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Statistics

Technology Balance of Payments

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Main findings[1]

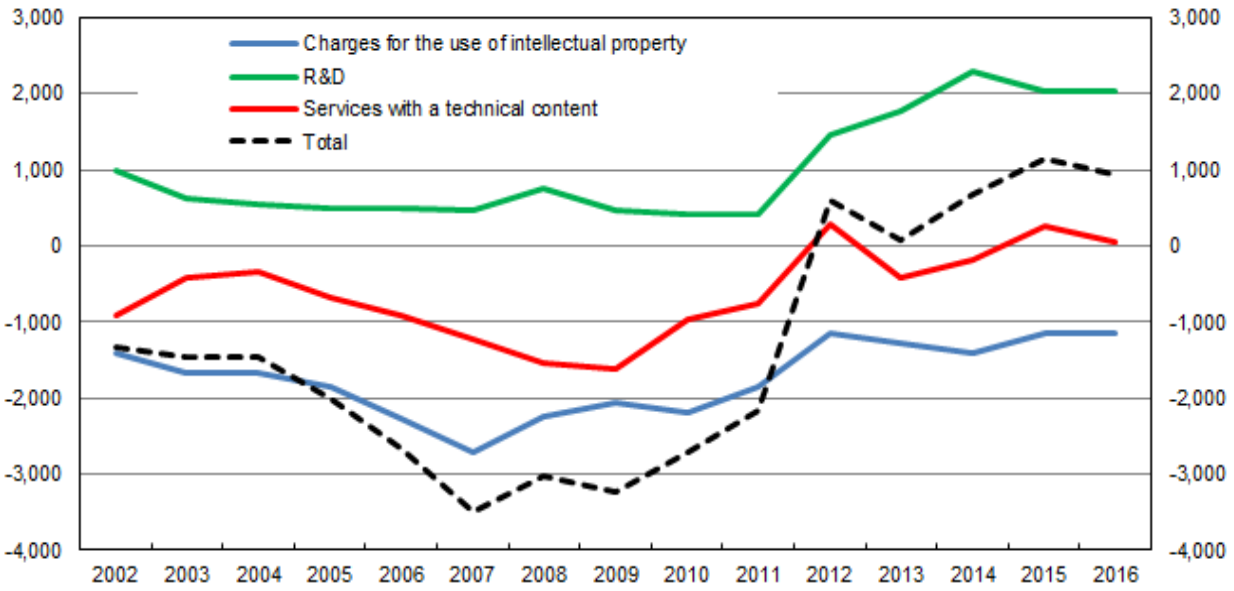
In 2016, Italy's overall technology balance of payments - which relates to international trade in technology other than physical goods (disembodied technology or BP_Tec) – was positive for the fifth consecutive year (Figure 1), although it narrowed slightly to €0.9 billion from €1.1 billion in 2016.

The improvement under way since 2012 has mainly been due to the expansion in the surplus for R&D and, for services with a technical content, the progressive contraction in the deficit for computer services, which turned slightly positive in 2016 (Table 1).

The manufacturing sector continued to record a surplus in technology trade flows, although it narrowed slightly compared with 2015, while the deficit for the service sector declined.

For Italy, the ratio of BP_Tec to GDP was still lower than the OECD average, especially on the export side.

Figure 1 - Italy's technology balance of payments: balances by transaction type
(millions of euros)



[1] Edited by Enrico Tosti, with help from Arcangela De Cata and Francesca Monica Romano.

1. Developments in Italy's technology balance of payments in 2016

The technology balance of payments is positive for the fifth consecutive year

In 2016, Italy's overall technology balance of payments[2] (BP_Tec) was positive by €0.9 billion, slightly lower than in the previous year (€1.1 billion; Table 1). This marks the fifth consecutive year in which there was a trade surplus for disembodied technology; the improvement with respect to the period prior to 2012 was mainly due to a surplus on R&D, which since 2014 has been stable at €2 billion, and a deficit on computer services, which in 2016 became a small surplus.

