

Technology Balance of Payments

14 December 2023

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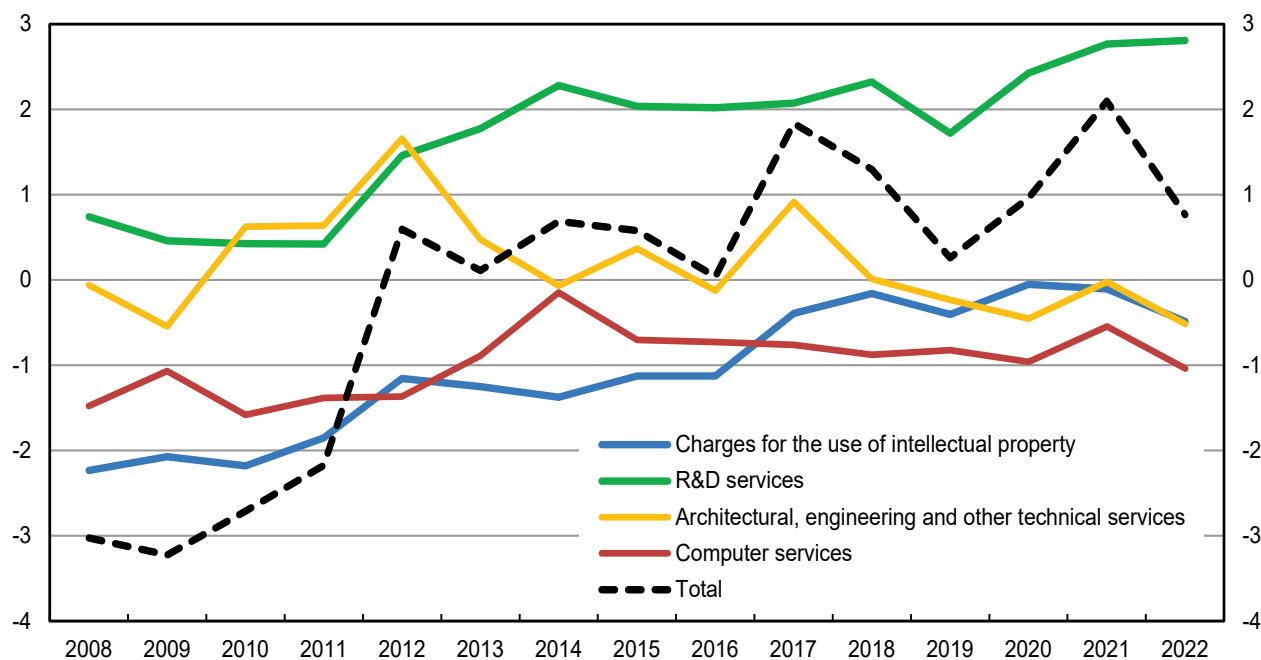
Main findings

In 2022, Italy's technology balance of payments (TBP), which includes fees for the use of intellectual property, as well as trade in computer services, research and development (R&D) services, and architectural and engineering services (collectively defined as international trade in disembodied technology), recorded a surplus of €0.8 billion, down from the previous year's high of €2.1 billion (Figure 1 and Table 1).

The lower surplus reflected a worse performance for all components except R&D services. The TBP surplus was entirely due to manufacturing firms, which account for around 60 per cent of disembodied technology exports. The trade share of firms that are part of foreign groups remained high (almost 70 per cent of exports and 75 per cent of imports).

Despite the relatively strong growth observed over the last fifteen years, Italy's disembodied technology trade relative to GDP remains below the EU average and the average for the major euro-area countries.

