

Technology Balance of Payments

9 December 2021

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Main findings

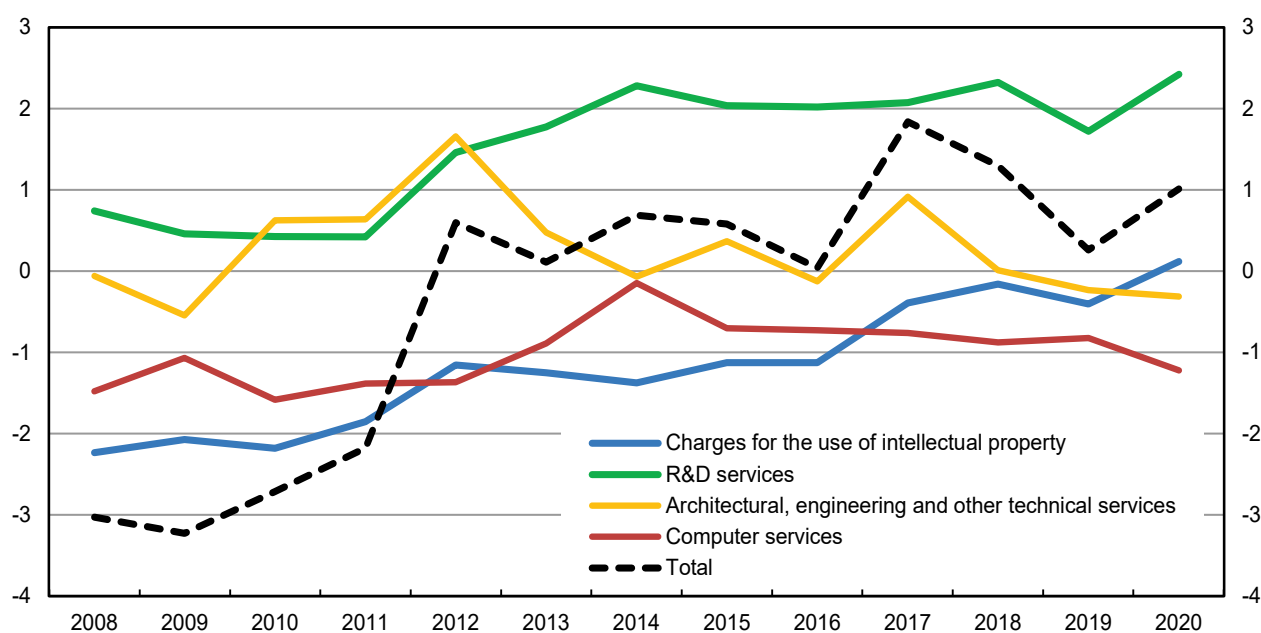
In 2020, Italy's technology balance of payments surplus, which includes fees for the use of intellectual property (patents and royalties), as well as trade in computer services, R&D services, and architectural, engineering and other technical services – collectively defined as international trade in disembodied technology – increased compared with the previous year, from €0.3 billion to €1.0 billion (Figure 1 and Table 1).

The increase of the surplus reflected the improvement in balances regarding fees for the use of intellectual property, and in R&D services, partly offset by the larger deficit in computer services. Overall, trade in disembodied technology in 2020 proved more resilient than that in other types of services, even excluding the ones most penalized by the COVID-19 pandemic (travel and transport). Exports actually increased, though only marginally, benefiting from the recovery in sales of R&D services; imports declined, mostly owing to the contraction in fees for the use of intellectual property, though at a slower pace compared with that recorded for other services.

Manufacturing firms maintained a positive balance, up slightly compared with the previous year; the deficit of service firms also narrowed down, thanks above all to growth in exports.

While it is one of the most dynamic components of trade in services in Italy, disembodied technology trade, as a share of GDP, of this country remains below the European average.