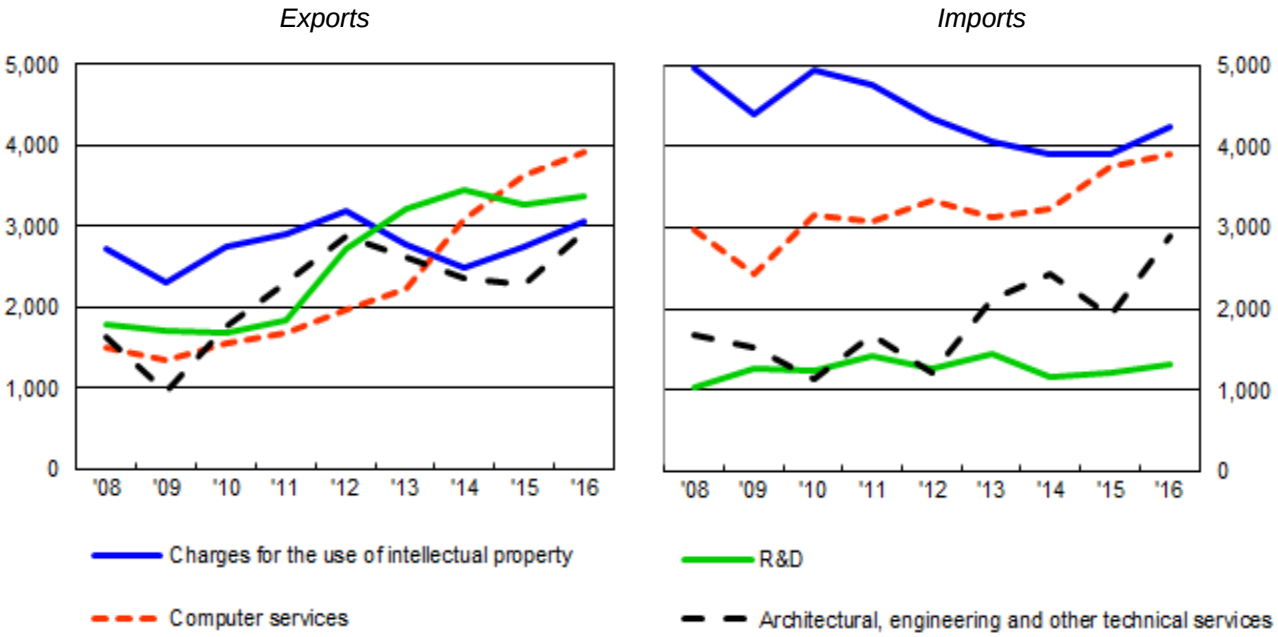
Compared with the previous year, in 2016 the deficit in charges for the use of intellectual property (fees for the use of patents, licences and royalties) was stable, while the small surplus in architectural and engineering services was eliminated.

Both exports and imports grew sharply in 2016

Overall, BP_Tec exports rose by 11.6 per cent compared with 2015, owing to increases in all the main items, especially architectural and engineering services (almost 29 per cent) and charges for the use of intellectual property (12 per cent); computer services was the largest item at €3.9 billion (Figure 2). Imports grew more than exports (14.7 per cent), buoyed by all the sectors, especially architectural and engineering services, which rose by 52 per cent (€1 billion). Expenditure on charges for the use of intellectual property returned to over €4 billion, interrupting a downward trend; it remained the main component on the payment side, followed by computer services.

The composition of exports was mostly even among the different categories, which ranged in weight from 22 to 29 per cent of the total; imports were more uneven, ranging from 11 to 34 per cent.