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



Reference period: 2022

Italy's technology balance of payments in 2022¹

The technology balance of payments records a small surplus

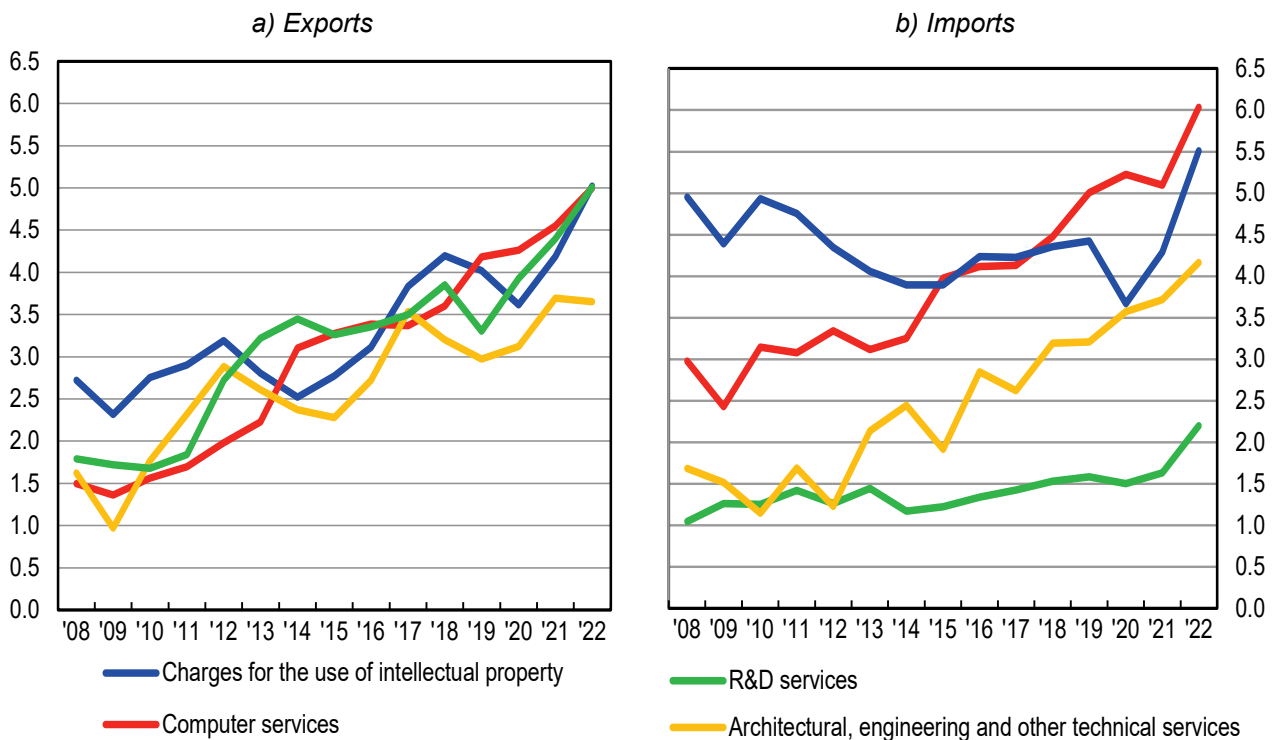
In 2022, Italy's technology balance of payments,² which has been positive since 2012, fell to €0.8 billion, from its 2021 peak of €2.1 billion (Table 1), reflecting a broadly stable R&D surplus and higher deficits for the other three components.

In 2022, disembodied technology exports increased by 10.9 per cent. Fees for the use of intellectual property made the strongest contribution (up by 19.9 per cent). Exports of R&D services and computer services grew by 13.8 and 9.7 per cent respectively, while exports of engineering and architectural services declined by 1.2 per cent (see panel (a) of Figure 2).

Imports grow more than exports ...

Disembodied technology imports rose by 21.5 per cent. Purchases were up for all components of the TBP, with changes ranging from +34.8 per cent for R&D services to +12.1 per cent for engineering and architectural services (see panel (b) of Figure 2); in nominal terms, all items are at their highest since the inception of the TBP.

