

Technology Balance of Payments

12 December 2019

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Main findings

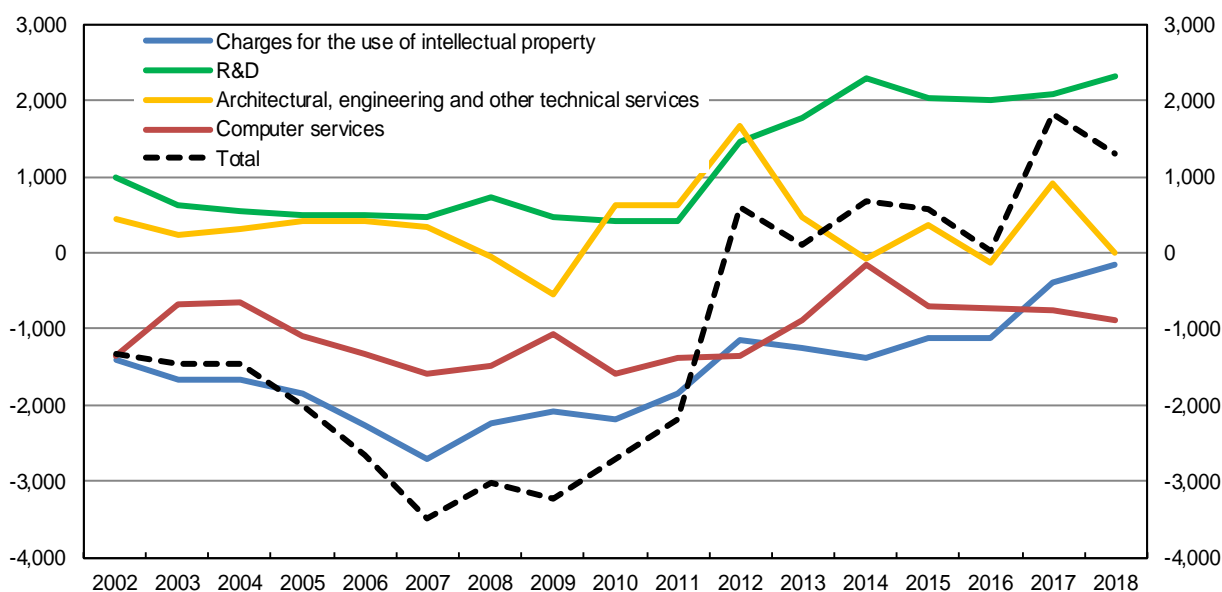
In 2018, Italy's overall technology balance of payments (i.e. charges for the use of intellectual property, computer services, research and development, and architectural and engineering services), which is also defined as international trade in disembodied technology, was positive for the seventh consecutive year at €1.3 billion (Table 1). This level is high by historical standards, although it is below the peak recorded in 2017 (Figure 1).

After a long period in negative territory, the technology balance of payments picked up between 2012 and 2014, driven by the larger surplus in research and development. In more recent years, it has grown thanks to the narrowing of the deficit in charges for the use of intellectual property (patents and royalties), which is now close to zero (Table 1).

Looking at the business sector of firms that export or import disembodied technology, the manufacturing sector continued to post a surplus, which widened compared with 2017. On the other hand, the service sector deficit increased, after having almost been eliminated the previous year. This larger deficit was due to a fall in exports, especially those of firms providing professional, scientific and technical services.

Making an international comparison, Italy's trade in disembodied technology, in relation to GDP, is at a lower level than the European average, although in the last few years it has been one of Italy's more dynamic service sectors.

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



Italy's technology balance of payments in 2018¹

The technology balance of payments surplus is still at a historically high level

In 2018, Italy's overall technology balance of payments² was positive by €1.3 billion, an extraordinarily high level in historical terms and lower only than the peak recorded in 2017 (€1.8 billion; Table 1). This marks the seventh consecutive year in which there was a surplus in disembodied technology. The improvement with respect to the period prior to 2012 was initially due to an increase in the surplus in research and development and later to the narrowing in the deficit in charges for the use of intellectual property; the peak reached in 2017 was also determined by the large surplus in architectural and engineering services.