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



Reference period: 2020

Italy's technology balance of payments in 2020¹

The technology balance of payments surplus increases

In 2020, Italy's overall technology balance of payments,² positive since 2012, stood at €1.0 billion (up from €0.3 billion in 2019; Table 1). The improvement with respect to the previous year reflected the increase in the surplus of R&D services and the transition from deficit to surplus of fees for the use of intellectual property (which includes charges for the use of patents, licences and royalties). The deficit in computer services increased, while it remained virtually unchanged for engineering and architectural services.

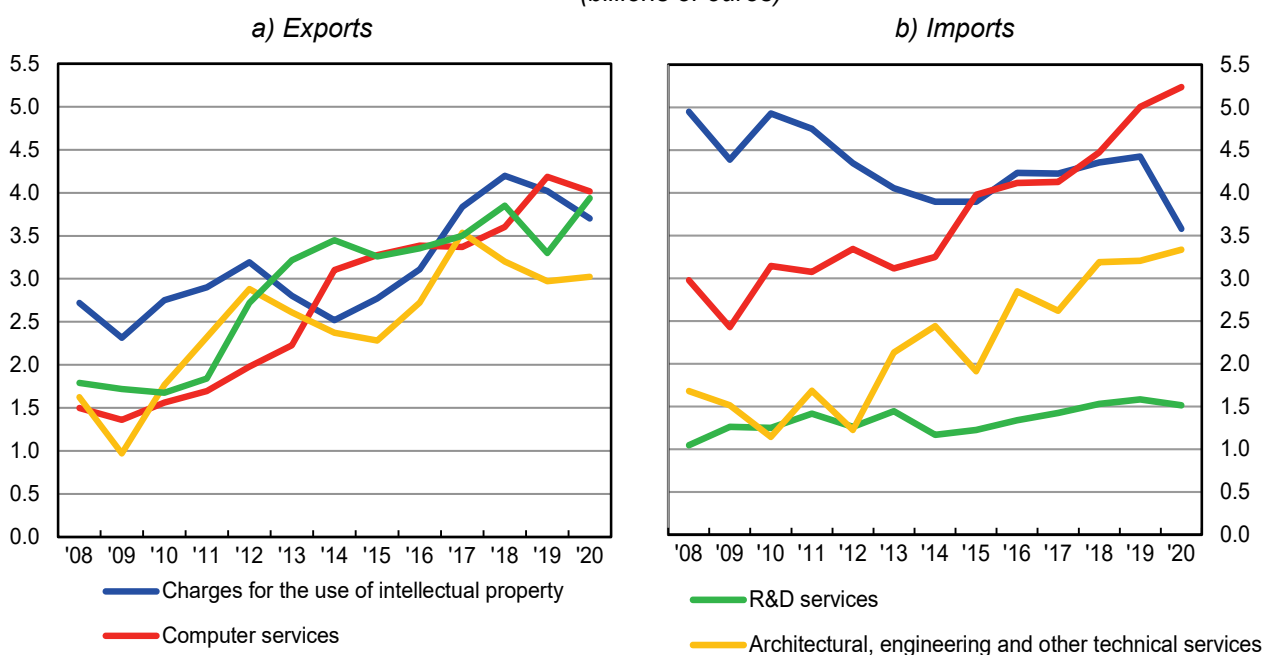
Exports grow by 1.4 per cent in 2020 ...

In 2020, overall trade in disembodied technology held basically stable compared with other services, but patterns varied among the main items.³ Technology exports increased by 1.4 per cent compared with 2019, mostly reflecting the marked increase in sales of R&D services abroad (19.2 per cent); engineering and architectural services also recorded a slight expansion (1.7 per cent). Exports of fees for the use of intellectual property and computer services instead declined (panel (a) of Figure 2).

... while imports decline by 3.9 per cent

Imports of technology services fell by 3.9 per cent, owing above all to the marked decline in fees for the use of intellectual property (-19.1 per cent) and of R&D purchases (-4.2 per cent). Imports of computer services, and of architectural and engineering services, instead increased, by 4.7 and 4.1 per cent respectively (panel (b) of Figure 2).

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



¹This report was prepared by Enrico Tosti, data processing was carried out by Arcangela De Cata and Francesca Monica Romano.