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



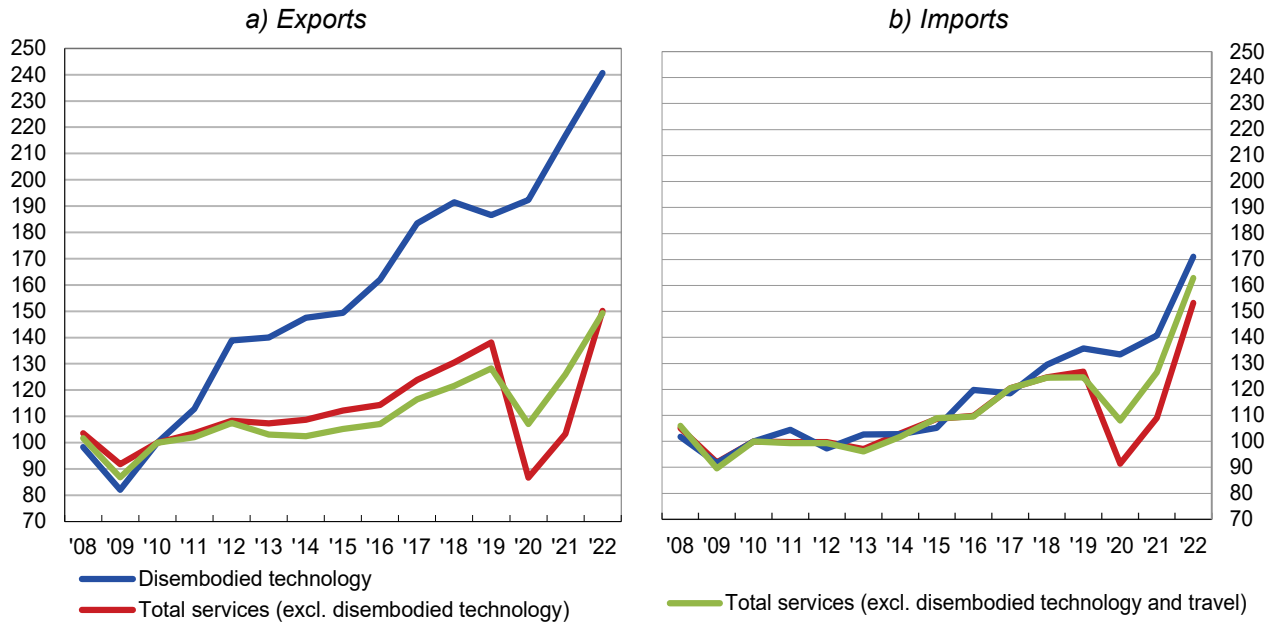
¹ This report was prepared by Enrico Tosti, data were processed by Arcangela De Cata and Francesca Monica Romano.

² The definition of 'technology balance of payments' follows the OECD's taxonomy, which excludes the sale of concessions and similar rights, royalties and other non-R&D-related licenses in order to avoid overestimation. These flows would be recorded as 'intangible assets' in the capital account and therefore could not 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 transfers of sports players from one club to another). In any case, the value of these transactions is likely to be negligible. For further details, see: [Methods and Sources: Methodological Notes](#).

Trade in technology has grown faster than in other services over the last fifteen years, except in 2022

In 2022, both TBP exports and imports grew at lower rates than for other types of services, even excluding travel, which rebounded strongly after the end of the COVID-19 pandemic (Figure 3). This contrasts with the trend observed over the past fifteen years, when sales of disembodied technology increased by 10.3 per cent on average each year, versus 3.2 per cent for other services. On the purchase side, the gap in the average growth rate has been much smaller since 2008 (4,9 per cent for the TBP compared with 3.3 per cent for other services) and it narrowed further last year.