Figure 2 - Italy's technology balance of payments: exports and imports by transaction type (2008-16)
(millions of euros)

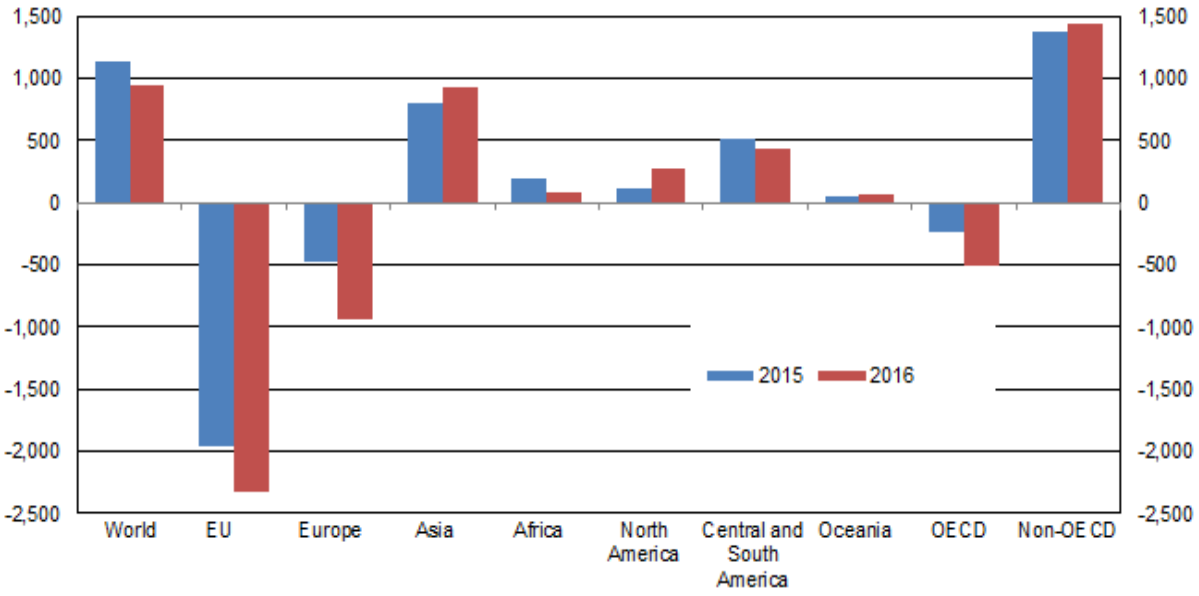


[2] With the sixth edition of the IMF Balance of Payments Manual (BPM6), sales of patents and licences deriving from research and development are kept distinct from other trade in 'intangible assets' and are no longer entered in the capital account but under services in the item 'Research and development services'. For stricter adherence to the OECD classification, intangible assets do not fall within BP_Tec; therefore, there may be an underestimate (but presumably not a large one) of BP_Tec flows because of the exclusion of the sale of licences and similar rights, royalties and other licenses not deriving from R&D; for further details, see Methods and Sources: Methodological Notes.

The deficit with OECD countries grew slightly

The vast majority of transactions registered in the BP_Tec were with advanced countries (almost 90 per cent, being the average of imports and exports). The deficit with respect to OECD countries worsened slightly in 2016, falling to €0.5 billion from €0.2 billion in 2015 (Figure 3 and Table 2), while the surplus with non-OECD countries was €1.4 billion, slightly higher compared with 2015. Technology trade flows with EU countries generated a deficit of €2.3 billion (€2.0 billion in 2015).

Figure 3 - Italy's technology balance of payments: balances by geographical area
(millions of euros)



Exports to both OECD and non-OECD countries increased

In 2016 exports of disembodied technology to OECD countries grew by 11.2 per cent compared with the previous year. The largest increases in absolute terms were in sales to the United States and Switzerland; Switzerland has become the top destination country (€1.8 billion), followed by Germany and the United States (at €1.6 billion each). On the other hand, the largest declines in exports were to Turkey and Japan. Sales to non-OECD countries grew by 10 per cent, largely on account of sales to China, which increased by 35 per cent.

Imports from OECD countries grew by 13.5 per cent. Imports from the United Kingdom exceeded €2 billion (an increase of 51 per cent), becoming the second country of origin for Italian BP_Tec imports after Ireland, which continues to lead owing to the strong presence of foreign subsidiaries (especially of US firms). Imports from non-OECD countries increased by 56 per cent, largely thanks to imports from China.

