11. Trade in waste and scrap

Key points:

- The EU is currently a net exporter of waste 'iron and steel', 'copper, aluminium and nickel' and 'paper and cardboard', whereas it is a net importer of 'precious metals' waste.
- Iron and steel was the most traded waste by mass in 2019 (almost 16 million tonnes exported to non-EU countries), followed by paper and cardboard (6 million tonnes exported).
- Exports of paper and cardboard waste in the last 2 years have been largely affected by import restrictions by non-EU countries.

Overview and context

Waste and scrap are a production source of secondary raw materials, which can be used to meet countries' demand for materials (see indicator 15). Secondary materials are generally characterised by lower environmental impacts compared with primary ones, for example concerning carbon footprint[199]. An amount of waste does not necessarily correspond to an equivalent amount of secondary raw materials, since the quality and quantity of the secondary raw materials produced depend on the efficiency of the recycling processes. Since detailed statistics for secondary raw materials are not available, 'waste stream' flows can be used as a proxy. With the same approach, the 'trade in recyclable raw materials' indicator is one of those included in the circular economy monitoring framework[200].

The treatment of waste in a country depends on various factors, such as the availability and capacity of recycling infrastructures and the cost of recycling versus the price of secondary raw materials. High local recycling costs and/or low price of secondary raw materials can incentivise waste trade. Exporting waste to non-EU countries means that resources leave the EU, representing a potential loss of valuable materials and affecting the circularity of the European economy (see indicators 12 and 15). At the same time, if applicable rules for waste shipment and waste management (see indicator 13) are respected, international waste trade driven by supply and demand is a natural and legitimate phenomenon.

Imports and exports of waste and scrap are also affected by EU policies[201] and by trade restrictions introduced in foreign countries. For example, China introduced a ban on the import of plastic and paper scrap in 2017, which required the EU recycling sector to adapt[202].

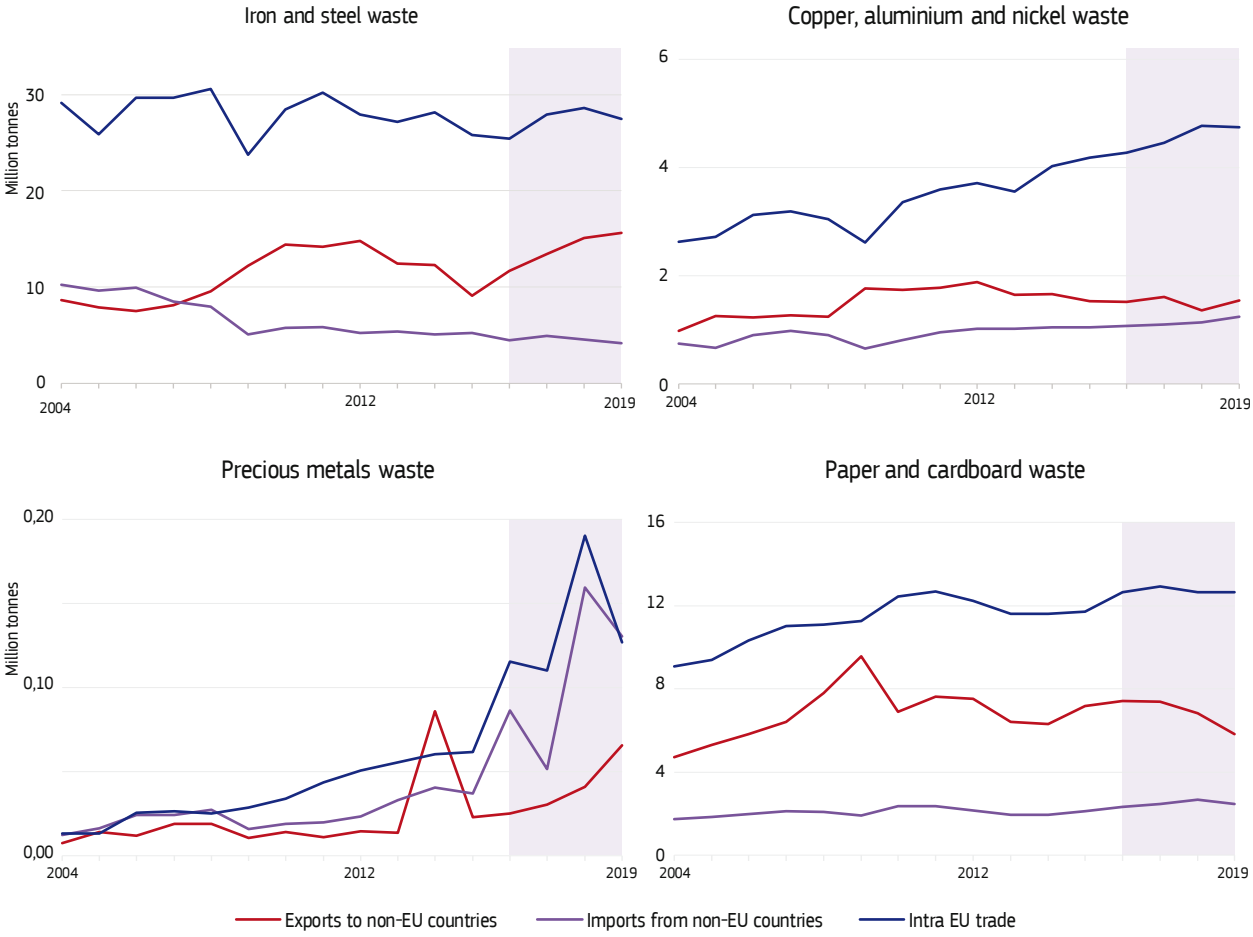
Since China introduced the ban, neighbouring Asian countries and some African countries have become increasingly targeted by shippers of illegal waste. Due to its intrinsic illegal nature, this is a little-known phenomenon, which is assumed to have potential negative consequences for human health and the environment, beyond financing criminal organisations[203]. There is still not enough available data to get a clear picture of illicit international waste flows. Developing dedicated international databases (e.g. on seizures) and enhancing border control can, in the future, make it possible to identify and fight waste trafficking[204]. Having dedicated data on secondary raw materials, not only on import and export of waste and scrap, could also contribute to improving the monitoring.