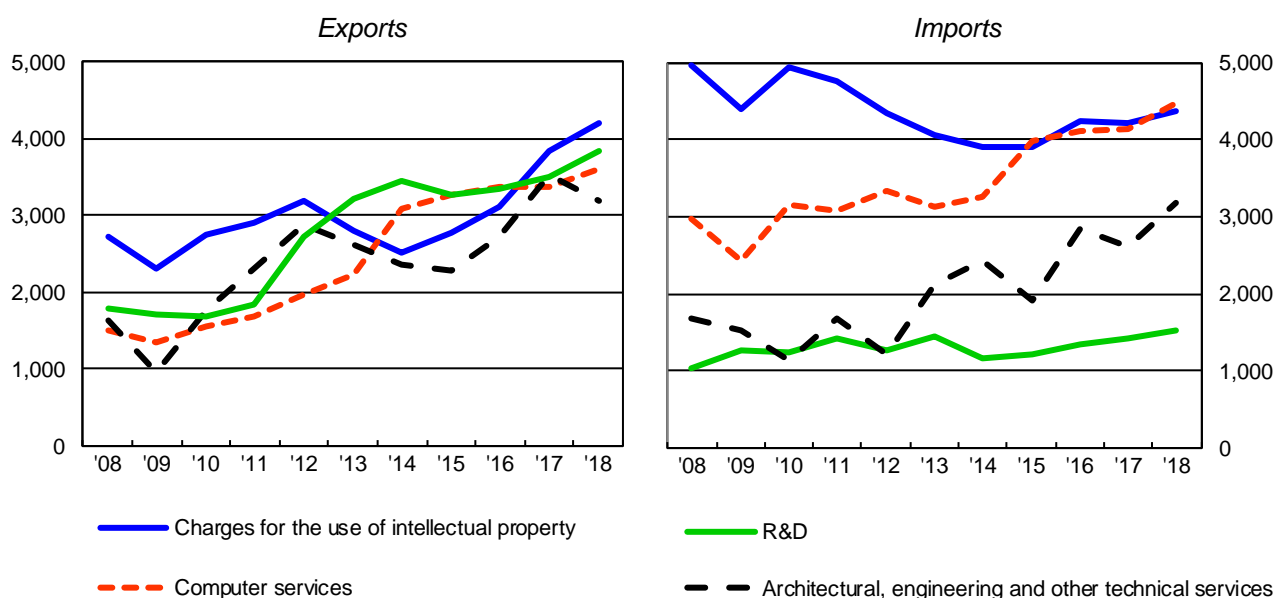
Exports grow in 2018 ...

Overall, disembodied technology exports rose by 4.3 per cent compared with 2017, reflecting increases in research and development, charges for the use of intellectual property, and computer services (of 10.1, 9.5 and 6.9 per cent respectively), while there was a fall of 9.5 per cent in architectural and engineering services, following robust growth the previous year. For the second year running, charges for the use of intellectual property constituted the largest item in sales abroad (€4.2 billion; Figure 2), confirming that Italian firms have improved at managing patents, licences and royalties; in this field, important names in the fashion industry have had a leading role.

... but imports have grown at a faster rate

The growth rate for imports was higher (9.3 per cent) than for exports, largely on account of the sharp increase in purchases of architectural and engineering services (21.8 per cent). Computer services increased by 8.4 per cent to €4.4 billion, becoming the most significant component, surpassing the component that has historically been the most important, charges for the use of intellectual property, which grew by only 3.1 per cent.

Figure 2 – Italy's technology balance of payments: exports and imports by type of transaction (2008-2018)
(millions of euros)



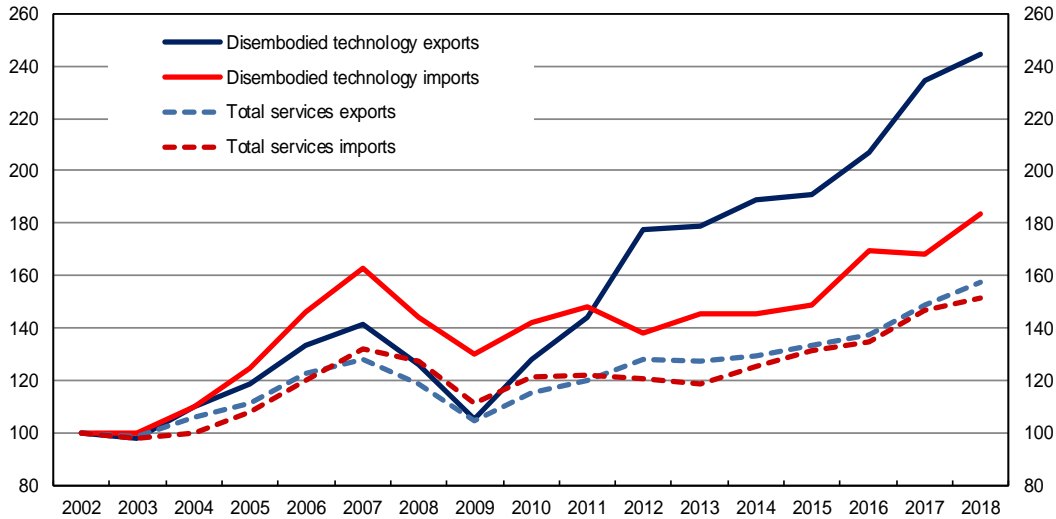
¹ This report was prepared by Enrico Tosti, data processing was carried out by Arcangela De Cata and Alessandro Moro.