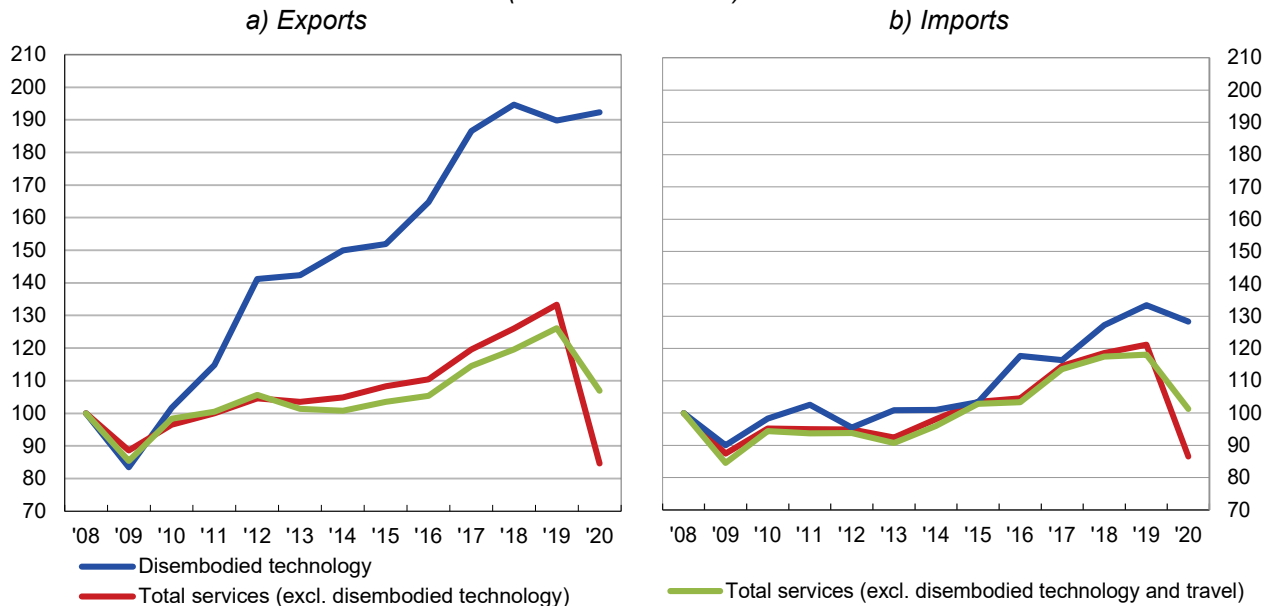
² The definition of technology balance of payments follows the OECD's taxonomy, which excludes the sale of licenses and similar rights, royalties and other licenses not derived from research and development since such flows are recorded under 'intangible assets' in the capital account and therefore cannot be kept distinct from other transactions entered under that item (such as the sale of CO2 emission rights and the like, television and film rights and athlete transfers from one club to another). To avoid significant overestimations, we have decided to exclude these transfers from the technology balance of payments, although we should note that the sums involved are negligible. For further details, see [Methods and Sources: Methodological Notes](#).

³ A number of factors may explain the greater resilience of technology services trade, such as greater demand for computer services owing to the pandemic, the use of mostly digital channels for these transactions (not subject to restrictions on movements of people or goods), as well as the likely high share of within-group trade (typically associated with greater stability of trade relations also in times of crisis).

Since 2008 technology exports have risen much faster than other services

The trends observed last year confirm the one under way for over a decade (Figure 3). Since 2008, sales of disembodied technology have actually increased by 7.7 per cent on average each year, against -1.3 per cent for other services; the growth gap remains significant even excluding 2020, conditioned by the collapse of tourism revenue. For imports, the gap, which was much smaller until 2019, expanded again in 2020 owing to the abrupt fall in tourism expenditure by Italians travelling abroad.