The surplus in manufacturing and the deficit in the service sector narrowed

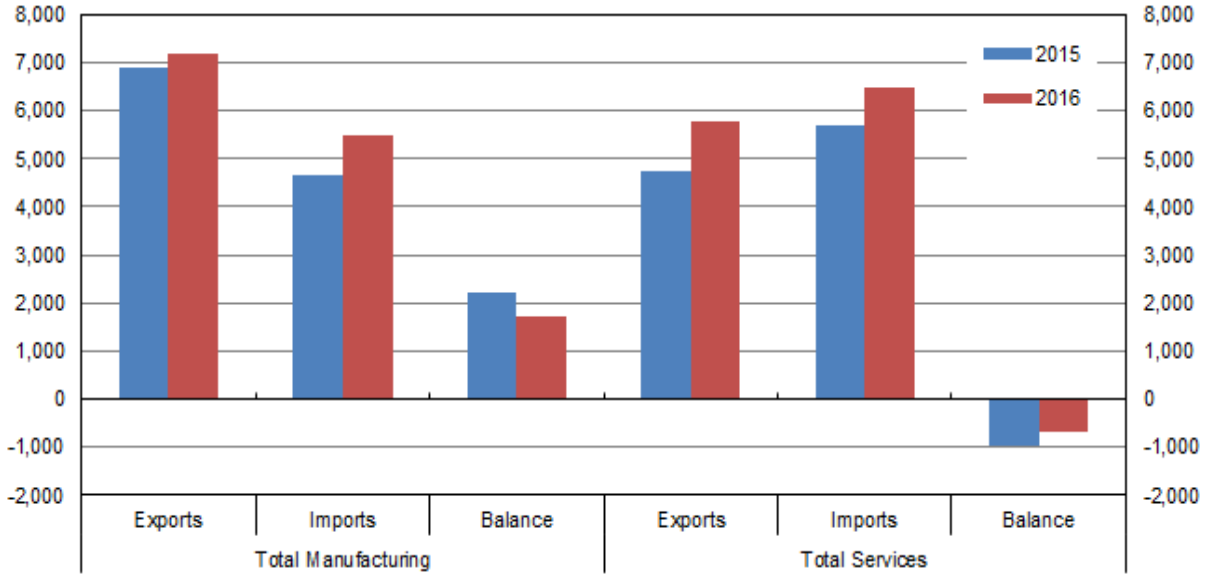
Taking into account the sectoral distribution of firms trading in disembodied technology, in 2016 **the manufacturing surplus fell from €2.2 to €1.7 billion** (Figure 4 and Table 3) as a result of a much lower growth in exports compared with imports; even the **deficit in the service sector narrowed slightly**, **from €1.0 to €0.7 billion**, thanks to a higher increase in exports.

Among manufacturing exports, which account for around 54 per cent of the total, technology sales to foreign countries of the two main segments, 'computer, electronic and optical products' and 'motor vehicles, trailers and semi-trailers', were respectively lower and stable compared with 2015. Exports grew again in the 'textile, wearing apparel, leather and related products' segment, now the third most important manufacturing segment, as a result of charges for the use of intellectual property. In the service sector, the increase in exports was mostly

concentrated in the 'professional, scientific and technical activities' segment, which grew to €2.7 billion from €1.9 billion in 2015, largely on account of engineering activities, which are traditionally export-oriented.

Manufacturing sector technology imports increased significantly, mainly reflecting the increase in purchases in the 'electrical equipment' and 'fabricated metal products' segments. In the service sector, which represents about 52 per cent of the total, 'information and communication' continued to play a dominant role, accounting for 35 per cent of the total, and imports were up by 15 per cent compared with 2015.

Figure 4 - Technology balance of payments: exports, imports and balances for the manufacturing and services sectors
(millions of euros)



2. International standing (2011-15)

In addition to encouraging countries to compile their own BP_Tec, the OECD gathers data from individual countries on a voluntary basis and publishes them in aggregate form on its website,[3] despite the presence of coverage problems and uniformity issues in the classification of items.