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'. Adhering more strictly to the OECD classification, intangible assets do not fall within the technology balance of payments; the technology balance of payment flows are therefore underestimated (although probably not by very much) because the sale of licences and similar rights, royalties and other licenses not deriving from research and development are not included; for further details, see [Methods and Sources: Methodological Notes](#).

Trade in technology grew more than trade in other services

Flows of disembodied technology have increased in the last 15 years at a significantly greater rate than that for trade in services overall, both imports and exports. Since 2002, this technology trade has increased by an average of 7 per cent (exports grew by 9 per cent; Figure 3); the increase in trade in services overall was 3.5 per cent on average.

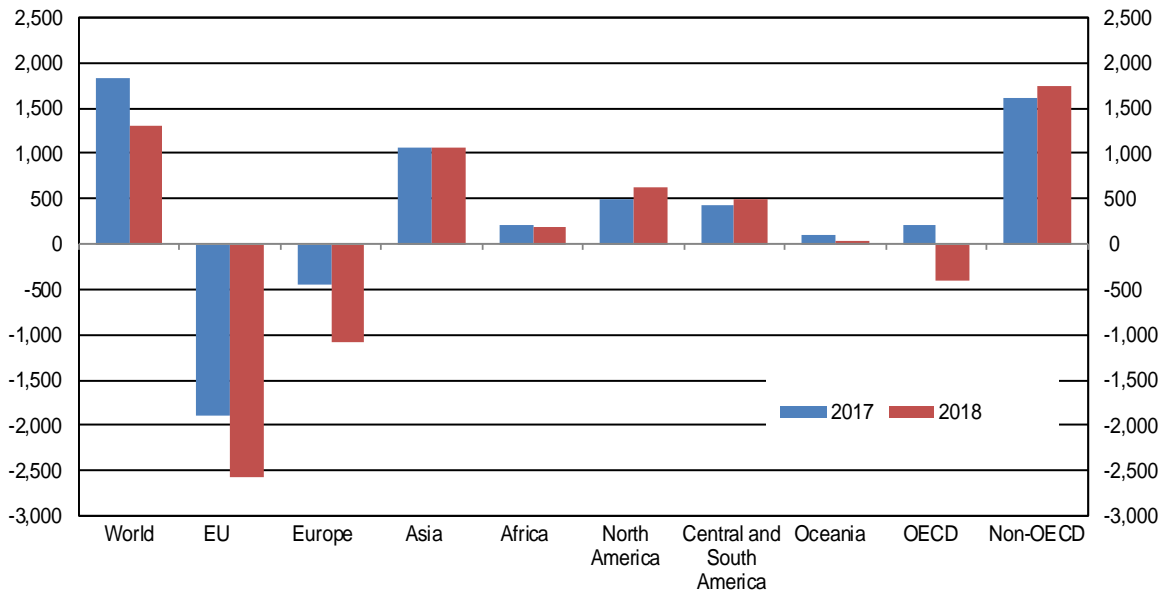
Figure 3 – Comparison of total trade in services and technology balance flows
(index numbers, base 2002=100)



The balance with OECD countries returns to being slightly negative

The transactions recorded in the technology balance of payments continued, for the most part, to be with advanced countries (almost 80 per cent of exports and 91 per cent of imports). The balance with respect to OECD countries, after recording a small surplus in 2017, returned to being slightly negative (-€0.4 billion, down from €0.2 billion; Figure 4 and Table 2). The deterioration was mainly due to the noticeable reduction in the surplus vis-à-vis France, which was almost completely eliminated because of the sharp drop in sales of architectural and engineering services. The surplus vis-à-vis non-OECD countries increased slightly, to €1.7 billion.