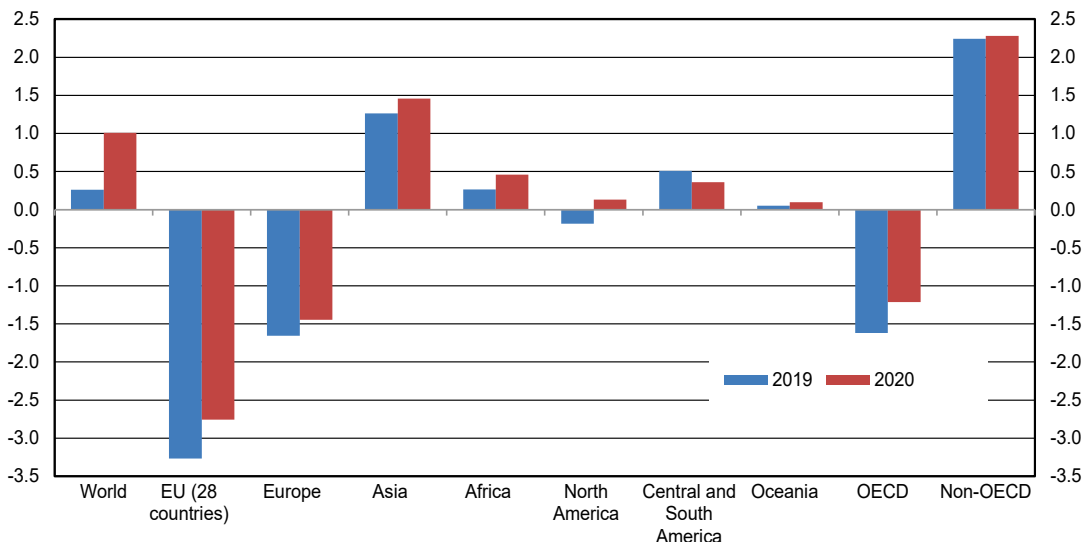
Figure 3 – Italy’s technology balance of payments: exports and imports compared with other services data
(indices: 2008=100)



The deficit with OECD countries narrows

Most of the trade recorded in disembodied technology has been with advanced economies (around three quarters for exports and 90 per cent for imports). Almost all of the improvement in the technology balance of payments in 2020 is attributable to trade with OECD countries; the deficit vis-à-vis these economies narrowed to €1.2 billion (from €2.0 billion in the previous year; Figure 4 and Table 2). Improvements were especially apparent in the disembodied technology balance with the United States (which turned positive) and with the Netherlands and Germany. That towards non-OECD countries remained basically unchanged (at €2.3 billion, from €2.2 billion in 2019); the increase in the surplus with China was offset by the reduction in the surpluses with Russia, Brazil and India.

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



Switzerland, the United States and Germany are the main export outlets

Switzerland continues to be the main destination country for Italian exports (€1.8 billion, down on 2019); this is mostly accounted for by R&D services sold primarily by the electronics and pharmaceuticals sectors. By contrast, sales in the other two main markets increased: the United States (€1.7 billion, especially R&D services) and Germany (€1.5 billion, mostly computer services). Among non-OECD countries, sales rose above all to China (€0.8 billion, mostly in fees for the use of intellectual property).

Ireland is still the main country of origin for imports

Ireland has been confirmed as the main country of origin for Italy's purchases (€2.7 billion, almost entirely in computer services), followed by Germany (€2.1 billion); the flows from both countries were basically unchanged with respect to last year. Among the other OECD countries, purchases from the Netherlands declined (mostly in fees for the use of intellectual property). Imports from non-OECD countries remained stable.