For Italy the ratio of BP_Tec flows to GDP remains lower than the OECD average

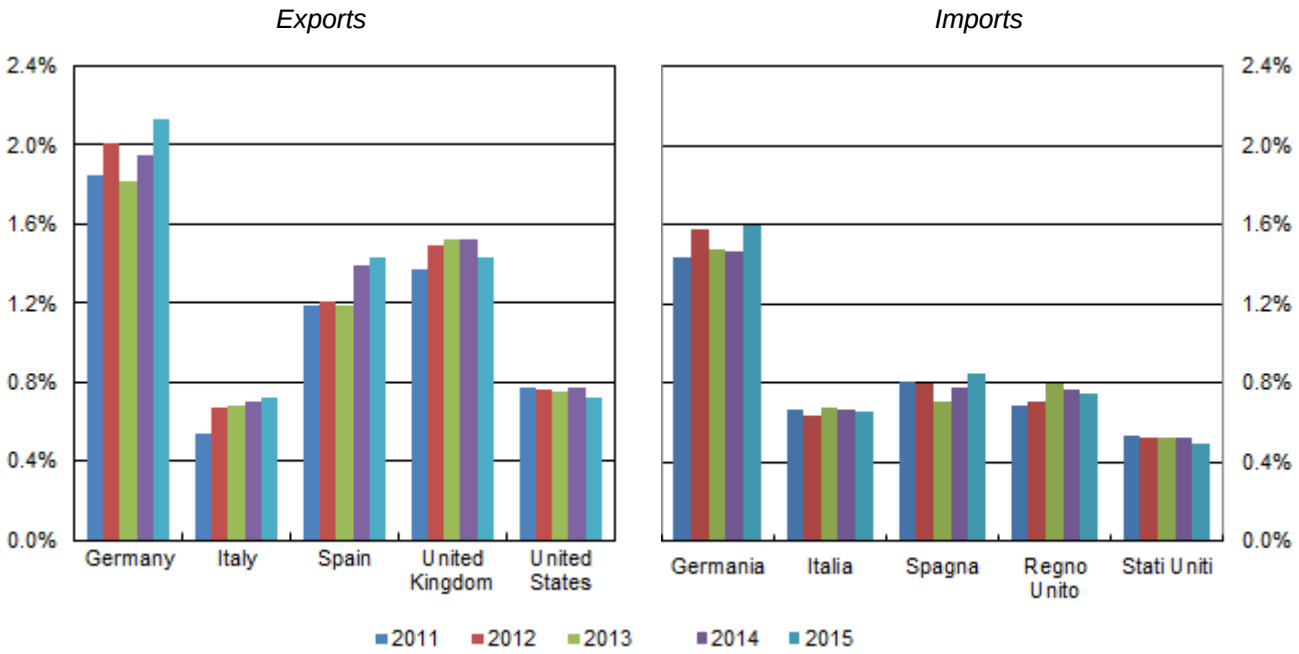
The ratio of BP_Tec flows to GDP was lower in Italy than in Germany, Spain, the UK and the US, especially on the export side (Figure 5), notwithstanding the recovery recorded in recent years. Taking into account the other OECD countries, the values for Italy were lower both with respect to the median and the national GDP-weighted average (Table 4).

In Ireland, the high ratio of BP_Tec flows to GDP (above 25 per cent) was associated with the presence in that country of numerous subsidiaries of foreign companies active in high-technology sectors that are taking advantage of Ireland's tax system. Many countries exceeded 2 per cent while Italy's average was 0.7 per cent for both exports and imports.

In terms of balances as well, Italy, again at 0.1 per cent of GDP in 2016, remained below the average for the main OECD countries, which was systematically positive between 0.3 and 0.4 per cent.

[3] The data can be downloaded at https://stats.oecd.org/Index.aspx?DataSetCode=MSTI_PUB; they are published in *Main Science and Technology Indicators*.

Figure 5 - Technology balance of payments:
exports and imports as a percentage of the GDP of selected OECD countries



Source: Based on OECD and IMF data.