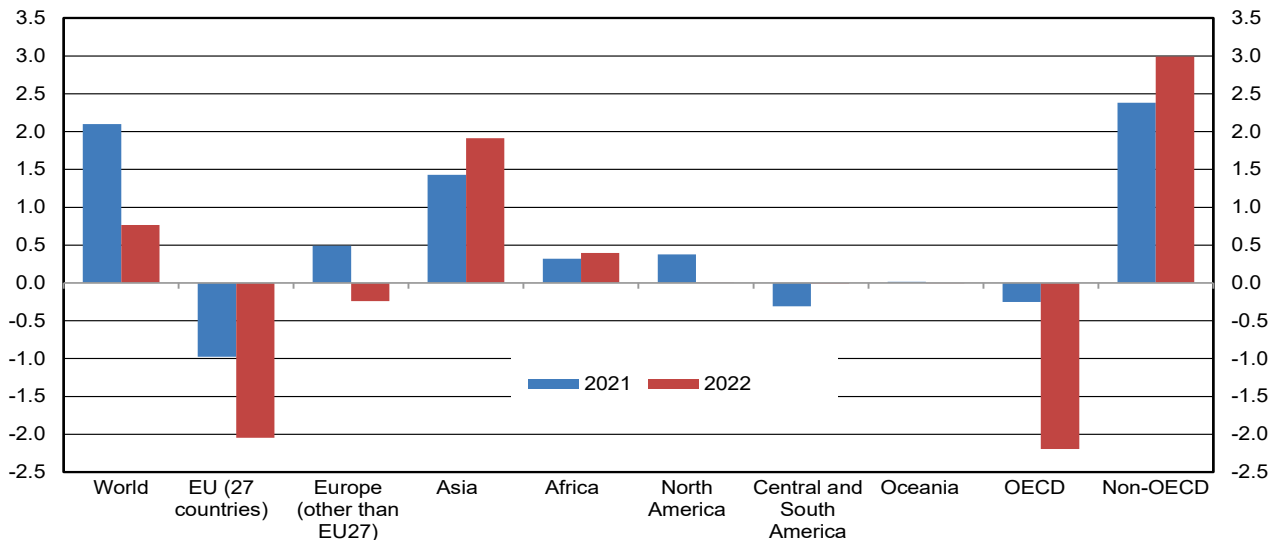
Figure 3 – Italy’s technology balance of payments: exports and imports compared with other services data (indices: 2010=100)



The deficit vis-à-vis OECD countries

The reduction in the TBP surplus in 2022 was entirely due to a wider deficit vis-à-vis OECD countries (Figure 4 and Table 2), which accounts for three quarters of exports and 91 per cent of imports. Balances deteriorated for a considerable number of countries, namely the United States, Switzerland, France, Germany and Ireland. On the other hand, the surplus vis-à-vis non-OECD countries increased, especially for Qatar and Brazil.

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



The United States and Switzerland are the main export outlets

Italian exports to OECD countries were mostly to the United States (€2.3 billion, from €2.2 billion in 2021) and Switzerland (€1.9 billion, from €1.8 billion); for both countries this is largely accounted for by sales of R&D services. Exports to France, Germany, Ireland and the United Kingdom rose as well. Outside the OECD, the main outlet markets were China (particularly for fees for the use of intellectual property), Brazil and Qatar (to a large extent for computer services and engineering services respectively).

Ireland and Germany remain the top import partner countries for Italy

Ireland, which is home to several high-tech multinationals, was the top exporter to Italy (€2.5 billion, from €2.2 billion in 2021), mostly of computer services. Purchases from Germany, worth a similar amount overall (€2.5 billion, from €2.2 billion), were more evenly distributed across TBP components. Imports from France climbed from €1.6 billion to €2.4 billion, with fees for the use of intellectual property taking the lion's share. Imports from non-OECD countries amounted to €1.7 billion, slightly up from 2021. There was a significant increase in purchases from China and India (mostly of engineering services and other technical services for both countries).