The manufacturing surplus grows slightly

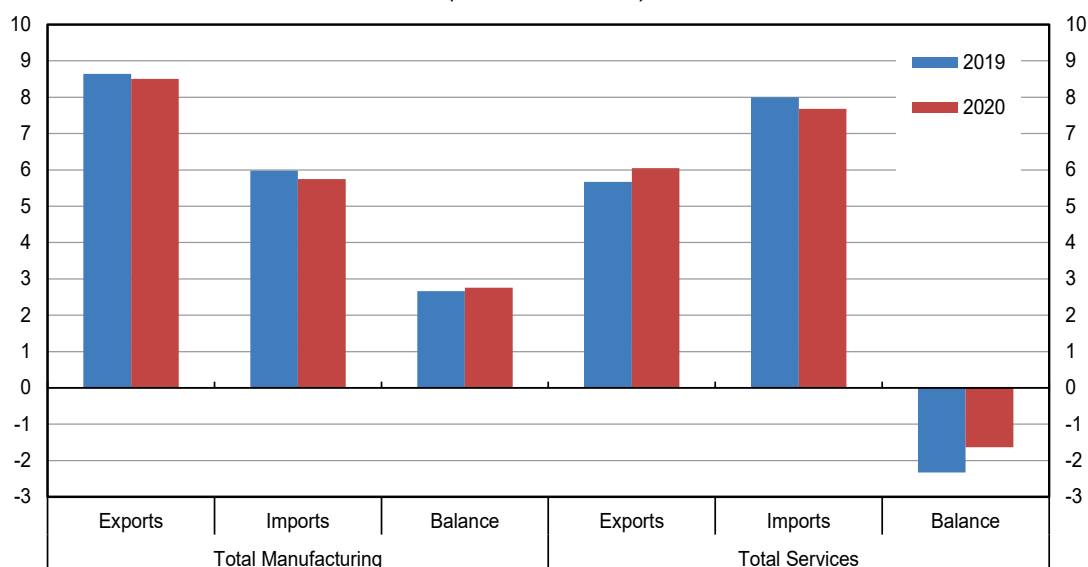
Turning to the business sectors of resident firms that trade in disembodied technology, the manufacturing surplus rose slightly in 2020 (reaching €2.8 billion) and the services deficit contracted significantly (to €1.6 billion), thanks to the expansion of exports (Figure 5 and Table 3).

Almost 60 per cent of exports is attributable to manufacturing firms

The share of exports of disembodied technology attributable to manufacturing firms declined a little, settling at 58 per cent of the total. The most dynamic sector was motor vehicles, which almost recouped the sharp fall recorded in 2019, thanks above all to R&D sales concentrated in the fourth quarter of 2020; the machinery and equipment, chemical-pharmaceuticals, and textiles-apparel sectors increased sales abroad. Service firms, which recorded an increase, accounted for 41 per cent of the total. Sales of 'professional, scientific and technical services' and of 'information and communication services' increased, while 'trade and distribution services' declined.

As for imports, the manufacturing sector – which remained stable at around 42 per cent of the total – registered a decline, mainly in the 'chemicals' and the 'rubber and plastic products' sectors. Businesses in the service sector, which account for 56 per cent of purchases, those classified as 'information and communication services' suffered the most significant reduction, offset by an increase in purchases on the part of companies in the 'financial and insurance services' sector.

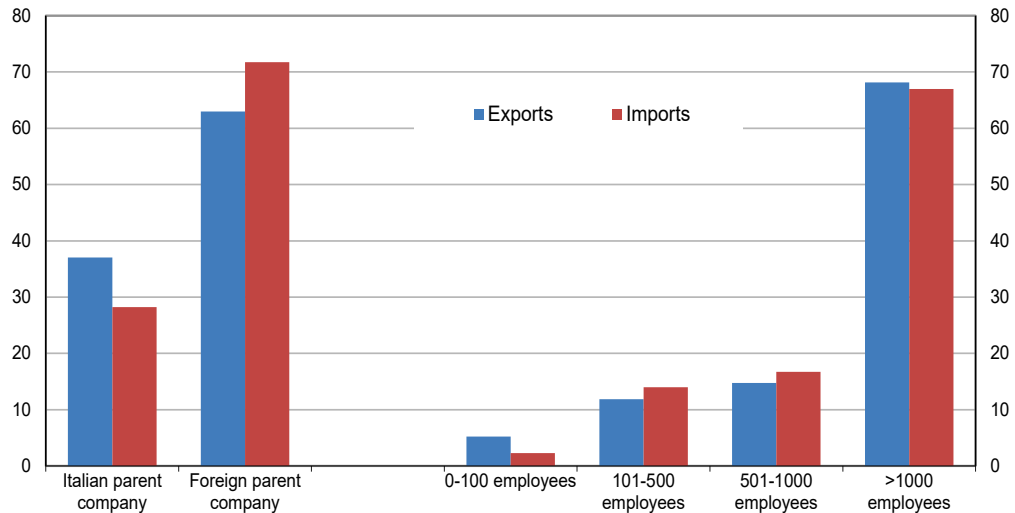
Figure 5 – Italy's technology balance of payments: exports, imports and balances for the manufacturing and service sectors
(billions of euros)



