C 8 Production, value added and employment [461]

A country's specialisation pattern in foreign trade can be measured using the RCA indicator,[462] which shows a product group's export/import ratio relative to the export/import ratio of the manufacturing sector as a whole. As in previous years, Germany again showed a comparative advantage in trade in R&D-intensive goods in 2015 (C 8-1). R&D-intensive goods are made up of high-value technology goods and cutting-edge technology goods. Germany has a positive comparative advantage only in terms of trade in high-value technology; trade in cutting-edge technology displays a negative comparative advantage. France, the UK and the USA have positive RCA indicator figures for cutting-edge technology, as have Switzerland and South Korea, which still had negative figures in 2000; Japan and China have a negative RCA indicator over the entire period. Sweden, too, has had negative figures since 2010.

The contribution of research- and knowledge-intensive industries to a country's value added allows conclusions to be drawn about the country's technological performance by international comparison (C 8-2). Of the countries studied, Germany has the highest share of value added in the field of high-value technology. In 2014, it amounted to 8.6 percent of total German value added. In the field of cutting-edge technology, Germany's figure of 2.8 percent is much lower than Switzerland's (8.1 percent) and South Korea's (7.8 percent). In all the countries examined, knowledge-intensive services contribute much more to national value added than research-intensive industries. However, with a value-added share of 25.5 percent they play a more minor role in Germany than in other European countries and the USA.

After a sharp fall in 2009, gross value added in Germany has again been rising continuously since 2010 (C 8-3). Although, at 2.7 percent, growth in knowledge-intensive services was lower in 2014 than in the previous year (2013: 3.5 percent), a marked increase in value added was again recorded in non-knowledge-intensive services (5.4 percent compared to 2.9 percent in 2013). In 2014, the increase was 5.5 percent in knowledge-intensive manufacturing (2013: 0.5 percent), and 3.7 percent in non-knowledge-intensive manufacturing (2013: 1.2 percent).

Among the different commercial sectors of the economy in Germany the services sector was the main source of the increase in employment subject to social insurance contributions between 2008 and 2015 (C 8-4). Employment rose by 12.6 percent in non-knowledge-intensive services, and by 16.3 percent in knowledge-intensive services during this period. Employment subject to social insurance contributions rose by only 1.7 percent in the non-knowledge-intensive manufacturing industry, and by 5.6 percent in the knowledge-intensive manufacturing sector.

Tab. C 8-1

Download data

Revealed comparative advantage (RCA) of selected countries in foreign trade in research-intensive goods, 2000 to 2015

A positive RCA value means that the export/import ratio for this product group is higher than it is for manufactured industrial goods as a whole.

Year	China[1]	France	Germany	Japan	South Korea	Sweden	Switzerland	United Kingdom	USA[2]
				R&D-intensive goods					
2000	-41	7	11	47	0	0	10	14	13
2005	-29	7	10	42	17	-1	18	14	17
2010	-27	6	12	33	19	-6	22	11	1
2015	-32	4	13	31	13	-5	28	3	1
				High-value technology goods					
2000	-17	5	27	86	5	-7	26	10	-13
2005	0	6	27	75	11	-2	24	4	-5
2010	-16	-2	30	61	7	-3	21	15	-10
2015	-8	-7	28	63	13	1	21	1	-14
				Cutting-edge technology goods					
2000	-66	11	-27	-10	-5	13	-30	19	47
2005	-53	8	-34	-14	24	1	4	33	55
2010	-35	20	-35	-22	33	-11	25	1	22
2015	-51	16	-24	-35	12	-22	41	8	27

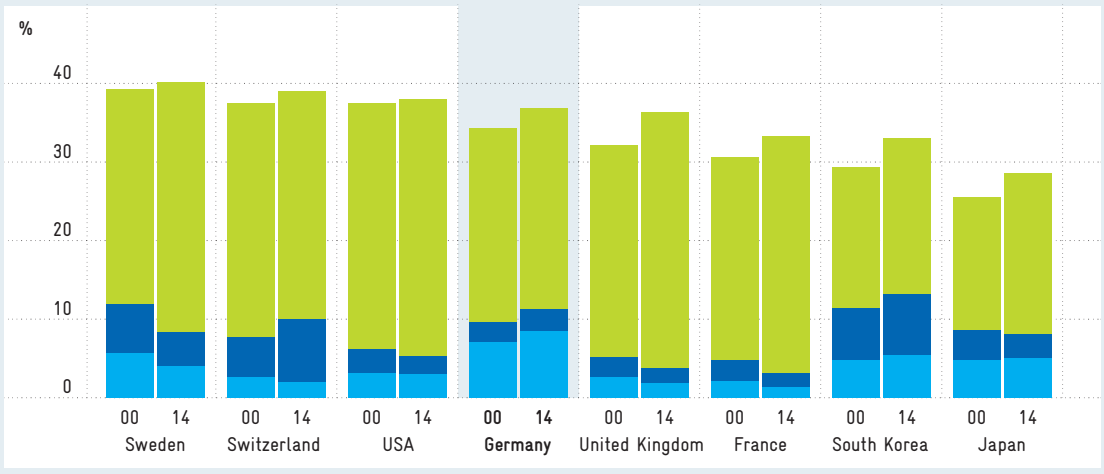
[1] Incl. Hong Kong. [2] From 2009, data for the USA were revised on the basis of national sources.
Source: UN COMTRADE Database. Calculations and estimates by CWS in Gehrke and Schiersch (2017).