Figure 4 – Italy’s technology balance of payments by geographical area
(millions of euros)



Exports to OECD countries increase slightly and those to non-OECD record higher growth

Exports to OECD countries recorded modest growth in 2018 (1.6 per cent). The largest increase in absolute terms was in sales to Switzerland, which continues to be the main destination country for exports. Exports to Switzerland were valued at €2.3 billion, of which about half in research and development services predominantly in the electronics sector. Switzerland was followed by the United States, at €1.9 billion, and France at €1.4 billion. Conversely, the biggest declines in exports were in those to France and Poland. Sales to non-OECD countries grew even more markedly (18.5 per cent), including to the BRIC countries (Brazil, Russia, India and China).

Imports from OECD countries grew by 7.1 per cent. In particular, imports from Switzerland and France increased. Ireland is still the main source of Italy's disembodied technology imports (€2.2 billion), especially computer services given that the large multinationals in the sector are located there, followed by Germany (€1.9 billion). Imports from non-OECD countries increased by 38.1 per cent, especially from non-BRIC countries.

The surplus in manufacturing and the deficit in services sector both increase

Taking account of the business sector of firms resident in Italy, in 2018 the manufacturing sector's surplus grew from €2.1 to €2.5 billion (Figure 5 and Table 3), reflecting faster growth in exports than in imports (12.9 and 10.5 per cent respectively). In the service sector, however, the deficit widened from €0.1 to €1 billion, as a result of an increase in imports and a decrease in exports.

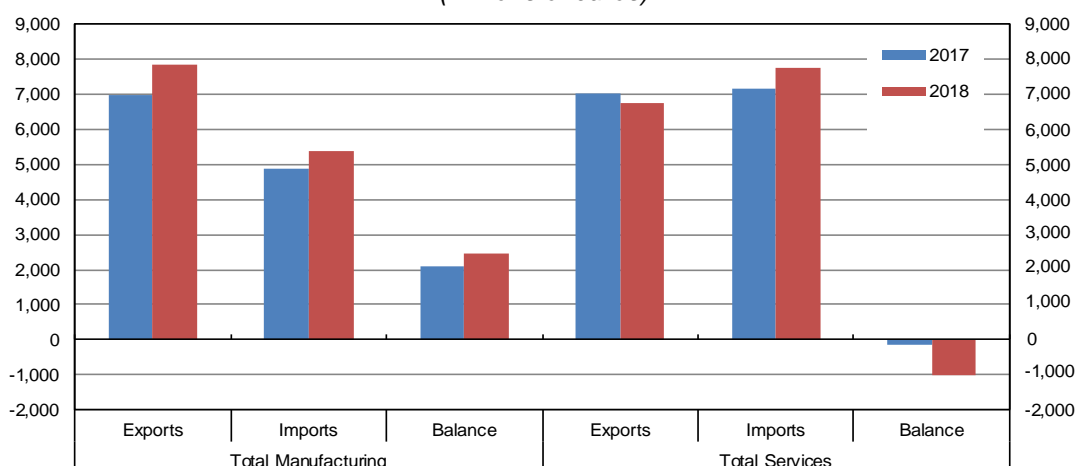
The manufacturing sector's share in total exports has returned to over 50 per cent

The share of total exports attributable to manufacturing firms has returned to above average levels (52.8 per cent); the greatest growth was seen in the chemical, pharmaceutical and motor vehicle sectors. However, the service sector's share of total exports declined to 45.5 per cent; the increase in sales abroad was mostly related to financial and insurance services, while professional, scientific and technical services recorded the largest decline, even if it remained the largest sector (€3.3 billion).

Technology imports in the manufacturing sector increased in a widespread manner across all sectors; the 'automotive' sector remained the primary acquirer. Among service firms, which account for 57 per cent of the total, 'information and communication services' remained in the top position, increasing in value to €4.7 billion.

In manufacturing, 'computer, electronic and optical products' continued to have the largest surplus, while the largest deficit was in 'electrical equipment'. In services, the decline in the surplus in 'professional, scientific and technical services' was met with an increase in the deficit in 'information and communication services'.