Large and foreign-controlled firms predominate

The share of large companies (those with 1,000 or more employees) trading in disembodied technology rose even higher, to around 67-68 per cent of both imports and exports in 2020. Firms with foreign parent companies accounted for 72 per cent of imports and 63 per cent of exports (Figure 6).

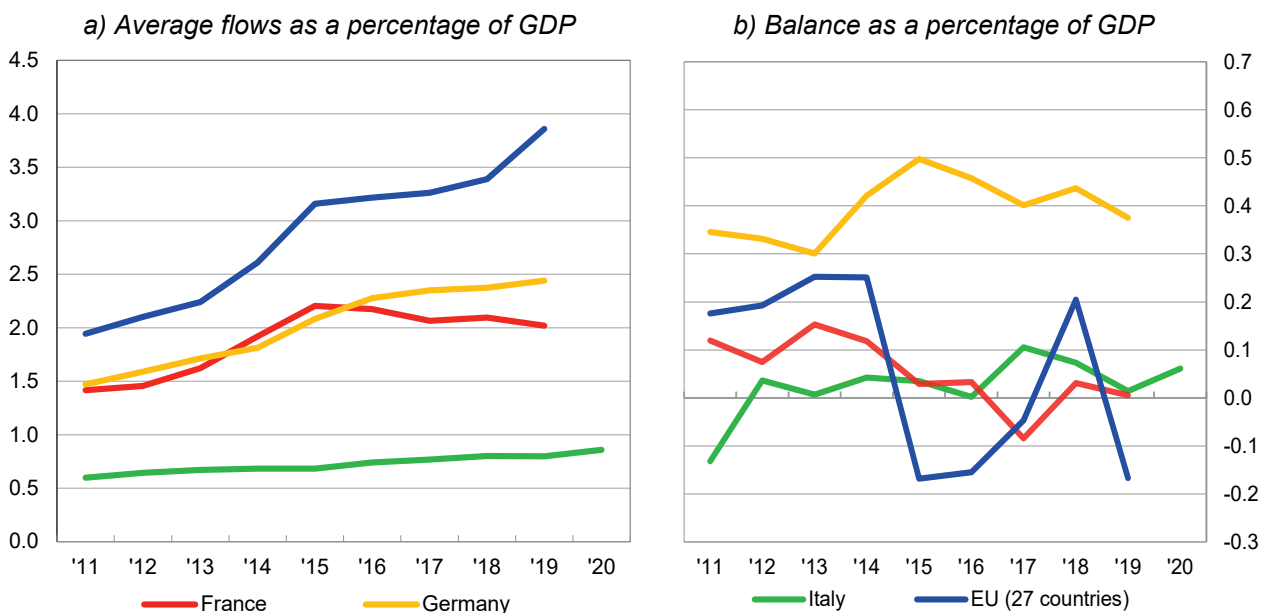
Figure 6 – Italy's technology balance of payments for 2020 by size class and group membership (per cent)



Disembodied technology flows as a percentage of GDP is still below the EU average

In 2019 (the last year for which internationally comparable data are available) Italy's technology balance of payments as a percentage of GDP was significantly smaller than that of Germany and France and the EU average (27 countries; panel (a) of Figure 7). This latter figure is influenced by the considerable share of disembodied technology trade in countries, such as Ireland and the Netherlands, where companies belonging to big multinational groups operate and which often record a technology trade deficit given that a large volume of their sales of computer services are actually offset by even higher spending on charges for the use of intellectual property and, in Ireland, on R&D services as well. In terms of the disembodied technology balance, Italy's position in 2019 was in line with France and better than the EU average (panel (b) of Figure 7).