Tables

Table 1 – Technology balance of payments by transaction type

(millions of euros)

	A) Charges for the use of intellectual property	B1) Computer services	B2) Architectural, engineering and other technical services	***Technology-related services (B=B1+B2)***	***C) R&D***	***Total BP_TEC (A+B+C)***
EXPORTS						
2002	2,040			2,282	1,746	6,068
2003	2,163			2,244	1,523	5,930
2004	2,321			2,648	1,691	6,659
2005	2,610			3,048	1,549	7,207
2006	2,934			3,425	1,741	8,100
2007	3,101			3,621	1,841	8,563
2008	2,720	1,498	1,624	3,122	1,789	7,632
2009	2,316	1,360	972	2,332	1,721	6,369
2010	2,752	1,563	1,768	3,331	1,677	7,760
2011	2,901	1,695	2,323	4,018	1,841	8,760
2012	3,193	1,980	2,884	4,863	2,719	10,775
2013	2,775	2,229	2,611	4,841	3,217	10,833
2014	2,491	3,103	2,372	5,475	3,449	11,414
2015	2,743	3,629	2,281	5,910	3,261	11,914
2016	3,075	3,914	2,937	6,851	3,367	13,293
IMPORTS						
2002	3,438			3,189	759	7,386
2003	3,832			2,666	890	7,388
2004	3,990			2,989	1,139	8,118
2005	4,452			3,713	1,058	9,223
2006	5,196			4,334	1,234	10,765
2007	5,815			4,850	1,381	12,046
2008	4,951	2,978	1,682	4,660	1,046	10,658
2009	4,388	2,429	1,515	3,944	1,262	9,594
2010	4,931	3,145	1,144	4,289	1,249	10,469
2011	4,753	3,078	1,687	4,765	1,417	10,935
2012	4,348	3,344	1,226	4,571	1,261	10,179
2013	4,056	3,118	2,134	5,252	1,444	10,751
2014	3,896	3,227	2,441	5,668	1,168	10,732
2015	3,897	3,738	1,913	5,650	1,224	10,771
2016	4,230	3,894	2,905	6,799	1,324	12,353
BALANCE						
2002	-1,398			-907	987	-1,318
2003	-1,669			-422	634	-1,458
2004	-1,669			-341	551	-1,459
2005	-1,842			-666	492	-2,015
2006	-2,263			-909	507	-2,665
2007	-2,714			-1,229	459	-3,484
2008	-2,231	-1,480	-58	-1,538	743	-3,026
2009	-2,072	-1,069	-543	-1,612	459	-3,225
2010	-2,179	-1,582	624	-958	428	-2,709
2011	-1,852	-1,383	636	-747	424	-2,175
2012	-1,155	-1,364	1,658	293	1,458	596
2013	-1,281	-889	478	-411	1,774	82
2014	-1,405	-124	-69	-193	2,281	682
2015	-1,153	-109	368	259	2,036	1,142
2016	-1,154	20	32	52	2,043	940

Table 2 – Technology balance of payments by country or geographical area

(millions of euros)

	EXPORTS		IMPORTS		BALANCE	
	2015	2016	2015	2016	2015	2016
World	**11,914**	**13,293**	**10,771**	**12,353**	**1,142**	**940**
EU	6,429	7,136	8,386	9,459	-1,957	-2,322
Europe	8,543	9,346	9,015	10,291	-471	-945
Asia	1,218	1,498	409	564	809	934
Africa	211	136	21	48	190	88
North America	1,285	1,594	1,173	1,316	112	278
Central and South America	542	514	31	78	511	436
Oceania	71	85	23	23	48	62
Not classified	43	120	99	33	-56	87
OECD	**9,956**	**11,066**	**10,190**	**11,569**	**-234**	**-503**
Austria	212	217	141	168	71	49
Belgium	722	798	176	291	546	507
France	871	874	1,108	1,100	-237	-226
Germany	1,433	1,570	1,673	1,708	-239	-138
Ireland	599	653	2,068	2,220	-1,468	-1,567
Luxembourg	307	381	248	221	59	160
Netherlands	140	161	754	758	-615	-597
Poland	402	384	61	75	340	309
Spain	227	256	303	231	-76	25
Sweden	291	279	102	137	189	142
United Kingdom	743	814	1,329	2,006	-586	-1,192
Switzerland	1,613	1,789	537	728	1,076	1,061
Turkey	269	191	19	24	250	167
United States	1,264	1,566	1,160	1,299	104	267
Canada	21	28	13	17	8	11
Japan	164	120	143	96	22	24
Other OECD countries	679	985	357	490	322	495
NON-OECD	**1,958**	**2,227**	**482**	**751**	**1,377**	**1,443**
Russia	125	145	30	33	95	112
Brazil	258	249	15	22	243	226
China	280	378	46	158	234	220
India	75	110	62	51	13	59
Other non-OECD countries	1220	1345	330	487	791	826