Facts and figures

Figure 11.1 shows EU trade (EU imports, EU exports and intra-EU trade) of some relevant waste and scrap flows, such as 'iron and steel', 'paper and cardboard', 'copper, aluminium and nickel' and 'precious metals', during the 2004-2019 period. This waste originates from a wide range of sectors (e.g. transport, construction and building, packaging, batteries, consumable and household appliances). These waste streams also include some critical raw materials for the EU (e.g. platinum group metals in e-waste and rare earth elements in electric motors), and metals that are crucial for strategic sectors (e.g. nickel, which is expected to become more and more relevant for the battery sector[205]).

Total net exports (i.e. total exports minus total imports) to non-EU countries of these four types of waste (as in Figure 11.1) grew significantly compared with two decades ago: in 2019, net exports were 15 million tonnes, around nine times higher than in 2004. Compared with 2016, overall net exports grew by 18%. The increase in waste trade over that period was driven by a number of potential factors, including: (i) high prices for scrap in combination with low transportation costs; (ii) increasing external demand for materials; and (iii) uneven distribution of recycling capacity among EU and non-EU countries[206]. On the other hand, collection and recycling policies and targets set in EU waste directives were discouraging waste movement for disposal (although their effects are difficult to assess).

Figure 11.1: Trade of selected waste and scraps — 'iron and steel', 'paper and cardboard', 'copper, aluminium and nickel' and 'precious metals' (EU-27, 2004-2019)[207].



Among recyclable waste types, 'iron and steel' was the most traded in terms of mass. The EU exported about 16 million tonnes to the rest of the world in 2019, while about 4 million tonnes were imported, and about 27 million tonnes were traded within the EU. Between 2016 and 2019, EU exports to non-EU countries of 'iron and steel' waste increased by 34%, while imports remained almost stable.

Between 2004 and 2019, net exports of 'paper and cardboard' waste grew by 13%. Due to the introduction of Chinese bans on waste imports, exports of 'paper and cardboard' waste from the EU to China suddenly halved after 2017. At the same time, EU exports of such waste towards other non-EU countries increased. The absence of end markets for waste paper in 2018 and 2019 has resulted in a sharp decline in recovered paper prices (i.e. the price in 2019 was a quarter of the 2017 price).

As for 'copper, aluminium and nickel' waste, net exports to non-EU countries steadily decreased from 2012, halving between 2016 and 2019. Over the same period, intra-EU trade increased instead. Such trends might be related to an increase in the price of these metals and to the increased attention given to scrap recycling in the EU.