Fig. C 8-2

Download data

R&D-intensive industries and knowledge-intensive services as a percentage of value added, 2000 and 2014

R&D-intensive industries have an above-average R&D intensity, while knowledge-intensive services are characterised by an above-average proportion of employees with tertiary education qualifications.



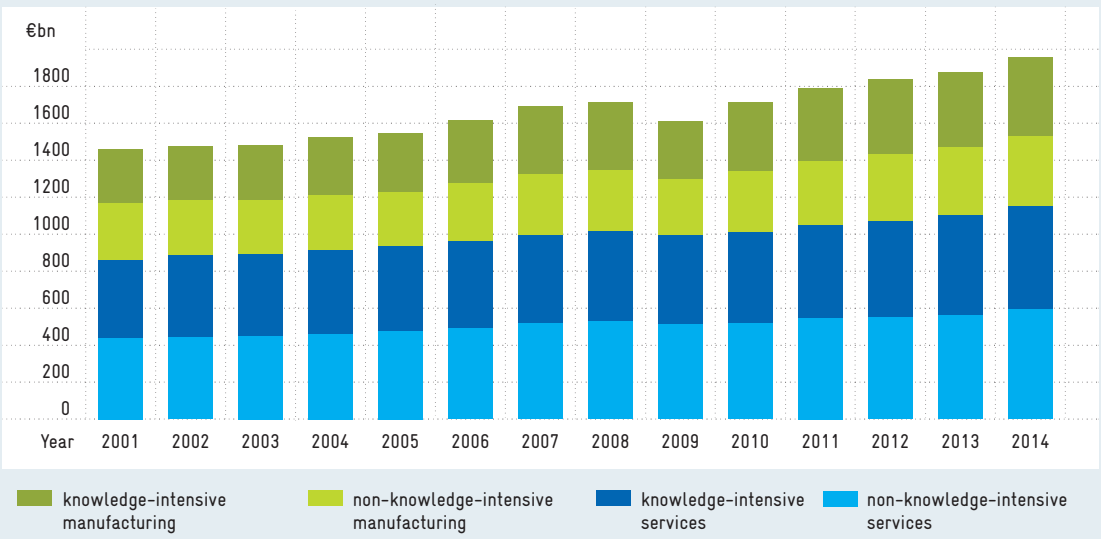
Source: OECD-STAN (2013), Eurostat (2016), EUKLEMS (2013, 2007), BEA (2016), Statistics Bureau, Ministry of Internal Affairs and Communications Japan (2013). Calculations and estimates by DIW Berlin in Gehrke and Schiersch (2017).

Fig. C 8-3

Download data

Development of gross value added in different economic sectors in Germany, 2001 to 2014, in billions of euros

Gross value added is the difference between the total value of all goods and services produced and the value of the intermediate inputs received for their production.



Not including agriculture, forestry, fisheries, public administration and services, real estate and housing, education, private households, social insurance, religious and other organisations, associations and trade unions.
Source: Statistisches Bundesamt (Federal Statistical Office), Fachserie 18, Reihe 1.4. Calculations by CWS in Gehrke and Schiersch (2017).

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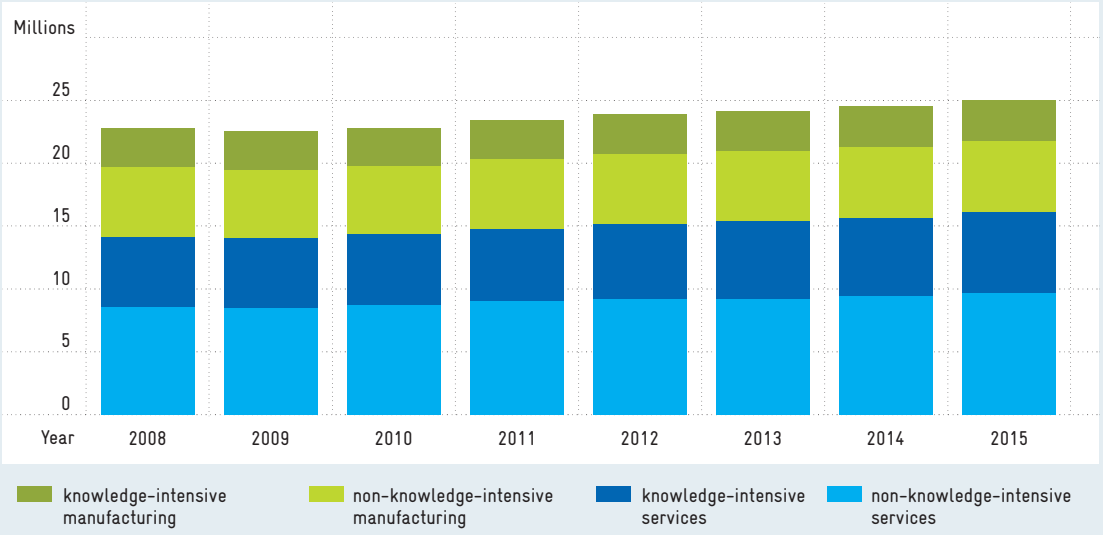
Fig. C 8-4

Download data

Development of the number of employees subject to social insurance contributions in different industrial sectors of the economy in Germany, 2008 to 2015

Employees subject to social insurance contributions comprise all employees who are liable to contribute to health, pension and long-term care insurance, and/or to pay contributions according to German employment-promotion law, or for whom contribution shares must be paid to statutory pension insurance or according to German employment-promotion law.



Source: Federal Employment Agency. Calculations by CWS in Gehrke and Schiersch (2017).