Manufacturing firms' surplus remains high

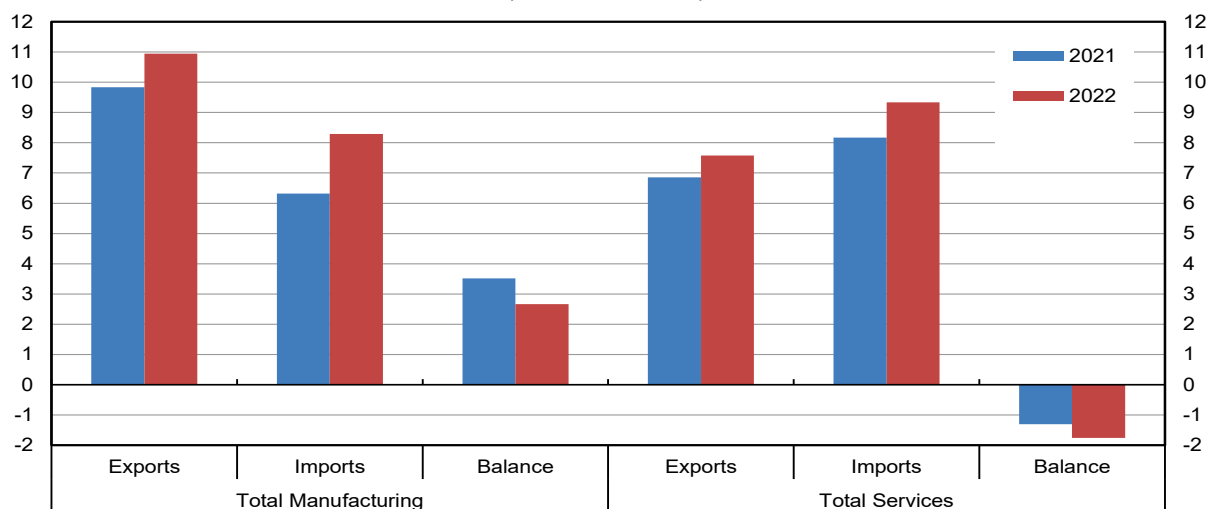
By sector, the surplus of resident manufacturing firms trading in disembodied technology fell from €3.5 billion to €2.7 billion in 2022, although it remained at a high level. The deficit of service providers widened to €1.8 billion, from €1.3 billion in the previous year (Figure 5 and Table 3).

Manufacturing firms account for almost 60 per cent of exports

Manufacturing firms' share of exports remained broadly stable, at 59 per cent of the total. The main industries involved in the sale of disembodied technology (i.e. transport equipment and electronics) had differing performances, with the former holding stable and the latter growing strongly. In services, exports of 'professional, scientific and technical services' and of 'trade and distribution services' rose, while exports of 'information and communication services' declined.

As regards imports, the share of manufacturing firms rose to 46 per cent; the pick-up was concentrated in the transport equipment, pharmaceuticals and food sectors. In the service sector, accounting for 52 per cent of purchases, 'information and communication services' increased their imports by 13 per cent, thus increasing their share, which was already more than half of total services imports.

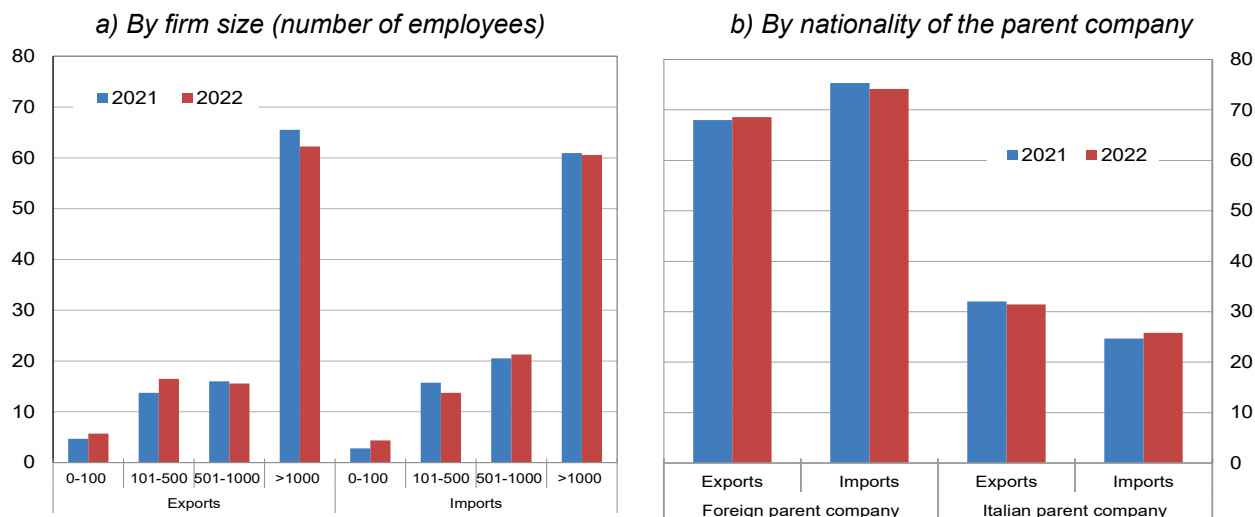
Figure 5 – Italy's technology balance of payments: exports, imports and balances for the manufacturing and service sectors
(billions of euros)



