16	0.19	0.18	0.18	0.18	0.17	0.17	-0.02	-0.02
Japan	0.28	0.29	0.28	0.29	0.26	0.27	0.26	0.28	0.30	0.28	0.27	0.28	0.30	0.28	0.26	0.24	0.25	-0.03	-0.03
Korea	0.29	0.30	0.30	0.31	0.31	0.33	0.35	0.38	0.43	0.44	0.44	0.45	0.45	0.48	0.50	0.49	0.49	0.20	0.20
Latvia	0.09	0.08	0.08	0.08	0.10	0.10	0.13	0.16	0.11	0.14	0.16	0.18	0.18	0.17	0.16	0.14	0.13	0.04	0.04
Lithuania	0.26	0.22	0.18	0.19	0.19	0.18	0.17	0.18	0.19	0.14	0.18	0.18	0.19	0.18	0.18	0.22	0.25	-0.01	-0.01
Luxembourg	0.14	0.15	0.17	0.18	0.19	0.20	0.21	0.26	0.27	0.32	0.34	0.35	0.38	0.38	0.38	0.34	0.33	0.19	0.19
Mexico	0.13	0.09	0.10	0.10	0.09	0.09	0.12	0.15	0.15	0.18	0.16	0.18	0.19	0.20	0.20	0.18	..	..	..
Netherlands	0.24	0.22	0.24	0.24	0.22	0.22	0.20	0.19	0.21	0.20	0.20	0.23	0.24	0.23	0.24	0.23	0.23	-0.01	-0.01
New Zealand	0.35	..	0.32	..	0.29	..	0.31	..	0.32	..	0.28	..	0.27	..	0.26	..	..	..	..
Norway	0.23	0.26	0.25	0.24	0.23	0.23	0.24	0.23	0.28	0.27	0.27	0.27	0.26	0.26	0.29	0.29	0.29	0.06	0.06
Poland	0.19	0.25	0.22	0.22	0.20	0.20	0.20	0.21	0.23	0.26	0.26	0.25	0.23	0.23	0.24	0.02	0.02	-0.17	-0.17
Portugal	0.16	0.14	0.12	0.11	0.11	0.11	0.11	0.11	0.12	0.11	0.11	0.07	0.09	0.08	0.08	0.07	0.07	-0.09	-0.09
Slovak Republic	0.15	0.15	0.18	0.15	0.15	0.16	0.16	0.15	0.16	0.18	0.18	0.20	0.17	0.25	0.33	0.17	0.18	0.03	0.03
Slovenia	0.36	0.33	0.28	0.27	0.34	0.38	0.35	0.36	0.38	0.37	0.35	0.34	0.34	0.29	0.30	0.27	0.26	-0.10	-0.10
Spain	0.14	0.15	0.16	0.17	0.19	0.20	0.22	0.24	0.27	0.27	0.26	0.25	0.24	0.23	0.23	0.22	0.21	0.07	0.07
Sweden	0.11	..	0.13	0.11	0.17	0.16	0.16	0.16	0.15	0.16	0.14	0.16	0.12	0.12	0.11	0.11	0.12	0.01	0.01
Switzerland	..	0.03	..	0.03	..	0.02	..	0.02	..	0.02	..	0.02	..	0.03	0.03	..	..	..	..
Turkey	0.04	0.04	0.05	0.04	0.07	0.07	0.07	0.08	0.10	0.09	0.09	0.09	0.09	0.08	0.09	0.09	0.09	0.05	0.05
United States	0.31	0.33	0.33	0.32	0.31	0.31	0.31	0.31	0.34	0.35	0.35	0.33	0.31	0.31	0.30	0.28	0.27	-0.04	-0.04
European Union (28 countries)	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.25	0.24	0.24	0.24	0.24	0.24	0.24	0.22	0.22	-0.01	-0.01
OECD - Total	0.26	0.26	0.26	0.26	0.26	0.25	0.25	0.26	0.28	0.28	0.28	0.27	0.27	0.26	0.26	0.24	0.24	-0.02	-0.02

Source: MSTI 2018/2, ONS & Scottish Government

Notes:

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2. The EU expanded from 25 to 27 nations in 2007 and from 27 to 28 in 2012. All these figures are for the 28 nations.
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4. r denotes revised figures

8.12 A National Statistics publication for Scotland

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