Table 3 – Technology balance of payments by sector of economic activity (Ateco) of the Italian reporting entity

(millions of euros)

	EXPORTS		IMPORTS		BALANCE	
	2015	2016	2015	2016	2015	2016
Agriculture, Forestry and Fishing	**-**	**-**	**-**	**-**	**-**	**-**
Mining and Quarrying	**30**	**32**	**191**	**152**	**-161**	**-120**
Total manufacturing	**6,884**	**7,206**	**4,648**	**5,492**	**2,236**	**1,713**
Food, beverages, tobacco	345	415	268	288	77	127
Textiles, wearing apparel, leather and related products	502	723	180	316	322	406
Wood and paper products, except furniture	33	32	50	52	-17	-20
Coke and refined petroleum products	21	19	105	80	-84	-62
Chemicals and chemical products	217	277	322	380	-105	-103
Pharmaceuticals	605	699	476	507	129	192
Rubber and plastics products	330	263	151	155	179	108
Other non-metallic mineral products	37	40	47	56	-10	-16
Basic metals	13	4	39	35	-25	-32
Fabricated metal products (excl. machinery)	213	302	150	407	63	-105
Computer, electronic and optical products	1,894	1,678	374	271	1,520	1,406
Electrical equipment	322	328	623	941	-301	-612
Machinery and equipment n.e.c.	666	670	591	736	76	-66
Motor vehicles, trailers and semi-trailers	1,385	1,397	828	837	557	560
Other transport equipment	106	139	261	168	-155	-30
Other manufacturing; repair and installation of machinery and equipment	196	220	184	261	12	-41
Electricity, gas, water and waste services	**107**	**127**	**144**	**163**	**-36**	**-36**
Construction	**155**	**158**	**77**	**78**	**78**	**80**
Total services	**4,737**	**5,770**	**5,711**	**6,468**	**-974**	**-697**
Wholesale and retail trade	449	525	844	779	-395	-254
Transportation and storage	13	7	127	141	-114	-134
Information and communication	1,763	1,977	3,707	4,280	-1,944	-2,303
Financial and insurance activities	435	320	298	238	137	81
Professional, scientific and technical activities	1,877	2,704	418	718	1,459	1,985
Other services	201	237	318	311	-117	-73
Total	**11,914**	**13,293**	**10,771**	**12,353**	**1,142**	**940**

Table 4 – Technology balance of payments (main OECD countries): exports, imports and balances as a ratio of national GDP

(percentage points)