Large and foreign-controlled firms account for greater shares

The share of large firms (those with 1,000 or more employees) trading in disembodied technology fell slightly in 2022, though it remained high (over 60 per cent; see panel (a) of Figure 6). The share of firms with foreign parent companies rose marginally in exports, to 69 per cent, and declined slightly in imports, to 74 per cent (see panel (b) of Figure 6).

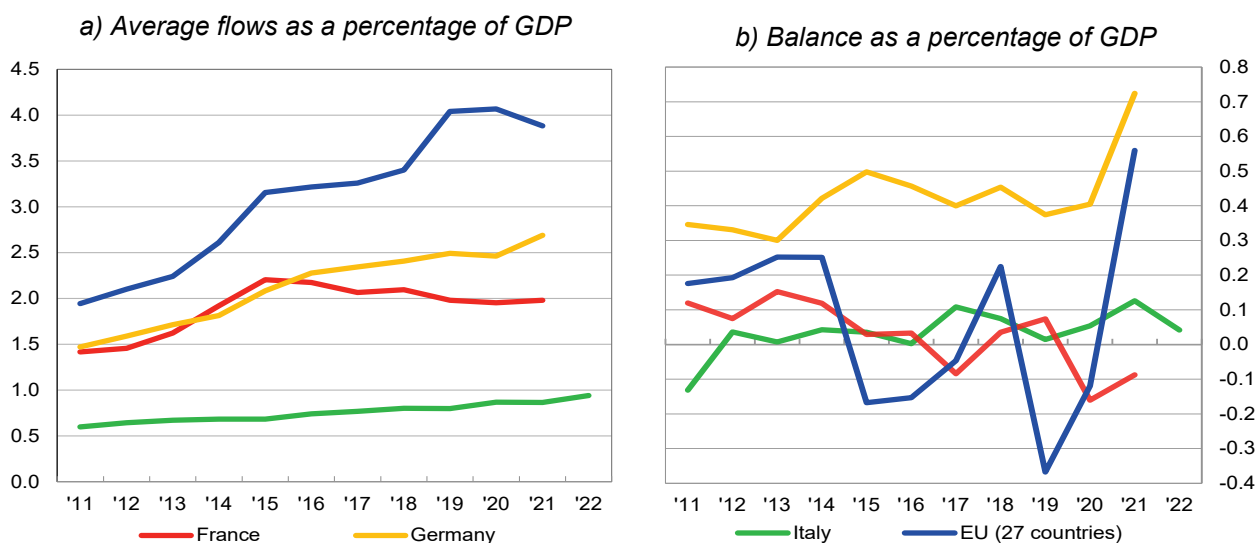
Figure 6 – Italy's technology balance of payments by firm size and by nationality of the parent company (per cent)



The technology balance of payments as a percentage of GDP is still below the EU average

In 2021 (the last year for which internationally comparable data are fully available), Italy's TBP flows as a percentage of GDP were still significantly smaller than those of Germany and France (see panel (a) of Figure 7).³ The high EU average reflects the large share of technology trade in countries, such as Ireland, where companies belonging to large multinational groups operate. In terms of disembodied technology balances, Italy's position in 2021 was higher than France's but below the EU average and Germany (see panel (b) of Figure 7).

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



Source: Based on Eurostat data (balance of payments data; national accounts data for GDP).

³ The gap was observed for both exports (0.9 per cent of GDP in Italy, compared with 1.9 per cent in France and 3.1 per cent in Germany) and imports (0.8 per cent of GDP in Italy, compared with 2.0 per cent in France and 2.3 per cent in Germany).