Figure 5 – Italy's technology balance of payments by exports, imports and balances for the manufacturing and service sectors
(millions of euros)



Large foreign-controlled companies play an important role

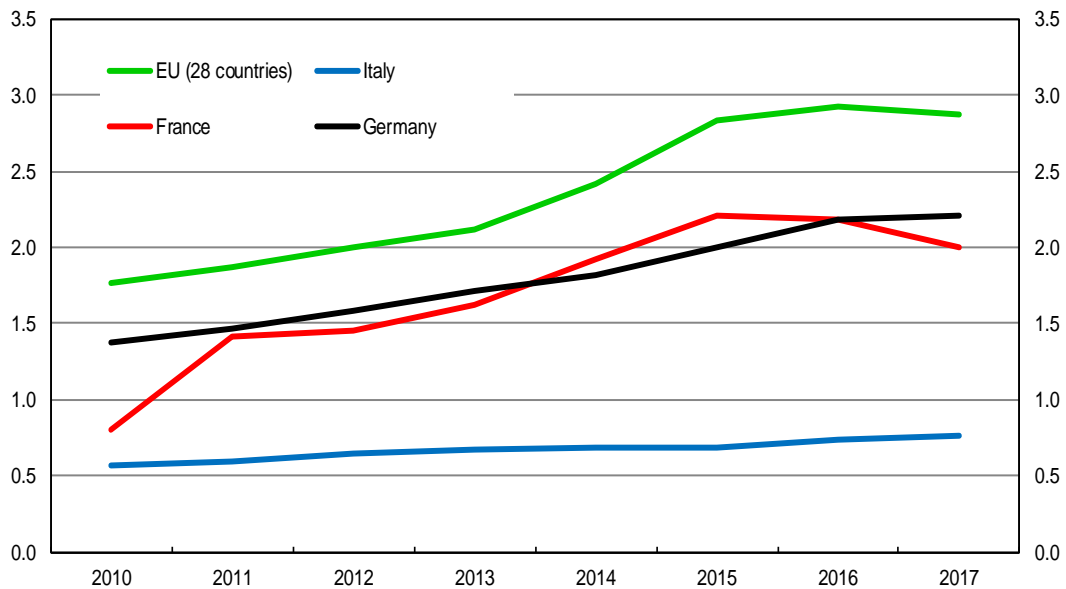
The share of large companies (those with 1,000 or more employees) trading in disembodied technology is high, at around 60 per cent on average in 2018. Moreover, this technology trade was carried out by a relatively small number of firms: around 70 per cent of exports and imports can be ascribed to the top 50 companies. Those belonging to a foreign group account for more than 60 per cent of trade, slightly more biased towards imports.³

Flows remain below the European average

By international comparison, Eurostat data shows that Italy's technology balance of payments continues not only to be significantly smaller than that of the two leading EU countries, Germany and France, but it is also below the EU average, which is influenced by the large share of technology trade in some member states such as Ireland (Figure 6). Ireland is an important centre for multinationals but it has a technology trade deficit given that a large volume of its computer exports are

actually offset by even larger spending on charges for the intellectual property and on research and development.

Figure 6 – Italy's technology balance of payments - EU comparison
(Average of exports and imports as a per cent of GDP)



Sources: Based on Eurostat data (balance of payments data and, for GDP, national accounts).

³ These results can also be found in less recent years, see E. Tosti (2013), 'The Italian technology balance of payments', Bank of Italy, Occasional Papers (only in Italian), <https://www.bancaditalia.it/pubblicazioni/gef/2013-0207/index.html?com.dotmarketing.htmlpage.language=1>.

Tables

Table 1 – Italy's technology balance of payments by transaction type

(millions of euros)

Year	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) Research and development	Total disembodied technology (A+B+C)
EXPORTS						
2002	2,040	1,008	1,274	2,282	1,746	6,068
2003	2,163	1,099	1,145	2,244	1,523	5,930
2004	2,321	1,209	1,438	2,648	1,691	6,659
2005	2,610	1,358	1,690	3,048	1,549	7,207
2006	2,934	1,526	1,899	3,425	1,741	8,100
2007	3,101	1,613	2,008	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	2,804	2,229	2,611	4,841	3,217	10,862
2014	2,520	3,103	2,372	5,475	3,449	11,444
2015	2,773	3,275	2,281	5,556	3,261	11,590
2016	3,110	3,387	2,723	6,110	3,355	12,575
2017	3,834	3,370	3,535	6,905	3,498	14,237
2018	4,198	3,602	3,200	6,802	3,852	14,852
IMPORTS						
2002	3,438	2,356	833	3,189	759	7,386
2003	3,832	1,770	896	2,666	890	7,388
2004	3,990	1,870	1,119	2,989	1,139	8,118
2005	4,452	2,441	1,272	3,713	1,058	9,223
2006	5,196	2,849	1,485	4,334	1,234	10,765
2007	5,815	3,188	1,662	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	3,251	2,441	5,693	1,168	10,757
2015	3,897	3,978	1,913	5,890	1,224	11,011
2016	4,235	4,116	2,848	6,964	1,338	12,536
2017	4,227	4,131	2,620	6,751	1,424	12,402
2018	4,357	4,476	3,191	7,667	1,528	13,552
BALANCE						
2002	-1,398	-1,348	441	-907	987	-1,318
2003	-1,669	-671	248	-422	634	-1,458
2004	-1,669	-661	320	-341	551	-1,459
2005	-1,842	-1,083	418	-666	492	-2,015
2006	-2,263	-1,323	414	-909	507	-2,665
2007	-2,714	-1,575	346	-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	1,657	293	1,458	596
2013	-1,251	-889	478	-411	1,774	111
2014	-1,376	-148	-69	-218	2,281	687
2015	-1,124	-702	368	-334	2,036	579
2016	-1,125	-729	-125	-854	2,017	39
2017	-393	-761	915	154	2,074	1,835
2018	-159	-874	9	-865	2,323	1,299