Figure 7 – Italy's technology balance of payments - EU comparison



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

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
2019	4,021	4,185	2,973	7,158	3,301	14,480
2020	3,700	4,018	3,025	7,043	3,936	14,680
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	4,477	3,191	7,668	1,528	13,553
2019	4,425	5,006	3,206	8,212	1,581	14,219
2020	3,580	5,240	3,337	8,576	1,514	13,671
BALANCES						
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	-875	9	-865	2,323	1,298
2019	-404	-822	-232	-1,054	1,720	261
2020	120	-1,222	-311	-1,533	2,422	1,009

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

Counterpart country or geographical area	EXPORTS		IMPORTS		BALANCES	
	2019	2020	2019	2020	2019	2020
World	14,480	14,680	14,219	13,671	261	1,009
EU (28 countries)	7,138	7,067	10,405	9,822	-3,267	-2,755
Europe	9,760	9,317	11,416	10,762	-1,656	-1,446
Asia	2,177	2,063	916	604	1,261	1,459
Africa	445	977	181	518	263	459
North America	1,384	1,751	1,568	1,619	-184	132
Central and South America	553	399	46	38	507	362
Oceania	88	107	37	9	51	98
Unallocated data	73	67	55	121	18	-54
OECD	10,915	11,078	12,913	12,294	-1,998	-1,215
Austria	231	273	108	123	123	150
Belgium	459	409	201	197	258	211
France	1,139	1,096	1,181	1,352	-42	-257
Germany	1,375	1,476	2,120	2,107	-745	-631
Ireland	725	653	2,733	2,657	-2,008	-2,004
Luxembourg	509	449	263	178	246	270
Netherlands	164	186	1,039	674	-875	-488
Poland	268	285	61	67	207	218
Spain	324	235	312	234	12	1
Sweden	456	488	156	191	300	297
United Kingdom	841	772	1,753	1,635	-911	-863
Switzerland	2,043	1,818	863	807	1,181	1,011
Turkey	99	128	32	29	66	99
United States	1,325	1,698	1,513	1,565	-188	133
Canada	59	53	55	54	4	-1
Japan	100	127	83	66	17	61
Other OECD countries	797	933	440	355	357	578
Non-OECD countries	3,492	3,535	1,251	1,256	2,241	2,278
Russia	409	241	13	9	396	232
Brazil	264	176	18	7	246	170
China	522	818	129	90	393	729
India	241	136	154	79	87	56
Other non-OECD countries	2,056	2,164	937	1072	1,119	1,092

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

	EXPORTS		IMPORTS		BALANCES	
	2019	2020	2019	2020	2019	2020
Manufacturing	8,639	8,504	5,978	5,750	2,661	2,755
<i>of which: Food, beverages, tobacco</i>	524	514	225	242	299	272
<i>Textiles, wearing apparel, leather and related products</i>	778	849	126	130	652	720
<i>Chemicals</i>	398	442	412	358	-14	84
<i>Pharmaceuticals</i>	991	1056	431	451	559	605
<i>Rubber and plastic products</i>	221	210	160	92	61	118
<i>Computer, electronic and optical products</i>	1,104	1,067	150	180	953	887
<i>Electrical equipment</i>	559	421	942	869	-383	-448
<i>Machinery and equipment n.e.c.</i>	692	796	429	446	263	350
<i>Motor vehicles, trailers and semi-trailers</i>	1,170	1,658	1,319	1,377	-149	281
Services	5,669	6,048	7,997	7,682	-2,328	-1,634
<i>of which: Wholesale and retail trade</i>	1,079	919	900	864	179	56
<i>Information and communication</i>	1,857	2,046	4,860	4,457	-3,003	-2,411
<i>Financial and insurance</i>	151	168	341	689	-190	-521
<i>Professional, scientific and technical</i>	2,085	2,412	929	850	1,156	1,562
Other sectors*	171	128	243	240	-72	-111
Total	14,480	14,680	14,219	13,671	261	1,009

Note (*) – i) Other sectors include: Agriculture; (ii) Mining and quarrying; (iii) Electricity and waste; (iv) Construction.

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