Tables

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

Year	A) Fees 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 BP_TEC (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	3,617	4,264	3,119	7,383	3,928	14,929
2021	4,187	4,552	3,696	8,248	4,398	16,832
2022	5,019	4,996	3,651	8,647	5,007	18,673
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	3,670	5,224	3,571	8,795	1,503	13,967
2021	4,290	5,096	3,716	8,811	1,632	14,733
2022	5,507	6,034	4,166	10,200	2,199	17,907
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	-52	-960	-452	-1,412	2,426	962
2021	-103	-544	-20	-564	2,766	2,099
2022	-488	-1,039	-515	-1,553	2,807	766

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	
	2021	2022	2021	2022	2021	2022
World	16,832	18,673	14,733	17,907	2,099	766
EU (27 countries)	7,570	8,300	8,547	10,347	-977	-2,047
Europe (other than EU 27)	3,343	3,412	2,853	3,652	490	-240
Asia	2,167	2,820	737	908	1,430	1,912
Africa	865	902	544	504	321	398
North America	2,273	2,332	1,897	2,331	376	1
Central and South America	523	110	831	118	-309	-8
Oceania	90	9	74	11	16	-2
<i>Unallocated data</i>	2	2	35	34	-33	-33
OECD	12,924	14,014	13,175	16,208	-250	-2,194
Austria	306	248	120	137	186	111
Belgium	434	465	246	237	188	228
Finland	248	238	108	152	140	86
France	1,334	1,791	1,613	2,398	-279	-607
Germany	1,343	1,444	2,205	2,461	-862	-1,017
Ireland	1,202	1,299	2,164	2,492	-962	-1,193
Luxembourg	454	526	191	177	263	349
Netherlands	246	291	866	1,014	-619	-723
Poland	241	323	87	84	154	239
Spain	286	353	219	314	67	39
Sweden	488	446	226	388	262	57
United Kingdom	924	1,181	1,808	2,193	-884	-1,013
Switzerland	1,757	1,873	813	1,215	944	658
Turkey	273	142	45	62	228	80
United States	2,214	2,263	1,839	2,268	375	-5
Canada	59	69	59	63	1	6
Japan	145	261	68	90	77	171
Other OECD countries	970	800	499	461	471	340
Non-OECD countries	3,906	4,657	1,524	1,665	2,383	2,992
Croatia	294	361	18	24	277	338
Russia	320	134	13	7	308	126
Brazil	226	485	37	63	189	422
China	780	913	214	305	566	608
India	129	156	89	116	41	41
Qatar	83	451	75	33	8	418
Singapore	150	178	28	24	123	154
Other non-OECD countries	1,923	1,978	1,051	1,092	872	885

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

	EXPORTS		IMPORTS		BALANCES	
	2021	2022	2021	2022	2021	2022
Manufacturing	9,836	10,949	6,321	8,287	3,515	2,662
<i>of which: Food, beverages and tobacco</i>	639	761	322	581	317	181
<i>Textiles, wearing apparel, leather and related products</i>	542	734	96	158	446	577
<i>Chemicals</i>	462	433	491	536	-29	-103
<i>Pharmaceuticals</i>	1,042	1,108	463	825	579	283
<i>Computer, electronic and optical products</i>	1,366	1,762	322	340	1,044	1,422
<i>Electrical equipment</i>	470	479	1,020	1,115	-550	-636
<i>Machinery and equipment n.e.c.</i>	929	1,099	479	559	450	539
<i>Motor vehicles, trailers and semi-trailers</i>	2,166	2,267	1,344	1,640	823	627
<i>Other transport equipment</i>	1,557	1,534	852	1,378	705	156
Services	6,860	7,580	8,167	9,334	-1,306	-1,754
<i>of which: Wholesale and retail trade</i>	1,694	2,329	1,232	1,529	461	800
<i>Information and communication</i>	1,993	1,894	4,325	4,882	-2,332	-2,987
<i>Financial and insurance</i>	189	179	622	708	-433	-530
<i>Professional, scientific and technical</i>	2,595	2,708	938	905	1,657	1,804
Other sectors*	136	144	245	286	-109	-142
Total	16,832	18,673	14,733	17,907	2,099	766

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

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