Table 2 – Italy’s technology balance of payments by counterpart country or geographical area
(millions of euros)

Counterpart country or geographical area	EXPORTS		IMPORTS		BALANCE	
	2017	2018	2017	2018	2017	2018
World	14,237	14,852	12,402	13,552	1,835	1,299
EU	7,397	7,235	9,302	9,801	-1,905	-2,566
Europe	9,768	9,935	10,211	11,012	-443	-1,077
Asia	1,779	2,089	715	1,023	1,064	1,066
Africa	265	273	54	80	211	193
North America	1,819	1,953	1,336	1,323	482	630
Central and South America	463	539	42	50	421	489
Oceania	107	61	11	33	97	27
Not classified	36	2	33	31	3	-29
OECD countries	11,684	11,867	11,467	12,277	217	-409
Austria	162	214	98	101	63	114
Belgium	546	475	328	279	218	197
France	1,736	1,385	1,141	1,305	595	80
Germany	1,233	1,301	1,798	1,870	-566	-569
Ireland	402	557	2,105	2,183	-1,703	-1,626
Luxembourg	436	420	191	169	245	251
Netherlands	274	228	859	822	-585	-594
Poland	576	398	75	82	500	316
Spain	321	339	243	360	78	-21
Sweden	308	365	141	163	167	202
United Kingdom	787	814	1,726	1,779	-939	-965
Switzerland	2,009	2,344	774	1,084	1,235	1,260
Turkey	132	118	46	40	86	78
United States	1,790	1,914	1,286	1,290	504	625
Canada	29	38	50	33	-22	5
Japan	152	127	81	98	72	28
Other OECD countries	792	829	524	618	269	211
Non-OECD countries	2,516	2,982	901	1,245	1,615	1,737
Russia	140	163	28	22	112	141
Brazil	199	257	27	33	172	224
China	418	471	201	138	218	333
India	117	190	59	88	58	102
Other non-OECD countries	1642	1902	587	964	1,055	938

Table 3 – Italy’s technology balance of payments by sector of economic activity (ATECO) of the Italian reporting entity
(millions of euros)

	EXPORTS		IMPORTS		BALANCE	
	2017	2018	2017	2018	2017	2018
Manufacturing	6,952	7,846	4,860	5,370	2,092	2,476
<i>of which:</i> Food, beverages, tobacco	437	472	261	297	176	174
Textiles, wearing apparel, leather and related products	728	939	266	392	462	548
Chemicals and chemical products	226	378	401	448	-175	-70
Pharmaceuticals	748	897	578	542	170	355
Rubber and plastic products	243	330	169	209	74	121
Computer, electronic and optical products	1,003	1,061	57	85	946	976
Electrical equipment	334	396	954	937	-620	-541
Machinery and equipment n.e.c.	608	815	408	501	200	314
Motor vehicles, trailers and semi-trailers	1,607	1,750	1,105	1,133	502	617
Services	7,005	6,752	7,139	7,739	-134	-988
<i>of which:</i> Wholesale and retail trade	642	702	773	737	-131	-34
Information and communication	1,734	1,665	4,459	4,722	-2,725	-3,057
Financial and insurance activities	464	761	227	297	237	463
Professional, scientific and technical activities	3,879	3,282	1,058	1,303	2,821	1,979
Other sectors*	280	254	403	444	-123	-190
Total	14,237	14,852	12,402	13,552	1,835	1,299

Note (*) – Other sectors comprise: Agriculture; Mining and quarrying; Electricity and waste; and Construction.