Since 2004, the EU has mainly been a net importer of 'precious metals' waste (i.e. we import more than we export). This waste stream is particularly dependent on the flows of silver scrap, which represent the highest fraction of mass. Trade in this type of waste also fluctuates greatly over time, probably arising from price changes in commodities.

Similar to China, other countries (such as Malaysia, Thailand and Vietnam) have already introduced, or are planning, restrictions to imports of some types of waste (e.g. plastic waste). In the short term, this could represent a challenge for the EU, since not all Member States currently have the capacity to properly manage these waste streams. Moreover, while trade restrictions could encourage the development of EU recycling capacity, they could also act as an incentive for illegal waste trafficking.

Figure 11.2: Trade of selected waste and scrap (in volume and value) – exports to non-EU countries and imports from non-EU countries (EU-27, 2019)[208].

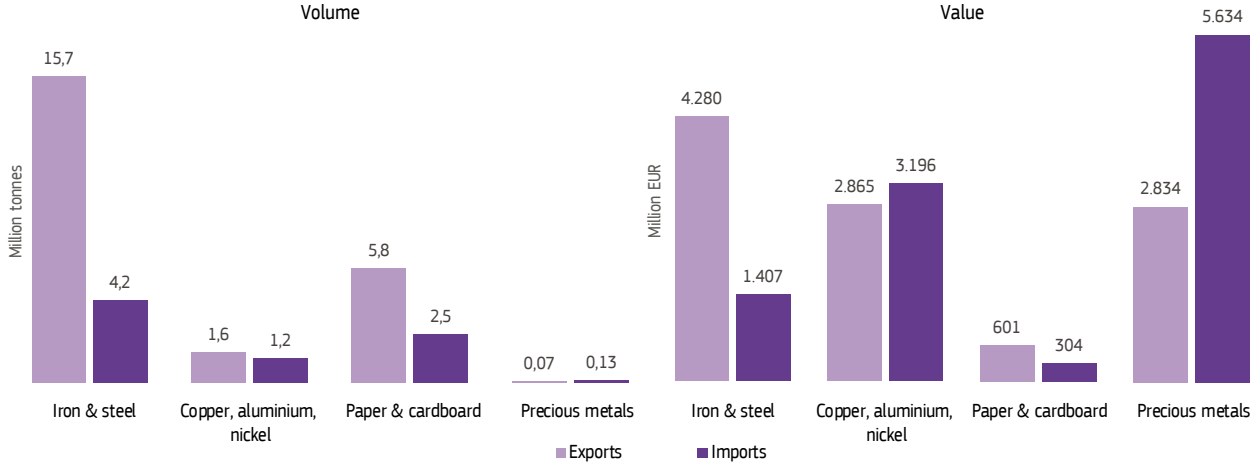


Figure 11.2 presents trade in selected types of waste and scraps in 2019, measured by trade volume and value. 'Iron and steel' waste was the most traded material, by both volume and value of exports. However, while 'precious metals' were negligible in terms of mass flows, they were the most important flow in terms of import value, and very relevant even in terms of exports. Compared with 2016, the import value of 'precious metal' scrap rose by almost 90%, while that of 'copper, aluminium and nickel' rose by 30%. On the other hand, 'paper and cardboard' waste was traded significantly more than 'copper, aluminium and nickel' and 'precious metals' waste in terms of mass, but had a lower trade value as a consequence of recent trade bans. Trade flows of waste were also influenced by changes in the prices of both scrap and primary materials. This implies that coupling mass-based indicators for waste with economic values can help to better capture the complexity of waste management (see also indicator 13).

Conclusion

The EU exports a significant amount of waste that is potentially recyclable into secondary raw materials. If applicable rules for waste shipment and waste management are respected, such exports, driven by supply and demand, are a natural and legitimate phenomenon. At the same time, they represent a loss of raw materials for the EU. Compared with 2016, net exports of 'iron and steel' waste increased by almost 60%, whereas for 'copper, aluminium and nickel' and 'paper and cardboard' net exports decreased by almost 30%. For 'precious metals', they remained almost constant. Relying too heavily on exports and treatment of waste outside the EU has proved risky. In particular, the introduction by non-EU countries of restrictions on waste trade (especially on waste 'plastic' and 'paper and cardboard') poses certain challenges to waste management in the EU itself. These effects, for example, include flooding the EU with large amounts of paper scraps that Member States are currently not able to cope with, either because handling them exceeds the capacity of the recycling facilities or because it is not economically viable.