	EXPORTS						IMPORTS						BALANCE					
	2011	2012	2013	2014	2015	AVERAGE	2011	2012	2013	2014	2015	AVERAGE	2011	2012	2013	2014	2015	AVERAGE
Australia	0.3	0.3	0.3	0.3	0.4	***0.3***	0.6	0.6	0.6	0.6	0.6	***0.6***	-0.3	-0.3	-0.3	-0.3	-0.3	***-0.3***
Austria	2.5	2.7	2.8	3.0	3.0	***2.8***	1.4	1.7	1.8	1.9	1.9	***1.7***	1.1	1.0	1.0	1.1	1.1	***1.0***
Belgium	2.5	3.0	3.3	3.6	3.9	***3.2***	2.1	2.5	2.8	3.4	3.8	***2.9***	0.3	0.4	0.5	0.2	0.1	***0.3***
Canada	0.1	0.1	0.1	0.0	0.0	***0.1***	0.0	0.0	0.1	0.0	0.0	***0.0***	0.1	0.1	0.1	0.0	0.0	***0.1***
Rep. Ceca	1.4	1.6	1.8	1.9	2.0	***1.8***	1.2	1.5	1.5	1.5	1.3	***1.4***	0.2	0.1	0.3	0.4	0.7	***0.3***
Finland	3.9	3.9	4.2	4.3	4.6	***4.2***	3.0	3.4	2.8	2.4	2.2	***2.8***	1.0	0.5	1.3	1.9	2.5	***1.4***
Germany	1.9	2.0	1.8	2.0	2.1	***2.0***	1.4	1.6	1.5	1.5	1.6	***1.5***	0.4	0.4	0.3	0.5	0.5	***0.4***
Greece	0.3	0.3	0.3	0.4	0.4	***0.3***	0.4	0.3	0.4	0.5	0.5	***0.4***	-0.2	-0.1	-0.1	-0.1	-0.1	***-0.1***
Hungary	3.2	3.5	3.5	3.5	3.4	***3.4***	3.1	3.2	3.9	3.5	3.1	***3.4***	0.1	0.3	-0.3	0.1	0.3	***0.1***
Ireland	20.7	24.4	26.6	29.5	25.9	***25.4***	20.3	24.1	24.0	29.9	34.6	***26.6***	0.3	0.3	2.6	-0.4	-8.7	***-1.2***
Israel	4.7	5.1	5.0	4.8	5.1	***4.9***	1.0	1.4	1.1	1.2	1.2	***1.2***	3.7	3.7	3.9	3.6	4.0	***3.7***
Italy	0.5	0.7	0.7	0.7	0.7	***0.7***	0.7	0.6	0.7	0.7	0.7	***0.7***	-0.1	0.0	0.0	0.0	0.1	***0.0***
Japan	0.5	0.5	0.7	0.7	0.7	***0.6***	0.1	0.1	0.1	0.1	0.1	***0.1***	0.4	0.5	0.6	0.6	0.6	***0.5***
South Korea	0.3	0.4	0.5	0.0	0.0	***0.3***	0.8	0.9	0.9	0.0	0.0	***0.5***	-0.5	-0.5	-0.4	0.0	0.0	***-0.3***
Poland	0.7	0.8	0.9	1.1	1.0	***0.9***	0.7	0.8	1.0	1.0	0.7	***0.8***	0.0	0.0	-0.1	0.1	0.4	***0.1***
Portugal	0.6	0.7	0.8	0.9	0.9	***0.8***	0.7	0.6	0.6	0.8	0.9	***0.7***	0.0	0.1	0.2	0.0	0.0	***0.1***
Spain	1.2	1.2	1.2	1.4	1.4	***1.3***	0.8	0.8	0.7	0.8	0.8	***0.8***	0.4	0.4	0.5	0.6	0.6	***0.5***
Sweden	4.1	4.3	4.6	4.9	5.6	***4.7***	2.1	2.4	2.3	2.9	3.2	***2.6***	2.1	2.0	2.3	2.0	2.5	***2.2***
Switzerland	3.6	4.3	4.4	4.7	4.5	***4.3***	3.8	4.3	4.4	5.1	5.1	***4.5***	-0.2	-0.1	0.0	-0.5	-0.5	***-0.3***
United Kingdom	1.4	1.5	1.5	1.5	1.4	***1.5***	0.7	0.7	0.8	0.8	0.7	***0.7***	0.7	0.8	0.7	0.8	0.7	***0.7***
United States	0.8	0.8	0.8	0.8	0.7	***0.8***	0.5	0.5	0.5	0.5	0.5	***0.5***	0.2	0.2	0.2	0.3	0.2	***0.2***
GDP-weighted average	1.1	1.1	1.2	1.3	1.2	***1.2***	0.8	0.8	0.9	1.0	0.9	***0.9***	0.3	0.3	0.3	0.4	0.3	***0.3***
median	1.4	1.5	1.5	1.9	2.0	***1.7***	0.8	0.9	1.0	1.2	1.2	***1.0***	0.2	0.3	0.3	0.3	0.4	***0.3***

Source: Based on OECD and IMF data.